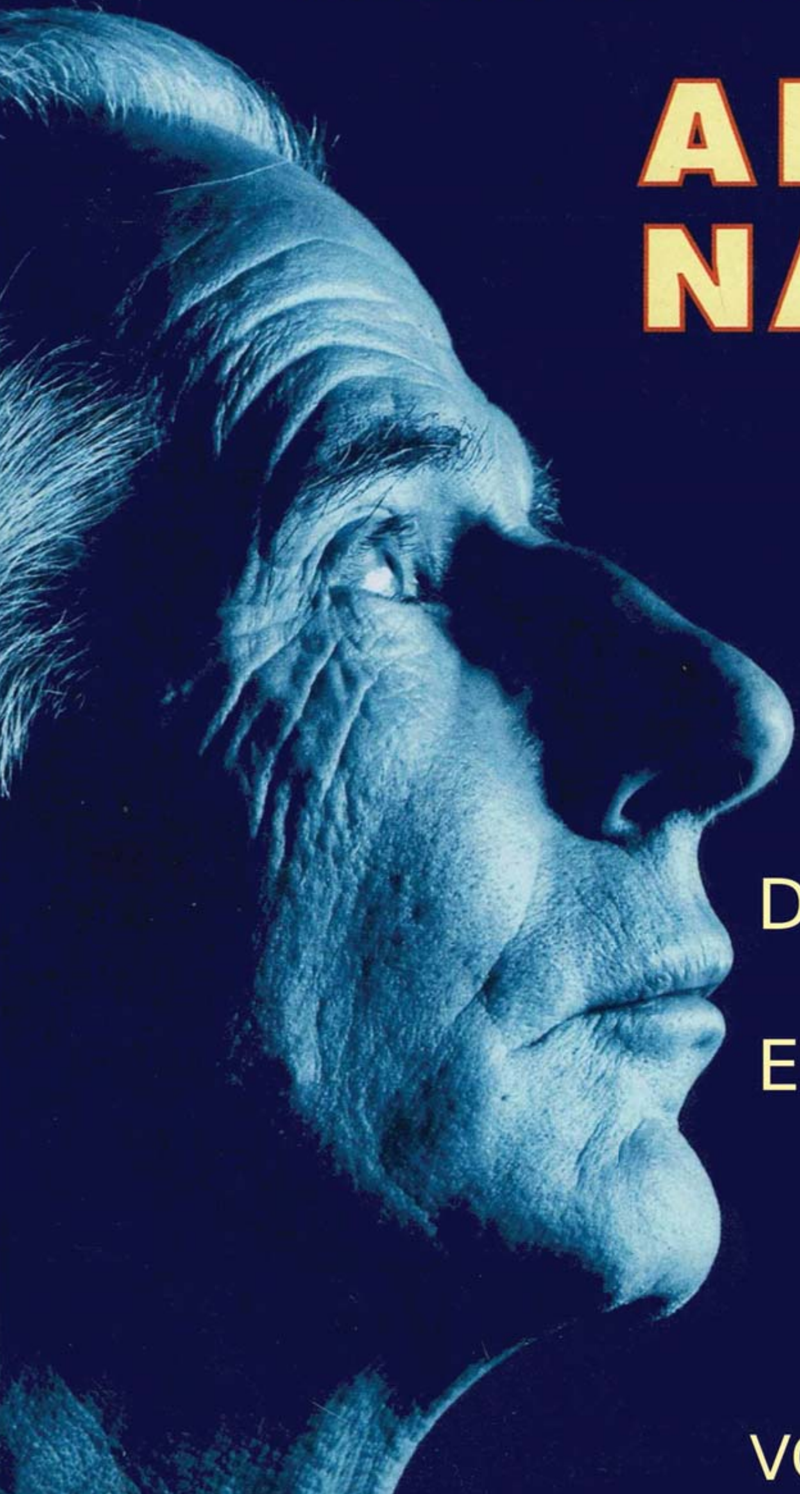
COLLECTED WORKS OF

ARNE NÆSS



DEEP ECOLOGY

VOLUME 1

BERSERKER

BOOKS

Interpretation and Preciseness

The Selected Works of Arne Naess

Harold Glasser, Series Editor
Alan Drengson, Associate Editor

I
Interpretation and Preciseness
A Contribution to the Theory of Communication

II
Scepticism
Wonder and Joy of a Wandering Seeker

III
Which World Is the Real One?
Inquiry into Comprehensive Systems, Cultures, and Philosophies

IV
The Pluralist and Possibilist Aspect of the Scientific Enterprise
Rich Descriptions, Abundant Choices, and Open Futures

V
Gandhi and Group Conflict
Explorations of Nonviolent Resistance, *Satyāgraha*

VI
Freedom, Emotion, and Self-Subsistence
The Structure of a Central Part of Spinoza's *Ethics*

VII
Communication and Argument
Elements of Applied Semantics

VIII
Common Sense, Knowledge, and Truth
Open Inquiry in a Pluralistic World
Selected Papers

IX
Reason, Democracy, and Science
Understanding Among Conflicting Worldviews
Selected Papers

X
Deep Ecology of Wisdom
Explorations in Unities of Nature and Cultures
Selected Papers

The Selected Works of Arne Naess

Interpretation and Preciseness

A Contribution to the Theory of Communication

Edited by Alan Drengson
in Cooperation with the Author

VOLUME I

Contents

List of Figures and Tables

Figures

Tables

Introduction

If this publication is going to be useful to others in their research, I shall have to make quite clear just what the conceptual structures and empirical investigations that I describe aim to accomplish. This is, alas, a difficult task because the aim is *similar* to, but slightly different from, the aim of various contemporary studies in logical analysis, theory of communication, conceptual clarification, and so forth. If our intention is *identified* with any definite aim as depicted in those contemporary studies, it will tend to lead the reader astray.

One misconception I should like to mention at once: that I try to solve problems that philosophers down the ages have not succeeded in solving. What I have tried to do is to open up certain channels of research of a rather basic, but trivial, kind. The research I have in mind can be carried out only step-by-step as a cooperative enterprise. What is reported in this single volume has a pronounced preliminary character.

The immediate aim of this work is to contribute to the foundation of semantics and the theory of communication as an empirical science.

A variety of concepts of importance to semantics are defined in terms of a set of concepts of synonymity. Among the synonymity concepts, those of *inter*personal synonymity are based on *intra*personal synonymity. To avoid vague controversy about relations of intrapersonal synonymity, I have introduced certain procedures, most of them in the form of tests (see chapter 7). One may prefer tests other than those introduced in this work, but the main point is that tests or procedures of some kind are developed, and assertions about intrapersonal synonymity thereby become an object of research rather than ingredients in intelligent conversation.

The term «semantics» is a catchword that does not convey any definite meaning. This work concentrates on cognitive aspects of verbal communication—for example, the attempt to convey information—but spoken and written expressions are not abstracted from the context of individuals' speaking, writing, listening to, and reading those expressions, as is legitimately done in pure logical analysis. The basic materials for us are occurrences of utterances. Thus, «it rains» is in itself no immediate object of our concern, but we are concerned with «it rains» as uttered or heard, or instances of that sentence in texts.

A major defect of much contemporary discussion of meanings and their relations seems to me to be an underlying assumption that one need not work with definite groups or lists of occurrences of a phrase in order to arrive at conclusions about usage. There is a tendency to avoid descending from assertions about the meaning, for example, of «truth» to assertions concerning instances of «truth». This avoidance slurs over a great number of difficulties inherent in the kind of inductions leading from assertions concerning definite instances of a term («occurrence implicates», etc.) to assertions concerning general meaning. These difficulties are analyzed in chapters 5 and 6. From the very beginning of chapter 1, much stress is laid on the analysis of semantic hypotheses in terms of hypotheses concerning definite instances (occurrences) of terms or sentences.

The difficulties inherent in attempts to «find the meaning(s)» of terms or sentences by analysis of occurrences have led us to give up the customary concepts of meaning. Instead, certain concepts of occurrence synonymity are introduced, which to some extent may be helpful in situations in which we are accustomed to rely on «finding the meaning(s)».

The optimism inherent in inductions or intuitions about meaning seems to stem from an inadequate distinction between the act of giving meaning—as in defining—and the act of finding meaning. Therefore, theory of definition occupies a central place in the following exposition.

The *semantics of cognitive communication*, as studied in this work, is intimately related to linguistics as an empirical science. It is legitimate to ask, Why not leave this branch of research to linguists, especially the lexicographers? The answer would be that the kind of work that lexicographers have done so far is not sufficiently explicit in its methodology to permit facile extension to those tasks that the historian of ideas, the expert in logical analysis, and others are trying to solve. Nevertheless, close cooperation with linguists is needed. It is our hope that within thirty years, a person motivated by interest in the theory of knowledge, rather than by interest in language, may find linguists eager to furnish what he needs of semantical information.

The contribution to a theory of cognitive communication outlined in this work is designed to be of help to philosophers with an analytical and empirical bent. I hope, however, that it also will be of help in a much broader kind of research. I hope this study will be of use to those who are carrying out comprehensive studies of certain terms or phrases as they occur in politics, religion, and ethical or other kinds of indoctrination; or of terms in some of the sciences including history, theory of law, and other branches of the humanities.

Further, the conceptual structure and empirical techniques are relevant to studies of verbal agreements and disagreements, for example, as they are listed as results of questionnaire findings. In what sense do 100 «Yes»'s listed as «answers» to a question represent an «agreement» in opinion about something? Assertions in the social sciences and in other fields in which questionnaires are used are usually based on hypotheses about interpersonal synonymity. The contents and testing of such hypotheses are one of our basic subjects.

In saying that the present work is a contribution that might be helpful in all the above-mentioned fields of study, I do not mean to pretend that other approaches are not helpful. In many, if not most, situations, cognitive communication is sufficiently well analyzed by use of common sense, intuition, or deduction. Techniques such as occurrence analysis (see chapter 6) are mainly useful when disagreements among students of semantics already have arisen, and only when the problems are judged to be sufficiently interesting to warrant months or years of work.

I

Basic Terms

I.1. Synonymity Sentences

a. 'Synonymity Sentence': Introduction

Consider the following sentences: ««It rains» means the same as «*es regnet*».» ««It rains», in English, sometimes means the same as «*es regnet*» in German.» «As used by Lincoln, the expression «government of the people, by the people, for the people» means the same as «democracy» to those who read this word in textbooks on citizenship.» All these sentences have some expressions in common. We may say that they have the skeletal form «--- means the same as . . .». The dashes and points simply indicate open spaces in which sequences of words may be inserted.

In the above examples, «---» and «. . .» both referred to designations, or to declarative sentences.

The term «synonymity sentence» will be used as a common name for sentences of the following skeletal forms:

a. «--- has the same meaning as . . .»
«--- and . . . mean the same»
«--- means what is meant by . . .»
«--- means the same as . . .»
«--- has the same sense as . . .»
«--- and . . . have the same sense»
«--- expresses the same meaning as . . .»
«--- and . . . express the same meaning»

«--- expresses the same sense as . . .»

«--- and . . . express the same sense»

«--- expresses the same as . . .»

«--- and . . . express the same»

«--- is synonymous with (to) . . .»

«--- is used as synonymous with (to) . . .»

«--- and . . . are employed as synonyms»

«--- and . . . are synonymous»

«--- is a synonym for . . .»

«--- and . . . are used synonymously»

b. Forms derived from the above by inserting «not» or other signs of denial, or by using other indicative tenses of the verbs, for example, «had» or «have» instead of «has».

Sentences of these skeletal forms are given a common name because they form an important part of the sentences that are sometimes intended to express assertions about synonymity in those technical senses that will be introduced in chapter 7. What is more important, they often seem to get a fairly precise meaning not appreciably different from those intended when *interpreted as if* they expressed assertions involving synonymity in the technical senses to be introduced in chapter 7.

The delimitation of the above concept of synonymity sentence is partly determined by the presupposition that sentences of the various skeletal forms listed can very often be substituted for one another without change in intended cognitive meaning. This presupposition is not discussed here because it is found convenient to postpone the introduction of concepts of cognitive meaning.

b. Copy, Instance (Occurrence), Expression

In the heading above you will find the letter sequence «expression». In other copies of this work, the same sequence is found in just the same place relative to the rest of the text. We shall say that there are a number of *copies* of the same *instance* (*occurrence*) of a sequence of letters, namely occupying a certain place in a particular text.

Instances are distinguished by reference to texts of which they are a part. The letter sequence «expression» occurs not only in the section title above, but in various other places in the text of this book and in other books. They are different instances (occurrences) of the same word, the English designation «expression».

Suppose a reader of a text by William James says, «Look here: «true» as used here does not mean the same as «agreement with reality»». The reader may point at a copy of an instance of the designation «true», but what he intends to assert is scarcely limited to an assertion about that copy. It may involve the particular instance of use by James, or all instances of use by James, or some other more or less vaguely conceived subclass of the total class of occurrences of «true».

The sequence of letters «government of the people, by the people, for the people» at the end of the authorized printed version of Lincoln's Gettysburg Address constitutes, according to this terminology, an (individual) instance or occurrence of the designation «government of the people, by the people, for the people». In the foregoing sentence, two other instances of the same designation are found. Every particular sequence of letters «government of the people, by the people, for the people» will be counted as an instance or occurrence of that designation.

Designations and declarative sentences will be subjected to parallel treatment in the following; the term «expression» will be used as a collective name for both.

c. Metaoccurrences and Plain Occurrences

The most important division of the total class of occurrences of an expression is into plain occurrences and metaoccurrences. A «metaoccurrence», as this term is used here, is an occurrence within a context such that one may say that something is said *about* the expression occurring. Plain occurrences are instances of the expression being used or interpreted, but not referred to as an object. As an example consider «The term «race» is too ambiguous to be used in serious discussion». In this quotation, there is a metaoccurrence of the designation «race» and a plain occurrence of the designation «ambiguous».

In this section there have so far been four instances of the expression «government of the people, by the people, for the people» and all have been metaoccurrences. In the next paragraph there will be a fifth metaoccurrence of that expression.

The above paragraph contains two plain occurrences of the designation «metaoccurrence».

Some ethical codes prohibit the *use* of certain words, for example, «son of a bitch», «*merde*». The occurrences in this paragraph do not break the codes, because the codes refer to plain occurrences, not to metaoccurrences. The codes themselves may contain metaoccurrences of «son of a bitch».

When certain expressions are said to be synonymous, they are presented by means of metaoccurrences in synonymity sentences.

d. Use and Interpretation of an Expression

A plain occurrence of an expression is generally conceived to have a definite intended meaning, and synonymity sentences may accordingly refer to meanings intended by authors *using* (emitting, sending, asserting) a certain expression. The expression «use of an expression» refers to the process of sending the expression. In most cases one may assume that a given occurrence of an expression has been sent only once and by one person. This furnishes the basis for asking, «What is *the* intended meaning of this expression as used here at this place in the text?»

One and the same text may, on the other hand, be read by different people. A synonymity sentence may accordingly refer to meanings that some or all persons reading the text attach to one and the same occurrence, it may refer to different *circumstances* under which the interpretation has been carried out: one may, for example, say that the first time one read the first occurrence of the term «differential» in a certain textbook, one did not interpret it to mean the same as one interpreted it to mean the twenty-first time one read it. We shall say that the designation «differential» did not in all situations have the same meaning for a certain person in the capacity of *receiver* or *interpreter*.

A vast multitude of processes of interpretation have, since 1781, been elicited by readers of the sentences of the first chapter of *Kritik der reinen Vernunft*. It is both common and convenient to assume that every time Kant himself read the sentences they meant the same to him as receiver, and that the meaning was the same as the meaning intended by him as sender, but the assumption would be questioned by some careful students of Kant, such as N. K. Smith (1918).

e. Reference to a Single Pair of Occurrences or to Processes of Interpretations

Consider the formulation «The designation «government of the people, by the people, for the people» at the end of Abraham Lincoln's Gettysburg Address means the same as the designation «democracy» occurring in the sentence «This expresses my idea of democracy» on page 389 in the seventh volume of Lincoln's *Writings*». This formulation can be interpreted to assert that there exists a kind of relation, «sameness of sense or meaning», between two particular definite occurrences (instances) of designations.

One of the plausible interpretations of the above formulation is that, as intended by Lincoln when he produced the occurrences, they mean the same. If such an interpretation is adequate, the formulation refers to a set of processes of interpretation that, at least in principle, can be dated.

f. References to Many Occurrences or Kinds of Occurrences

Consider these examples: «In the works of Newton the terms «mass» and «product of density and volume» are synonymous.» ««Democracy» as used by Aristotle in his *Politics* does not mean the same as «democracy» as used in the 1641 text of the constitution of Rhode Island.»

The reference of «in the works of Newton» may be said to be a reference to a kind of occurrence: the kind of occurrence—defined by being part of the texts constituting the works of Newton; or the reference may be conceived to be a *class reference* (a reference to the class of occurrences of «mass» occurring in the texts by Newton). In the references to Newton, Aristotle, and the constitution of Rhode Island there are no explicit indications of whether a single or several occurrences are believed covered by the hypothesis. It is only presumed that there exist occurrences of the description given.

In class terminology, the first example may be formulated as follows:

«Each and every member of the class of occurrences of the designation «mass» characterized by being part of the texts written by Newton, is synonymous to (expresses the same sense or meaning as) each and every member of the class of occurrences of the designation «product of density and volume» characterized in the same way». Or, «The following assertion holds good as applied to the texts of Newton: each and every instance of the class of occurrences of «mass» is synonymous to each and every instance of the class of occurrences of «product of density and volume»».

g. References to Norms of Meaning

Synonymity sentences sometimes have references such as «correct language», «properly speaking», and «according to the rules of the language.» An expression is sometimes said «really» to mean the same as some other expression, whereas it, as sent or received, has not meant the same as the other one. It has been «misused».

There are, in other words, cases in which synonymity sentences are not intended to express anything about processes of interpretation, but rather an agreement or disagreement with a rule or set of rules announcing that use should (ought to, must) be such and such.

h. Obscure References

Often synonymity sentences do not have clear-cut references of the above kinds, or combinations of them. There may be no references or they may be vague and ambiguous to such an extent that a long list of rather different plausible interpretations can be constructed. Consider the sentence ««Philosophy» means the same as «love of wisdom»». One may sometimes interpret this sentence to assert a property of absolutely all occurrences (including future occurrences) of the term «philosophy», and of a group of related words in languages other than English. More often, however, plausible interpretations have to take into account that certain kinds or groups of occurrences are intended to be excluded, for example, «misuses» of the term, use by obviously unqualified people, use in arbitrary codes, occurrences found in works of certain eccentric authors, and so on. Sometimes the authors of «means the same as» sentences may lack any fairly definite intention; sometimes the intended meaning may be fairly definite but obscurely expressed.

Another example: reference is sometimes made to the term «democracy» in «Western tradition». It is hopeless to delimit a fairly definite class of occurrences on the basis of such a reference. Some occurrences may be pointed out as certainly belonging to occurrences within the Western tradition, for example, certain occurrences in Bryce's *Modern Democracies*. But for every subsumable instance there may easily be recorded an instance that is not clearly subsumable either under «Western tradition» or under «tradition other than Western». The political views of the user of the expression «Western tradition» and his knowledge of its history in the nineteenth century seem to be important subjects of study for the analyst who wishes to find out what the expression is intended to mean.

I.2. Testability of Synonymity Hypotheses

a. 'Marginal References'

Just what, if anything at all, is intended by synonymity sentences? It is reasonable to suppose that the answer first of all must be based on hypotheses about the meaning of such expressions as «mean the same as», «synonymous», and so on. Let us call them the «synonymity expressions» and include under this term all expressions mentioned in the list on page 5.

For reasons mentioned at the beginning of this chapter, such hypotheses will not be discussed at this early stage of the work. Attention will be concentrated, not on the relation itself but on the relata of the synonymity relation.

If synonymity sentences express hypotheses of some sort, the indications expressing the relata may be said to indicate the *intended subject matter of the hypotheses*.

The claim of a synonymity hypothesis expressed by a synonymity sentence may be assumed to depend partly on the meaning attached to those parts of the synonymity sentences represented by the dashes in the scheme «--- is synonymous with . . .» If those parts of the sentences have no fairly precise meaning, there is no fairly precise hypothesis. The testability of the hypothesis will to some degree depend on what kind of procedures are at hand to delimit the relata, or, in other words, to point to the material that the hypothesis is intended to cover.

In the following, the name «*subject matter references*» will be given to those parts of synonymity sentences that are represented by «---» and «. . .» in the skeletal forms. Such references are mostly divisible into two separate kinds of indications: (1) references to expressions, namely the expressions said to be synonymous, to mean the same (the expressions are sometimes in quotes to remind the reader that they are metaoccurrences); and (2) references to subclasses of occurrences of the expressions, or to norms of usage, or to frequency of cases or other properties of the synonymity relation. Let us call these indications «*marginal references*».[1]

The division of synonymity sentences into three parts is made only for purposes of convenient exposition. No theoretical importance is attached to it, and the division is in some cases rather arbitrary.

In the following synonymity sentences, the marginal references are in italics:

«*As used by U.S. court members in court*, the term «the essence» *when applied to inventions* and the term «the real invention» are synonymous.»

«*As interpreted by Tarski*, «equality» and «logical identity» mean the same *in arithmetic*.»

«*Among pragmatists* «true» does not mean the same as «useful» *when they use the terms themselves*.»

«*Very often* «America» *when used in newspapers* is a synonym for «the United States».»

The following symbol is used for synonymity sentences in which the three above-illustrated parts are distinguishable:

$\mathrm{Syn}(aM_1bM_2)$

«Syn(---)» is the symbol for synonymity relation (not including reference to special time intervals). The letters «a» and «b» symbolize two expressions or occurrences of expressions (said to be synonymous). If a synonymity sentence refers to many expressions, the sentence will be symbolized by a conjunction of symbols: $\mathrm{Syn}(aM_1bM_2)$ & $\mathrm{Syn}(cM_1bM_2)$ &. . . . The symbols M_1 and M_2 stand for marginal references, the first one referring to «a» and the second to «b». If there are only references to «a» and «b» together, two letters will still be used: Syn(aM_1bM_1).

The form of the symbol suggests the application of the calculus of relations to synonymity relations, but to avoid discussion of technicalities, I make no pretensions of applicability of symbolic logic at the present stage of the exposition.

b. References to Occurrences in Texts

When a synonymity sentence is intended to refer to a definite pair of occurrences in texts, it should, for methodological purposes, be possible to transform the sentence in such a way that it conforms to the following pattern:

> (1) The expression instance a_1 at the place G_1 is synonymous to the expression instance b_1 at the place G_2.

In convenient symbols:

(1s) Syn($a_1G_1b_1G_2$)

Suffixes of «a» and «b» are used to indicate individual instances. The symbols «a» and «b» without suffixes are reserved to symbolize the expressions as certain sequences of letters. To avoid confusion, two different sequences are never taken as representing identical expressions. Thus, «true» and «*wahr*» or «true» and «truth» are taken as different designations, and «It is raining now» and «It is now raining» are conceived as two different declarative sentences.

The place indications, G_1 and G_2, must in some way make it possible to identify different places within definite texts.

The indication «last sentence of the written reproduction of the Gettysburg Address by Lincoln» may refer either to a definite copy defined in relation to a *single* original document, or to the *total class of copies* of the Gettysburg Address. To avoid unnecessary complications, different copies of texts are not distinguished in the following. In some cases a differentiation is important, however. Thus, studies in the history of ideas very often presuppose comparison of individual copies of what is said to be the same text, because most existing copies, for example, of important medieval texts, differ from one another at least in details.

A hypothesis that there is a relation of synonymity between definite occurrences is only sufficiently well delimited provided the definite occurrences are fairly unambiguously indicated. If they are not, there is no hypothesis according to stricter forms of scientific methodology. If we set out to confirm or weaken the alleged hypothesis, we cannot know what to test. Just what is asserted about what?

As an example of a far from easily identifiable intended subject matter, we may take that intended by the following description: «the chronologically first occurrence of the Greek term corresponding to the English term «true» in the texts of Plato». Owing to uncertainty about the chronological order of Platonic texts, the difficult question of authenticity, and the indefiniteness of the expression «corresponding», no definite occurrence is indicated by such a description. There is, on the other hand, reason to expect that research at least in the remote future will be able to single out a definite occurrence that fairly certainly satisfies the description, but only provided it is made more precise.

A particular occurrence a_1 of «a» cannot be distinguished from any other particular occurrence of «a» other than by reference to a definite place in a text. What «a_1» stands for in (1s) is therefore not independent of what G_1 stands for. The symbolization (1s) is preferred to the simpler Syn(a_1b_1) as a reminder that definite occurrences presume for their delimitation relations of «a» and «b» to definite frames of reference such as texts.

Suppose a synonymity hypothesis includes satisfactory reference to definite occurrence places. Testability also presumes reference to norms of meaning or to interpretative processes believed to have, or to have had, the occurrence as stimulus, or somehow to have determined the choice of the expression by a sender. If no explicit reference is made to such eventualities, this may be explained by the assumption that the synonymity relation is believed to hold good in relation to all existing linguistic norms and to all interpretative processes. Such an assumption is rarely, if ever, tenable. If, however, the assumption is not made, there are usually so many possibilities of references being tacitly assumed that little is gained in trying to formulate them all. As symbol of a subclass of synonymity hypothesis, (1s) will be used on the basis of the above assumption.

When a synonymity hypothesis is intended to refer to definite pairs of occurrences in texts, it should be possible, in principle, to transform the sentence to a conjunction of sentences of the form (1). If a great number of occurrences of «a» and «b» are covered by the hypothesis, such a form needs, of course, to be shortened. This can be done by finding a suitable set of common and specific characteristics of the «a»'s and «b»'s. The hypothesis may be formulated thus:

> (2) All occurrences of «a» at the places (characterized as follows:) G_a, are synonymous with all occurrences of «b» at the places (characterized as follows:) G_b.

In symbols:

(2s) $(i)(j)\mathrm{Syn}(a_i G_a b_j G_b)$

All a's at places G_a are synonymous with all b's at places G_b. No numbering of the instances is required because of the indiscriminate synonymity (all-with-all synonymity) within the subclasses of occurrence places denoted by G_a and G_b. As a special case, G_a and G_b are such wide characterizations that the class of denotata is identical with the total class of occurrence places of «a» and «b» in texts. The hypothesis in that case covers «any occurrence place whatsoever». The hypothesis asserts universal indiscriminate synonymity.[2] (In logical terminology G_a and G_b denote subclasses but not genuine subclasses.) Suppose a text contains a number of occurrences of «a» but none of «b», and that a new text is made by substituting «b» for «a» in some places in the old text. An important type of synonymity hypothesis is one in which no change of meaning has been effected by the substitution. As the hypothesis does not necessarily state that «a» in the old text always means the same, it does not claim indiscriminate synonymity within each text. Numbering of the occurrences is essential. The hypothesis may conveniently be formulated as follows:

> (3) Each occurrence of «a» at the places G_a is synonymous with each occurrence of «b» at the corresponding places G_b.

In symbols:

(3a) $(i)\mathrm{Syn}(a_i G_a b_i G_b)$ that is, if n instances of substitution,

(3b) $\mathrm{Syn}(a_1 G_a b_1 G_b)$ & $\mathrm{Syn}(a_2 G_a b_2 G_b)$ & . . . & $\mathrm{Syn}(a_n G_a b_n G_b)$

An important kind of synonymity hypothesis states that certain occurrences or all occurrences of an expression mean the same as a definite occurrence of another expression. Suppose that two lawyers engage in a controversy concerning certain traffic accidents, and that they frequently make use of the term «blind». A hypothesis of synonymity may state that every occurrence of «blind» in the controversy-texts is such that «blind» means the same as «blind curve» at a definite place in the official traffic regulations of the state in which the accidents took place.

In such cases synonymity is asserted between a class of occurrences of one expression and a single occurrence of another expression. If the occurrences can be identified in texts, the cases can be symbolized as follows:

(4) $(i)\mathrm{Syn}(a_i G_a b_1 G_1)$

(5) $(i)\mathrm{Syn}(a_1 G_1 b_i G_b)$

c. References to Linguistic Norms

If a synonymity sentence is intended to claim that certain occurrences of an expression «a» are covered by a rule saying that «a» under certain conditions shall mean the same as «b», we shall not use the term «synonymity hypothesis». What is asserted can be said to be the *subsumability* of the occurrences of «a» under the field of validity announced by the rule. It is said that the rule is such that the occurrences fall under its domain. It is not said that the rule has been followed, and that therefore the occurrences of «a» actually have been used or interpreted to mean the same as «b».

If the latter is also intended to be expressed, we shall say that two hypotheses are made. According to the first, a certain rule *announces* (regulates) usage by saying what should be used synonymously. The second hypothesis *asserts* the existence of a synonymity relation.

d. Past, Future, and Possible Occurrences

The delimination of the subject matter of a synonymity hypothesis by reference to individual places in specified texts is methodologically very satisfactory insofar as it ensures a high degree of definiteness and preciseness in communication between independent investigators.

As soon as specification of places is omitted, and characterization of classes of occurrences relied upon, serious questions of subsumption are likely to make themselves felt: does the characterization apply to this particular occurrence? References such as to «occurrences in texts by Plato», «the use of «truth» by pragmatists», and «interpretations of «murder» by judges in court» leave the door open for a very different delimitation of subject matter because of differences in theories about authorships, institutions, and whatever else is referred to.

If a hypothesis concerns the terminology in texts by Stoic logicians, all relevant occurrences belong to the past. This simplifies the delimitation of subject matter. Very often, however, synonymity hypotheses are intended to cover not only past but also future occurrences. Hypotheses about the use of terms by «pragmatists» or «existentialists» or about the interpretation of the Lincoln formula on democracy by «Marxist theorists» may claim to hold good not only for occurrences or interpretative processes up to the time of the assertion of the particular hypothesis in question, but far into a vaguely conceived future. The framer of the hypothesis may not have in mind definite occurrences, but *dispositions* among people to react in certain ways. Pragmatists may be said to have linguistic habits of peculiar kinds, and as long as they persist, certain terms will be used in certain ways. When hypotheses make claim to cover the future, the marginal references are likely to be vague and ambiguous, making checks difficult or practically impossible.

Serious methodological difficulties arise when a synonymity sentence is intended not only to cover occurrences, but «possible» occurrences in varying senses of «possible». One may say about certain sentences that, if there had been instances of use of them among certain people, they would have meant the same as certain other sentences. One may say that, to Cicero, sentence «a» and sentence «b» meant the same, without being sure that Cicero ever used the sentences. From general regularities of linguistic habits, and maybe from actual instances of use of certain words in the expressions «a» and «b», the hypothesis may be inferred.

The methodological situation is no more serious than that in the hypothesis that cyanide of potassium is poisonous or that sulphur burns in air. The claim of such hypotheses covers all pieces of cyanide of potassium and all pieces of sulphur even in time intervals in which nobody is poisoned and no sulphur burns. There is a permanent possibility dependent on properties of organisms and of air that under suitable circumstances, specified in the more precise versions of the hypothesis, cyanide of potassium will release processes of certain kinds, and sulphur will burn.

Synonymity hypotheses may concern more or less permanent possibilities of certain interpretative processes. From more or less general and indirect evidence, an investigator may feel convinced of the existence of certain linguistic dispositions. The hypothesis that certain linguistic dispositions exist and that they make «a» and «b» synonymous should not be confounded, however, with the hypothesis that «a» and «b» are synonymous. The hypothesis that sulphur burns in air does not make the claim that sulphur and air have certain properties A, B, C, and that these will inevitably make sulphur burn in air. Such hypotheses concern the explanation for why sulphur burns in air. To avoid ambiguities, we may say that synonymity hypotheses make claims about actual or possible interpretative processes in the same way that hypotheses about certain substances being explosives make claims about actual or possible explosions. The claims concerning «possible» instances may be transformed into predictions that interpretative processes will be observable, or would have been observable given certain specified conditions.

The foregoing discussion is meant to furnish proposals regarding how to delimit fruitful concepts of 'synonymity hypothesis'. One of the pertinent questions is, Are there plausible interpretations of synonymity sentences that express fairly definite hypotheses testable by known standard procedures? Do some interpretations result in methodologically less satisfactory hypotheses than others?

The proposals are, of course, highly tentative, and so far only concern interpretations of marginal references, not of the central part of synonymity sentences: the expressions «mean the same», «express the same sense», and so forth.

e. Intrapersonal and Interpersonal Synonymity

In synonymity sentences references to persons are particularly frequent: «for N. N. ---», «as used by Newton ---», «pragmatists say ---», «many people use ---», «nobody interprets «a» to mean ---».

The synonymity relation claimed by a synonymity sentence will be said to be *interpersonal* if it covers at least one case of synonymity between an expression as used or interpreted by one person and an expression as used or interpreted by another person. If it covers no such case, it will be said to be *intrapersonal*.

Examples of kinds of interpersonal synonymity relations: for P «a» means the same as «a» for Q; a_1 as used by P means the same as b_1 as interpreted by Q.

Examples of intrapersonal synonymity relations: for P «a» means the same as «b»; for P and for Q «a» means the same as «b».

Consider the following kind of sentence: «a» means the same for P and Q as «b» means for P and Q». The sentence may be interpreted to include a case of interpersonal synonymity, for example, that «a» for P means the same as «b» for Q, or it may be interpreted to include only intrapersonal relations. In general, if an expression «a» is said to be synonymous with «b» for a certain group of n persons, the weak claim of n intrapersonal synonymity relations may be intended, or the strong claim of n intrapersonal and n^2–n interpersonal relations.

If the person referred to in an intrapersonal synonymity hypothesis is a trained linguist or logician, it is generally supposed that he can easily help test the hypothesis. It is presumed that he knows about his linguistic habits in sufficient detail to inform the analyst about them without making special investigations. This opens up the possibility of questionnaire methods to test intrapersonal synonymity hypotheses.

Consider the sentence «As interpreted by the historian Crew, the designation «density» as used by Newton is synonymous with «specific gravity» as used by Ernst Mach». In this case something is stated about relations of terms within the class delimited as occurrences interpreted by one and the same person. The domain of the asserted relation is the class of occurrences of «density» (a) in the manuscripts of Newton. It is said that the members of this class *express to Crew* the same meaning that the occurrences of «specific gravity» (b) in the manuscripts of Ernst Mach *express to Crew*.

The example suggests different kinds of references to persons. It is important to note a number of distinctions, some of them roughly suggested by the following skeletal sentences:

1. N. N. intends by «a» to express the same meaning as he intends to express by «b» (sender synonymity, intended).
2. As used by N. N. the term «a» expressed the same meaning as the term «b» as used by N. N. (sender synonymity, intended or not intended).
3. N. N. interprets «a» as occurring in his own or other writings to mean the same as «b» (as . . .) (receiver synonymity).
4. As intended by N. N. when using and as interpreted by N. N., «a» expresses the same meaning as «b» (sender-receiver synonymity).

Distinctions of this kind will often be used in later sections. In the following, the expression «*For P*, «a» is synonymous with «b»» is used in accordance with item 4 above.

Some convenient symbols:

$(i)(j)Syn(a_iP_1b_jP_1)$	indiscriminate (intrapersonal) synonymity of «a» with «b» «for» a person in the sense of «for a person as user or interpreter»
$(Ei)(j)Syn(a_iP_1b_jP_1)$	existence of at least one occurrence of «a» such that as used or interpreted by a certain person, it is (interpersonally) synonymous with «b» as always used or interpreted by another person

Symbols with suffixes «i», «j», «m», or «n», but without quantifiers before «Syn», will be used as abbreviations for symbols with universal quantifiers before «Syn».

$$Syn(a_iP_mb_jP_n) =_d (i)(j)(m)(n)\, Syn(a_iP_mb_jP_n)$$

The left-hand symbol may be read, «For all people, «a» and «b» are always synonymous».

It is to be noted that if a synonymity sentence is such that it may be symbolized by one of the above expressions, this is no guarantee that it expresses a fairly definite hypothesis. The symbols only help to classify marginal references in a preliminary way. A reference to «all» people is easily symbolized, but the reference may be very unsatisfactory because of the many plausible interpretations of «all».

Sometimes sentences of the form ««a» means the same as «b»»—without any references to occurrences—may, as previously mentioned, be interpreted to assert the existence of a norm regulating the use of «a». In that case, it is not a synonymity hypothesis and it will not be symbolized by a symbol of the form «$\mathrm{Syn}(aM_1bM_2)$». If, however, ««a» means the same as «b»» is conceived as a synonymity hypothesis, the symbol of the form «$\mathrm{Syn}(aM_1bM_2)$» is sometimes used, and then as a typographical abbreviation for «$\mathrm{Syn}(a_iM_1b_jM_2)$». The latter symbol is again a shorthand sign for «$(i)(j)\mathrm{Syn}(a_iM_1b_jM_2)$».

f. Intrasituational and Intersituational Synonymity

In the case of partial or total, direct or indirect nonpersonal references, it is convenient to distinguish two kinds of references. Either the occurrences or interpretative processes of both expressions are given the same characterization—for example, «contemporary use», «technical usage», «political debate»—or there is one characterization in relation to «a» and another in relation to «b». In the first case we shall speak of *intrasituational*, and in the second, of *intersituational* synonymity.

An example of an intrasituational synonymity hypothesis is the following: in philosophic discussion ««theory of ethics» means the same as «theory of morals»». An intersituational synonymity hypothesis: ««moral» in the vernacular means the same as «ethical» in philosophic discussion».

In symbols:

$\mathrm{Syn}(a_iS_1b_jS_1)$	intrasituational synonymity
$\mathrm{Syn}(a_iS_1b_jS_2)$	intersituational synonymity

g. Broadness and Definiteness of Synonymity Hypotheses

If several hypotheses about the relations in meaning between two expressions are put forward, their comparability depends upon the preciseness of the marginal references. If those references are sufficiently precise, the claims of each hypothesis can be mapped out and cases of compatibility and incompatibility distinguished.

Very often synonymity sentences can be plausibly interpreted to have an exceedingly broad scope in the sense of covering a vast manifold of occurrences or interpretative processes. This is the case with sentences about sameness of meaning «in the vernacular» or «in common use». The sentences without marginal references might be interpreted to have a universal claim; for example, ««It is true that it rains» means the same as «it rains»». It is notable, however, that on being discussed, claims tend to narrow down and become more specific.

Because of the vastness of possible intended classes of occurrences, and the variety of occurrences, the question of how to draw the line between instances intended and instances not intended is, indeed, often a formidable one. The question is primarily one of economy of description, insofar as fairly precise indications tend to be much too laborious to work out and too complicated to publish considering the rather slight interest we usually have in synonymity hypotheses. Scientific methodology requires, however, that if a relation between two groups of phenomena is asserted, the groups must be sufficiently well delimited to enable us to test the hypothesis. If one does not wish to use the energy and time required to make the classes of instances well delimited, one cannot claim to make any well-delimited assertion.

The problem is one of degree. It is easy to point out that science has progressed in spite of a measure of indefiniteness and vagueness of scientific hypotheses and theories. It is, on the other hand, easy to point out cases—especially in the less mature sciences—of hypotheses with such indefinite subject matter that there has never been any use for them in empirical research. The most serious point is not excessive ambiguity and vagueness of indications of subject matter, but the lack of clear thought or lack of definite intentions on the part of those using the deficient verbal expressions. It seems that synonymity sentences sometimes are produced without a very clear conception of what they might be used to express. This does not matter much if the main argumentation has little to do with questions of synonymity. The foregoing rough classification of marginal references and the implicit *recommendations* of definiteness and explicitness are made on the basis of the assumption that one is interested in synonymity relations as such—as a subject for scientific research.

I.3. Examples of Synonymity Sentences

Example 1

Carnap (1950: 21) says, «The terms 'sentence' and 'statement' are here used synonymously for declarative (indicative, propositional) sentences». The first part of this saying has one of the skeletal forms by which 'synonymity sentence' has been normatively defined. Whether Carnap by that form intends something similar to what will be introduced in this work under the heading of «synonymity hypotheses» is another question. Maybe he intends to express, not an assertion, but a decision to use certain terms synonymously (in a Carnap sense of «synonymously»). In that case the first part of his saying cannot express a synonymity hypothesis. If an assertion is intended, the intended subject matter of the hypothesis is indicated by reference to two expressions, «sentence» and «statement», and by the marginal reference «here». It is open to discussion what «here» refers to, but it is most likely that it can be reformulated as «here in this article». There is a possibility that Carnap intends to assert something similar to what in this work would be expressed by a sentence such as the following: for all (use) occurrences of «sentence» and for all (use) occurrences of «statement» within the text *Empiricism, Semantics, and Ontology*, it holds good that they expressed the same meaning for the author, Carnap, at the moment they were written.

It is not very likely, however, that the reference to the author and to the moment of their being written is actually intended. Maybe a much more inclusive interpersonal hypothesis is intended. For us to be able to test a hypothesis about relations of the kind «x expresses y», some kind of reference to organisms or minds seems, however, to be required. A reference to a system of rules conceived as a system of announcement sentences may serve the purpose, but then this would not be a hypothesis about use but about the existence of certain sentences. If the rules are conceived, not as announcement sentences, but as announcements, there is at once the question of what the announcement sentences (hypothetically presumed to express the announcements) actually express, and to *whom*. A second reformulation is: For all (use) occurrences of «sentence» in the text *Empiricism, Semantics, and Ontology*, it holds good that they express for Carnap the same as «statement» would have expressed to him, if «statement» had been substituted for «sentence» at the occurrence places of «sentence». For all (use) occurrences of «statement», the corresponding relation is valid, mutatis mutandis.

It is more likely that a form of substitutability synonymity in a sense similar to that of the second reformulation is intended, rather than a form of indiscriminate synonymity in a sense similar to that of the first. One of the reasons for this is that if the first is intended, Carnap intends to assert not only a substitutability but also an unambiguity among all occurrences of «sentence» and all occurrences of «statement» in the above-mentioned book. Carnap may possibly have the opinion that all these occurrences have one and the same meaning, namely a very definite meaning that he believes is expressed by «declarative (indicative, propositional) sentences». But it is one thing to entertain such an opinion and another thing to intend to express it by means of the first part of the assertion «the terms «sentence» and «statement» are here used synonymously for declarative (indicative, propositional) sentences».

Example 2 (Intrapersonal Synonymity Hypothesis)
«As used by A. Tarski, the term «equality» is synonymous with «logical identity».» There is no explicit indication in this formulation of whether it refers to classes of occurrences of the two terms or to a definite pair of occurrences. In such cases the class interpretation seems on the whole most plausible. Reformulated, the hypothesis takes the form «Any occurrence a_i of the term «equality» belonging to the class of occurrences for which the assertion is valid that they are instances of use of terms by A. Tarski, is synonymous with any occurrence b_j of the term «logical identity» belonging to the same class of occurrences». In symbols:

$$(i)(j)\mathrm{Syn}(a_i P_1 b_j P_1)$$

P_1	class of occurrences representing use by A. Tarski
a_i	instance of «equality»
b_j	instance of «logical identity»

The hypothesis is presumably rather untenable, because of its generality. A reference to kinds of contexts, for example, arithmetic, is left out.

Tarski probably sometimes uses the term «equally» in political or economic discussions, and however «synonymous» is interpreted within the limits of the plausible, the term is then scarcely synonymous to «logical identity».

Example 3
«. . . *in the time of Newton*, density and specific gravity *were employed* as synonymous» (Crew 1928: 124).

An interpretation: if a_i is an occurrence of the term «density» and a_i represents an instance of *use within the time interval between Newton's birth and death*, then a_i means the same as is meant by any occurrence, b_j, of the term «specific gravity» *within the same time interval*.

Another interpretation: if a_i is an occurrence of the term «density» and a_i represents an instance of *use within the time interval between Newton's birth and death*, then a_i means the same as is meant by any occurrence, b_j, of the term «specific gravity» representing an instance of *use today* (January 1, 1928).

According to the first interpretation, Crew's hypothesis is an example of an *intrasituational* synonymity hypothesis. Class S_1 and class S_2 are identical. No explicit reference to other persons is made except to Newton. If we accept the extremely well established hypothesis that there were others living at his time, and the hypothesis that at least two persons used both terms, «a» and «b», the intended subject matter may be one of *interpersonal* synonymity.

In symbols:

$$(i)(j)\mathrm{Syn}(a_i S_1 b_j S_1)$$

S_1 — time interval between Newton's birth and death

The interpersonal character can be referred to by the following formulation:

$$(i)(j)(k)(m)\mathrm{Syn}(a_i P_k S_1 b_j P_m S_1)$$

$P_1 \ldots P_k \ldots P_m \ldots$ — persons using or interpreting «a» and «b»

The subject matter may, however, be *intrapersonal*; Crew may have intended to state that each person in the time of Newton used «density» and «specific gravity» as synonymous, but not to state that all people meant the same by «density». In symbols:

$$(i)(j)(k)\mathrm{Syn}(a_i P_k S_1 b_j P_k S_1)$$

In this symbolization there is reference to the same person in relation to the two expressions. A series of intrapersonal synonymity hypotheses are intended.

According to the second interpretation, the hypothesis of Crew is an *intersituational*, *interpersonal* hypothesis. If we accept the premise that no person living today used the pair of terms under consideration at the time of Newton, the hypothesis can be regarded as one involving no single case of intrapersonal relations. In symbols:

$$(i)(j)(k)(m)\mathrm{Syn}(a_i P_k S_1 b_j P_m S_2)$$

Example 4

As an example of a rather obscure, but extensively used marginal reference, we mention an occurrence that relies on the term «originally» to identify meanings at different times: . . . «[«geometry»] is derived from the words for «earth» and «measure» and therefore was originally, as in some languages today, synonymous with the English word «surveying»» (Smith 1925: 2:273). For practical purposes of communication of preliminary information, such a synonymity sentence may, of course, be of value. The bas subject of this work is, however, that of preparing the ground for giving more reliable and precise information in the form of a science.

Example 5

«In mechanics (whether Newtonian or Einsteinian),» Pap (1949: 315) says, «the statement «A is in uniform motion relatively to B, B being at rest» has the same meaning as the statement «B is in uniform motion relatively to A, A being at rest», ---». This has one of the skeletal forms of synonymity sentences. What is intended even by «has the same meaning» is an open question. It is even open to discussion whether Pap intends to assert sameness of meaning in a Pap sense or whether he intends to describe an application of what he calls «verifiability theory of meaning» without accepting the theory as valid.

The following is a reformulation illustrating the use of the terms introduced in foregoing sections: «for all occurrences of sentences of the skeletal form «A is in uniform motion relatively to B, B being at rest» and all occurrences of sentences of the skeletal form «B is in uniform motion relatively to A, A being at rest» in texts on mechanics (Newtonian or Einsteinian) written by people competent in mechanics, it holds good that they mean the same for those people».

It is unlikely that just this reformulation would be suitable for Pap, but it suggests a possibility of some interest in its own right. To understand what Pap intends, it is important to note that if a_1 is an occurrence of «A is in uniform motion relatively to B, B being at rest» at a definite place in a textbook on mechanics, it is unlikely that we could substitute «B is in uniform motion relatively to A, A being at rest» without grave risk of confusion on the part of the reader. The sentence a_1 is likely to occur at a place in a text that precedes the introduction of a frame of reference (for example, a Cartesian system). If that is so, the substitution is apt to confuse even if synonymity, in some sense of the term, still remains.

Example 6

Reichenbach (1947: 15) says, «The word «proposition» is occasionally used as synonymous, not with «sentence» but with our term «situation», it is thus used by R. Carnap, *Introduction to Semantics*, . . . p. 18». On page 18 there is one occurrence of «proposition», but it is probably a metaoccurrence. Carnap announces (or predicts) on page 18 that in «this treatise, the following terms for designata will be used». There follows a table in which the term «proposition» is referred to as a term for designata of sentences. If the distinction between use occurrences and metaoccurrences is maintained, it can scarcely be said that Carnap uses the term «proposition» on page 18. It is therefore open to discussion what Reichenbach intends by «use (of a word)». Maybe he is not intending any hypothesis about usage in our terminology, but a hypothesis about the existence of a kind of terminological announcement concerning on page 18 in the work of Carnap. In the following, such hypotheses about the existence of certain metaoccurrences or significations expressed by the metaoccurrences are never classed as synonymity hypotheses. Thus, if an author says he intends to use «number», «unity», «one», etc., in a certain way, this will not be described by saying that he uses those words in that way. Frege and others have taught us to look with suspicion on such metaoccurrences as symptoms of actual usage. The authors may ignore their own precepts or the rules may prove inapplicable.

Example 7
Burks (1951: 43) says, «A token of «Truman» is synonymous with a token of «the man who at this time is the highest executive officer of this country»». Outside its context, this saying may plausibly be interpreted to state that here exists at least one occurrence of the expression «Truman» that is synonymous with at least one (existing) occurrence of «the man who at this time is the highest executive officer of this country». The immediate context is such, however, that it is more plausible to interpret the saying of Burks as synonymous with a sentence like «Any token of «Truman» produced in S is synonymous with any token produced in S of «the man who at this time is the highest executive officer of this country»». S stands for a class of situations, the intended delimitation of which cannot easily be discerned from Burks's text. It has scarcely been Burks's aim to formulate a complete hypothesis.

I.4. Heteronymity

In the vernacular and in technical literature, two expressions are sometimes said to have different «senses» or «meanings». Because of a close connection between certain concepts that will be introduced in chapter 7 and the use of the expressions «having a different sense» and «having a different meaning», a concept designation «heteronymity» will be used to suggest that connection. The term «*heteronymity sentence*» will be used to connote sentences of any of the following skeletal forms:

a. «--- has a different meaning from . . .»
   «--- has a different sense from . . .»
   «--- expresses a different meaning from . . .»
   «--- expresses a different sense from . . .»

b. Forms derived from the above by placing «not» or other signs of denial into them, or by using other indicative tenses of the verbs.

The motives for introducing the term «heteronymity sentence» are analogous to those operating in the case of the term «synonymity sentence».

It may be asked whether the negative synonymity sentences, for example, «--- has not the same meanings as . . .», should somehow be made to cover the heteronymity sentences. The only difference is that between the expressions «not the same» and «different». The reason for introducing a separate term «heteronymity sentence» is the existence of certain plausible interpretations of negative synonymity sentences. The direct denial of the presence of a relation Syn(ab) may be formulated as «It is not the case that «a» is synonymous to «b»».

If each designation has a meaning and those meanings are different, this denial is appropriate. But the denial is also appropriate under other conditions. It is not contrary to the definition of «designation» that «a» or «b» may be designations one or both of which cannot be said to have 'a meaning'. This point will be elaborated later. Suffice it to say here that it is prudent not to restrict the conditions under which a denial of a synonymity hypothesis is tenable, to the condition that the expressions each have a meaning and the two meanings are different. The heteronymity sentences are sentences that explicitly refer to two different meanings, whereas the negative synonymity sentences refer only to the absence of a meaning common to both expressions.

The heteronymity sentences will be symbolized by Het(---, . . .). In a case where «a» and «b» cannot be said to be either synonymous or heteronymous, they may be said to be incomparable in terms of synonymity (and heteronymity). In symbols: Asyn(---, . . .), «--- is asynonymous to . . .»

The following relation is postulated: «it is not the case that «a» is synonymous with «b»» is equipollent to «either «a» and «b» and heteronymous, or «a» and «b» are incomparable in terms of synonymity». In symbols:

(1) -Syn(ab) ~ Het(ab) a Asyn(ab)

The connective symbol is used for *aut-aut* (either-or).[3]

(2) Het(ab) ~ -Syn(ab) & -Asyn(ab)

Just as in the case of synonymity sentences, heteronymity sentences may refer to single occurrences of expressions, to some occurrences, or to all occurrences. They may refer to individual occurrences or to classes. Similar classifications and symbolizations of marginal references will in the following be presupposed to have been introduced in relation to heteronymity sentences.

I.5. Ambiguity

Let us call sentences of the following skeletal forms «*ambiguity sentences*»:

a. «. . . is(un)ambiguous»

«. . . has different senses»

«. . . has (admits of) different meanings»

«. . . can be interpreted in different ways»

«--- is used (employed) in two (three, several . . .) different (distinct) senses»

b. Forms derived from the above by placing «not» or other signs of denial into them, or by using other indicative tenses of the verbs.

Like «synonymous», the term «ambiguous» seems to be used in rather different ways, and there are many proposals for normative definitions that seem conflicting or at least different in content. We shall in this work introduce some concepts that are sufficiently closely related to some usages of the term «ambiguous» to make it convenient to use that term as part of our concept designations. As a point of departure for normative definitions of one of the concepts alluded to, the following skeleton is appropriate:

> (1) «. . . is ambiguous» $=_{D}$. «There is at least one pair of instances of «. . .» such that the first member of the pair expresses a different meaning from the second.»

The place «. . .», we decide, can only contain either an instance or a class of instances of a designation or a declarative sentence.

Let us take an example: About sentence (1), «'p' is verified by q», E. W. Hall (1943) says: «(1) is ambiguous and may mean (2) 'p' is verified (to some degree) if q, or it may mean (3) that (a) 'p' is verified (to some degree) if q (b) and q».

The sentence «(1) is ambiguous» may possibly have been intended to mean something that can be reformulated to fit the schema «There is at least one pair of instances of sentences of the kind «'p' is verified by q», such that the first member of the pair expresses a different meaning from the second».

Introducing an expression «a» into «. . .» in (1), one gets:

> (2) «a» is ambiguous $=_d$. «There is at least one pair of instances, a_i and a_j, of «a» such that a_i and a_j do not express the same meaning but each a different meaning.»

(2) may be formulated thus:

> (3) «a» is ambiguous $=_d$. «There is at least one pair of instances of «a» that are heteronymous.»

In symbols:

(3s) $\mathrm{Amb}(a) =_d (Ex)(Ey).\ x\varepsilon a\ \&\ y\varepsilon a\ \&\ \mathrm{Het}(xy)$

Ambiguity is, as seen from the above relations, partly reducible to lack of synonymity, insofar as every sentence asserting ambiguity can be formulated as a sentence asserting *lack* of synonymity in the narrow sense of heteronymity (expressing different meanings). One may use the rough formula that ambiguity is lack of synonymity between instances of the same designation (or sentence).

The minimum claim of an ambiguity hypothesis in the sense of (1) is the *mere existence* of a pair of occurrences a_1 and a_2 of an expression «a» such that a_1 does not express the same meaning as a_2.

More fruitful hypotheses are those constructed to account for stronger claims, for example, that every member of a certain subclass G_1 of occurrences of expresses a different meaning from that of every member of a second subclass G_2 of occurrences of «a».

In symbols:

(4) $(i)(j).\mathrm{Het}(a_iG_1a_jG_2)\ \&\ G_1 \cap G_2 = \Lambda$ or

(5) $(x)(y).x\varepsilon a\ \&\ y\varepsilon a\ \&\ x\varepsilon G_1\ \&\ y\varepsilon G_2\ \&\ G_1 \cap G_2 = \Lambda \supset \mathrm{Het}(xy)$

As an example consider «The term «force» means something different in physics from what it means in the vernacular». Let a_{11}, a_{12} . . . be occurrences of «a» belonging to the class 'occurrences in physics', and let a_{21}, a_{22} . . . be occurrences of «a» belonging to the class 'occurrences in the vernacular'. Both classes are open, if no time limits are fixed.

Another example is «This term was used by Aristotle in two quite distinct senses ---» (Keynes 1962: 52). A possible reformulation is «The Greek term corresponding to the term «induction» is used in such a way by Aristotle that the total group of use occurrences can be divided into two subgroups; every member of each group has the same meaning, but the meaning common to the members of the one group is different from that of the members of the second group». If there are ten use occurrences, five in each subgroup, the hypothesis asserts, if the above reformulation is adequate, heteronymity between numbers one and six, one and seven, . . . , five and ten—that is, twenty-five hypotheses of heteronymity. In addition, synonymity is postulated between numbers one and two, one and three, . . . , nine and ten; that is, twenty synonymity assertions are involved.

The additional claim, namely the existence of synonymity relations between every pair of members within each subclass, may sometimes be considered tacitly assumed, sometimes not. Suppose P asserts «a» and adds that ««a» is ambiguous». What has P asserted in the introduced terminology? If by ««a» is ambiguous» something closely similar to the introduced sense is intended, P only asserts that there exists a pair of instances of «a» such that the one has a different meaning from the other. Of more interest is the saying of P if he adds «And as used by me now, the sentence is ambiguous». Such an addition may be interpreted as «In a context like that in which I used and asserted «a», «a» is ambiguous». The «context» reference may here be interpreted as one characterizing indirectly an occurrence class, for example, by naming a field of discussion. In the terminology introduced, the addition may be thus formulated: «as used by anybody, P_i, in situations of class S, «a» is ambiguous». In symbols:

(i) $\mathrm{Amb}(aP_iS)$

If this is said about the sentence just asserted, and if it is a tenable hypothesis, the total saying of P indicates that he has said something that, in the context in which it was said, had more than one meaning. It may be asked, Which of them did he intend to *assert*?

P cannot answer without reformulating his original saying in such a way that just that meaning is communicated. If he in fact has intended one, and only one, of the meanings, «a» has not been sender-ambiguous for P in the context at hand, but it may have been receiver-ambiguous. It was intended to communicate an assertion, but at the same time it was asserted that the sign-vehicle was defective: that it had been or would be interpreted differently by different people.

A public lecturer may mean—at least in principle—by «democracy» something rather definite, and always use the term with the same meaning. If the audience is composed of people with varying habits of interpreting the term «democracy», the term is said to be sender-unambiguous in relation to the use of the lecturer, but receiver-ambiguous in relation to his public.

What if P asserted, «a, and the «a» now asserted was sender-ambiguous». In such a case, «ambiguous» cannot have been used in the sense introduced

$$\mathrm{Amb}(a) =_d (Ex)(Ey).\ x\varepsilon a\ \&\ y\varepsilon a\ \&\ \text{-}\mathrm{Syn}(xy)\ \&\ \text{-}\mathrm{Asyn}(xy)$$

because ambiguity in the introduced sense refers to classes of instances of a sentence, not to a definite instance of a sentence, for example, the definite «a», let us call it «a_1», occurring in the saying of P.

P might have meant that «a» was such that he did not have any definite intention, but was aware of different shades of meaning (cf. chapter 2, section 2). If the different assertions corresponding to the different meanings were all tenable in his opinion, and fitted well into the context, P may have felt completely justified in asserting «a».

I.6. Substitutional Synonymity: Synonymity Between Ambiguous Expressions

Suppose P says two things: (1) ««to be true» means the same as «to agree with reality»», and (2) «both expressions are ambiguous». The saying may be plausibly interpreted in different ways. If P has made use of the terminology of section 2, and he uses «synonymity» for «universal indiscriminate synonymity», his saying is synonymous with the sentence:

> (1) Every instance of «to be true» means the same as every instance of «to agree with reality», but there are pairs of instances of «to be true» the members of which express different meanings, and there are pairs of instances of «to agree with reality» the members of which express different meanings.

In accepted symbols:

(1s) Syn(ab) & Amb(a) & Amb(b)

(1s) may thus be reformulated:

(2) (i)(j)(k)(l)Syn($a_i G_k b_j G_l$) & (Ei)(Ej)(Ek)(El) -Syn($a_i G_k a_j G_1$) & (Ei)(Ej)(Ek)(El) -Syn($b_i G_k b_j G_1$) & -Asyn(ab)

Now, if a_1 and a_2 are such a pair of instances of a, and b_1 and b_2 are such a pair of instances of b, as declared existent according to the right-hand side of (2), a_1 and a_2 cannot both be synonymous to b_1 according to a transitivity postulate explicitly accepted as valid in another part of this work:[4]

-Syn(xy) & Syn(zx) $\supset$ -Syn(zy)

That is, a contradiction may be derived from (2), namely the assertion between square brackets:

(3) [(i)(j)(k)(l)Syn($a_i G_k b_j G_1$) & (Ei)(Ej)(Ek)(El) -Syn($a_i G_k b_j G_1$)]

If the saying of P is interpreted in strict accordance with the adopted terminology, it is a contradictory saying. There is, however, no special reason to believe that P has used that terminology, which interprets ««a» is synonymous to «b»» in the rather rigorous way as an assertion of universal and indiscriminate synonymity between «a» and «b».

There are many other possibilities worthy of consideration. Maybe the sentence of P is intended to mean: «to be true» means the same as «to agree with reality», subject to the condition that these expressions are found within certain contexts, S; both are ambiguous but not within these contexts.

In symbols:

(4) Syn(aSbS) & -Amb(aS) & -Amb(bS)
& Amb(a) & Amb(b)

There are also other plausible interpretations of the saying of P. The first part may be interpreted in accordance with the following schema:

> (5) Given: any definite occurrence place G, defined as a text interval, containing either the designation instance a_i or the designation instance b_i and nothing else. Suppose a_i is found at G_i and that b_i is substituted for a_i or that b_i is found and a_i is substituted. This will result in a set of new occurrences of «a» and «b».

The following relations hold good:

$(i)Syn(a_iG_ib_iG_i)$ and $(i)Syn(b_iG_ia_iG_i)$

The substitution of «b» for «a» at place G_i in a text changes the text into a new one. As G_i is defined by its place in the old text, it is advisable to call the place in the new text occupied by «b» by a name other than G_i. Let G_i¥ be the name. The relations asserted by P may now be symbolized as follows:

$(i)Syn(a_iG_ib_iG_i')$ and $(i)Syn(b_iG_ia_iG_i')$

If the details of substitution are neglected, a simpler symbolization is obtained:

$(i)Syn(a_ib_i)$

The substitutability defined by interpretation (5) will be called «substitutional synonymity at any given place».

If universal promiscuous synonymity holds good, there is substitutional synonymity at any given place, but the converse does not hold.

Roughly symbolized:

$$\mathrm{Syn}(a_i b_j) \supset \mathrm{Syn}(a_i b_i)$$

not:

$$\mathrm{Syn}(a_i b_i) \supset \mathrm{Syn}(a_i b_j)$$

The «not» is used as an abbreviation for «The following does not hold good (by definition)». What is written to the right of «not:» has to be distinguished from a formula to the right of a negation stroke, for example:

$$-(\mathrm{Syn}(a_i b_i) \supset \mathrm{Syn}(a_i b_j))$$

which would symbolize that the expression to the right of the stroke is false by definition. This is not the case in the example under consideration. If the first part of the saying of P is interpreted as an assertion that there is substitutional synonymity at any given place between the designations «to be true» and «to agree with reality», this makes the first part compatible with the second. Suppose «a» tentatively is assumed to have been used in as many senses as there are occurrences, for example, that

$$x\varepsilon a \ \&\ y\varepsilon a \ \&\ -\mathrm{Id}(xy) \supset -\mathrm{Syn}(xy) \ \&\ -\mathrm{Asyn}(xy)$$

and that the same holds good of «b»:

$$x\varepsilon b \ \&\ y\varepsilon b \ \&\ -\mathrm{Id}(xy) \supset -\mathrm{Syn}(xy) \ \&\ -\mathrm{Asyn}(xy)$$

This does not prevent, given any definite occurrence of «a» or «b», there being substitutional synonymity at any definite place. It only presupposes that «a» changes meaning from context to context just as «b» changes meaning from context to context. The complete saying of P may accordingly be symbolized by a consistent set of three assertions:

$$(\mathrm{i})\mathrm{Syn}(a_i G_i b_i G_i) \ \&\ \mathrm{Amb}(a) \ \&\ \mathrm{Amb}(b)$$

A more useful term than «substitutional synonymity at any definite place» is «substitutional synonymity at any given place within a pair of occurrence classes». As a limiting case, the classes are so wide that the original term can be used, and as another limiting case, the classes embrace only one instance of one of the expressions.

In symbols:

$$(i)\mathrm{Syn}(a_i G_i G_a b_i G_i G_b) \,\&\, (j)\mathrm{Syn}(b_j G_j G_b a_j G_j G_a)$$

«For all i it holds that «a» at any place G_i belonging to the occurrence class G_a of «a» is substitutionally synonymous with «b» of occurrence class G_b constructed by substitution, and for all j it holds that «b» at any place G_j belonging to the occurrence class G_b of «b» is substitutionally synonymous with «a» of occurrence class G_a constructed by substitution.»

The symbol «Syn» can be used for both substitutional and general synonymity because the term «substitutional» refers only to the way certain occurrence classes are obtained.

In McKeon's contribution to *Democracy in a World of Tensions* (McKeon 1951: 196), he says, «In one of the earliest systematic examinations of democracy in Western civilization, Plato observes that democracy, conceived as «the rule of the many», is a single term, but it has two meanings dependent on whether the rule is according to law or without law (Taken from *Statesman* 302D–303A)».

Accepting McKeon's historical account as adequate, we may say that Plato made a complex hypothesis of the following kind: (A) Within the class of instances of «democracy» characterized by «democracy» being synonymous with «rule of the many», «democracy» is ambiguous. It sometimes has a meaning implying rule according to law; sometimes it has a different meaning, implying rule without law. The first part of this assertion can be symbolized as:

$$\mathrm{Amb}\,(aG_1)$$

a	democracy
G_1	class of instances of democracy characterized by Syn(ab)
b	rule of the many

The second part of the assertion may be intended to mean something similar to a relation of implication between the conceptual characteristics of the first of the concepts («meanings») and the property «(rule) according to law», and between the conceptual characteristics of the second concept and the property «(rule) without law».

Let us consider the following formulation: (B) For every occurrence of «democracy» there is an occurrence of «rule of the many» such that the two expressions are synonymous, and for every occurrence of «rule of the many» there is an occurrence of «democracy» such that the two expressions are synonymous. «Rule of the many» has two senses.

In symbols:

(5) (x)(Ey). xεa & yεb & Syn(xy) .&.
(y)(Ex). xεa & yεb & Syn(xy) .&.
(Ex)(Ey). xεb & yεb & -Syn(xy)

This hypothesis asserts that «democracy» has no meaning that «rule of the many» is not capable of having, and vice versa. The expressions have the same range of meaning. But it does not hold good that in every pair of instances, the one has the same meaning as the other. The difference between (B) and (i)(j)Syn($a_i b_j$) reveals a distinction of importance: that between *complete or indiscriminate synonymity* among all instances of two expressions, and a restricted form of synonymity, that of *sameness of range of senses*.

Let us consider a third hypothesis: (C) For each occurrence of «democracy» it holds good that if «rule of the many» is substituted for it, the pair of occurrences have the same meaning. For each occurrence of «rule of the many» it holds good that if «democracy» is substituted for it, the pair of occurrences have the same meaning. «Rule of the many» has two senses.

In symbols:

(6) (x)(y)(i). xεa & xεG_i & yεb & y$\varepsilon G_i \supset$ Syn(xy) .&. Amb(b)

According to this interpretation of Plato, he asserts a form of *complete mutual substitutability*. The assertion implies sameness of range of senses and is itself implied by complete synonymity. In this example, occurrences of «a» and «b» have been distinguished by their places in texts. In the case of (6), G_i refers to one and the same place within two copies of a definite text, or to one definite text before and after a substitution has been carried out. The consistent use of texts as systems of reference is a methodological device. The synonymity hypotheses in terms of persons and situations are apt to picture more faithfully the intentions of those who make assertions about restricted forms of sameness of meaning. In symbols, a reference to person and situation may be rendered thus:

$$(7)\ (x)(y)(i).\ x\varepsilon a\ \&\ x\varepsilon P_i\ \&\ x\varepsilon S_i\ \&\ y\varepsilon b\ \&\ y\varepsilon P_i\ \&\ y\varepsilon S_i \supset \mathrm{Syn}(xy)$$

Here, P_1, P_2, and so on, would, stand for definite persons, and S_1, S_2, and so on, would stand for situations defined with or without reference to texts. Retrospectively, we are apt to interpret Plato to have referred to occurrences of «democracy» up to his own time. When we take such a time limit into account, the ambiguity hypothesis may be rendered thus:

$$(Ex)(Ey).\ x\varepsilon a\ \&\ y\varepsilon a\ \&\ x\varepsilon G_1\ \&\ y\varepsilon G_1\ \&\ \text{-}\mathrm{Syn}(xy)$$

G_1	occurrences of terms up to the time that Plato wrote 302D–303A of his *Statesman*

Strictly speaking, hypotheses A, B, etc., assume that Plato wrote in English. According to well-established rules of quotation, however, the reference to «democracy» is to be taken as a reference to the Greek word generally accepted to be the «counterpart» of the English word. What «counterpart» stands for here is probably not to be identified with what «synonymous expression» stands for in this chapter.

I.7. Semantic Systems

In modern linguistics a distinction has been found fruitful that can be expressed by contrasting speech with language (*la parole* versus *la langue*). Speech is conceived as a kind of *activity*. Language is conceived as a *system* that is capable of being studied without reference to activities of people using the system and to situations in which speech is observed. Just how this independence is to be conceived is a matter of divided views.

In some nontechnical views about verbal phenomena, there are features that can be interpreted as an implicit, yet more or less vague, reference to language considered as a system. Some tend to interpret sentences about sameness of meaning as assertions about language systems rather than about classes of instances of use. If such interpretations are tenable, they may possibly be only inadequately expressed by sentences involving reference to persons or situations. Consider sayings such as the following: «The word «democracy» has in the English language a definite meaning, but—unhappily—the term is often misused. People often misuse language.» «This word is never used correctly.»

Reference to persons and situations may possibly be inadequate in sentences referring to systems because there may be no rules of the system that refer to persons or situations. In most languages there are such rules, for example, concerning the use of titles—but even then references are references to rules or the formulation of rules, not to usage as an activity and not to language habits.

Systems can—as far as they are fruitful for research—be roughly classed into schematic *models* of actual speech habits and aggregates of *rules* in the normative sense. In the first case, the systems turn into hypothetico-deductive systems if connected by means of coordinating definitions (*Zuordnungsdefinitionen*) to existing language habits. If an attempt is made to formalize systems of rules, these take the shape of *systems of «pure semantics»* in the sense of Tarski, Carnap, and other logisticians. Models have their heuristic use in building up syntactical and lexicographical systems giving consistent, but simplified, pictures of speech habits of persons of literary distinction or of other selected groups.

Suppose v is a system of pure semantics defined by reference to a set of formation and transformation rules. A synonymity sentence that tacitly refers to the system may then be reformulated into sentences of the following kind: «there is, as part of the system v, a rule having the form «--- shall be considered synonymous with . . .», or there are rules such that a sentence of this form can be derived».

Hypotheses of this kind do not say anything about any occurrences of «---» and «. . .» except the metaoccurrence in the exposition of the system.

The system v may have been constructed, but never used, in which case there are no use occurrences to refer to even if one wished to do so. Even if the system is used, the hypotheses do not claim that use has ever followed the rules laid down.

It is perfectly consistent to report, «The system v certainly includes the rule that «8 o'clock» shall mean the same as «8 P.M.». The persons P and Q are the only ones who have declared that they intend to use the system. They say they actually have used it in their books. But analysis of the occurrences shows that they have not been capable of following the rule. It is consistently ignored or misapplied».

The following three kinds of sentences have to be distinguished:

1. «The intended meaning of «a» as used by P is the same as the intended meaning of «b» as used by P.»
2. «The intended meaning of «a» as used by P, is by P believed to be that meaning of «a» that «a» shall have according to the system v, and P believes that this meaning is, according to v, the same as that which «b» shall have.»
3. «The intended meaning of «a» as used by P, is that meaning of «a» that «a» shall have according to the system v. . . .»

It is convenient to limit the expression ««a» as used by P» to references to actual instances of application of «a» by P and to hypotheses about such instances. Often, a normative element is somehow incorporated into concepts of «use» and «usage». If a normative element is admitted, we shall lack a term for *descriptions* of observable specimens of «a» and regularities believed to hold among the meanings such instances of «a» intend to convey. We shall get only normative and mixed normative-descriptive concepts.

If the «definitions» of Euclid at the beginning of his systematic exposition are conceived as synonymity rules, they furnish an example of such rules remaining unapplied throughout the entire theoretical edifice. Euclid is said to make no use of his so-called «definitions» in his works (cf. *Euclid's Elements,* 1933: 2:22). Hypotheses about the existence of particular explicit synonymity *rules* within a system of explicit rules cannot be tested by inspection of how people actually use the expressions that these rules are intended to regulate. Conclusions about usage are here, in principle, perfectly irrelevant, and, consequently, any references to persons and situations are irrelevant unless used as descriptions of rules about persons and situations. The hypotheses asserting that, in this or that system, there is a rule that two expressions are to be synonymous, are not synonymity hypotheses. The following sentence schemata will be sharply distinguished:

1. Syn(xy) («x is synonymous with y»).
2. ((Rule:)) x is to be synonymous with y!.
3. In the system v of sentences in the form of rules, there is a sentence «x is to be synonymous with y».
4. In the system v of rules, there is a rule that x is to be synonymous with y.
5. The system v of rules is such that «x is synonymous with y» is in accordance with the system.
6. There exists a system of rules such that «x is synonymous with y» is in accordance with the system.

Only sentences of the first schema are covered by the symbol «Syn(xy)» used without further symbols. The second is no *assertion*, but a kind of *announcement*. To remind ourselves of both the differences and the similarities between sentences 1 and 2, we may use the following schemata:

(1s) Syn(xy)	Ass
(2s) Syn (xy)	Ann

Sentences of the third kind are confirmed by inspection of texts. If certain sentences are found in a certain text, confirmation is obtained; otherwise, disconfirmation. It is irrelevant how the texts are interpreted. Sentences of schema 4 are so formed that one cannot limit oneself to the detection of certain sentences. The system v may admittedly never be completely expressed as a sequence of verbal signs, and even if it is assumed that v is expressed, there may be difficulties of interpretation. One has to discuss whether certain sentences express rules, and which rules they express (to whom and in what situations).

In relation to the distinction between plain occurrences and metaoccurrences (section 1, c), only sentences of kind 1 refer to occurrences of x and y in use. «Syn(xy)» refers exclusively to instances of x and y in use. Sentences of kind 3 assert the existence of a certain pair of metaoccurrences of x and y, namely their occurrence in a sentence having the form of a rule speaking about x and y.

Vernacular references to «correct language», «strict meanings», «real meanings», and so on, can roughly be viewed as vague references either to possible semantic systems or to classes of occurrences representing usage by persons with special qualifications (for example, representatives of the great poets or statesmen, not of the man in the street or of illiterate people). Or, expressions such as «correct meaning» and «real meaning» may be symptomatic of views according to which words have intrinsic meanings absolutely independent of their possible use by men and of their systems.

Many instances of «may be» sentences of the following kind are probably intended as sentences referring tacitly to a system:

1. (a) «a» and «b» may be synonymous

   (b) «a» may be interpreted as follows: ---

   (c) «a» may be ambiguous

   (d) «a» may mean b

If (a) is asserted, the intended meaning may well be such that it precludes reformulation in the form of a synonymity hypothesis between directly or indirectly characterized occurrence classes; (a) may be asserted with the addition «but whether there exists or ever will exist an occurrence of a or b such that a and b mean the same, is left undiscussed». Interpretations in accordance with schema 5 or schema 6 are possible: «a and b are, in accordance with system v (or with an unspecified system), under some conditions, synonymous». The system v may of course be a mere fiction, a fictive entity somehow conceived to be «implied» by usage.

As an example of a sentence likely to be intended as implicitly referring to a system, we could mention the «may mean» sentence by E. W. Hall quoted in section 5 (page 30). Possibly his sentence «is ambiguous» is also intended tacitly to refer to a system. The use of «is» instead of «may be» in sentences of the forms (a)–(d) does not preclude interpretation in terms of systems. The saying of P that «to be true» and «to agree with reality» are synonymous and ambiguous (cf. page 30) may plausibly be interpreted to refer implicitly to systems. One of the simplest of such interpretations is «According to the normative definition of «to be true» and that of «to agree with reality», within the system v both have the same meaning, but according to the same definitions this meaning changes with changing context».

The semantic rules of the system may, for instance, specify fields of discussion in which «to be true» means different things, and specify the same changes of meaning for «to agree with reality». Such an interpretation makes the saying of P into something other than a statement of a synonymity hypothesis and an ambiguity hypothesis. These are hypotheses about usage, not about occurrences of normative definitions—in the present case, metaoccurrences of «to be true» and «to agree with reality».

It has already been mentioned that references to systems of rules are sometimes rather cryptic, because the rules are admittedly not stated anywhere, at least not in the form of a consistent or complete system. They seem to be implied in so-called «correct speech». In cases of reference to fictitious systems, another kind of reference may be more fruitful: reference to ranges of *admitted or preferred usage*. Instead of referring to something as rigorous as consistent systems, one may say that there are within a linguistic society trends of preferences and admittance, which may very often *rule out* certain ways of using particular expressions as «impossible», «false», «incorrect», and so on, but which rarely can be said to point to definite ways as «the correct».

Those who try to express themselves fairly clearly ask again and again while writing, Is this a good word in this context? May this expression be used here? Such questions are justified because most permutations of words would be considered nonsensical by all users of a language. Take, for example, the first ten words beginning with *f* in Wyld's *Universal Dictionary* (1932): *fa*, *fabaceous*, *Fabian*, *fable*, ---, *fabrication*. There is scarcely a single combination of all ten words that would give occasion to any controversy concerning sense or nonsense. They are all «ruled out» as nonsensical. In spite of the fact that the great majority of word combinations is thus ruled out, a tremendous number of combinations remain that would give rise to controversy if they were ever used. The important point is that existing instances of use, in general or by distinguished authors, can guide us in only an incomplete and indirect way. One usually has other things to say than *just* those that have been said, and a large number of sentences are first occurrences. There is scarcely more than a single instance to be found of most of the sentences in this section, and, what is more important, the meanings intended by each of them have rarely, if ever, been intended before. Thus, there are no precedents that can be used as sole guides to the formulations.

In this work, reference will only rarely be made to systems of admitted or preferred speech. We are more concerned with descriptions of existing usage, pinned down to descriptions of existing occurrences and to theories about existing occurrences suitable for predicting future occurrences.

There is a resemblance between this attitude toward language and the attitude of the realist theory of law. According to that theory, law may roughly be defined as what the judges proclaim to be law. That is, certain verbalized actions of certain persons are taken as constituting law. The science of law makes predictions about the behavior of judges. Such predictions cannot help the judges to form their decisions in case of doubt, but they may help the public and lawyers find out what will in practice be called law. Many distinguished linguists from the time of Cicero onward have proclaimed a similar dictum concerning the correct use of language: usage is the supreme arbiter.

For our purposes it is not in any way necessary to depreciate the importance of people's beliefs concerning what is «correct language» apart from concrete usage. Such beliefs must be taken into account in order to make satisfactory predictions, but such beliefs have not been found consistent and general enough to warrant ampler consideration in the present work.

I.8. Interpretative Sentences

Synonymity and ambiguity sentences have in common that they refer to sameness or difference in meaning or sense without directly indicating which meanings or senses are compared. To describe meanings and senses—in some senses of these words—is a formidable task. The importance of synonymity sentences as the point of departure for our conceptual structure owes in part to this at least partial independence of description of meanings. To test sameness or difference is often possible without close analysis of the objects compared. Suppose two books are placed on a table. To ascertain whether they are «two copies of the same book» or «one copy each of two different books» does not necessarily presuppose the existence of a complete and workable definition of «book». It is sufficient to consider a subclass of conceptual characteristics, namely such that are necessary and sufficient to judge *difference* in reference to books. A large number of fairly reliable tests and experimental designs in psychology are based on reports by subjects who are required to judge «same» or «different» within certain standardized situations. The additional requirement, to describe the two somethings judged to be same or different, introduces complications and is for many purposes superfluous.

In this section sentences will be considered that often are intended somehow to describe or identify meanings or sense by means of words.

Let us call sentences of the following skeletal forms «*interpretative sentences*»:

a. «--- means . . .»
«By --- is meant . . .»
«By --- is meant that . . .»
«--- has the sense . . .»
«--- signifies . . .»
«--- connotes . . .»
«The meaning of --- is . . .»
«--- expresses the meaning . . .»

b. Forms derived from the above by placing a sign of denial into them, or by using other indicative tenses of the verbs.

In convenient symbols:

$\mathrm{Sign}(aM_1b)$

Only those sentences will (by normative definition) be subsumed under 'interpretative sentences' in which «---» refers to a single expression or a class of expressions and «. . .» does not refer to expressions. The open place «. . .» contains words in use, not in mention.

Consider the following series of examples: «By ambiguity and by equivocality is meant capability of being understood in two ways» (cf.

Standard Dictionary) «By ambiguous and by equivocal is meant capable of being understood in two ways.» ««Democracy» signifies the tendency to give to the masses, that is, the common people, added importance in political deliberations» (Benedetto Croce 1909).

«Unnatural, when it means anything, means infrequent: ---» (Bentham 1879: I: 31). «Anyone who has the least knowledge of geometry must know that a straight line means a perfectly straight line, ---» (Jevons 1890: 212). «The most obvious and primitive meaning of «convention» is the act of coming together for purposes of deliberation, instruction, amusement or recreation» (Nagel 1930: 62). «Cumulus, which means heap, is the name for the cauliflower clouds» (Free and Hoke 1929: 31).

The above examples lack any marginal references. In the following examples such references of various kinds contribute, more or less adequately, to a delimitation of a hypothesis with fairly definite intended subject matter:

«Aliquoter Teil bedeutet *bei Marx*: Bruchteil, Abgemessener Teil eines Ganzen» (Marx 1933: 749).

«Der Ausdruck «Maine» bedeutet *jetzt meist* den manischen Zustand des manisch-depressiven Irresins» (Bleuler 1923: 121).

«Der Ausdruck «Melancholie» bedeutete *längere Zeit* die von Kraepelin besonders herausgehobene Form der Melancholie des Rückbildungsalters und wird *jetzt von denen, die beiden Krankheitsbilder in eines verschmolzen haben, auch* für die Depression des manisch depressiven Irreseins gebraucht» (ibid.).

«--- a «Negro» in *many parts of the United States*, means an individual with any discoverable traces of Negro ancestry» (Anastasi 1937: 465).

«*At the present time* the term «ideology» has *become current* to mean any scheme of thinking characteristic of a group or class» (MacIver 1951: 454).

«*There*, «ideology» means *strictly* a system of ideas elaborated in the light *of* certain conceptions of what «ought to be»» (Roucek (1944: 279).

Some sentences are difficult to classify into synonymity sentences or interpretative sentences. Take the following example: «---, the meaning of the protocol proposition «N. N. saw blue at place p at time t» is «N. N. had at time t the perception 'blue' at place p»» (Kaufmann 1943–44: 269). The sentence may be put in the form «the meaning of --- is . . .», but the subject-matter indications are unusual. Maybe Kaufmann would insist that he does not refer to any sentence in «---», but to what is expressed by a sentence. Or, maybe Kaufmann talks about one proposition being the meaning of another in such a way that the latter can be represented by a sentence. The meaning he introduces is placed in quotes as if it were a sentence. It is unlikely, however, that he would accept an interpretation of his «. . .» clause in that direction.

Is or is not the sentence put forth by Kaufmann an interpretative sentence in the introduced terminology? Our terminology has not been introduced in a sufficiently precise way to cope with sentences such as Kaufmann's. Let it be classed as a borderline case. After all, the terms «synonymity sentence» and «interpretative sentences» are only meant to have the function of concentrating the attention on certain kinds of sentences likely to express synonymity hypotheses in senses to be introduced later. Exact delimitations of classes are not called for. It is sufficient that some (easily subsumable) members are pointed out as characteristic examples.

If, on the other hand, it is stated that ««a» means b», the expression «b» occurs in the form of use occurrence. That «b» is used can be taken as a symptom that it is somehow conceived as one with a sufficiently definite meaning for given purposes, and capable at least once of being a vehicle of communication in relation to the public at hand (in a limiting case, the asserter himself).

The asserter of the interpretative sentence «--- means . . .» assumes, maybe, that the terms used in «. . .» are capable of conveying a meaning, namely that meaning that the asserter attributes to «a», or that meaning that he will induce the listener or reader to attach to «a». Thus, as interpreted by the asserter in the situation in which ««a» means b» is asserted by him, «b» may be said to be assumed to express by implication what «a» expresses as interpreted by the sender. In short, a synonymity hypothesis, ««a» means the same as «b»», is implied by ««a» means b», at least for some interpretations of that kind of sentence. Its field of intended or assumed application may, however, be difficult to find.

The following working rule is of great importance in the (partial) analysis of interpretative sentences in terms of synonymity relations:

> (1) if a person P_1 asserts an interpretative sentence ««a» expresses «b»», with P_2 as intended receiver ($P_1 \neq P_2$ or $P_1 = P_2$), P_1 implicitly (or tacitly) assumes that at least in the situation characterized by the particular occurrence of G_1 of the assertion of the interpretative sentence, «b» means the same for P_1 as for P_2, and the same as «a» for P_1.

Somewhat condensed:

(1s) if at G_1 P_1: «Sign(ab)», P_2 being the intended receiver, P_1 implicitly assumes $Syn(b_1P_1G_1b_1P_2G_1)$ & $Syn(aP_1G_1b_1P_1G_1)$.

The statement is a useful rule of thumb, in the sense that it furnishes a good working hypothesis. In accordance with more traditional terminology, we shall call (1) the *principle of implied synonymity in interpretation*.

It should be noted that this principle does not assert: if P_1 states ««a» means b», then, implicitly, $Syn(aP_1bP_1)$. That is, the analyst does not assert anything about the *usage* of «a» and «b» by P_1, but something about what P_1 is disposed to assert *about* his own usage. Often, the analyst has reason to expect a relation of synonymity, but not the very general one $Syn(aP_1bP_1)$. His expectation is that, at least in certain kinds of situations, $Syn(aP_1bP_1)$ holds:

(Ei) (Ej). $Syn(aP_1S_ibP_1S_j)$

Acceptance of the above-mentioned principle is consistent with the assumption that interpretative sentences express something else, and often something more, than a synonymity hypothesis. The principle is not introduced in order to try to effect a wholesale transformation of interpretative sentences into synonymity sentences. Very often, however, the assertion of an interpretative sentence introduces unnecessary complication or unnecessary indefiniteness into a discussion. By suitable synonymity hypotheses, reference to definite meanings can profitably be eliminated. Definiteness is increased by giving marginal references to both «a» and «b» and not only to «a» as in an interpretative sentence.

Just what do interpretative sentences of the kind ««a» means b» express that synonymity hypotheses do not express? We shall here answer only with a triviality: by ««a» means b» it is intended to express that b is *the meaning* of «a». Further discussion is postponed. It is the aim of the first chapters to describe interrelations among some basic terms. Possible *concepts* of 'meaning' are discussed later.

Care should be taken not to confuse an actual assertion with the motives for making the assertion. As a possible part of the assumptions underlying the choice of «b» as interpretans[5] expression, one might conceive a belief held by P, that Q attaches a definite meaning to «b» and that it is just that meaning that P himself attaches to «a». A *motive* that P in such a case normally may have is that of making Q aware of something he is not aware of, namely, the meaning of «a». The use of «b» as interpretans expression must somehow be expected to help Q in a problematic situation. It is not our concern to discuss here what kind of help is at issue. Whatever goal P expects to reach by means of the interpretative sentence, his expectation or assumption of means-end relationships should not be taken as a part (or as the whole) of the cognitive meaning of the interpretative sentence. We may have certain goals in every utterance we make, but if the utterances expressed these goals, communication would indeed be difficult and sometimes rather embarrassing. It would not only be more difficult to be polite, but also more difficult to write a textbook on mathematics. In the construction of proofs, the premises A, B, C would as part of their own contents express the assumption «A, B, C are sufficient to prove the conclusion D».

In the case of an explicit synonymity hypothesis ««a» means the same as «b» means», the asserter may not have the slightest preference for «b» as a vehicle of communication. He may himself consider «b» useless because of ambiguities. If he prefers «a» or «b» for certain purposes, this will have to be stated explicitly. In the case of interpretative sentences, a difference between «a» and «b» is somehow *assumed*, at least in relation to a definite public in definite situations. Variation of public and situation may, however, result in *the adoption of* «a» as interpretans expression for «b». The assumption and our motivation may be constant, but the assertions intended by the interpretative sentences undergo variation.

Thus the implicit assumption of ««b» means a» is not the same as that of ««a» means b». For the former one may write in analogy to (1s):

> (2) if at G_2 P_1: «Sign(ba)», P_2 being the intended receiver, P_1 implicitly assumes $\mathrm{Syn}(a_1P_1G_2a_1P_2G_2)$ & $\mathrm{Syn}(bP_1G_2a_1P_1G_2)$.

I.9. Interpretans Expressions and Lists of Interpretations

If P says ««a» means «b», or uses any other of the skeletal forms of interpretative sentences, we shall say that he «performs a verbalized act of «interpretation»»; he «explicitly interprets «a» to mean b». The expressions «verbalized» and «explicitly» are used to remind us of the basic distinctions between communication by means of «a» and talk about «a». If P issues a set of orders directed to Q, and Q performs certain acts that P conceives as a positive and adequate response to his orders, Q may be asked how he *has interpreted* and interprets the orders. His answers in the form of explicit interpretations may be badly formulated and confused, and the conclusion may even be warranted that he *actually* interpreted and interprets otherwise than he *says* he does. The situation is analogous to that in which a man is asked to «define» a term he uses. From his answer one cannot with certainty infer anything about his usage. Explicit interpretations are verbalizations about verbal behavior. Designations and sentences are interpreted irrespective of whether such verbalizations are produced.

If P says ««a» means b and not c» and Q says ««a» means c and not b», and «b» and «c» for P are assumed to mean the same as «b» and «c» for Q, then we shall say that they give different explicit *interpretations* of «a». This implies that P and Q, if they believe each other, would tend to agree to the hypothesis

-Syn(aPaQ)

Such an agreement is a symptom of ambiguity of «a», but analysis of actual use may weaken the interpretational hypotheses made by P and Q. They may be mistaken in their beliefs.

If nothing is presumed known about whether «b» and «c» mean the same for P as for Q, the interpretans expressions are different, but nothing precludes the possibility that «b» means for P the same as «c» for Q, and vice versa. P and Q may both have the same hypothesis in mind, namely, that «a» has the sense described by «b» in the terminology of P, and by «c» in the terminology of Q. In symbols:

Syn(aPaQ) & Syn(bPcQ) & Syn(cPbQ)

If the assumption made by the asserter of an interpretative sentence — that the interpretans expression is adequate for the attempted communication — is untenable, the receiver obtains a false opinion about the view held by the asserter concerning the meaning of the interpretandum.

Suppose a person P_1 asserts that for him a series of sentences T_1, T_2, . . . T_n, $n \geq 2$ all express meanings that differ from each other, (a) whatever the situation or (b) at least if a set of situations are specified.

In symbols:

$$\text{(1a) } P_1\text{: Het}(T_1P_1T_2P_1) \ \& \ \text{Het}(T_1P_1T_3P_1) \ \& \ldots \& \ \text{Het}(T_1P_1T_nP_1)$$
$$.\& \ldots \qquad\qquad \ldots \& \ \text{Het}(T_{n\text{-}1}P_1T_nP_1)$$

$$\text{(1b) } P_1\text{: Het}(T_1P_1S_1T_2P_1S_1) \ \& \ldots \& \ \text{Het}(T_{n\text{-}1}P_1S_1T_nP_1S_1)$$

The list T_1, T_2, . . . ,T_n will be said to be assumed by P_1 to be a *heteronymous list* for P_1 (in relation to every possible occurrence, or in relation to a subgroup of occurrences). Roughly speaking, a heteronymous list is a list of terms or sentences including no pair of synonymous members.

Suppose, further, that P maintains that a sentence (or designation) T_0 is ambiguous and that it sometimes means T_1, sometimes T_2, . . . , sometimes T_n.

In symbols:

$$\text{(2) } P_1\text{: (ES). Syn}(T_0P_1ST_1P_1S) \ \& \ \text{(ES}'\text{). Syn}(T_0P_1S'T_2P_1S') \ \& \ldots$$
$$\& \ (\text{ES}^{(n\text{-}1)})\text{. Syn}(T_0P_1S^{(n\text{-}1)}T_nP_1S^{(n\text{-}1)})$$
$$\& \ \text{-Id}(SS') \ \& \ \text{-Id}(SS'') \ \& \ldots \& \ \text{-Id}(S^{(n\text{-}2)}S^{(n\text{-}1)})$$

Under the stated condition, P_1 will be said to have offered a *list of interpretations* of T_0. If tenable, each interpretans designation or sentence will in relation to P_1 be said *to express an interpretation* of T_0, or in short, to be an interpretation of T_0. In relation to T_0 and to P_1, the list will be called an intrapersonally *heteronymous reference list*.

In symbols:

If, and only if, (1) and (2), then

$$\text{(3) Int}(T_1P_1T_0P_1) \ \& \ \text{Int}(T_2P_1T_0P_1) \ \& \ldots \& \ \text{Int}(T_nP_1T_0P_1)$$
$$\text{Int}(T_1P_1T_0P_1) \text{ -}T_1 \text{ for } P_1 \text{ is an interpretation of } T_0 \text{ for } P_1$$

This terminology is such that the expression «T_i is an interpretation of T_0» is used only provided the user has the opinion that there are (at least) two heteronymous sentences such that T_0 may sometimes be synonymous to the one, sometimes to the other. If not, the expression «T_i may be synonymous to T_0», or, anticipating an expression to be introduced in the next section, «T_i is a synonymic alternative to T_0» will be used. In other words, «T_i is an interpretation of T_0» is to be used only when T_0 is considered ambiguous in the adopted sense of that word.

In symbols:

$\mathrm{Int}(T_iT_0) \ldots \mathrm{Amb}(T_0)$

$\mathrm{Amb}(T_0) \ldots (\mathrm{Ei})\mathrm{Int}(T_iT_0)$

$-\mathrm{Amb}(T_0) \ldots (\mathrm{i})\text{-}\mathrm{Int}(T_iT_0)$

The terms «list of interpretations», «interpretation», and «heteronymous reference list» will be used as concept designations for conceptual tools by which we will endeavor to analyze existing lists of senses that terms are said to express.

Concerning interpretations it should be noted:

1. Interpretations are not designations or sentences. Some designations and sentences express interpretations. Synonymic alternatives as N-defined in the next section are designations or sentences. [*Editor's note*: N refers to normative.] Therefore, interpretations are not a subclass of synonymic alternatives. A designation or sentence may be said to express an interpretation only if it is a member of a heteronymous reference list for the expression interpreted.
2. A proposed list of interpretations represents a set of hypotheses about usage (or about pure semantic systems). The contents of those hypotheses are attempted to be expressed by a terminology that may be more or less specific to the framer of the hypotheses.
3. If two persons construct different lists of interpretans expressions and both claim that they have offered an exhaustive list of senses of a particular designation or sentence, this does not exclude the possibility that they intend to express just the same senses.
4. If two persons propose the same list of interpretans expressions, they may be said to make the same assumption about meanings or senses only if it is assumed that they interpret the interpretans ex-

pressions in the same way. That is, a set of intersubjective synonymity hypotheses is assumed valid.

5. A list that is heteronymous for one person may contain synonymous members for other persons. The establishment of a heteronymous list for several people involves the establishment of a list of intersubjective synonymity relations.
6. If a person proposes a list of interpretations but admits that some interpretans expressions are ambiguous, his hypothesis lacks definiteness, if he does not somehow point to which of the possible senses he intends to refer. If he is capable of expressing the sense intended, the initially adopted, ambiguous interpretans expression may be exchanged for the one expressing (for that person) the sense intended.
7. A person's report about how he interprets an expression is a report about usage; the occurrences of the expression in the report are metaoccurrences.

As introduced here it is easy to establish the existence of a great number of interpretations of almost any formulation. Most of them are, however, more or less irrelevant to given purposes. It is of little interest to find that some formulations are (possible) interpretations of others *if they are not of certain kinds. Of these kinds that may have special interest there are many.* We are normally interested in certain subclasses of interpretations, interpretations with properties of special interest.

Most texts have an author, or, more generally, a person who by means of the text tries to communicate statements that he thinks can be suitably expressed by the text. We shall call such a person an *asserter*, provided the text consists of formulations.

> (4) If P is an asserter of «a», and «b» may in at least one type of situation be an interpretation of «a» for P, we shall call «b» an *asserter interpretation* of «a».

Very often, we are especially interested in such interpretations. They are the interpretations relevant to the question of what P might have meant by «a». Of the asserter interpretations, those groups are of special interest that are related to each occurrence of «a» in texts formulated by P.

Most texts also have readers. At least their authors read them. We call a *receiver* anyone reading a text with the aim of understanding it.

> (5) If P is a receiver of «a», and «b» may in at least one type of situation be an interpretation of «a» for P, we shall call «b» a *receiver interpretation* of «a».

In many cases we are not interested in asserter interpretations, or we have no persons who can be classed as asserters. According to some theorists of law, this latter situation is realized in the case of laws in democracies. There are also great controversial questions within the science of law as to the relative weights that in various situations should be attributed to asserter versus receiver interpretations (so-called «subjective» versus so-called «objective» theories of interpretation).

Authors occasionally anticipate that their understanding of their own texts will not be entirely identical with those of their prospective readers and may try to find out to what degree there is accurate communication.

> (6) If P is an asserter of «a» and Q is a receiver, and «b» is an asserter interpretation for P and a receiver interpretation for Q, and «b» for P is interpersonally synonymous to «b» for Q, we shall call «b» a *communicable* interpretation between P and Q.

Of such interpretations, those are commonly of most interest that relate to one and the same occurrence of «a». In that case we shall say that P and Q interpret «a» in the same way, namely in the sense of «b».

Formulations have various degrees of technicality, and the subject matter is more or less familiar or strange to the asserter and receiver, who are more or less competent according to knowledge and experience. Usually the interpretations made by persons of a wider or narrower *class of competency* have greater interest than others. Occasionally we are not interested in competency, for example, when we try to find the source of popular misunderstandings, or possibilities of popularization without misunderstanding.

How a person interprets a formulation depends not only on his knowledge and experience, but also on personality factors of other kinds. He may be more or less prejudiced. His feelings toward the formulations, the subject matter, the asserter, and so on, influence his reading. Interpretations are more or less determined by attitudes inconsistent with scientific attitude.[6] On the whole, *unbiased interpretations* are of more interest than biased (intellectually dishonest, prejudiced, slanted) ones.

Frequently occurring interpretations are of more interest than rare ones.

Suppose «a» is studied as it occurs within a more or less narrowly conceived kind of situation S. S need not be explicitly delimited. As long as no quantitative or topological criteria of frequency are introduced, assertions about frequency rest on the vernacular level of preciseness. Quantitative or topological criteria will—to be fruitful—have to be decided on separately for each kind of investigation. It would be of no use to introduce general criteria.

If $T_1, T_2, \ldots, T_n$ are interpretations of T_0, the subgroup generally of greatest interest is that which, according to most people, expresses the most varying assertions. If the formulations $T_1, T_2, \ldots, T_n$ to most people mean approximately the same, they are less interesting than if they express very different assertions. In short, interpretation groups with *wide internal divergence of meaning* are more interesting than groups with narrow internal divergence.

Among the T_i's some may to most people make T_0 a platitude. Other interpretations may make it a highly interesting hypothesis. Usually we are more interested in *nontrivial interpretations*. Similarly, we are usually more interested in interpretations that neither make T_0 acceptable to all nor make it unacceptable to all, but rather adaptable to current controversies. For example:

T_0:	An eye for an eye, a tooth for a tooth.
T_1 (controversial):	Evil deeds ought to be punished with a severity that is proportional to the degree of evil effected by the deed.
T_2 (less controversial):	A man should be treated as he deserves.

T_2 is rather uncontroversial, because people who are totally against punishment may say that nobody *deserves* punishment. Those who advocate increased severity of punishment may also accept T_2.

Last but not least, our interest depends on how *precise* the interpretations are.

In this introductory chapter, the above, rather vague survey of subgroups of interpretations serves the purpose of stressing that when somebody says that this or that is the correct, right, or best interpretation, he is probably thinking of a subgroup of interpretations of one of the above kinds. What is more important is that even if an interpretation is not mentioned as the best, etc., but simply offered as an interpretation, it is probably implicitly assumed to belong to a definite subclass of particular interest.

I.10. Synonymic Alternatives

As an initial formulation of a definition of «synonymic alternative» we use the following:

> (1) «the expression «a» is a synonymic alternative of the expression «b» shall mean the same as ««a» and «b» may be synonymous»».

If there *has* occurred a pair of instances of «a» and «b», let us say, a_1 and b_1, such that $\mathrm{Syn}(a_1 M_1 b_1 M_2)$, then this is taken as a sufficient condition that «a» and «b» may be synonymous, and thus, as a sufficient criterion of «a» being a synonymic alternative of «b», and vice versa. It is, however, not a necessary condition.

If a person P says that «a» means b, «b» will be counted as a synonymic alternative to «a», provided it is expected that the interpretative sentence made by P shows the existence of situations in which P would actually interpret «a» to mean the same as «b». According to the principle of implicit synonymity hypotheses in interpretative hypotheses (section 8, p. 49), one may expect P to assume that «a» and «b» are synonymous for him under certain conditions. It is, on the other hand, always possible that he is mistaken in his assumption about his own usage and interpretative processes.

From the normative definition of a «list of interpretations» (section 9, p. 52), it follows that the list members, the interpretans expressions, are all synonymic alternatives of the expression subjected to interpretation. Sets of interpretans expressions constitute a subgroup of synonymic alternatives. On the other hand, not all synonymic alternatives are interpretations.

A proposed list of n interpretations represents, if tenable, a survey of n senses (meanings), whereas a proposed list of n synonymic alternatives of an expression T_0 may be tenable but may nevertheless reveal no ambiguity of

T_0: the synonymic alternatives may all express the same meaning, generally, under those conditions in relation to which they are synonymous with T_0. To get from a list of synonymic alternatives to a list of interpretations, one must establish the former's heteronymous character in relation to at least one person.

The importance of the distinction between synonymic alternatives and interpretations lies in the fact that lists of synonymic alternatives often seem to be taken as proof of ambiguities. However, only insofar as the list of synonymic alternatives is heteronymous in reference to a person, that is, only insofar as it is a list of interpretations, do the members correspond to different senses or meanings.

Synonymic alternatives are mainly of interest in studies of relations of what is here called «preciseness» (section 12), and as raw material for the construction of lists of interpretations. Sentences of the form ««a» is a synonymic alternative of «b»», may be conveniently symbolized by «Synalt(ab)», and the normative definition (1) by (1s):

(1s) $\mathrm{Synalt}(ab) =_d (Ei)(Ej)\mathrm{Syn}(aM_i bM_j)$

Sometimes subclasses of occurrences of «a» and «b» are considered, and we accordingly add the following definition:

> (2) «the expression «a» under conditions M_1 is a synonymic alternative of the expression «b» under conditions M_2» shall by definition mean the same as ««a» under conditions M_1 may be synonymous with «b» under conditions M_2».

In symbols:

(2s) $\mathrm{Synalt}(aM_1bM_2) =_d (Ei)\,(Ej)\mathrm{Syn}(a_iM_1b_jM_2)$

The following sentence can be deduced:

(3) $\mathrm{Synalt}(aM_1bM_2) \supset \mathrm{Synalt}(ab)$

The right-hand expression does not imply the left-hand expression.

So-called dictionary definitions, especially in minor dictionaries, may be viewed as hypotheses about synonymic alternatives. «True» is defined by listing a series of expressions—«certain», «fact», «agreeing with reality» etc.—that *at least sometimes* may be substituted for «true» without important changes in meaning. No marginal references are given in many short and superficial dictionaries; rudimentary references are found in others. Synonymity hypotheses of the form Syn(aPS_1bPS_2) are rare.

I.11. Examples of Lists of Synonymic Alternatives and Interpretations

Example 1

At examinations the candidates are often asked to list synonymic alternatives of a given expression. There is a tendency to produce lists that do not differ from those produced as answers to a demand for precizations of that expression. The reason for this coincidence is in part the feeling among students that lists of synonymic alternatives are of no interest if they do not somehow better express the meaning of the expression at issue. The following is an example of an answer to the problem of the first kind, that of giving a list of synonymic alternatives, that is considered good, because not only precizations are offered.

> I call the given expression T_0, and the synonymic alternatives $T_1, T_2, \ldots$
>
> T_0: Female students are better than males at the preliminary examination in philosophy.
>
> T_1: Female students get on the average better marks than males in the preliminary examination in philosophy.
>
> T_2: Female students have hitherto obtained, and will in the future obtain, better average marks than males in the preliminary examination in philosophy.
>
> I have chosen T_1 and T_2 as precizations of T_0. I believe T_0 admits of all plausible interpretations of T_1 and T_2. T_0 admits of interpretations that T_1 or T_2 do not admit, for example, T_3. T_2 I have given as an example of a precization of T_0 that is stronger than T_1.
>
> T_3: Fewer female students than males fail the preliminary examination in philosophy.

A deprecization of T_0 is:

> T_4: Female students are better than males at the preliminary examination.

Because the preliminary examination in philosophy is common to nearly all students, and for other reasons, students often use the short designation «preliminary examination» for «preliminary examination in philosophy». T_4 is therefore a synonymic alternative of T_0. If it turns out that a sentence is an interpretation of T_0, I believe it will turn out that this sentence is also a synonymic alternative of T_4. There are, on the other hand, important synonymic alternatives of T_4 that are not (plausible) synonymic alternatives of T_0, for instance the following sentence U:

> U: Female students are better than males at all different preliminary examinations at the University of Oslo.

From all this I conclude that T_4 can be regarded as a deprecization of T_0.

In conclusion, I shall mention a sentence that is neither a precization nor a deprecization of T_0, nor is it equal to T_0 in preciseness:

> T_5: Female students obtain on the average better marks than males at the preliminary examinations.

Because T_5 mentions average marks, some synonymic alternatives are ruled out that T_0 admits. Because the more indefinite designation «preliminary examination» has replaced «preliminary examination in philosophy», some synonymic alternatives are created that T_0 does not admit. T_0 and T_5 have, therefore, each their specific synonymic alternatives. They are incommensurable in relation to level of preciseness.

Example 2

Discussing questionnaires, G. A. Lundberg (1942: 167) says that words «and phrases of ambiguous meaning should be avoided». The expression «age» is taken as an example: «if the term is «age», this is subject to at least three interpretations: (1) exact present age, (2) age at last birthday, (3) age at nearest birthday».

> (1) «Age» may mean the same as «exact present age» and «age» may mean the same as «age at last birthday» and «age» may mean the same as «age at nearest birthday».

This reformulation stresses the assertion of three hypotheses about synonymic alternatives. In other words:

> (2) The three expressions «exact present age», «age at last birthday» and «age at nearest birthday» are synonymic alternatives of «age».

It is plausible, however, that Lundberg intends to assert more than this, or that he at least expects readers to understand that he conceives the three synonymic alternatives as belonging to an important subclass of synonymic alternatives. They are probably not conceived to be synonymic alternatives of one another. For Lundberg the three expressions form a heteronymous list in relation to every possible occurrence or in relation to a subgroup of occurrences. He probably also assumes that the three expressions are heteronymous for the reader, and that there is approximate or strict interpersonal synonymity between the expressions as interpreted by himself and as interpreted by the readers of his book. It is therefore plausible that Lundberg intends to offer suggestions for a list of interpretations of «age». If tenable, each interpretans expression expresses an interpretation of «age». If the above-mentioned interpersonal synonymity relations hold good, he has offered an interpersonally heteronymous reference list for interpretations of «age». In view of these considerations, we offer a tentative reformulation:

> (3) «Age» admits of at least three interpretations, expressed by «exact present age», «age at last birthday», and «age at nearest birthday».

This last reformulation is closely similar to the original formulation of Lundberg, but if (3) is interpreted in accordance with the terminology introduced in the foregoing sections, it will express a fairly definite hypothesis as soon as criteria of synonymity are adopted.

B. F. Skinner (1945: 275) writes that «the community has no suitable connection with the speaker's stomach. 'I am hungry' may therefore be variously translated as (1) 'I have not eaten for a long time', or (2) 'That food makes my mouth water', or (3) 'I am ravenous' (compare the expression 'I was hungrier than I thought' which describes the ingestion of an unexpectedly large amount of food), or 'I have hunger pangs'. While all of these may be regarded as synonymous with 'I am hungry', they are not synonymous with each other». Maybe Skinner, by a sentence of the kind «x is synonymous with y» means something similar to «is a synonymic alternative of y». Probably he intends to provide something like a heteronymous reference list. Tentative reformulations analogous to those of the foregoing example may be constructed, but they lead to hypotheses that, given the criteria of synonymity introduced in chapter 7, may well prove untenable or at least somewhat doubtful.[8] At any rate, the hypotheses are of considerable interest not only for the semantics of the term «hungry» but for the understanding of psychological processes connected with behavior of hungry organisms in some senses of this expression.

I.12. Preciseness: Introduction

a. Normative Definition

Let «a» and «b» be two expressions. Suppose, for a moment, that we are able to survey the total class of synonymic alternatives of «a» and of «b». In other words, suppose we are able to survey what kinds of designations (or sentences) at least sometimes may express the same meaning as «a» or «b».

> (1) If, and only if, every synonymic alternative to «a» is also a synonymic alternative to «b», and there is at least one synonymic alternative to «b» that is not a synonymic alternative to «a» and «a» admits of at least one synonymic alternative, then «a» will be said to be *more precise* than «b».

Roughly, «more precise than» means poorer, but comparable in synonymic alternatives.

If «a» is more precise than «b», «a» will be said to be a *precization* of «b». This term will also be used for the activity of finding expressions that are more precise than given ones. If «a» is more precise than «b», «b» will be said to be less precise than «a», and called a *deprecization* of «b». The name will also be used for the corresponding activity (Skinner 1945: 275).

Consider the following example:

«a» — The train leaves at 8 P.M.
«b» — The train leaves at 8 o'clock.

A supposed synonymic alternative to «a» is «The train is scheduled to leave at 8 P.M.».

The hypothesis that every synonymic alternative of «The train leaves at 8 P.M.» is also a synonymic alternative of «The train leaves at 8 o'clock», and that there is at least one synonymic alternative of «The train leaves at 8 o'clock», for example, «The train leaves at 8 A.M.», that is not a synonymic alternative of «The train leaves at 8 P.M.», and that the latter admits to at least one synonymic alternative is by definition a hypothesis about preciseness. The hypothesis may be conveniently expressed in the following words: the sentence «The train leaves at 8 P.M. is more precise than the sentence «The train leaves at 8 o'clock».

In symbols:

$$
\begin{aligned}
&(1\mathrm{s})\ \mathrm{Pr}(ab) =_{d} \text{-(Ex). Synalt(xa) \& -Synalt(xb)} \\
&\quad .\&. \qquad \text{(Ey). Synalt(yb) \& -Synalt(ya)} \\
&\quad .\&. \qquad \text{(Ez). Synalt(za)}
\end{aligned}
$$

The synonymic alternatives alluded to may be any synonymic alternatives of any instances of the expressions. Preciseness hypotheses of interest do not usually refer to the total classes of instances of the expressions «a» and «b», but to subclasses of the total class, as the following example illustrates.

«The expression «whole number» occurring in the sentence «There is no whole number between 0 and 1» is more precise than the expression «number» occurring in the sentence «There is no number between 0 and 1».» Using the definition of «more precise than», this hypothesis means the same as «There is no synonymic alternative to the expression «whole number» as it occurs in the sentence «There is no whole number between 0 and 1» that is not also a synonymic alternative to the expression «number» in «There is no number between 0 and 1», and there is at least one synonymic alternative to «number» in «There is no number between 0 and 1», that is no synonymic alternative to «whole number» in «There is no whole number between 0 and 1»». Moreover, there is at least one synonymic alternative of «whole number» in «There is no whole number between 0 and 1», for example, «natural number».

In this example there is reference to subclasses of instances, namely the classes of instances of «number» and of «whole number» characterized by filling the space between certain words in certain sentences.

Symbolization adapted to the second example: $Pr(aS_1bS_2)$, where S_1 and S_2 refer to the sentences «There is no whole number between 0 and 1» and «There is no number between 0 and 1», and «a» and «b» refer to «whole number» and «number».

Generalizing:

$$(2)\ Pr(aM_1bM_2) =_D -(Ex)(Ei).\ Synalt(xM_iaM_1)\ \&\ -Synalt(xM_ibM_2)$$
$$.\&.\ (Ey)(Ej).\ Synalt(yM_jbM_2)\ \&\ -Synalt(yM_ibM_1)$$
$$.\&.\ (Ez)(Ek).\ Synalt(zM_kaM_1)$$

Roughly, (2) says that a particular subclass of «a» occurrences is more precise than a particular subclass of «b» occurrences when, first, there is no expression of any subclass whatsoever that is a synonymic alternative to the «a»'s under consideration but not to the «b»'s; second, there is such an expression that is a synonymic alternative to the «b»'s and not to the «a»'s; and third, the expression «a» has at least one synonymic alternative.

Suppose «a» and «b» are selected in such a way that there is no synonymic alternative to «a» that is an alternative to «b» and vice versa. Suppose, in short, that «a» and «b» have no common synonymic alternative (and therefore no common interpretation). In symbols:

$$-(Ex).\ Synalt(xa)\ \&\ Synalt(xb)$$

From the definitions of (1s), it follows that if «a» is more precise than «b», then there is at least one synonymic alternative to «a», and that this alternative is also a synonymic alternative to «b». In symbols:

$$Pr(ab) :\supset: (Ez).\ Synalt(za)\ .\&.\ (x).\ Synalt(xa) \supset Synalt(xb)$$
$$Pr(ab)\ .\supset (Ez).\ Synalt(za)\ \&\ Synalt(zb)$$

This relation narrows down the area of expressions comparable in terms of preciseness. Definition (1) may be sign-economically reformulated in class terminology: ««a» is more precise than «b»» means the same as

«The class of synonymic alternatives to «a» is a nonvacant proper subclass of the class of synonymic alternatives to «b»».

This formulation is not often used because of its technicality and because it may give the impression that the classes mentioned are somehow given in the form of lists or otherwise.

b. Relation to the Vernacular

The introduced term «more precise than» is closely connected with certain usages of the term in the vernacular and in the sciences, but diverges in a way explained by the above consideration. Vernacular usage of «precise» is such that we may say that a sentence in a psychological text, let us say, «If a response is followed by a noxious stimulus it will tend to be weakened in strength», is less precise than a sentence in a mathematical text, let us say, «7 is a prime number». Such a comparison would presuppose, according to our normative definition, that the two sentences «a» and «b» have a common synonymic alternative «c», that is, that there is a third sentence such that sometimes the mathematical sentence means the same as the third sentence «c» and sometimes the psychological sentence means the same as «c». In this work the intended concepts of «preciseness» are such, however, that preciseness relations presuppose a kind of similarity of meaning.

This rules out the possibility of mathematical sentences being more precise than psychological sentences—except in cases, for example in quantitative psychology, in which sentences may have both psychological and mathematical interpretations.

The requirement of a common synonymic alternative would not follow from the normative definition of preciseness if the third part of the definiens were eliminated. That part says that the more precise expression (and therefore also the less precise) must admit of at least one synonymic alternative. If an expression «a» had no synonymic alternative, it would be more precise than every expression that admits of one or more alternatives. This would in theory make it possible to say about expressions that are totally unrelated in meaning that some are more precise than others.

The narrowness of comparability of preciseness as defined here is purposely introduced because we are interested in the possibility of substituting sentences with more precise sentences. The claim that a sentence is more precise than another sentence will be considered in problems concerning how to avoid misunderstandings. Evidently, if two sentences are totally unrelated in meaning as in the above example, the claim that the one is more precise than the other does not warrant the consideration of the possible substitution of the less precise with the more precise. It is of no avail to put a mathematical sentence on prime numbers into a text on conditioning and learning because the mathematical sentence is more precise (in a vernacular sense) than the psychological one. For purposes other than substitution, a second preciseness concept might be introduced, normatively defined by the first two parts of the definiens of the adopted normative definition (1s).

It should be noted that it does follow from definition (1) that if «a» is more precise than «b», then «a» admits of *fewer* synonymic alternatives and fewer interpretations. No direct quantitative comparison is presupposed. However, if an enumeration of synonymic alternatives were practically possible, the conclusion that the number n of alternatives of «b» is greater than the number of alternatives of «a» would be of little interest if the relatedness in meaning stipulated in (1) were not satisfied. ««7» is a prime number» admits, maybe, of fewer synonymic alternatives than certain sentences in psychology, but it does not help the psychologist who strives to give his text a fairly unambiguous form. Whereas it follows from the normative definition of ««a» being more precise than «b»» that «a» admits of fewer synonymic alternatives, the converse does not follow: «a» may admit of fewer synonymic alternatives than «b» but not be more precise than «b».

I.13. Preciseness, Interpretation, and Ambiguity

a. Preciseness and Interpretation

So far we have considered synonymic alternatives regardless of whether they might occur as presumptions of interpretative sentences.

One might expect that fruitful concepts of preciseness ought to be constructed so as to be applicable to interpretation relations rather than to any kind of synonymic alternatives of sentences. The mere substitution of certain sentences for others has no effect on sources of misinterpretation unless the process excludes interpretations representing misinterpretations. It can, however, be shown that if «a» is more precise than «b» in relation to interpretative sentences, «a» is also more precise than «b» in relation to synonymic alternatives in general, and vice versa. Consequently, a limitation of comparison to interpretations does not result in rejection of any preciseness relation found by using the general synonymic alternative definition (1) of section 12. Let us consider this argumentation in more detail.

Suppose «c» is a synonymic alternative to «b», but not to «a». This means that «a» is never interpreted in the same way as «c». In other words, «a» cannot be more precise than «b» in the accepted sense unless there is an interpretation of «b» that «a» does not admit. On the other hand, if there is an interpretation (as part of a list of interpretations) that «b», but not «a», admits, there will also be a synonymic alternative that «b», but not «a», admits. Thus, if, and only if, «a» is more precise than «b» in terms of synonymic alternatives, will «a» be more precise than «b» in terms of interpretations.

One may therefore by definition assert:

> (1) ««a» is more precise than «b»» is equipollent to «There is no interpretation of «a» that is not also an interpretation of «b», whereas there is at least one interpretation of «b» that is not an interpretation of «a», and there is at least one interpretation of «a»».

In symbols:

(1s) $\mathrm{Pr}(ab) =_{d} -(Ex).\ \mathrm{Int}(xa)\ \&\ -\mathrm{Int}(xb)$

$.\&.\ (Ey).\ \mathrm{Int}(yb)\ \&\ -\mathrm{Int}(ya)$

$.\&.\ (Ez).\ \mathrm{Int}(za)$

It should be noted that if «a» is more precise than «b» for certain persons in certain situations, this does not prevent «b» from being more precise than «a» for other persons in other situations. The relativity of preciseness hypotheses to definite groups of occurrences of sentences or designations, and to definite contexts, persons, or situations, ensures a level of differentiation adapted to the purposes of the conceptual system.

Suppose the designation «a» is found to be more precise than «b» within certain contexts. This means, roughly, that some designations sometimes express the same meaning as «b», but never the same meaning as «a», whereas any designation that sometimes may express the same meaning as «a» also may sometimes express the same meaning as «b». This relation of being more precise implies that if a list of synonymic alternatives to «a» and a list of synonymic alternatives to «b» are constructed, the b list must not consist of designations that are all synonymous to each other. If they were, «b» would have no specific synonymic alternative. All or none would be synonymic alternatives also to «a» because of the transitivity of the synonymity relation (see chapter 2, section 6).

The b list must—if «a» is more precise than«b»—contain at least two interpretations in the sense of section 9. The corresponding interpretans expressions will form a heteronymous list with at least two members.

If the heteronymous list of «b» has only two members, the list of synonymic alternatives to «a» must be made up of designations that are all synonymous. No heteronymous list can be formed from it. If the heteronymous list formed out of members of the synonymic alternatives of «b» contains n members, the corresponding heteronymous list for «a» can at most consist of n−1 members.

The relation between preciseness relations and interpretations is seen to be such that:

1. If «a» is more precise than «b», «b» admits all interpretations (that is, may express all meanings) that «a» admits, and at least one that «a» does not admit, and «b» must have at least two meanings.
2. If, vice versa, «b» admits all interpretations that «a» admits, and at least one that «a» does not admit, then sufficiently extensive synonymic alternative lists of «a» and «b» will be such that «a» can be said to be more precise than «b».
3. Therefore, ««a» is synonymically more precise than «b»» is equipollent to ««a» is interpretatively more precise than «b»».
4. If «b» expresses an interpretation of «a», «b» cannot be less precise than «a». It must be either more precise or incomparable to «a» as regards preciseness.[9]

b. Preciseness and Ambiguity

Vernacular and technical literature makes use of the expressions «more ambiguous than» and «less ambiguous than».

As in the case of the expression «more (or less) precise than», one may introduce concepts of degree of ambiguity such that two terms totally unrelated in meaning may be compared, or one may wish to introduce a concept that stipulates certain relations of interpretation. The usefulness and simplicity of the latter kind of concept make it advisable to introduce the following normative definition: in this work «more (less) ambiguous than» shall mean the same as «less (more) precise than».

The relation of this technical use of «ambiguous» to that of the vernacular is more unsatisfactory than the corresponding relation between «precise» and the vernacular, insofar as «ambiguity» in the vernacular often carries with it an unconditional negative evaluation. If it is said about a sentence that it is ambiguous, this remark is often interpreted as if there existed ambiguities of important and undesirable kinds. The classification of all expressions into more or less ambiguous ones is likely to be regarded as an attempt to uncover undesirable features of any expression whatsoever. This negative association attached to «ambiguous» is one of the reasons that the term «more (less) precise» is preferred in this work.

I.14. Specification and Elaboration

a. Specification

Consider the following two sentences:

> «a» — In the beginning of the nineteenth century, Norway was made independent of another state.
> «b» — In 1814, Norway was made independent of Denmark.

It is not unusual for university students to judge «b» to be more precise than «a» in the terminology of section 12. The conditions would have to be rather extraordinary, however, to make anybody interpret «a» and «b» as having a synonymic alternative in common. There is scarcely any «c» such that both «a» and «b» are synonymic alternatives of «c». Consequently, there is scarcely a person and a situation such that both «a» and «b» are synonymous with «c». This seems to hold good for most of the interpretations of the term «synonymous» found in technical literature and in the vernacular.[10] Let us, however, grant that there is such a relation:

$$(EP)(ES)\,Syn(acPS)\ \&\ (EP')(ES')\,Syn(bcP'S')$$

The satisfaction of this condition does not imply that there is any person P´´ and situation S´´ such that for this person in that situation, «b» is more precise than «a». The relation

(1) $Pr(baP''S'')$

is realized only when *all three* requirements mentioned in the N-definition of preciseness are satisfied.

Let us, for the sake of argument, suppose that (1) is realized. It is not warranted to infer from this relation the satisfaction of the relation

(2) $Pr(ba)$

because the latter is satisfied only when the first one holds good for every person in every situation.

Thus, under no circumstances are there any reasons to believe that «b» is more precise than «a» in general. One may *imagine* rare cases of «b» being more precise than «a», but only by means of a rather vivid imagination.

On the other hand, it will be easy to find cases in which «a» and «b» are interpreted in such a way that 'a' follows from 'b'.

Consider the expressions «independent of another state» and «independent of Demark». A Norwegian who hears «a» will perhaps say to himself, «Aha, by «another state» Denmark is of course meant (thought of)». Compare a similar inference in the case of an official announcement that «The Communist N. N. has been seen delivering papers to a member of a foreign embassy». Some might at once say, «Aha, the Russian embassy is of course meant».

There are important senses of synonymity sentences («--- means the same as . . .», etc.) that make it unwarranted to say that «independent of another state» *means* to somebody the same as «independent of Denmark» or the same as «independent of another state, Denmark», or to say that «a member of a foreign embassy» means to somebody the same as «a member of the Russian embassy». The concepts of synonymity to be introduced in chapter 7 are of this kind. The comment to «a» will then not be «Aha, Denmark is meant», but rather «Aha, I know the state (which is not mentioned directly). It is Denmark». In other words, one interprets «a» to assert that there was a state of which Norway was made independent in the beginning of the nineteenth century, but nothing is said about which state fulfilled those characteristics. This kind of interpretation is probably the most frequent in the following case:

«a» — There is a prime number smaller than 10 and greater than 5.
«b» — 7 is a prime number smaller than 10 and greater than 5.

Some may upon hearing «a» say, «Aha, he means 7» but generally one may expect that neither «7» nor «b» will be taken as expressing the same meaning as «a».

Similar remarks apply to the relation between the expressions «in the beginning of the nineteenth century» and «in 1814». The synonymity concepts to be introduced are such that the two expressions are scarcely ever taken to be synonymous.

To handle pairs of sentences such as «a» and «b» in a satisfactory way, we shall introduce a term «specification» and stress that to specify is not the same as to make more precise in the adopted terminology.

The term «specify» is adopted to remind us of the expression «species of a genus». «Specification» in the sense to be introduced is often a kind of classification into species or kinds. In other cases the sense is more like the sense of «specify» in «specify your desires, do not only mention them in general terms».

Initial formulation:

> A sentence «b» is a specification in relation to a sentence «a» for a person P in situations S if, and only if, the following two criteria are fulfilled:
>
> (1) As interpreted or used by P in situations S, what is asserted by «a» is explicitly or implicitly asserted by «b», but by «b» something more is asserted.
>
> (2) As interpreted or used by P in situations S, both «b» and «a» express assertions (propositions) about the same subject.

The second criterion is not easy to make more precise. It is adopted after study of concrete cases of misapplication of the concept of preciseness.

Requirement (1) of the above initial formulation is such that it is not possible that, for a person in a specific situation, «b» is both more precise than «a» and a specification of «a». There is an «either-or». The requirement does not, on the other hand, exclude the possibility that whereas «b» for a person, in a particular situation, is a precization of «a», there are other situations (or other persons) such that «b» is a specification of «a». Comparing the relative frequency of the cases, one may sometimes state that «b» is mostly or normally a specification of «a», or that «b» is mostly or normally a precization of «a». In the above examples, «b» is probably usually interpreted in such a way that it is a specification of «a».

In the next two subsections, formulations are introduced that are more satisfactory than the initial formulation.

b. Specification Relation Between Designations

Let «a» and «b» be a pair of designations.

> (3) «The designation «a», for P in S, is a specification «b» for P in S» shall in this work mean the same as «As interpreted by P in S, the class of denotata of 'a' is a genuine subclass of the denotata of 'b', or, as interpreted by P in S, «a» expresses a concept richer in connotation than «b» does.»

The definiens expression of this normative definition is a disjunction: a relation of specification is realized if one of two, or both, conditions are realized (according to the opinion of the analyst). The first condition is one that can only be tested by empirical methods. Whether something is subsumable under a concept, that is, whether it belongs to the denotata of that concept, must be decided by methods of the nonformal sciences. Take as an example this pair of designations: «a»—«country with towns farther north than 71°», and «b»—«Scandinavian country». The first designation is a specification of the latter in relation to a person P if that person interprets it in such a way that its denotatum or denotata belong (properly) to the class of denotata of the latter designation. This will, for example, hold good if there are several Scandinavian countries in the intended sense of

«Scandinavian country» and only one country with towns farther north than 71°, and that country is a Scandinavian country. It is a question of how to interpret P and a matter of geography to decide whether there is an instance of specification.

Let us, on the other hand, consider this pair of designations: «a»—«Scandinavian country with towns farther north than 71°», and «b»—«Scandinavian country». To decide whether «a» is a specification of «b», it is convenient to start with a comparison of concepts expressed by «a» and «b» (as interpreted by certain people in certain situations). It may well be that a concept-determination schema of such a kind can be constructed, that 'a' has all conceptual characteristics that 'b' has and at least one more. For example: The concept 'a' is determined by the two characteristics 'Scandinavian country' and 'country with towns farther north than 71°'. The concept 'b' is completely determined by the first conceptual characteristics attributed to 'b'.

A decision concerning whether «a» is a specification of «b» is here based on empirical investigations of how «a» and «b» are actually interpreted by certain people in certain situations, and on logical investigations concerning relations of explicitly introduced concepts.

The definiens of (3) is formulated as a disjunction between two requirements, the first of which refers to denotation, the second to connotation. The first requirement may be satisfied without the second being satisfied; 'a' and 'b' may, for example, each have particular conceptual characteristics of their own. The one will then be neither more nor less rich in connotation than the other. On the other hand, the second requirement may be satisfied without the first being so, for example, if 'a' is richer in connotation than 'b', but both have the same denotation.

The importance of such a concept of 'specification' as introduced above stems partly from the importance of avoiding misapplication of the concept of 'precization', partly from the value of bringing under one heading certain methods of narrowing down a subject of discussion. Very often the demand to be more specific can be satisfied by giving specifications in the introduced sense. Suppose a historian says something rather sweeping about «medieval kings». Demands for precization may clear up misunderstandings caused by different delimitations of concepts of 'medieval age' and 'king'. Demands for specification can focus attention on definite kings.

c. Specification of Sentences

Let T and U be a pair of sentences.

> (4) «U is more specified than T for P in S» shall in this work mean the same as «As interpreted or used by P in S,
> 1. U may be given the form «There is something that falls under the concept 'a' that has the property c», and
> 2. T may be given the form «There is something that falls under the concept 'b' that has the property c» or «Something b, which falls under the concept 'a', has the property c», and
> 3. «b» is a designation-specification of «a»».

Formulation (4) may be illustrated by the following:

««A Scandinavian country was made independent in the nineteenth century» is for A. N., reading his own manuscripts, more specified than «A country with town farther north than 71° was made independent in the nineteenth century»» means according to the adopted terminology the same as

As interpreted by A. N., reading his own manuscripts,

1. «A Scandinavian country was made independent in the nineteenth century» may be given the form «There is something that falls under the concept 'Scandinavian country' that has the property of having been made independent in the nineteenth century», and
2. «A country with towns farther north than 71° was made independent in the nineteenth century» may be given the form «There is something that falls under the concept 'country with towns farther north than 71°' that has the property of having been made independent in the nineteenth century», and
3. «country with towns farther north than 71°» is a designation-specification of «Scandinavian country»».

d. Exemplification: Why Is It Difficult to Differentiate Between Precizations and Specifications?

At examinations in 1948 the problem was given to precize in different directions the designation «*pugg*» as used among students. Dictionaries claim that «grind» is the equivalent English term. This is presumed in the following to be justifiable.

One of the answers considered to be satisfactory distinguishes four directions of precization of «*pugg*» (as a process, to grind):

T_1: learning by heart without understanding the content
T_2: learning memory stuff[11] by heart
T_3: learning by heart in such a way that what is learned can be delivered word for word
T_4: too diligent reading[12]

The list T_1–T_4 can be considered to be a list of interpretations. The author considers the first two to indicate the most frequent usages among students. This, of course, is only a guess as long as no extensive empirical studies have been undertaken.

Some candidates proposed precizations that might rather be mentioned as examples of specifications:

Learning of names by heart
Learning of formulas by heart
Learning of quotations by heart
Too diligent learning of names
Too diligent learning of formulas
Too diligent learning of quotations

The designation «learning of names by heart» probably expresses for the student P, whose answer has been quoted, a concept *richer* in connotation than the concept expressed for P by the designation «learning memory stuff by heart» (T_2).

If P uses T («to grind») synonymously with T_2, and if «learning of names by heart», (U), is for P expressive of a richer concept than T_2, then U is not a precization of T or T_2, for P, but a specification expression of T and of T_2 for P.

It cannot be ruled out as impossible that those students who tend to give U as an example of a precization of T actually have observed occurrences of T that confirm the hypothesis that U sometimes is used as a synonym for T, but it is very unlikely (given the criterion of synonymity they are asked to apply). It is more probable that the concept of 'precization' is mixed together with that of 'specification'. The confusion seems in part to be caused by a feeling among some of the students that it is obvious what the term «grind» means. Proceeding from the tacit assumption that it means 'T_2' (or 'T_4'), all that they find they can do is give a classification of things subsumable under 'T_2' (or 'T_4').

What here is said about U can be said about the other members of the above list of specification expressions: the expressions are likely to be considered expressive of concepts richer in connotation than concepts expressed by T_2 and T_4. In cases in which T is used synonymously with T_2, the expressions «learning of formulas by rote» and «learning of quotations by heart» can be considered expressive of specifications of T_2, and, because of presumed synonymity with T, expressive of specifications of T. In case T is used synonymously with T_4, the expressions «too diligent learning of names», etc., can be considered expressive of specifications of T_4, and therefore of T.

It should be noted that the relation of specification can only be asserted on the basis of a presumed usage. If T_1 and T_2 are interpretations of T, U may be said to be a specification of T_1 or of T_2 and possibly of both T_1 and T_2. It is apt to be misunderstood, however, if one says—without reference to interpretations of T—that U is a specification of T. What usage of T is referred to? U may be a specification of T when T is synonymous with T_2, but not when T is synonymous with T_4.

A relation of specification is relative to a usage, that is, to the use of certain persons under certain conditions. For one person, U may be a precization of T; for another, U may be a specification of T. In one kind of situation, U may be a precization of T; in another, U may be a specification of T. If U is a specification of T for all persons in all situations, it may of course be convenient to introduce as shorthand «U is a specification of T» for «U is for all people in all situations a specification of T». Even if U is a specification only for one person in one situation, such a shorthand may be convenient within long argumentations concerned with that person or that situation or with the relation of specification abstracted from persons and situations.

If «U is a specification of T» is introduced as shorthand for «U is in relation to (the usage of) at least one person in one situation a specification of T» and «U is a precization of T» is introduced as shorthand for «U is in relation to at least one person in one situation a precization of T relative to that usage»: if 'U' is a concept richer than 'T', and those concepts are in a given communication or class of communications expressed by the designations U and T, then U and T cannot be synonymous within that communication or group of communications. If they were synonymous they could not, *per definitionem*, express a pair of connotations such that the one were richer than the other.

Unhappily, students tend to abstract statements from instances of communication. This done, they find that precizations and specifications are «difficult to keep apart» even in theory. The difficulties that remain after clarification of terminology are, however, of an empirical character: one does not know much about usage.

e. Elaboration

Roughly speaking, concepts of 'synonymic alternative' are used to describe and solve problems of how to modify a saying but not its contents, by using alternative phrases. Concepts of 'preciseness' are used in problem situations where elucidation and avoidance of ambiguity are our aim. An improvement of definiteness is in such cases under consideration. 'Specification' is needed to make a description more concrete and direct. In problem situations in which efforts of precization and specification are helpful, a third kind of process may also prove helpful, a process here called «elaboration». It is not our aim to make much use of this term. It will be used to make the relation of 'preciseness' to other relations more clear.

By «elaboration of a statement» that attributes a property to something, I mean any addition of statements about other properties, when the latter are not precizations or specifications of the first one. An example:

«a» — Dr. Koppang has the opinion that Hegel influenced the works of Ibsen.

«b» — Dr. Koppang has in his monograph *Hegelianism in Norway,* a Ph.D. dissertation, expressed the opinion that Hegel influenced the works of Ibsen, especially «*Emperor and Galilean*».

The name of Koppang's monograph might possibly be mentioned in «b» without transgressing the limits of plausible interpretation of «a». This would, for example, be the case if «a» was uttered in a seminar exclusively undertaken to discuss that monograph. In such a case the repetition of the words «in his monograph ---» would have been tedious and could profitably have been left out when talking about Dr. Koppang's opinions. In most situations, however, mentioning the monograph and, even more so, the other differences between «a» and «b» transcends the limit of precization and specification. For most persons and in most situations, «b» is therefore an elaboration of «a».

A more complicated example:

Kant says in his foreword to the first edition of *Kritik der reinen Vernunft* about the expression «*Kritik der reinen Vernunft*»:

> Ich verstehe hierunter nicht eine Kritik der Bücher und Systeme, sondern die des Vernunftvermögens überhaupt, in Ansehung aller Erkenntnisse zu denen sie, *unabhängig von aller Erfahrung*, streben mag, mithin die Entscheidung der Möglichkeit oder Unmöglichkeit einer Metaphysik überhaupt und die Bestimmung sowohl der Quellen, als des Umfanges selbst und der Grenzen derselben, alles aber aus Prinzipien.

Let us consider the following part of this long sentence:

«a» — Ich verstehe hierunter die Kritik des Vernunftvermögens überhaupt, in Ansehung aller Erkenntnisse, zu denen sie, *unabhängig von aller Erfahrung,* streben mag.

«b» — Ich verstehe hierunter nicht eine Kritik der Bücher und Systeme, sondern die des Vernunftvermögens überhaupt, in Ansehung [continuation as «a»].

«c» — [The beginning as «a», then:] mithin die Entscheidung der Möglichkeit oder Unmöglichkeit einer Metaphysik überhaupt und die Bestimmung sowohl der Quellen, als des Umfanges selbst und der Grenzen derselben, alles aber aus Prinzipien.

As I interpret Kant, he intends by «a» to give something similar to what in this work will be called a descriptive definition of the expression

«*Kritik der reinen Vernunft*». What is added in «b» serves to stress a contrast between the meaning of the definiens formulation and certain other, possible, significations. To me, in the situation partly characterized by reading Kant, «b» is no precization of «a», but an elaboration of what I think is the subject matter of «a».

The same applies to «c», although it here might be possible to regard «c» as a specification of «a». The most plausible interpretation, I think, is to regard «c» as containing a reference to *some* of the most important problems facing the critics of pure reason. In that case «c» is an elaboration, not a specification, according to the introduced terminology.

In his list of precizations of «definite», Richards (1949: 152ff.) stresses the importance of distinguishing between concepts roughly corresponding to our 'specification' and 'elaboration'.

I.15. Connotation, Denotation, Concept Subsumability: Terminological Notes

The terms discussed in this section do not occupy a central position in the conceptual structure of this work. They are introduced because they are sometimes needed for the adequate understanding of more central terms and conceptions.

«Connotation», «cognitive meaning», and «cognitive signification» are used indiscriminately. Interpretative sentences of the form ««a» means b» are used synonymously with sentences ««a» has the connotation (cognitive meaning, cognitive signification) 'b'», which in turn are used synonymously with ««a» has the cognitive meaning that «b» would have expressed in the sentence ««a» has the cognitive meaning 'b'», if that sentence had been replaced by the present sentence».

The expression «the connotation 'b'» may be said to be used as shorthand for «the connotation expressed by «b»», but in a theory of communication the question immediately arises, Expressed by «b» for whom? In what contexts? To such questions of marginal references, the answer is given that «b» should be thought of as occurring just at the place where «'b'» occurs in the sentence ««a» has the connotation 'b'».

By the last synonymity announcement a marginal reference to context is indicated. It is not a very adequate reference because it can be interpreted in such a way that it implies the hypothesis that for *all* people, «b» expresses one and the same connotation if «b» occurs within a definite kind of context. A more precise announcement is not needed in the present discussion, however.

Suppose «b» expresses for P in S a cognitive meaning 'b'. Suppose, further, that sentences of the form «x is a b» have for P in S a cognitive meaning 'x is a b' and that «b» in «x is a b» expresses the above-mentioned cognitive meaning 'b'. (The cognitive meaning 'b' will under these conditions be termed a «concept», the concept 'b'; and «b» will be called a concept designation for P in S.)

Consider this example: «Prime number greater than 100» expresses for A. N., reading mathematical texts, a cognitive meaning 'prime number greater than 100'. The sentence «101 is a prime number greater than 100» has, with the above marginal references, a cognitive meaning '101 is a prime number greater than 100', and «prime number greater than 100» in the sentence «101 is a prime number greater than 100» expresses the above-mentioned cognitive meaning 'prime number greater than 100'.

If «x is a b» can be cast into the form «x is a k_1 and x is a k_2, . . . and x is a k_n» for P in S without change in cognitive meaning, and «k_1», «k_2», etc., within the above sentence, express for P a set of cognitive significations 'k_1', 'k_2', etc., then 'k_1', 'k_2', etc., will be said to be conceptual characteristics of 'b'. The expressions «k_1», «k_2», . . . « k_n » will be called a set of *conceptual characteristic expressions* of the concept 'b', for P in S. There may be, for P in S, many sets of conceptual characteristic expressions of the concept 'b'. Thus, if for P in S, «k_1» and «L_1», «k_2» and «L_2», . . . «k_n» and «L_n» are synonymous, then «L_1», . . . «L_n» is another set.

Another example: «101 is a prime number greater than 100» can be cast into the form «101 is a prime number and 101 is greater than 100» within mathematical texts without change in meaning for A. N., and «prime number» and «greater than 100» within the above sentence express for him different cognitive significations. Therefore, 'prime number' and 'greater than 100' are the conceptual characteristics of 'prime number greater than 100'. The two expressions «prime number» and «greater than 100» form together a set of conceptual characteristic expressions; the two expressions «*Primzahl*» and «*grösser als* 100» form another.

Another example: According to *Lexikon der Politik* (Theimer 1967), an

«*Enzyklika*» is «ein Rundschreiben des Papstes über religiöse oder politische Fragen». Possibly the definiens expression of the definiendum *«x ist eine Enzyklika»* could be reformulated as follows without changing the intended meaning: «x ist ein Rundschreiben und x ist vom Papste geschrieben und x behandelt religiöse oder politische Fragen». The three (heteronymous) expressions separated by «*und*» would then together form a set of conceptual characteristic expressions in relation to a concept '*Enzyklika*' intended by the author of the lexicographical monograph.

Sometimes the conceptual characteristics of a concept are themselves concepts, for several steps. It is of some importance to avoid confusing conceptual characteristics of a higher order with expressions of conceptual characteristics of a higher order. Some assertions, which are tenable if stated about conceptual characteristics, may be untenable or meaningless if stated about expressions, and vice versa. Much confusion is caused when authors talk about «*the* concept b» without indicating which concept is alluded to. The *expression* «b» is scarcely meant to be the concept one has in mind. By «*the* concept b» one more probably means to express something better expressed by «*the* concept that «b» expresses». But it is rarely intended that «b», in any context whatever and for every person, expresses one and the same cognitive meaning. Feeling that something ought to be added about what concept the author has in mind, he may, for example, add: 'b' is the concept with characteristics 'k_1' and 'k_2'. ('Brother' is the concept with characteristics 'male' and 'sibling'.) It seems that by adding these words the author sometimes assumes that readers have been made to *see* what concept he has in mind, whereas all he has done is to add more indications of the form «*the* cognitive meaning expressed by «---»». The crucial issue is that of the level of preciseness and other characteristics of the term «b» compared with that of the terms «k_1» and «k_2». The expression «*the* conceptual characteristic 'k_1'» is of little use if the expression «k_1» does not have certain valuable characteristics as a vehicle of intrapersonal or interpersonal communication.

Let us return to sentences of the kind «x is a b», in which «b», for P in S, expresses a concept. Suppose such a sentence, having the form «x_1 is a b», for P in S expresses the same as the corresponding sentence «x_1 has those characteristics that are the conceptual characteristics of 'b' (and x_1 is not the concept 'b')». If what this latter sentence expresses is tenable, x_1 will be said to be a *denotatum* of the concept 'b'. Usually x_1 is not an expression «x_1», but something nonverbal. Thus, Vesuvius is, so far as I know and in relation to my use of the terms «Vesuvius» and «volcano», a volcano; and Vesuvius is a denotatum of the concept 'volcano'. If x_1 in «x_1 is a b» is Vesuvius, it is far too big to be placed within any sentence, and «x_1 is a b» must be interpreted as synonymous with «what is designated by «x_1». Thus, sentences of the kind «--- is a (the) denotatum of . . .» will in this work be used synonymously with «The expression --- expresses a cognitive meaning of such a kind that it designates a thing that is a denotatum of the concept . . .». Such sentences (denotation sentences) need much clarification in order to express fairly definite hypotheses (denotatum hypotheses). Somehow, it must be indicated how that expression is to be interpreted that is supposed to designate (for the sender and receiver) the denotatum.

Further, it must be indicated which concept is alluded to by the expression «the concept . . .». Lastly, there is the question of how to test whether the thing (entity) asserted to be a denotatum is a denotatum.

As the concept 'denotatum' is introduced here, a concept may in 1950 have different denotata from what it has in 1960. 'Moving train on the way from Oslo to Bergen' is a concept that has fewer denotata at night than during the day. Snowstorms may make the concept lack denotata for several days, or reduce the number to a single denotatum.[13]

The problems confronting the analyst who tries to find out how to test denotatum hypotheses will be called «subsumability problems». To arrive at conclusions about whether something, x, is subsumable (as denotatum) under a concept 'b', the analyst must mostly use auxiliary hypotheses of various kinds. In chapter 5, problems of subsumption are taken up in detail.

II

Basic Terms Continued

II.1. Receiver Ambiguity and Interrelational Suspension

In chapter 1, section 5, sentences of the kind «. . . is ambiguous» were given a normative definition by means of the definiens expression «There is at least one pair of instances of «. . .» such that the first member of the pair expresses a different meaning from the second». In this normative definition, implicit reference is made to the total class of instances of «. . .». By (4) and (5) in section 5, hypotheses were formulated according to which instances of an expression «a» belonging to a certain subclass G_1 of the total class always express a different meaning from instances of «a» belonging to a second subclass G_2. As introduced in section 5, an ambiguity hypothesis asserts the existence of a pair of instances of an expression, the members of which express different meanings. It is introduced as a function of one argument.

The word «ambiguous» is sometimes used in the vernacular and in technical literature in a way suggesting such a kind of ambiguity concept. The vernacular use may, however, be taken as a point of departure for precization in other directions. This shall be done here.

If a person Q is invited by a person P to say whether he accepts or rejects an assertion that P expresses by the declarative sentence T_0, Q may feel incapable of answering, because he feels more or less uncertain about how to interpret T_0. If several meanings seem about equally plausible as interpretations of T_0, T_0 may be said to be *actively receiver-ambiguous for Q* in the situation characterized by P's invitation.[1] Q does not in that case carry through a process of interpretation that is considered normal in successful verbal communication. A *suspension of interpretation* or, as we shall also call it, an *interpretational epoché*, occurs, which may last for some time or indefinitely.

Ambiguity in the sense of section 5 does not necessarily result in an interruption of the processes of interpretation. If T_0 sometimes means T_1, sometimes T_2, T_1 not being synonymous to T_2, this may not prevent people from interpreting—without any interval of *epoché*—T_0 in the sense of T_1 or in the sense of T_2. If T_0 in a class of contexts S_1, always is intended to express and always is interpreted to mean T_1, and T_0 in a different class of contexts S_2, always is intended to express and always is interpreted to mean T_2, then communication by means of T_0 is perfectly successful in spite of the ambiguity.

On the other hand, in cases of active receiver ambiguity, interruption and suspension of the process of interpretation, owing to the awareness of several possibilities, are more or less detrimental for successful communication. They justify immediate efforts to replace T_0 with another vehicle of meaning, or to attempt explicit interpretation.

An example of a reported case of active receiver ambiguity would be the following:

P says to Q: Do you agree to the hypothesis «All knowledge is derived from the senses»?

Q: «Derived from the senses»? What do you mean? «Tested by references to observation»? «Inferred from sense observation»? What is the hypothesis I am invited to judge?

It seems from the report that Q suspends the termination of his interpretation of the declarative sentence put forth by P. It seems that Q finds several possible meanings that might be communicated by means of the sentence produced by P in the particular situation at hand. An interview with Q may confirm or disconfirm this view of the situation.

Suppose P asserts T_0 with Q as his public, and that Q expresses acceptance or rejection. If T_0 expressed a different meaning for P as asserter than it did for Q as a receiver, we shall say that T_0 was *actively ambiguous in communication in the situation*. Later, this kind of unsuccessful communication will be closely analyzed in terms of pseudoagreement and pseudodisagreement.

In summary, we may say that:

One may study difference in cognitive meaning attached to an expression without paying attention to effects in communication. The results may be formulated in ambiguity hypotheses (in the sense of section 5).

Or, one may concentrate on instances of verbal communication in order to find out to what degree, if at all, the use of an expression interrupts the normal process of interpretation because the listener or reader sees several, approximately equally well suited possibilities of interpretation. The results of the study may be formulated in terms of active receiver ambiguity.

Or, one may concentrate on misinterpretation. An expression may be used in a particular situation to express one meaning but be interpreted in another sense. The results of the study may be formulated in terms of active ambiguity in communication.

Active receiver ambiguity and ambiguity in communication can occur only if ambiguous expressions (in the sense of section 5) are in use. But an expression may be ambiguous without ever being actively receiver-ambiguous or actively ambiguous in communication.

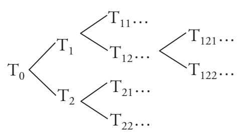
An interpretational *epoché* occurs (of course) not just when an expression happens to be actively receiver ambiguous. If the receiver is incapable of finding any interpretation that seems plausible, every possibility being rejected as unlikely or impossible, there is also suspension of interpretation.

II.2. Definiteness of Intention: Transintentionality

When we read a text, the normal process of interpretation is sometimes interrupted and an interpretational *epoché* is experienced. We ask ourselves what is meant. If an answer is attempted, found by first listing possibilities in a list of interpretations, the distance in meaning between the interpretans expressions may be thought of as considerable, or as being relatively small. Thus, one may talk of the range or breadth of difference in meaning within the list of interpretations.

But we may also look for distinctions of another kind. Taking each interpretans expression as a point of departure, one may construct two or more precizations of each. Each of them may in turn be subjected to precization and so forth.

Let T_0 be the original formulation, and let T_1 and T_2 make up an interpretational list consisting of two precizations of T_0. Two heteronymous precizations of T_1 may be called T_{11} and T_{12}; two such precizations of T_2 would be T_{21} and T_{22}. The two pairs of higher-level precizations of T_0 constitute heteronymous reference classes for interpretations of the two first-level precizations of T_0. Continuing the process of precization in this manner, we obtain a precization pedigree that can be illustrated as follows:



The two first-level precizations will be said to indicate two main *directions of precization*; the four second-level precizations, four subdirections.

Each entry in the pedigree expresses a hypothesis about usage. If one does not take into account usages developed after a fixed time limit, the process of precization will sooner or later come to a standstill. If artificial stimulation by questionnaires or other means is resorted to, there may be no limit to the process except the limit set by limited resources of time, respondents, and analysts.

Pooling the precizations of different levels into one list, one gets a *branched reference class* for T_0. It is not heteronymous, since, for example, T_{12} may be a synonymic alternative of T_1. Each vertical column of expressions makes up a heteronymous reference class, whereas nonvertical groupings give nonheteronymous expression classes.

The steps in preciseness and the heteronymity relation are for the purpose of this section defined in relation to an analyst, the constructor of the list and reader of T_0. If T_0 is a declarative sentence belonging to a science or technique of which the analyst is a professional student, and T_0 is written by a person with very superficial knowledge of that science or technique, one must expect that many of the distinctions that are used as a basis for constructing the branched reference class are totally unknown to the writer of T_0.

If, let us say, T_0 is «The distance between the sun and the earth is 149.5 million kilometers», the higher levels of precization are based on rather technical distinctions presuming knowledge of a number of problems of astronomical measurements of distance. The distinctions are usually expressed in technical language known only to specialists, but let this complication be left out of consideration at the moment. It is here presumed that one can substitute well-known words of the vernacular for the technical terms.

Now, let us suppose a person reports that when writing T_0 he has intended T_1 rather than T_2, and T_{12} rather than T_{11} or T_{13}. The distinctions used as *fundamenta divisionis* by the constructor of the reference lists—for example, distinctions between mean yearly distance and distance from a particular point of the earth's orbit—have so far been of a kind familiar to the writer who used T_0. But suppose now that at certain points of the reference list, a distinction (for example, that between T_{121} and T_{122}) is used that is perfectly unknown to the writer of T_0. In accordance with the presumption made, we take it for granted that it is not only the expressions used in the reference list at this point but also the distinctions expressed that are completely new to the writer. He will report that he has intended neither T_{121} nor T_{122}.

This manner of reporting is inconvenient, because the same words were used under a set of very different circumstances, namely, when he reported that he had in mind neither T_{11} nor T_{13}, but T_{12}. The discrimination between T_{121} and T_{122} was not made, either explicitly or implicitly, by the writer of T_0, whereas the discrimination between T_{11}, T_{12}, and T_{13} was made, at least implicitly: the writer intended something that was rather T_{12} than T_{11} or T_{13}, whereas he did not intend the third-order precization T_{122}, any more than he intended T_{121}. The *fundamentum divisionis* was unknown and not even indirectly contemplated or applied by him.

We shall say that under the described circumstances, the *limit of the definiteness of intention* of the writer of T_0 in relation to the direction of precization represented by the reference class T_0; T_1, T_2; T_{11}, T_{12}; T_{121}, T_{122} goes between the second and third steps of precization. The interpretation T_{12} represents the *maximal precization* in that direction within the limits of sender intention, whereas T_{121} and T_{122} are *transintentional precizations* in relation to that instance of use of T_0.

If the limit of definiteness of intention of one person, P, goes between T_{12} and T_{121} and that of a second person, Q, goes between T_{121} and T_{1211} or even beyond further steps of precization, we shall say that Q has a *greater* *definiteness of intention than* P in relation to the branched reference class (as interpreted by the constructor of that class of sentences).

Thus, two kinds of misinterpretation should be distinguished: First, a person may attribute to a sentence T_0 a meaning, let us say, T_1, whereas the person intended to express not T_1, but T_2. This is an *intraintentional misinterpretation*. Second, one may attribute to a sentence T_0 a meaning T_{121}, contrasted to T_{122}, T_{123}, etc., whereas all these interpretations are beyond the intention of the person. One makes the mistake of *transintentional misinterpretation*.

As here introduced, a sentence or designation used by a person P may be extensively misinterpreted by a person Q in spite of a very high degree of definiteness of intention on the part of P. One may mean something very definite but have a mediocre capacity of formulation, or may be unaccustomed to the language habits of the audience.

Consequently, it may also happen that whereas «b» is more receiver-precise than «a» in relation to a definite reference class, the person who says «a» may have a greater definiteness of intention than a person who says «b». Whereas interpersonal relations of preciseness are relations between what different persons mean by an expression, definiteness of intention is a characteristic of one person—it is always intrapersonal. A student who has just learned a little of the technical jargon of his science may use a relatively receiver-precise term «b» with very low definiteness of intention, whereas an old craftsman who uses the less receiver-precise vernacular term «a», uses it with a very high definiteness of intention.

II.3. Explication

a. Connotational Explication

In the terminology of Carnap and others, the term «explication» and related terms have been used for concepts that are in some ways related to the concepts of this work. One of the usages of «explicatum» seems to be closely related to our use of «transintentional or not transintentional precization». We shall, in order to stress the similarity, use «*connotational explicatum*» as a synonym for the designation of the wide concept of precization including transintentional precization.

There is, however, a need for concepts that stress denotational relations, and we propose in the following a concept of this variety.

b. Denotational Explication

Let a, b, c . . . be things or states of affairs that by some people have been characterized as having a property supposedly expressed by a designation T. Let f, g, h . . . be things that have been said by some not to have the property expressed by T.

One may say that T has been assumed to express a concept, and that a, b, c . . . have been assumed to be subsumable and f, g, h . . . unsubsumable under that concept in the form of denotata.

Let T_1 and T_2 within context S be two different precizations of T expressing concepts not both of which have (according to the analyst) the same denotata among the group of things a, b, c. . . .

If U is a designation expressing within S´ a concept 'U' such that

1. T_1 and T_2 are not both precizations of U for any persons in any situation, and
2. a, b, c . . . are all denotata of 'U' and f, g, h . . . are not denotata (according to the analyst),

then U will be said to be a denotational explicatum of T in relation to a, b, c, . . . , f, g, h, . . . , S and S´.

The process of finding explicata will be called «*explication*»; the expression for which an explicatum is found will be called the «*explicandum*». It will be said to be *explicated* by the explicatum.

The definiens expressions of these terms may themselves be conceived to be explicata of certain occurrences of «explication» in writings by Carnap.[2] That is, the introduced technical meanings are such that within the research field of the present work, our terms are explicata. We do not believe that the terms are explicata within the field contemplated by Carnap. His problems are not identical with ours.

As introduced above, it is seen that an explicatum U may be, but does not need to be, a transintentional or intentionally immanent precization, an interpretation or a synonymic alternative of the explicandum T. In spite of this, it may turn out to be methodologically sound to substitute U for T within a given field of research. In this respect, precizations and explicata have similar effects.

It may well be that a certain designation, U, seems more adequate (useful, fruitful, convenient) than any proposed precization or transintentional precization T_1, T_2, . . . of T. If that designation U is such that the things more or less generally and traditionally *assumed to be denotata* of a concept 'T', *are* (according to the analyst) *denotata* of 'U', then the substitution of U for T makes no change in the habit of classing those things under one heading—and this in spite of the possibility that nobody has ever interpreted T to mean the same as U.

The expressions «assumed to be denotata» and «are denotata» are used above to call attention to the kind of pretensions made by the analyst who proposes the denotational explication. He *asserts* that a, b, c . . . are denotata of 'U', whereas he may doubt or deny that one may say in strictness that a, b, c . . . are denotata of a concept expressed by T. He might prefer to make the more guarded statement that a, b, c . . . have been *assumed* to be denotata of T. The argumentation of the analyst may be as follows: «T is vague and ambiguous to such an extent that one cannot speak of any one definite concept being expressed by T. Consequently, one cannot single out definite denotata: the subsumption is not possible for lack of criteria of subsumation. The explicatum expression U is, however, sufficiently clear and precise to admit subsumption on the basis of definite rules.»

Or, the analyst who proposes to substitute U for T may argue as follows: «T has so far been sufficiently clear and precise for its purpose, but the concept 'T' is such that subsumption is, in practice, impossible or unnecessarily difficult. The practical testability of the subsumption hypotheses is too low. Many complicated auxiliary hypotheses are in each case needed, which also are to a large extent arbitrary. Therefore, I do not venture to assert that a, b, c . . . are or are not subsumable.»

Both argumentations, if valid, justify the substitution of U for T irrespective of whether U and T are synonymic alternatives.

By adopting U as a denotational explicatum of T and by a subsequent normative definition of T, namely, «From now on, T shall mean the same as U means», we avoid the need to change any traditional characterization of a, b, c . . . in terms of T. That is, all the sentences of the form «a is T», «b is T» that were accepted before the adoption of the denotational explicatum and the normative definition, can be retained. They will, after the adoption of the normative definition, be synonymous with «a is U», «b is U», and so on.

If T is the expression «probable», and U is a denotational explicatum of «probable», all things *assumed* (by certain authors or groups) to be probable *are* probable in the sense of 'U' (according to the analyst). U may be a precization of T, but need not be so. Nobody, until the time of the explication, may ever have intended to express 'U' by T. In spite of that, U may possibly be a good substitute for T in treatises on probability.

The following schematization stresses the relations of the introduced technical term to those previously introduced:

Exp(aPS, b, R)

The expression «a», as intended to be used by P within the situation (for example, field of research) S, is a denotational explicatum of the expression b, in relation to the reference class of assumed denotata R.

c. The Process of Explication

In the history of scientific concept formation there are a vast number of instances of processes that may be classed as explications. Some processes are well known, but require extensive quotation and historical narrative to be described adequately. The instances may be roughly indicated by listing an explicandum and explicatum for each.

Explicandum	Explicatum
change of speed (in the vernacular)	acceleration (in Grimsehl's textbook)
force (v.)	force (in Grimsehl)
aggressor (v.)	aggressor (as identified in international law)
probable (v.)	probable_1 (in Carnap's terminology)
heavy metal (textbooks on chemistry after ca. 1850 and before ca. 1900)	heavy metal (contemporary textbooks on chemistry)
harder than (v.)	harder than (defined by Mohr's scale)
storm (v.)	full storm (defined by Beaufort's scale)

Descriptions of a denotational explication hypothesis do not include description of motivation for the hypothesis or argumentations pretending to show that the explicatum satisfactorily fulfills the functions of a good explicatum. Roughly, a description of a denotational explication hypothesis includes the following items:

Description of explicandum T and explicatum U

Description of concept 'U'

Description of concepts T_1, T_2, . . . expressed (sometimes) by T

Description of references to denotata a, b, c . . . and nondenotata f, g, h . . .

(Delimitation of the denotata as a group by designations «a», «b», «c» of the analyst and, possibly, the author)

Description of subsumption hypotheses needed to subsume a, b, c . . . under 'U'

Description of group (or texts) assuming a, b, c . . . to be denotata of a concept expressed by T

The process of explication involves tasks covered by the theories of this work:

To find out just how the explicandum has been *said* or *intended* to be used, we may have to analyze various definitoid statements and list various use occurrences. Various interpretations, subsumptions, and concepts of definition may have to be used, because no single set of interpretations will seem most plausible.

To find out just how the explicandum actually has been used, we may need to perform subsumption analysis, partly as an ingredient of occurrence analysis.

To communicate the results of analysis of the allegedly intended and actual use, we may find it necessary to establish interpersonal synonymity relations.

To analyze the interpersonal use of the explicandum, we may need to analyze discussions involving pseudoagreements and pseudodisagreements. To communicate the results of the analysis, we will need to establish further intersubjective synonymities.

After we have found what kind of concepts, if any, the explicandum expresses, exploration of use of other terms may show that some of them express the same or similar concepts. The explication intended will then tend to be applied to all designations synonymous or near-synonymous with the original explicandum.

Efforts to find explicata will conveniently start with attempts at construction of ordinary intrapersonal precizations of the explicandum. But such attempts may rapidly be superseded by transintentional precizations: «Which concepts would have been formed if certain methods or principles had been applied consistently and with great rigor?» «Which new concepts of contemporary science do the precizations approximate?» «Could the concepts so far used, by fairly small but important changes, be made to fit into the new conceptual structure of a certain department of science?»

Tentative explicata should retrospectively be tested, so as to get a survey of differences of implications between using the explicandum and using the new concepts. This involves subsumption analysis and, maybe, interpersonal precization of the new concept designations.

Once we have found suitable explicata, the formulation of interpersonally precise reports involves exploration of possible interpersonal synonymities and the construction of interpersonally precise normative formulations of normative definitions.

Explication also involves (of course) activities other than the procedures described in this work. Estimates of fruitfulness must be made; attempts to find simple concepts will tend to determine the choice of explicata. Last, but not least, purely logical work has to be done.

II.4. Reference Classes

a. 'Reference Class'

In chapter 1, synonymity sentences were classified by means of their marginal references. Very rarely, a synonymity sentence ««a» means the same as «b»» seems to be meant in the sense of universal synonymity, holding good for any person in any situation whatsoever. Distinctions between classes of occurrences, between sender interpretation and receiver interpretation and many others, are convenient in reformulating unspecified synonymity sentences so that their claims can be tested.

The making of such reformulations is facilitated by concepts of 'reference class'. Even a highly specified statement about a preciseness relation, for example, of the kind $Pr(aP_1S_1bP_2S_2)$, is defined by use of the expression «there exist no synonymic alternatives such that ---»:

$$(1)\ Pr(aP_1S_1bP_2S_2) =_d -(Ex).\ Synalt(xP_1S_1aP_1S_1)\ \&\ -Synalt(xP_2S_2bP_2S_2)$$
$$.\&.\ (Ey).\ Synalt(yP_2S_2bP_2S_2)\ \&\ -Synalt(yP_1S_1aP_1S_1)$$
$$.\&.\ (Ez).\ Synalt(zP_1S_1aP_1S_1)$$

Negating the negative existence sentences, we obtain universal sentences:

«For all synonymic alternatives such that ---».

It is not just preciseness relations that are defined by such «all»—and «there exist»—sentences. They are represented in normative definitions of 'ambiguity', 'synonymic alternative', and 'interpretation'.

By «*reference class*», in general in this work, is meant a set of two or more numbered designations or declarative sentences in relation to which a property of something is asserted.

Just as the content of assertions is in part determined by the marginal references explicitly or implicitly assumed, their content will partly be determined by the reference class invoked. When no such class has been delimited, their content can be interpreted as a reference to any class whatsoever.

In social research one has become increasingly aware of the influence of frames of reference—whether explicitly formulated or tacitly assumed—on reported findings and on research projects. The introduction of the concept 'reference class' is motivated by the realization of that influence within semantics and logical analysis.

A kind of reference class has been used in the normative definition of 'interpretation', namely the class of expressions in an intrapersonally heteronymous reference list. Recapitulating:

A list of expressions will be said to constitute an *intrapersonally heteronymous reference list* for the persons P_1, P_2, . . . under conditions S_1 if for each person under conditions S_1 no member of the list is a synonymic alternative of any other.

The list is called «intrapersonal» because it is not contended that some or all expressions, as interpreted by one of the persons, are heteronymous in relation to some or all expressions as interpreted by another person.

In symbols:

(2) (i). $\mathrm{Het}(T_1P_iS_1T_2P_iS_1)$ & . . . & $\mathrm{Het}(T_{n-1}P_iS_1T_nP_iS_1)$

(3) (i) (j). $\mathrm{Het}(T_1P_iS_1T_2P_jS_1)$ & . . . & $\mathrm{Het}(T_{n-1}P_iS_1T_nP_jS_1)$

Number (2) is required, but not (3) or the related requirement (4), which must be satisfied by intrapersonally heteronymous lists:

(4) (i) (j). $\mathrm{Syn}(T_1P_iS_1T_1P_jS_1)$ & . . . & $\mathrm{Syn}(T_nP_iS_1T_nP_jS_1)$

That is, there is no guarantee that the list is interpreted in the same way by different persons. Sameness of interpretation is difficult to establish. If it is established, we shall speak of *interpersonally synonymous reference lists with intrapersonally heteronymous items*.

Both conditions (2) and (4) are in that case satisfied. From (2) and (4) follows (3).

The marginal reference S_1 is important because, if it were required of lists that their members should be heteronymous under whatever conditions, the possibility of choice of members would be unduly restricted.

b. Unambiguity in Relation to Reference Classes

Negated ambiguity sentences such as ««a» is not ambiguous» and ««a» cannot be interpreted in different ways» mean the same as «There is not a single pair of instances of «a» such that the first member of the pair expresses a different meaning from the second».

Even if unambiguity sentences of this kind contain marginal references, they can plausibly be interpreted to assert hypotheses with considerable pretensions. Who is able to mention a single expression that, if sufficiently small nuances of cognitive meaning are considered, is not interpreted differently by different people or in different situations by the same person?

Methodological requirements of «unambiguity», for example, the often-heard requirement in public opinion research that questionnaires should be unambiguous, would be utopian and ridiculous if interpreted strictly in the above-suggested way.

In practice, the search for unambiguity is considered successful if certain ambiguities are avoided, certain sources of misinterpretation eliminated. The selection is based on estimates of relevance and importance. Elimination of all ambiguities does not enter into the problem situation except for very latitudinarian interpretations of «all».

In the case of questionnaires, preliminary testing is capable of furnishing material that suggests in which directions the most serious misinterpretations are found. A *scatter diagram of interpretations* may be constructed and reformulations attempted with the aim of reducing the scatter. The measure of success in the direction of unambiguity will be a measure dependent on the rather arbitrary units of the scatter diagram. Using the concept of reference class, one may say that the scatter diagram reflects the choice of a definite reference class of ambiguities in relation to which unambiguity is measured.

Let $T_1, T_2, \ldots, T_n$ be an intrapersonally heteronymous reference list, R_1. An expression T_0 will be said to be intrapersonally unambiguous in reference to R_1 if there is no single pair of instances of T_0 such that the first member of the pair is synonymous with a member of the reference list and the second is heteronymous with that member.

If there is such a pair of members, the expression will be said to be *intrapersonally ambiguous* in reference to R_1.

The usefulness of the information that an expression is or is not ambiguous in the above sense depends on the choice of reference class. If a random collection of sentences is used as the reference class, there will normally be no cases of synonymity with the expression T_0, and the verdict will automatically be «unambiguous». Only if the list includes sentences that may be suspected to be synonymous with T_0 can the conclusion be expected to be of interest.

c. Preciseness in Relation to Reference Classes

To make profitable use of the term «preciseness» as introduced in chapter I, one must either rely on a theory from which existence or nonexistence of certain types of interpretations can be derived, or discover and infer inductively interpretations on the basis of observations. As long as there are no good theories on interpretation, the latter course must generally be selected if moderately well established hypotheses are required. The question then becomes, Given two formulations to be compared as regards preciseness, how is it practicable even to guess at the totality of possibilities of interpretation?

In practice, the most formidable obstacle has its source in the fact that we are usually not interested in hypotheses of preciseness with a narrowly intended subject matter. The measures we take against possibilities of misunderstanding are mainly motivated by our belief in their value for «general prevention» rather than by «special preventive» considerations.[3] If the hypotheses of preciseness pretend to have great extension, the manifold of interpretations is so great and so difficult to delimit, that the hypotheses will tend to be unduly speculative.

Even if the difficulties mentioned above are overcome, assertions about preciseness relations, as defined so far, tend, if a wide range, to be unfruitful because of *lack of established denotata*.

Experiments performed with groups of students indicate that if formulations are compared extensively within large areas of application, they all tend to become *incomparable as to preciseness*. If T_1 is compared with T_0, the normal relation will be that if there are some interesting interpretations that T_0 but not T_1 permits, there will be at least one interpretation of T_1 that T_0 does not permit. It is, in view of this situation, justifiable to maintain the following theorem as one with very few exceptions: there is no formulation that is more precise than another formulation in relation to the totality of possible situations and persons. In symbols:

(5) $-(Ei)(Ej)(m)(n)Pr(a_iM_mb_jM_n)$

If it were possible to measure «distance» between meanings, one might require that, to be called different, interpretations show a minimum distance. This would tend to increase the number of denotata. But no such measure has so far been worked out except in artificial languages.

Even if the possibilities of interpretation were practically surveyable, this would not make the introduced concept of preciseness as fruitful as possible for all purposes. In many fields of discussion, preciseness related to reference class would be preferable. Often, in science—even in linguistics—

we are bound to make hypotheses about interpretations without having done any special investigations at all, or only very superficial ones. It is important to work efficiently with such hypotheses, and some concepts of preciseness should be adapted to the manipulations of them. Such concepts are concepts 'more precise than, in relation to reference class R'.

Let T_0, T_1, . . . , T_n be an intrapersonally heteronymous reference list, R_1. An expression U will be said to be «intrapersonally more precise than an expression T in reference to the list R_1» if, and only if, first, there are no interpretations of U among the members of the list that are not also interpretations of T, and second, there is at least one interpretation of T within the list that is not an interpretation of U, and at least one member of the list is an interpretation of U.

An equivalent normative definition may be given in terms of synonymic alternatives instead of interpretations.

II.5. Quantitative Measures of Preciseness Based on Reference Classes

We shall in view of the foregoing arguments usually restrict comparisons of level of preciseness to cases in which the comparison is made on the basis of groups of possible interpretations picked out more or less arbitrarily from the standpoint of the theory of sampling.

Suppose a set of sentences T, U, V, . . . as used within a certain field are to be compared. A list of formulations T_1, T_2, . . . , T_n is worked out, which includes what we without further investigation («intuitively») would expect are synonymic alternatives of T. To make this preliminary reference class more useful, we may try to select synonymic alternatives that we suspect never are synonymic alternatives of one another. If the latter requirement is fulfilled, and each member is at least an interpretation of T to one person in one situation, the reference class has been called «*a heteronymous reference class*». Within such classes, all interpretations are equally precise and all are more precise than the point of departure formulation T, provided preciseness is defined in relation to the class and the intuitive judgment is tenable.

Having constructed a preliminary and tentative reference class for T, we construct a class U_1, . . . , U_j for U, and add both classes. If a U_j is identical with a T_i, then U_m is dropped from the total class. If a U_j is guessed to be a synonymic alternative of some T_i, it is also dropped from the total list. If it is required that the guesses about heteronymity be confirmed, it becomes necessary to test all hypotheses of the forms Synalt(T_iT_j), Synalt(U_iU_j), and Synalt(T_iU_j). If the tests give disconfirmations as results, the intuitive judgment about heteronymity is confirmed. In the following development, this result is assumed to be established.

Next, the sentences V . . . are treated in the same way as U. Ultimately, we will have constructed a total class of reference sentences, R, that is adapted to comparison of all sentences T, U, V. . . . Let the members be called $R_1, R_2, \ldots, R_k$.

The next step involves a study of possible relations of synonymity for at least one person within at least one situation (relative to the chosen field of investigation) between each sentence to be compared and every member of the reference class. That is, the following assertions have to be tested:

Synalt (TR_1)	Synalt (UR_1)	— — —
Synalt (TR_2)	Synalt (UR_2)	— — —
— — —	— — —	— — —
Synalt(TR_k)	Synalt(UR_k)	— — —

Suppose that each assertion is either confirmed or disconfirmed. Let R(x) symbolize «x is a member of reference class R», and let «Pr(TU,R)» stand for «T is more precise than U in relation to R». Then we normatively define:

$$\text{(1) } \mathrm{Pr(TU, R)} =_{D} \text{-(Ex). R(x) \& Synalt(xT) \& -Synalt(xU)}$$
$$\text{.\&. (Ey). R(y) \& Synalt(yU) \& -Synalt(yT)}$$
$$\text{.\&. (Ez). R(z) \& Synalt(zT)}$$

The normative definition is identical with (1s), page 63, except for inclusion of reference to R.

The number of members of R being finite, the following quantitative measure of preciseness, PrR, suggests itself: S_{TR} is the number of members of R that are synonymic alternatives of T, that is, the number of confirmed hypotheses of the kind Synalt(TR_i).

$$(2)\ PrR_T = 1 - \frac{S_{TR}}{k}$$

$$PrR_U = 1 - \frac{S_{UR}}{k}$$

— — —

$$(3)\ Pr(TU, R) =_D (1 - \frac{S_{TR}}{k}) > (1 - \frac{S_{UR}}{k})$$

That is, a sentence T is said to be more precise than a sentence U in relation to a reference class R if the number of synonymic alternatives of T in that class is less than the corresponding number of synonymic alternatives of U.

The formula makes PrR = 1 a maximum preciseness, and PrR = 0 a minimum preciseness. Because of the provision that there should be at least one synonymic alternative to the more precise of two sentences, the maximum measure of a sentence being more precise than others is:

$$PrR = 1 - \frac{1}{k} = \frac{k-1}{k}$$

It is to be noted that the quantitative measure applies even in cases in which T, U, V, . . . are incomparable in relation to preciseness defined by (1). Comparability requires, according to (1), that the synonymic alternatives of the more precise sentence are synonymic alternatives of the less precise. By the quantitative measure, synonymic alternatives are added up without any such requirement of overlapping.

The usefulness of the introduced measure is primarily limited by the arbitrary manner in which the reference class is constructed. Later, reference classes obtained by more refined techniques are discussed.

Let us consider a trivial example just to illustrate schematically the use of reference classes.

T: A train leaves Oslo at 9 o'clock.
U: A train leaves Oslo at 9 P.M.

Preliminary reference class for T:

T_1: A train leaves Oslo at 9 P.M.
T_2: A train leaves Oslo at 9 A.M.

T_3: A passenger train leaves Oslo at 9.
T_4: A passenger train, or another kind of train, leaves Oslo at 9.
T_5: A train leaves Oslo at 9 standard time.
T_6: A train leaves Oslo at 9 daylight saving time.

Are these formulations heteronymous in the sense required? Certainly not. If I read a text including T_1, and a text identical with the first, except that T_3 occurred instead of T_1, I would in some situations interpret the formulations in the same way, maybe as expressing an assertion I should prefer here to express by the formulation T_7, «A passenger train leaves Oslo at 9 P.M.».

Instead of just leaving out T_3 as being an interpretation of both T_1 and T_2, we should prefer to take advantage of the formulation T_7 and replace all three, T_1, T_2, and T_3, with T_7 and T_8 («A passenger train leaves Oslo at 9 A.M.»).

Proceeding in the same way through all items on the list, we form a new list, which I suppose fulfills the requirements of heteronymity:

T_1: A passenger train leaves Oslo at 9 A.M. standard time.
T_2: A passenger train leaves Oslo at 9 A.M. daylight saving time.
T_3: A passenger train leaves Oslo at 9 P.M. standard time.

Instead of writing the list in full, we may abbreviate:

t_1	a passenger train
t_2	a passenger train, or another kind of train
u_1	leaves Oslo
v_1	at 9 A.M.
v_2	at 9 P.M.
w_1	standard time
w_2	daylight saving time

The individual formulations may then be symbolized by combinations of the suffixes of their constituent designations:

T_1 - T(1111)

T_2 - T(1112)

— — —

T_8 - T(2122)

Proceeding to U, we construct a preliminary list and then a heteronymous list. The requirement that the total list, R, be heteronymous results in a reduction of the U list, leaving no members to add to the T list. This may be considered a rather special case.

Using definition (1), we find it satisfied, provided T is exchanged for U. The formulation U does not permit the interpretations containing v_1; T permits even these. Moreover, there is no combination that U permits, but not T. Thus, Pr(UT,R). This is (of course) a hypothesis made on the basis of unsystematic observation by one respondent, namely myself, but I expect others to agree on the decision as regards interpretation of T and U and their heteronymity.

When T and U are not so trivial as in the above example, the decisions will tend to be more uncertain if systematic observation is neglected.

Using (2) we find:

$$PrR_T = 1 - \frac{8}{8} = 0.00$$

$$PrR_U = 1 - \frac{4}{8} = 0.50$$

The formulation «A passenger train leaves Oslo at 9 P.M.» gets the score $1 - \frac{2}{8} = 0.75$.

The reference class could easily be made more extensive—I do not think there is any limit except that imposed by limited depth of intention. We could take into account what «leaves Oslo» possibly could mean, say, leaving some end station, or crossing the boundaries of the city Oslo. Or, we could take into account whether the time indication was one of observation or one read in a schedule, or both. Or, we could take up what is meant by «9 o'clock», whether exactly 9 or 9 with a margin of half a minute, or what else might be a habitual way of interpreting «9 o'clock» among those whose definiteness of intention is great enough to enable them to answer.

If R were extended in this way, the score of U would steadily drop. U would continue, however, to be more precise than T. I cannot think of any possibility by which an extended list would render U and T incomparable as regards preciseness, except were we to take into account secret codes according to which 9 P.M. means 9 A.M., and vice versa. However, such special cases we may regard as beyond the limits of practical possibilities.

In these simplified examples, the reference class is selected on the basis of rather well founded hypotheses of preciseness: only sentences are selected that can safely be regarded as more precise than at least one of the sentences to be compared. Usually, it is not possible to select in such a way.

If the reference class is steadily increased, the chance increases that we will include in the reference class interpretations that make T and U incomparable with regard to preciseness. There will be found some interpretations of U that are not interpretations of T. In the example studied, this is very unlikely to happen. All sentences of the preliminary reference class R have been obtained by adding expressions to the original sentences. Generally, the difference between formulations cannot be defined by such additions, which at the same time lead to greater preciseness.

The importance of heteronymity within reference classes is especially manifest if the quantitative indicator (2) of preciseness is used. Let us illustrate the effect of heteronymity by neglecting it.

Suppose we try to compare T, «It is true that less than 5 percent of human adults can tell which colors are seen in rainbows», and U, «Less than 5 percent of human adults can a.s.o.». Let us select the following formulations as reference class:

R_1: It is perfectly certain that a.s.o.
R_2: It is quite certain that a.s.o.
R_3: I guess, less than 5 percent of human adults a.s.o.
R_4: It is a fact that a.s.o.
R_5: It is the case that a.s.o.

Suppose we are to compare T and U as regards preciseness, and find that within the group P, T is more precise than U in relation to the reference class, because T does not permit the interpretation R_3, whereas U permits all of them, including R_3.

Using (2), we find that T gets the score $1-4/5 = 0.20$ and U gets $1-5/5 = 0$. If the reference class is made to include still more partial synonyms of R_1, etc., the score of T approaches that of U, that is, approaches zero. But if level of preciseness shall have anything to do with avoiding ambiguities causing misunderstanding, the small score of T is misleading: there is no evidence that for every new interpretation put into the list, a new possibility of misunderstanding creeps in. On the contrary, there is reason to suppose that no further ambiguities are caused by the accumulation of partial (or total) synonyms in the reference list.

II.6. Reflexivity, Symmetry, and Transitivity of Some Relations

In chapter 1, a number of terms were introduced and certain relations between them stipulated. To make the terms more suitable as concept designations, it is desirable to take notice of further relations, in part implied by the normative definitions, in part postulated by additional terminological conventions.

Among the many attributes of relations worthy of consideration, three pairs are rather basic and simple: reflexivity, symmetry, and transitivity, and their opposites.

Taken in wide connotations, 'reflexivity' may be a property implied by definition, or a property empirically established. The same holds true for 'irreflexivity'. In this work the two possibilities are kept apart by using the terms «reflexivity» and «empirical reflexivity». Analogous distinctions are named in the same way. Thus, we have «irreflexivity» for lack of reflexivity implied by definition, and «empirical irreflexivity».

In this section reflexivity, and so forth, of certain relations introduced in the last chapter is considered.

a. Synonymity

The expression ««a» is synonymous with «b»» suggests a relation between «a» and «b», but nothing has been said about this relation, which has a bearing on the question of reflexivity. Let us, however, consider a pair of interpretative sentences of the skeletal form «--- has the meaning . . .», such that they can be brought into the form:

««a» has the meaning N_1.»

««b» has the meaning N_2.»

Such pairs of interpretative sentences may be connected with synonymity sentences if it is said whether 'a' and 'b' are identical or different. If identical, the pair can be rewritten thus: ««a» has the meaning N_1 and «b» has the meaning N_2, and N_1 and N_2 are identical».

It is tempting to define concepts of synonymity by means of such complex sentences involving reference to identical meanings. It is not in this work done in just that way, but let us consider for the moment what would follow if such were carried out. Accordingly, we decide: «x is synonymous with y» shall in this section mean the same as «x expresses the meaning N_1 and y expresses the meaning N_2, and N_1 and N_2 are identical».

For x and y, only a pair of expressions or instances of expressions may occur, either a pair of designations or a pair of declarative sentences. This and other conventions concerning the symbols Syn(---, . . .), introduced in chapter 1, shall be taken as valid also for this section.

For N_1 and N_2, any pair of entities may occur, the members of which can be said to be identical or not to be identical. This means that we do not try to indicate how meanings can be described.

In convenient symbols:

(1) $\mathrm{Syn}(xy) =_d \mathrm{Sign}(xN_1) \ \& \ \mathrm{Sign}(yN_2) \ \& \ \mathrm{Id}(N_1N_2)$

Now the question of reflexivity may be attacked. By substituting x for y in (1), we get:

(2) $\mathrm{Syn}(xx) \sim \mathrm{Sign}(xN_1) \ \& \ \mathrm{Sign}(xN_2) \ \& \ \mathrm{Id}(N_1N_2)$

Whether Syn(xx) holds good depends on whether one may write:

(3) $(x).\ \mathrm{Sign}\ (xN_1) \ \& \ \mathrm{Sign}\ (xN_2) \supset \mathrm{Id}\ (N_1N_2)$

Until now, no conventions have been introduced concerning the symbol «Sign(---, . . .)» that can justify the assertion of (3). Let us make the following convention:

(4) $\mathrm{Sign}(aN_1) =_D (i)(j).\ \mathrm{Sign}(aP_iS_jN_1)$

where the right-hand expression may be read «The expression «a» signifies N_1 for all persons in all situations».

From (4) follows:

$$(5)\ \mathrm{Sign}(aN_1) \supset -(Ei)(Ej).\ \mathrm{Sign}(aP_iS_jN_2)\ \&\ -\mathrm{Id}(N_1N_2)$$

From (5) follows (3), and from (3) follows the left-hand side of (2). The conclusion may be thus formulated, that if the following conventions are accepted—a normative definition of «x is synonymous with y» as indicated by (1); and a normative definition of «x signifies N_1» as indicated by (4)—then the relation of synonymity, «x is synonymous to y», is *reflexive*. In symbols, and somewhat reformulated:

(6) If

$$(i)(j)\mathrm{Syn}(aP_iS_jbP_iS_j) =_d$$
$$(i)(j)\mathrm{Sign}(aP_iS_jN_1)\ \&\ (i)(j).\ \mathrm{Sign}(bP_iS_jN_2)\ \&\ \mathrm{Id}(N_1N_2)$$

then

$$(i)(j)\mathrm{Syn}(aP_iS_jaP_iS_j)$$

It is to be noted that from $(Ei)(Ej).\ \mathrm{Sign}(aP_iS_jN_1)$ and $(Ei)(Ej).\ \mathrm{Sign}(aP_iS_jN_2)$ it cannot be inferred that N_1 and N_2 are identical. The expression «a» may be ambiguous.

By use of the normative definition, (1), of 'synonymity', the symmetry of the synonymity relation is proved directly. Substituting x for y and y for x in (1), we get:

$$\mathrm{Syn}(yx) \sim \mathrm{Sign}(yN_1)\ \&\ \mathrm{Sign}(xN_2)\ \&\ \mathrm{Id}(N_1N_2)$$

N_1 and N_2 being identical, they can replace each other:

$$(7)\ \mathrm{Syn}(yx) \sim \mathrm{Sign}(yN_2)\ \&\ \mathrm{Sign}(xN_1)\ \&\ \mathrm{Id}(N_1N_2)$$

On the other hand, from (1) follows:

$$(8)\ \mathrm{Syn}(xy) \supset \mathrm{Sign}(xN_1)\ \&\ \mathrm{Sign}(yN_2)\ \&\ \mathrm{Id}(N_1N_2)$$

(9) $\mathrm{Syn}(xy) \supset \mathrm{Sign}(yN_2) \;\&\; \mathrm{Sign}(xN_1) \;\&\; \mathrm{Id}(N_1N_2)$

The right-hand side of (9) is the same as that of (7). Therefore:

(10) $\mathrm{Syn}(yx) \supset \mathrm{Syn}(xy)$

From (7) and (9) also, the stronger assertion of equivalence is proved:

(11) $\mathrm{Syn}(xy) \sim \mathrm{Syn}(yx)$

Conclusion: Synonymity as defined by (1) is symmetrical.
From (1) and (4) follow by proper substitutions:

(12) $\mathrm{Syn}(ab) \;\&\; \mathrm{Syn}(bc) \sim$
$(i)(j).\ \mathrm{Sign}(aP_iS_jN_1) \;\&\; (i)(j).\ \mathrm{Sign}(bP_iS_jN_2) \;\&\; \mathrm{Id}(N_1N_2)$
$\&\; (i)(j).\ \mathrm{Sign}(bP_iS_jN_2) \;\&\; (i)(j).\ \mathrm{Sign}(cP_iS_jN_3) \;\&\; \mathrm{Id}(N_2N_3)$

(13) $\mathrm{Syn}(ab) \;\&\; \mathrm{Syn}(bc) \supset$
$(i)(j).\ \mathrm{Sign}(aP_iS_jN_1) \;\&\; (i)(j).\ \mathrm{Sign}(cP_iS_jN_3) \;\&\; \mathrm{Id}(N_1N_3)$

From (1), (4), and (13) follows:

(14) $\mathrm{Syn}(ab) \;\&\; \mathrm{Syn}(bc) \supset \mathrm{Syn}(ac)$

Synonymity defined by (1) and (4) is a *transitive* relation.

It is again essential to note the qualification that (1) and (4) must be presumed. If we use the name «universal synonymity» for synonymity valid for any person and any situation, the conclusion may be reformulated: universal synonymity defined by (1) is transitive.

b. Heteronymity

A term «heteronymous» can in analogy with (1) be introduced as follows:

«x is heteronymous with y» shall within this section mean the same as «x expresses the meaning N_1 and y expresses the meaning N_2, and N_1 and N_2 are different».

The new property shall be considered defined for the same range of entities, designations, and declarative sentences.

In symbols:

(15) $\mathrm{Het}(xy) =_d \mathrm{Sign}(xN_1)\ \&\ \mathrm{Sign}(yN_2)\ \&\ \text{-}\mathrm{Id}(N_1N_2)$

Let us consider the possibility that y is identical with x. «Heteronymity of x with x» would according to (15) mean that x expresses two different meanings. If one can affirm about x two interpretative sentences «x means N_1» and «x means N_2», then there are two implied synonymity sentences such that «x means the same as «c» and x means the same as «d» and Het(cd)». In symbols: Syn(xc) & Syn(xd) & -Syn(cd). Now, according to a convention of chapter 1, section 2, Syn(ab) is an abbreviation for $(i)(j)\mathrm{Syn}(a_ib_j)$, and one may from this deduce:

$\mathrm{Syn}\ (ab) \supset \text{-}(\mathrm{Syn}(ac)\ \&\ \mathrm{Syn}(ad)\ \&\ \text{-}\mathrm{Syn}(cd))$

If, now, Het(x,x) implies the right-hand-side parenthesis of this implication, it implies something that is by adopted conventions ruled out. We may therefore assert the *irreflexivit*y of heteronymity. It is to be noted, however, that this conclusion only applies to the sentences that can be brought into the form (i)(j)Het(ab). A more precise conclusion would therefore be: 'universal heteronymity' is an irreflexive relation.

By use of the introduced conventions it is easily seen that 'heteronymity' is symmetrical. Let us consider transitivity.

From (15) follows

$\mathrm{Het}(xy)\ \&\ \mathrm{Het}(yz)\ .{\sim}.\ \mathrm{Sign}(xN_1)\ \&\ \mathrm{Sign}(yN_2)\ \&\ \text{-}\mathrm{Id}(N_1N_2)$
$.\&.\ \mathrm{Sign}(yN_2)\ \&\ \mathrm{Sign}(zN_3)\ \&\ \text{-}\mathrm{Id}(N_2N_3)$

Now, from

$\text{-}\mathrm{Id}(N_1N_2)\ \&\ \text{-}\mathrm{Id}(N_2N_3)$

does not follow $\text{-}\mathrm{Id}(N_1N_3)$. $\mathrm{Id}(N_1N_3)$ is possible. Therefore:

(16) Not: $\mathrm{Het}(xy)\ \&\ \mathrm{Het}(yz) \supset \mathrm{Het}\ (xz)$

The relation of heteronymity is not *transitive*. Neither can -Het(xz) be proved. The relation is therefore *not intransitive* (by definition). Empirically, Het(xz) and -Het(xz) may occur with considerable frequency for all we know. There is, therefore, no reason to postulate empirical transitivity or empirical intransitivity.

c. Synonymic Alternatives

That an expression «a» is a synonymic alternative of «b» is defined normatively in terms of the existence of at least one case of synonymity between «a» and «b». If «b» is identical with «a», the assertion gets the form «There is at least one case of synonymity between a pair of occurrences of «a»». It is, however, possible that «a» never is used, or will be used, twice with the same meaning. The relation of synonymic alternative is *not reflexive* (by definition). Neither is it irreflexive (by definition). Mostly, there will be a pair of occurrences such that Synalt(aa) holds good: the relation is *empirically reflexive*.

In symbols:

$$\text{Synalt}(ab) \sim (Ex)(Ey).\ x\varepsilon a \ \&\ y\varepsilon b \ \&\ \text{Syn}(xy)$$

$$(17)\ \text{Synalt}(aa) \sim (Ex)(Ey).\ x\varepsilon a \ \&\ y\varepsilon a \ \&\ \text{Syn}(xy)$$

There does not exist by definition such a pair (x,y) that it satisfies the right-hand expression of (17).

The assertion that there exists at least one pair of synonymous instances of «a» and «b» may be written:

$$\begin{aligned}(18)\ &\text{Syn}(a_1b_1) \vee \text{Syn}(a_1b_2) \vee \ldots \vee \text{Syn}(a_1b_m)\\ &\vee \text{Syn}(a_2b_1) \vee \text{Syn}(a_2b_2) \vee \ldots \vee \text{Syn}(a_2b_m)\\ &\vee \ldots\\ &\vee \text{Syn}(a_nb_1) \vee \text{Syn}(a_nb_2) \vee \ldots \vee \text{Syn}(a_nb_m)\end{aligned}$$

Whereas Synalt(ab) is equivalent to the above disjunction, Synalt(ba) is equivalent to

$$(19)\ \text{Syn}(b_1a_1) \vee \ldots \vee \text{Syn}(b_ma_n)$$

The equivalence of (18) and (19) can be shown only by taking up the question of the symmetry of $\mathrm{Syn}(a_i b_j)$. If the normative definition (1) is used, this symmetry holds good and one gets:

(20) Synalt (ab) ~ Synalt (ba)

The relation of synonymic alternative is *symmetrical*, provided synonymity relations are symmetrical.

Suppose it is established that

(21) Synalt(ab) & Synalt(bc)

(21) is equivalent to

(22) $\mathrm{Syn}(a_1 b_1)$ v . . . v $\mathrm{Syn}(a_n b_m)$.&. $\mathrm{Syn}(b_1 c_1)$ v . . . v $\mathrm{Syn}(b_m c_p)$

The transitivity of the synonymity relation of the kind $\mathrm{Syn}(x_1 y_1)$ implies that if there is a pair of instances of a_i, b_j and b_j, c_k such that

$\mathrm{Syn}(a_i b_j)$ & $\mathrm{Syn}(b_j c_k)$

then Synalt(ac) follows from Synalt(ab) & Synalt(bc).

There may, however, in (22) be no such case. The relation of synonymic alternative is therefore not *transitive*.

d. Preciseness

Substituting «a» for «b» in the normative definition of «preciseness», chapter 1, section 12, (1s), one gets:

(23) Pr(aa) ~ -(Ex). Synalt(xa) & -Synalt(xa)
.&. (Ey). Synalt(ya) & -Synalt(ya)
.&. (Ez). Synalt(za)

The right-hand side of this equivalence contains contradictions. The relation of preciseness is therefore *irreflexive*.

From the normative definition of Pr(ab) follows:

$$\begin{aligned} &\mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(ba)} \supset \text{-(Ex). Synalt(xa)} \mathbin{\&} \text{-Synalt(xb)} \\ &\qquad \mathbin{\&} \text{(Ex). Synalt(xa)} \mathbin{\&} \text{-Synalt(xb)} \end{aligned}$$

The right-hand side involves a contradiction. The relation of preciseness is therefore *asymmetrical*. From the normative definition of Pr(ab) follow:

$$\begin{aligned} &(24)\ \mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(bc)} \supset \text{-(Ex). Synalt(xa)} \mathbin{\&} \text{-Synalt(xb)} \\ &\qquad .\&.\ \text{(Ex). Synalt(xb)} \mathbin{\&} \text{-Synalt (xa)} \\ &\qquad .\&.\ \text{-(Ex). Synalt(xb)} \mathbin{\&} \text{-Synalt (xc)} \\ &\qquad .\&.\ \text{(Ex). Synalt(xc)} \mathbin{\&} \text{-Synalt (xb)} \end{aligned}$$

$$\begin{aligned} &(25)\ \mathrm{Pr(ac)} \supset \text{-(Ex). Synalt(xa)} \mathbin{\&} \text{-Synalt (xc)} \\ &\qquad .\&.\ \text{(Ex). Synalt (xc)} \mathbin{\&} \text{-Synalt(xa)} \end{aligned}$$

From (24) follows:

$$\begin{aligned} &\mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(bc)} \supset \text{(Ex). Synalt(xc)} \mathbin{\&} \text{-Synalt(xb)} \\ &\qquad .\&.\ \text{(x). -Synalt(xb)} \supset \text{-Synalt(xa)} \end{aligned}$$

$$(26)\ \mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(bc)} \supset \text{(Ex). Synalt(xc)} \mathbin{\&} \text{-Synalt(xa)}$$

On the other hand,

$$\begin{aligned} &\mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(bc)} \supset \text{(x). Synalt(xa)} \supset \text{Synalt(xb)} \\ &\qquad .\&.\ \text{(x). Synalt (xb)} \supset \text{Synalt (xc)} \end{aligned}$$

Therefore,

$$(27)\ \mathrm{Pr(ab)} \mathbin{\&} \mathrm{Pr(bc)} \supset \text{-(Ex). Synalt(xa)} \mathbin{\&} \text{-Synalt(xc)}$$

From the N-definition of Pr(ab) follows the existence of synonymic alternatives of «a». Consequently, from (26) and (27) and the normative definition, follows:

(28) Pr(ab) & Pr(bc) $\supset$ Pr(ac)

The relation of preciseness, Pr(ab), is *transitive*.

In those cases in which Synalt(aa) and Pr(ab) hold good, one can deduce that «b» is a synonymic alternative of «a»: from the normative definition of Pr(ab), it follows that all synonymic alternatives of «a» must also be synonymic alternatives of «b»; hence, if «a» is a synonymic alternative of «a», then «a» must be a synonymic alternative of «b». From the symmetry of Synalt(ab) follows the conclusion:

(29) Pr(ab) & Synalt(aa) $\supset$ Synalt(ba)

From Pr(ab) alone, Synalt(ab) or Synalt(ba) does not follow: expressions may, in theory, be comparable in preciseness without admitting each other as synonymic alternatives. The less precise may never be used synonymously with the more precise. In practice, such cases seem exceedingly rare or even nonexistent.

e. Interpretation

In the adopted terminology, Int($T_iP_1T_0P_1$) means the same as «For P_1 T_i is sometimes synonymous to T_0, and there exists a T_j such that Het($T_jP_1T_iP_1$) and T_j sometimes is synonymous to T_0». That is,

$$\text{(30) Int}(T_iP_1T_0P_1) \supset \text{Synalt}(T_iP_1T_0P_1)\ \&\ (E_j).\ \text{Het}(T_jP_1T_iP_1)\ \&\ \text{Synalt}(T_jP_1T_0P_1)$$

Substituting T_0 for T_i in (30) one obtains:

$$\text{(31) Int}(T_0P_1T_0P_1) \supset \text{Synalt}(T_0P_1T_0P_1)$$

As the synonymic alternative relation is, according to (17), not reflexive, the interpretation relation is therefore *not reflexive*.

The interpretation relation is *not symmetrical* because Int($T_0P_1T_iP_1$) $\supset$ Synalt($T_0P_1T_iP_1$), and this synonymic alternative relation cannot be deduced from Synalt($T_iP_1T_0P_1$) or the whole of the right side of (30).

$$(32)\ \mathrm{Int}(T_iP_1T_0P_1)\ \&\ \mathrm{Int}(T_jP_1T_iP_1) \supset \mathrm{Int}(T_jP_1T_0P_1)$$
$$.\supset.\ \mathrm{Int}(T_iP_1T_0P_1)\ \&\ \mathrm{Int}(T_jP_1T_iP_1) \supset \mathrm{Synalt}(T_jP_1T_0P_1)$$

The Synalt relation being not transitive, the right-hand side of (32) is not valid. The interpretation relation is therefore *not transitive*.

All derivations of this section have the sole purpose of clarifying interrelations between the basic terms introduced in the foregoing. The exercise is entirely of a formal or «pure» character, and completely useless for the development of a descriptive, hypothetico-deductive system of semantics as long as the introduced terms are not connected with *procedures of systematic observation*. Experience shows, however, that the erection of a conceptual framework is, on the one hand, sufficiently important to be considered in detail and, on the other hand, so much less complicated than the satisfactory implementation of empirical research programs, that the exposition of a basic conceptual framework can conveniently be made before empirical considerations are taken up. It should be unnecessary to repeat that the framework was not elaborated before empirical procedures were used, but hand in hand with empirical research.

II.7. Incomparability and Transintentionality in Relation to Preciseness

a. Equality of Preciseness

Let «a» and «b» be two expressions.

> (1) ««a» and «b» are *equally precise*» will in this work mean the same as «There are no synonymic alternatives of «a» that are not also synonymic alternatives of «b», and no synonymic alternatives of «b» that are not also synonymic alternatives of «a», and «a» has at least one synonymic alternative».

In short, «a» and «b» are equally precise, if they admit of the same synonymic alternatives.

In symbols:

$$(1s)\ \mathrm{Idpr}(ab) =_d -\ (Ex).\ \mathrm{Synalt}\ (xa)\ \&\ -\mathrm{Synalt}\ (xb)$$

.&. (Ex). Synalt (xa)

.&. - (Ex). Synalt (xb) & -Synalt (xa)

It can easily be shown that the relation ‘equally precise’ is reflexive, symmetrical, and transitive.

If an expression «a» is more, equally, or less precise than another expression «b», the expressions will be said to be *comparable* in preciseness; if otherwise, *incomparable*.

Incomparability is realized if, but not only if, each expression admits of synonymic alternatives that the other does not admit—in other words, if they both have their own synonymic alternatives.

In symbols:

(Ex). Synalt(xa) & -Synalt(xb) .&. (Ex). Synalt (xb) & -Synalt (xa)

: $\supset$: Incompr. (ab)

For many reasonable criteria of synonymity, most expressions will be incomparable. Of more interest is the question of comparability within subclasses of occurrences: the question of whether «a» of subclass M_i is comparable in preciseness to «b» of subclass M_j.

An expression «a» may or may not be a synonymic alternative of itself (see section 6, page 109). That is, there may or may not exist cases of synonymity between instances of «a». As a general rule, there are such cases. To be comparable in preciseness, «a» and «b» must, according to the normative definitions, each admit of a synonymic alternative. This necessary condition is as a general rule satisfied, because «a» generally has «a» as a synonymic alternative, and «b» has «b».

To be comparable in preciseness, expressions need not be synonymic alternatives of each other, but if they are comparable, they will have at least one synonymic alternative in common.

b. Preciseness and Transintentionality

Suppose that T_1 is more precise than T_0 for a person P, and that he sometimes uses T_1, sometimes T_0. The relation is presumed to be found by investigating the use occurrences of T_0 and of T_1.

Suppose, further, that P's definiteness of intention is on the whole greater when he uses T_1 than when he uses T_0. This is likely to happen: more precise formulations are likely to be the result of more careful evaluation of terms and more careful introspection of intentions.

Suppose, lastly, that it is found that an expression T_2 is more precise than T_1, taking use occurrences of T_1 by P as subject matter of this preciseness relation. It is of importance to note that the marginal references are assumed to be different in the two cases of preciseness relation, and that therefore the transitivity theorem of section 6 does not cover them. In other words, from T_1 being more precise than T_0 under certain conditions, and T_2 being more precise than T_1 under other conditions, it does not follow that T_2 is more precise than T_0.

It may happen, that in relation to use occurrences of T_0 by P, all those interpretations of T_2 that were considered in order to arrive at the conclusion that T_2 is more precise than T_1, are transintentional in relation to use occurrences of T_0.

Occurrences of T_0 may for P be accompanied by such a low definiteness of intention that one cannot say positively whether T_0 *for P sending T_0* admits of all interpretations of T_2. The possibility of such interpretations is not even implicitly considered by P. Consequently, one cannot use the normative definition of «more precise than». T_2 and T_0 are, in relation to use occurrences of T_0 by P, *incomparable* in preciseness, whereas T_2 is more precise than T_1 in relation to use occurrences of T_1 by P.

This kind of incomparability, here attached to use occurrences, may equally well hold good in relation to interpretative processes during reading and listening.

Roughly speaking, superficiality may function to guard against misinterpretation: the wording of a formulation T_0 may be such that it does not seem to pretend to be the product of close, concentrated attention and deep reflection. Moreover, the sender may speak without having fairly definite things to say. The receiver understands the situation and does not concentrate his search for definite meanings. There is in such cases little room for misinterpretation because there is very little to misinterpret. The process of interpretation, in cognitive senses, is functioning only very feebly, but, maybe, highly efficiently in the situations under consideration.

If the sender of T_0, in order to avoid ambiguities, reformulates his words, and uses T_2 instead, the fairly strong precization is likely to contain complicated expressions and is apt to arouse the attention of the receiver. His concentrated effort to catch the intended meaning, and just the intended meaning, is apt to make him survey a series of *possibilities*. He may lose his intuitive understanding of the situation. Chances of misinterpretation may increase to such a degree that the need for further precization is acutely felt. The normally preconscious process of interpretation is rendered conscious and may result in awareness of difficulties of interpretation that had never occurred to the receivers of less complicated formulations.

All this is in no way to be considered fatal to efforts of precization as a means of avoiding misinterpretation, but it reminds us of the difficulties and of the unlimited manifold of subdirections of precization branching off from the main directions when the definiteness of intention grows. The quest for high definiteness of intention may, but need not, spoil the chances of successful communication.

II.8. Comparison of Preciseness of n Sentences in Relation to a Heteronymous Reference Class

We shall in this section conclude our discussion of reference classes by describing a comparison of n sentences as regards preciseness, within the same type of context and for the same class of persons, by means of heteronymous reference classes.

Let us call the sentences the preciseness of which is to be compared, T_1, $T_2, \ldots, T_n$. A tentative, preliminary list of synonymic alternatives is made for T_1, and modified until no pair of sentences in the list are synonymic alternatives of each other, whereas all are interpretations of T_1. This requirement of heteronymity implies that each sentence is as precise as or more precise than T_1, provided the list itself is taken as the reference class.

Let us call the individual synonymic alternatives listed $R_1, R_2, \ldots, R_m$. We presume that synonymity questionnaires or other methods have been used to establish heteronymity between any pair.

The next step is to provide T_2 with an analogous tentative reference class. Sentences that already belong to the first class are not included in the second. The new class is modified until no synonymic alternative is a synonymic alternative of any other sentence in the two classes.

The rest of the sentences T_i are dealt with in the same way. All n reference classes are then combined into one large class R, and the preciseness of the individual T_i is found in relation to that class.

A sentence T_i is more precise than a sentence T_j in relation to R if there is at least one sentence in R that is an interpretation of T_j but not of T_i, and no sentence vice versa. The relation of preciseness implies that all sentences of R being interpretations of T_i must be interpretations of the less precise T_j. This interpretability is a necessary, but not sufficient condition of T_i being more precise than T_j. Thus, it is convenient first to see whether or not T_i satisfies this condition.

The comparison so far includes the following steps:

1. Making n preliminary lists of synonymic alternatives based on guesses (intuitions). (Preliminary reference classes.)
2. Eliminating, in other lists, formulations already adopted in one list. (Elimination of duplicates.)
3. Checking on heteronymity among the rest of the formulations and eliminating formulations that (sometimes or always) are synonymic alternatives of some other formulation of the total reference list, for example, eliminating total or partial synonymities from the preliminary reference class.
4. Testing supposed synonymity relations. Eliminating reference formulations that, according to the results of tests, are not synonymic alternatives of *an*y of the formulations to be compared for preciseness. This process and that of step 3 often suggest the advisability of adding some formulations to the preliminary list.
5. Comparing preciseness in relation to the resulting revised reference class. (The final, first-order class.)

To improve the reference class, it is necessary to look for ambiguities. If a formulation R_i among the persons and situations at issue sometimes is considered synonymous with R_{i1}, and sometimes with R_{i2}, and the latter two formulations are considered heteronymous in all situations by all persons concerned, R_i may profitably be eliminated from the final, first-order reference class and replaced by the two sentences R_{i1} and R_{i2}. A new reference class is constructed by revision of the old.

If we are interested in getting a reference class that, on the one hand, is as small as possible but, on the other hand, may prove to be a fair sample of richer reference classes, it is important to impose further checks on its members.

In relation to the new, more refined, and normally richer class, the relations of preciseness of the formulations to be compared may turn out to be different from the relations originally found.

The steps leading from a comparison on the basis of the first-order reference class to one of the second order may be indicated as follows. The steps are closely analogous to the steps leading to the first nonpreliminary reference class:

1. Making preliminary interpretational lists based on guesses, one list for each of the m formulations of the first-order reference list. Compared with the original interpretational list, these new lists are reference classes of a reference class. They will therefore be called «preliminary reference classes of the second order».

2–5. Following steps analogous to steps 2–5 described above.

With the new reference class as a starting point, one may proceed to construct still more refined classes, reaching, step-by-step, classes of the *n*th order. It is to be expected, however, that fewer changes in the conclusions regarding the preciseness of the n original formulations will result with each step toward higher-order reference classes. Further, the internal differences of meaning among the members will tend to be of less importance or will fall below the intentional depth of the persons whose usage is being investigated.

Suppose U is found less (intrapersonally) ambiguous than T for P_1 in S in relation to a reference class R, which is heteronymous in relation to the usage of P_1.

If we now ask whether U is also less (intrapersonally) ambiguous for P_2, we shall have, first, to check that R is a heteronymous reference class for P_2. Second, we shall have to compare the preciseness of T and U in relation to R. If it is found that U is (intrapersonally) more precise than T, we have established two relations of intrapersonal ambiguity.

We may take these relations as strong support for a hypothesis that U is *interpersonally* less ambiguous than T, but this depends on interpersonal synonymities. We do not yet know whether any member r of the reference class means the same to P_1 as any of them means to P_2. In chapter 7, we take up the problem of how to introduce interpersonal synonymity operationally.

II.9. Preciseness of Single Acts of Communication

In chapter 1, we introduced a concept of a particular subclass of occurrences of «a» being more precise than a particular subclass of «b» (see section 12(2), page 64). We shall say that «a» is more *asserter-precise* for P_1 in S_1 than «b» is for P_2 in S_2, if we limit our comparison of interpretations to those that are possible for P_1 as asserter of «a» and for P_2 as asserter of «b». Thus, we get a rather complex definitional formulation, the first part of which is given below under (1). It is obtained by substituting ««a» for P_1 as asserter of «a» in S_1» for «a» and ««b» for P_2 as asserter of «b» in S_2» for «b» in (1) on page 62.

> (1) If, and only if, every synonymic alternative to «a» for P_1 as asserter of «a» in S_1 is also a synonymic alternative to «b» for P_2 as asserter of «b» in S_2, and . . . , then «a» will be said to be more asserter-precise for P_1 in S_1 than «b» is for P_2 in S_2.

Receiver preciseness is introduced in the same way, mutatis mutandis.

The designation «asserter» refers to the person who performs the asserting. By that act, however, the asserter will normally be stimulated by the produced sounds or visual pattern. He will act as receiver and may change his formulations as a consequence of the impression his own assertion makes. It is, therefore, somewhat difficult and unfruitful to try to distinguish interpretations made by a person asserting a formulation and interpretations made by the same person as receiver of that formulation at a slightly later moment. There are, on the other hand, reasons to suspect that we as receivers very often repeat the message to ourselves. We stimulate ourselves to obtain stronger reactions than possible by the initial reception of the message. Especially if the formulations are somewhat difficult, it is normal to repeat more or less articulately what we hear or read.

For the purposes of this work, it is not deemed necessary to go into details as regards these interesting and complex problems of psychological descriptions. They will have to be attacked in future refinements of interpretational theory. Here, we limit ourselves to laying down that by an «act of assertion» we mean an act, one of the characteristics of which is speaking or writing. Analogously, we shall call a person «a receiver» if he is listening or reading, regardless of the subordinated acts of repetitions that we may find connected with the hearing or reading.

If S is a type of situation that often recurs, differences in level of asserter preciseness are easily exemplified. Let us take the trivial case of a person P saying «Coming home on the train at 6 o'clock» to his wife, who may represent part of S. Let us call the formulation «a». During certain time intervals, «a» may (for P) be synonymous with «Coming home on the train at 6 o'clock daylight saving time» («b»); during other time intervals, with «Coming home on the train at 6 o'clock standard time» («c»). If S is so defined that it includes all seasons of the year, «a» admits synonymic alternatives (as interpreted by P as an asserter) that «b» does not admit. If no synonymity between «b» and a formulation «d» is found, which to P as sender of «d» is a synonymic alternative of «b» but not of «a», we shall, according to the definition, say that «b» is for P as asserter in S more asserter-precise than «a» for P as asserter in S.

If, on the other hand, S is delimited in such a way that it falls well within the season of daylight saving time, «c» is probably not even occasionally synonymous with «a» for P as an asserter. In that case, «b» does not improve its asserter-preciseness in comparison to «a».

If S is successively made narrower and narrower, we get as a limiting case a single, datable occurrence of asserting. There is no longer a question of possibilities of interpretation under various circumstances, but of how «a» was interpreted on a particular occasion.

Somebody might suggest that only one interpretation is made on a single occasion. There may be only one *process of interpretation*. What is called «interpretation» in this work is what is expressed by a formulation with certain relations to some other formulations (see page 53).

If P_1 sends «a» and answers positively that he might have used «b» without change of meaning, and he also answers positively in relation to «c», we may infer that if he had asserted «b», he would have answered positively if confronted with «c». Actual experiments confirm this expectation. The relation of synonymic alternative as applied to the asserting of formulations by one person in a single datable situation is empirically transitive.

Let S_1 symbolize a definite datable situation characterized by the occurrence of a single process of interpretation. We may then write:

(2) $\mathrm{Synalt}(aS_1bS_1) \supset \mathrm{Syn}(aS_1bS_1)$

(3) $\mathrm{Synalt}(aS_1bS_1)$ & $\mathrm{Synalt}(aS_1cS_1) \supset \mathrm{Synalt}(bS_1cS_1)$

(4) $\mathrm{Synalt}(aS_1bS_1)$ & $\mathrm{Synalt}(aS_1cS_1) \supset \mathrm{Syn}(bS_1cS_1)$

If «b» is a synonymic alternative of «a» in S_1, then all synonymic alternatives of «b» in S_1 will be synonymic alternatives of «a» in S_1. This owes to the properties of the relation of synonymity:

$(x)(y) . \mathrm{Synalt}(xS_1yS_1) \supset \mathrm{Syn}(xS_1yS_1)$

$(x)(y)(z) . \mathrm{Syn}(xS_1yS_1)$ & $\mathrm{Syn}(xS_1zS_1) \supset \mathrm{Syn}(yS_1zS_1)$

Therefore:

$\mathrm{Synalt}(bS_1aS_1) . \supset . (x) . \mathrm{Synalt}(xS_1bS_1) \supset \mathrm{Synalt}(xS_1aS_1)$

If both «b» and «c» are synonymic alternatives of «a» in S_1, all three will have exactly the same synonymic alternatives. From this and the normative definition of «preciseness» it follows that, in relation to S_1, no expression can be more precise than any other. They will all be equally precise.

In symbols:

$(x)(y) . \mathrm{Synalt}(xS_1yS_1) \supset \mathrm{Idpr}(xS_1yS_1)$

From

$\mathrm{Amb}\,(a) \sim (Ei)\,(Ej) . \mathrm{Het}(a_ia_j)$

follows

$\mathrm{Amb}(aP_1S_1) \supset (Ei)\mathrm{Het}(aP_1S_1a_iP_1S_1)$

But there is only one occurrence of «a» in S_1; therefore,

$Amb(aP_1S_1) \supset Het(aP_1S_1aP_1S_1)$

From which follows

$-Amb\ (aP_1S_1)$

That is, an occurrence of an expression sent by a particular act of communication in S_1 by P_1 cannot be asserter-ambiguous in relation to that person in that situation. No heteronymous reference list can be made in relation to that occurrence of «a», and one cannot construct lists of interpretations.

In relation to single acts of communication, there is no difference in preciseness for an asserter or a receiver. Differences of preciseness always refer to a multiplicity of acts of communication or to a multiplicity of persons, or to both.

This theorem is misleading if it is not clearly kept in mind how preciseness is defined and how single acts are contrasted with types of situations.

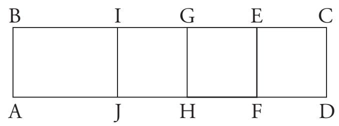
If a person tries to convey an assertion to another person, the choice of formulation may be fully subordinated to the single aim of asserting a formulation that, to the receiver, expresses just the proposition intended by the asserter, or a proposition within the least possible distance in meaning from the intended one. It is in relation to that purpose irrelevant which synonymic alternatives are possible to the asserter on any occasion except the one on which he tries by means of the chosen formulation to convey the assertion to the other person. Similarly, it is irrelevant how the receiver interprets the formulation on occasions other than the one at issue.

That a formulation is more precise than another does not imply that it is more precise within a particular type of situation for particular people.

It may well be that «b» is more precise than «a» in relation to a group of persons P and a type of situation S, but equally precise, or less precise, or incomparable as regards preciseness in relation to a subgroup of persons P or a subtype of situation S. Thus, to know about preciseness relations of great extension is neither necessary nor sufficient for the discovery of preciseness relations of smaller extension. Very little can be inferred about preciseness in relation to single acts.

These assertions do not hold if we look at preciseness relations between a formulation within a greater extension and the same formulation within a smaller extension of persons or situations.

If the preciseness of «a» is compared to the preciseness of «a» in a subclass of situations and persons, it is easily seen that it cannot be less precise in the subclasses than in the general class.



If the rectangle A B C D symbolizes all possible interpretations of «a», the interpretations possible to one person must either be the same or be a subclass, let us say those of the rectangle A B E F. For another person, the line corresponding to E F may go to the left, may go to the right, or may coincide with E F, thus creating relations of the type $\mathrm{Pr}(aP_2S,aP_1S)$, $\mathrm{Pr}(aP_1S,aP_2S)$, or $\mathrm{Idpr}(aP_1S,aP_2S)$.

If S_1 is a type of situation, the possible interpretations of «a» for P_1 in S_1 may be identical with those in the rectangle A B E F, or may fall within a smaller rectangle, let us say A B G H. If S_2 is a singular historical situation, the rectangle of possible interpretations for P_1 may be identical with A B G H, or may be a still smaller one, say, A B I J.

Thus, if a formulation is insufficiently precise within a great group of persons or situations, it may be just as imprecise within smaller groups, but it may also be much more precise.

Sometimes very imprecise formulations in relation to broad fields may turn out to be excellent in relation to narrower ones. We may here think of scientific terminology using vernacular terms in new, well-defined meanings.

«More precise» in relation to *an act of communication* between two persons in a definite type of situation may be defined thus:

> (5) A formulation «b» is more precise than «a» in communication between P and Q in a situation S_1 partly defined by P being asserter and Q receiver, if and only if «b» is more precise than «a» for both P and Q in S.

If the connotation of «S» is steadily made richer, the limiting case is reached, namely asserter-receiver preciseness relative to single acts of communication. Using the results of this section, we find that in relation to single acts of communication, all synonymic alternatives are equally precise, even in the case of asserter-receiver preciseness.

II.10. The Limited Importance of Single Acts of Communication to a Science and Technique of Interpretation

The foregoing section may have conveyed to some readers the impression that the concepts of relations of preciseness are unfruitful concepts: we have always to do with single acts of communication, and in relation to them the concepts of preciseness are useless. A science and technique with the aim of describing and possibly eliminating misinterpretation might be considered unfruitful if not adapted to concrete, single acts of communication.

Against such views it must be emphasized that to make predictions about how to communicate with the best results, it is necessary to study *types* of situations, of habits of speech, of dispositions of groups, and so forth. Much knowledge from which predictions are made is in the form of more or less generalized sentences. Descriptions of single acts are mostly either reports of past events or predictions based on inferences from general descriptions. Our interest may be concentrated on single acts of communication, but the argumentation used to justify the choice of definite formulations on definite occasions is based on knowledge about kinds of formulations in kinds of situations. We use in such cases, as one of our premises, the assumption that the single act of communication will be released in a *kind* of situation and by a *kind* of person we know something about. If there is a relatively well confirmed hypothesis that «a» is more precise than «b» in that *kind* of situation, we may decide to use «a» in the single, always unique act of communication that will be released at a definite moment at a definite place. There is no knowledge available about *that* single act as contrasted to kinds (types, classes) of acts.

Even, however, if we succeed in adapting our formulations to a definite act of communication as contrasted to relatively broad classes of communications, this may not be of any help. Lack of misinterpretation at the time of the act of communication does not guarantee against misinterpretation at later moments. The conveyed information is normally supposed to be used a great number of times in a more or less distant future. If a person succeeds admirably at 10 A.M. in conveying to his son how to get to the bank, this does not rule out possible misunderstanding at 10:15 when the son has to recall the words of the father and make up his mind whether his description implied a left or a right turn at a particular corner. He will have to reconstruct the situation at 10 o'clock in his memory, but this does not mean that he repeats it. The singular situation at 10 A.M. may be *per definitionem* unrepeatable in its exact features. The words and gestures admirably fitted to the situation indoors at 10 o'clock may be confusing outdoors at 10:15. The purpose of a communication mostly presupposes that the formulations used are well adapted to future situations in which the receiver memorizes them or reads them anew. They must serve well in acts of self-stimulation under changing conditions. This purpose is of great importance in constructing scientific languages. Such languages presuppose that processes of self-stimulation take nearly identical courses in spite of great variations in situations.

In general, we may say that the success of a single act of communication between two persons at a definite moment is of relatively small importance compared to the importance of chains of communications in which the used formulations play a role. It is of importance, for understandable psychological and sociological reasons, that formulations are used that can be repeated in a variety of situations without marked changes in interpretation. We are, thus, forced back to the problem of finding formulations that are more precise than others within relatively broad types of situations.

II.11. Schematic View of Requirements of Communication to Many People

Let us suppose that a person P wishes to communicate as adequately as possible something he himself usually expresses by T. He wishes to communicate with n persons $Q_1, \ldots, Q_n$, $n > 1$, each of whom may have slightly different training and social background from the others.

If T has the astonishing property of not being slightly or grossly ambiguous within this group of persons, and if P knows this, he may limit himself to utter T to them, and the communication is a complete semantical success.

If the persons are expected to interpret T in different ways and too different for the purpose at hand, P may first look for a single sentence U that is interpreted in the same way by all. It will have to satisfy the following requirement:

$$\mathrm{Syn}(TPS; UQ_1S)\ \&\ \mathrm{Syn}(TPS; UQ_2S)\ \&\ \ldots\ \&\ \mathrm{Syn}(TPS; UQ_nS)$$

Or, in short

(i). $\mathrm{Syn}(TPS, UQ_iS)$

If n is big, there is little chance that P will be able to find any U that satisfies the requirement of unambiguity. If he does not find any, he may study the usage of each person and find out how to express what he intends by T to each person separately, or in groups. This done, he may have to utter n different sentences, each addressed to one person:

T1 to Q1:	If Syn(TPS; T1Q1S).
T2 to Q2:	If Syn (TPS; T2 Q2S).
— — —	
Tn to Qn:	If Syn(TPS; TnQnS).

The requirement fulfilled by the individual T_i does not imply that T_i is more precise than T for any person in any situation. T_i may be synonymous with very different sentences for different persons.

When we carry out works of popularization, it is of interest to study what kinds of considerations determine how far we consciously use formulations apt to be misunderstood in various ways, and what kinds of reasons we have for suspecting that some misunderstandings have fewer undesired consequences than others.

II.12. Relation Between Knowledge of Context and Preciseness

It seems to be generally accepted that a formulation should not be isolated from its context when interpreted and that the more we know about the context, the less likely it is that we hit on incorrect interpretations. It is often stated that the so-called «exact» («real», «correct», «accurate») meaning can be gathered only by study of «the context as a whole». An objection often made to the method of interpreting a text by successive interpretation of its sentences is that the text must be taken as a whole, not analyzed into parts. Interpretation should, according to some people, proceed from a general view of the whole toward interpretation of each unit, not vice versa.

These are rather vague hypotheses. What can be maintained in a serious discussion of the matter, and how can it be formulated? Authors often complain that their critics interpret formulations «isolated» from the contexts. However, there seems to be much misunderstanding because some people regard things as belonging to the context, while others do not. On the whole, there is a tendency to look on greater parts of texts as the context of one's own formulations, compared to the context relevant in case of formulations produced by others.

Sentence (1) on page 62 is a member of a sequence of sentences making up a page of a book, and of a sequence making up section 12 of chapter 1. Chapter 1 may conveniently be regarded as the proper context to investigate when writing theses about the work of the author. The body of valid laws of a community is sometimes mentioned as the proper context for the interpretation of laws. On the other hand, sentences are sometimes said not to belong to the context that occurs within a few sentences of the one at issue.

So far, we have mentioned context in the form of sentences. Often, one also refers to other things as context, for instance, the purpose of a communication, the place where it is carried out, the expected audience, the sex, age, education of its author, and so forth. Anything may be mentioned that conceivably could have an effect on the interpretation of a sentence. Thus conceived, it would easily be an analytical proposition that the more one presupposed known about the context, the more precise would be the interpretation chosen.

It would be highly arbitrary to fix a limit between what is part of the verbal context of a sentence and what is outside the context. We shall here deal with sentences and contexts in general and need only the following definition.

Let S_1 and S_2 be two groups of sentences. S_2 includes S_1 and, in addition, at least one sentence not belonging to S_1.

> (1) If a sentence is interpreted by a receiver on the basis of the group of sentences S_1, it is said to be interpreted on the basis of a *narrower verbal context* than if the group S_2 is taken into consideration.

The age of the author of a sentence may be taken into account by making a sentence designating the age and making it a member of the group of sentences more or less arbitrarily selected as context.

Theorem:

> (2) The broader the context taken into consideration by a group of receivers of a sentence, the more receiver-precise is the sentence within the group.

This theorem is not to be interpreted as saying that any broadening of context will favorably affect the level of preciseness, but that a broadening either will affect it favorably, or will not affect it at all.

It is easy to see that, even thus interpreted, the theorem will not hold in every case. Some formulations may be highly misleading, and to be ignorant of such formulations should therefore be a help rather than a hindrance. Sometimes we get more and more confused during the reading of a book.

Theorem (2) is a very general, vague, and trivial hypothesis, which, however, is useful as a starting point for important parts of the theory of interpretation.

If the consideration of a group of sentences S_1 will have more influence on the interpretation than the consideration of another group S_2, S_1 will be more important to consider. In general, the more influence it has and the smaller it is, the more reason there is to take it into account.

II.13. Interpretational Vibrations Caused by Broadening the Context

We cannot get a total picture without reading a document sentence by sentence, interpreting small units as we read. It is, therefore, necessary to proceed from smaller units to greater, and then back again to smaller. This movement has sometimes been called «the hermeneutical circle».

The following schematic description aims to give a more adequate picture of the possible effects of successive broadening of context by reading.

It should help us realize how extremely complex are the possibilities of mutual influence of parts.

Let «a» be a sentence isolated from any direct auditory or visual verbal context. By Int(a), we symbolize in this section an interpretation of the sentence «a» put forward by a receiver of «a» as an attempt to express as precisely as possible (to him, the receiver) what he thinks the author of «a» has intended to convey by «a». By «b», we symbolize the first sentence of a verbal context now connected with «a». By Int(b), we symbolize an interpretation of «b», put forward by the receiver of «a» when he gets access to «b». By an expression of the kind Int(x,S:y), where «x» and «y» are expressions containing the symbols «b» and «a» or certain others, we symbolize an interpretation of «x» on the basis of «y», for example, with «y» as available context. Thus, Int(a,S:b) is read: the interpretation of «a» based on «b» as the context of «a».

By means of these symbols it is possible to give condensed formulas for the sources of shifts in interpretation when contexts are broadened. Other possible influences are neglected for the sake of simplicity. The formulas will, I hope, give a clear picture of the possible interactions between «total view» and «isolated interpretation of small units».

To the left are the symbols of interpretations and contexts available when the reader (receiver) proceeds as indicated to the right.

«a»	Reader perceives the formulation «a» and
Int(a)	interprets it without looking for a context. He then turns on a formulation «b» making up the immediate verbal context
Int(b,S:a)	of «a» and interprets it, but is hereby possibly influenced by «a». After the interpretation of the immediate context of «a», this formulation is no longer
Int(a,S:(b,S:a))	isolated, and reinterpretation is needed. But his interpretation of «b» was possibly influenced by his original interpretation of «a».
Int(b,S:(a,S:(b,S:a)))	Possibly the new interpretation of «a» will influence his interpretation of «b», and he gets a modified interpretation of that formulation. This new interpretation of «b» may possibly lead to reinterpretation of «a», and so on.

Let us suppose that oscillations between «a» and «b» following upon those illustrated do not result in any change of interpretation of «a» and «b». We may then stop at the last interpretations of the diagram.

As a next step, we now introduce a new sentence, «c», as the immediate verbal context of «b». The interpretation of it will be influenced by the already-interpreted sentences «a» and «b» that make up its context:

Int(c,S: [(b,S: (a,S: (b,S:a))) & (a,S: (b,S: a))])

Let us, in the following, use A as an abbreviation for the expression in square brackets.

Now, however, «a» and «b» are viewed in the light of the new context «c», interpreted as symbolized above. Possibly this modifies the interpretation of them, and we get the two new interpretations:

Int(a,S: [c,S: A])
Int(b,S: [c,S: A])

The new interpretation of «a» may possibly influence that of «b», and the new interpretation of «b» may possibly influence «a». Let us instead look at the possibility that the new interpretations of «a» and «b» will influence the interpretation of «c». This sentence was originally interpreted on another basis than the latest interpretations of «a» and «b» and we may possibly have to work with a new interpretation of «c»:

Int(c,S: [(a,S: [c,S: A]) & (b,S: [c,S: A])])

The functional interdependencies with increasing number of sentences increase very fast, so that the schematical picture of the relationships soon becomes practically impossible to handle. A new sentence may unsettle any one of the previous interpretations. In practice, there are, on the other hand, slight chances that a single addition to a context gives rise to many and important changes.

If a treatise is built up by an argumentation consisting of n sentences, which are read successively, we eventually arrive at an interpretation of its first sentence in the light of the n−1 following sentences as context. If this «total view» context changes our previous interpretation of the first sentence, then it is necessary to take up the «total view» context for renewed interpretation, since it has been subjected to an outdated interpretation of the first sentence. Thus, one will have to revise the «total view» on the basis of less comprehensive interpretations, namely the interpretation of the first sentence.

Discussions about context and interpretation seem to some degree thwarted by the implicit assumption that a sentence may be «viewed» in a broad verbal context, without this context being laboriously interpreted. Each interpretation is a function of other interpretations, and only indirectly a function of «context» in the sense of surrounding formulations in contrast to surrounding assertions.

The preceding illustrations are based on the simplifying assumption that the receiver (for example, a reader of a book) chooses one and only one interpretation when he is confronted with a sentence. He is supposed consciously or nonconsciously to single out one interpretation as the most plausible on the basis of the available material. If, however, the receiver's task is to read a textbook of philosophy, a sermon, or a rhetorical masterpiece, he may find the sentences ambiguous (even when the available context is taken into account), and he will suspend judgment as regards definite interpretation until more context is available. He may decide to work with several possibilities of interpretation, without showing any preference. Let us see how we can illustrate this more realistic account of the interpretational efforts of the reader. Let $\mathrm{Int}_1(a)$, $\mathrm{Int}_2(a)$, . . . , $\mathrm{Int}_n(a)$ be the n interpretations of «a» that the reader cannot distinguish as regards degree of plausibility, all being approximately equally plausible in view of the lack of contextual information. When he proceeds to the context formulation «b», it is interpreted in the light of «a», which gives the following possibilities:

$$\mathrm{Int}_1(b,S{:}\ \mathrm{Int}_1(a))\ \mathrm{Int}_1(b,S{:}\ \mathrm{Int}_2(a))\ .\ .\ .\ \mathrm{Int}_1(b,S{:}\ \mathrm{Int}_n(a))$$
$$\mathrm{Int}_2(b,S{:}\ \mathrm{Int}_1(a))\ \mathrm{Int}_2(b,S{:}\ \mathrm{Int}_2(a))\ .\ .\ .\ \mathrm{Int}_2(b,S{:}\ \mathrm{Int}_n(a))$$

Suspension of interpretation, even if relating to only two sentences, may create a vast manifold of possibilities. In practice, these are not verbalized, but some of them must be reckoned with as causal factors regulating interpretation of «difficult» texts by analysts. In the case of interpretation of imperfectly known languages, linguistic research sometimes leads to explicit formulation of vast numbers of possibilities. Normally, however, we rather seem to have a nonverbalized disposition for varieties of possibilities, which is changed without our noticing it.

Concluding, we should like to emphasize that the above schemes are not psychological descriptions of how texts are interpreted, but a survey of how interpretations of large units of texts depend on interpretations of smaller units, and vice versa.

The often-heard complaint that interpretations must proceed from «views of totality», from «comprehensive understanding, not from atomic disintegration of texts» ought not to be used as a justification for a reversion to nonconscious interpretation, unenlightened by any effort to find out how and why we arrive at our ultimate choice of interpretation of any unit of text. On the other hand, there is a danger that very painstaking analysis of possibilities makes us unable to complete the reading of texts if they are not written in unusually precise language. The number of possibilities of interpretation may be practically unlimited in case of texts of comparatively low levels of preciseness.

Against the unwarranted principle of interpretation from the «totality», one may place the «*principle of the hermeneutical circle*»: from interpretation of isolated expressions, one proceeds to more and more comprehensive wholes, then back again to each isolated expression. From isolated expressions, the interpreter again attempts to survey wholes. The term «hermeneutical circle» is suggested by F. Torm (1938: 158); the principle had possibly been suggested already in 1808 by F. Ast.

II.14. Synonymity and Preciseness of Imperatives

We have so far limited our analyses to declarative sentences (formulations) and designations.

This limitation has been only temporary. We shall briefly indicate how to extend the theories to other types of sentences. It should be borne in mind, however, that the limitation imposed so far has not excluded from consideration parts of sentences other than formulations. Designations included in imperatives, in questions, and in any other type of sign-complexes that normally do not express assertions are included in the scope of definitions and theorems on «designations» as this word is used in chapter 1. If, for example, a question is misunderstood, it is feasible and it is a normal procedure to try to make one or more designations included in the question more precise or more specified. There are, in the foregoing sections, introduced tools relevant to the theory of norms and of questions.

Suppose «a!» is a sentence that does not for P in S express any assertion but rather a command or request or decision (an «imperative») made by the person pronouncing «a!», or interpreted to be a command or request by some other person or personalized institution.

> (1) Two sentences, «a!» and «b!», are in this work said to express the same imperative for a person P in a situation S if, and only if, every expression T—which, according to P in S designates a satisfaction of «a!»—also designates a satisfaction of «b!», and vice versa; and every expression U—which, to P in S designates a nonsatisfaction of «a!»—also designates a nonsatisfaction of «b!», and vice versa.

Two sentences satisfying (1) we call «synonymous imperative sentences for P in S».

The formulation «An expression T designates according to P in S a state of satisfaction of the imperative «a!»» admits of two directions of precization worthy of being mentioned in this connection. One direction may be suggested by making the formulation synonymous with «P considers the state characterized by T to be realized *as a result* of the announcement «a!»». The other direction may be suggested by making the formulation synonymous with «T designates according to P in S a state of affairs confirming the assertion that «a!» has been followed».

The difference between the two directions is between the satisfaction of an imperative and the state of affairs and the announcement of the imperative and the state of affairs, T. If the satisfaction clause is precized in the second direction, there may be no causal link whatsoever.

If, to take an example, the imperative is the one I herewith announce: «Let there be no pirates in the Arctic Sea!», the sentence «There are no pirates in the Arctic Sea» represents an expression T of the kind demanded by the second direction of precization. It is, by me, considered to confirm the hypothesis that my imperative has already been followed. There has not been any causal chain between my imperative and the condition in the Arctic, however. Thus, the condition cannot be said to be a result of the imperative.

Both directions of precization lead to concepts of some fruitfulness. There is no reason at the present stage of the introduction of conceptual structure to eliminate any of them by a decision in favor of any other.

To illustrate definitional formulation (1), we may select the following «constants»:

«a!»	in this work, the word «interpretation» shall be used as indicated in chapter 1
«b!»	in the work in which this sentence occurs, the word «interpretation» shall be used as indicated in chapter 1 of that work
P	A. N.
S	this page

I think there is no designation that weakens the requirement of (1). As an example of a pair of confirmatory formulations, we select the following:

T1: In this work, the word «interpretation» is used as indicated in chapter 1.

T2: In the work in which this sentence occurs, the word «interpretation» is not used as indicated in chapter 1 of that work.

The formulations T_1 and T_2 have an important relation to any expression that might satisfy (1). If T_i is a designation satisfying (1) provided «a!», «b!», P, and S are exemplified as in the illustration, in that case T_i has a connotation equal to or richer than T_2. This I judge from knowledge of my own verbal habits. We shall call an expression fulfilling the requirement of having a connotation not less rich than any other satisfying (1) *an expression of conditions of complete realization* of the imperative at hand.

Considerations of fruitfulness and economy of thought have led us to adopt concepts of interpretation and preciseness of imperatives that are closely analogous to those used in relation to formulations. Thus, by analogy with (1) on page 57, we write:

> (2) «The imperative «a!» is a synonymic alternative to the imperative «b!»» shall in this work mean the same as ««a!» and «b!» may be synonymous».

On the basis of this terminology, the other definitions and theorems of chapter 1 about interpretation and so forth are made, mutatis mutandis, applicable to imperatives.

By analogy with (1) on page 62, we get:

> (3) If, and only if, every synonymic alternative to the imperative «a!» is also a synonymic alternative to the imperative «b!», and there is at least one synonymic alternative to «b!» that is not a synonymic alternative to «a!», and «a!» admits of at least one synonymic alternative, then «a!» will be said to be *more precise* than «b!».

By means of this terminology, the sentences about preciseness of formulations in chapters 1 and 2 may, mutatis mutandis, be used about preciseness of imperatives.

II.15. Synonymity and Preciseness of Questions

We shall try to «reduce» the analysis of questions to the analysis of assertions in much the same way that we have just done with regard to imperatives.

> (1) Two sentences «a?» and «b?» are in this work said to be synonymous or to express the same question for a person P in a situation S if, and only if, every formulation T that expresses for P in S a positive answer to «a?» also for P in S expresses a positive answer to «b?», and vice versa; and every formulation U that expresses for P in S a negative answer to «a?» also for P in S expresses a negative answer to «b?», and vice versa.

By analogy with (1) on page 57, we get:

> (2) «The question-sentence «a?» is a synonymic alternative to the question-sentence «b?»» shall in this work mean the same as ««a?» and «b?» may be synonymous».
>
> (3) If, and only if, every synonymic alternative to the question «a?» is also a synonymic alternative to the question «b?», and there is at least one synonymic alternative to «b?» that is not a synonymic alternative to «a?», and «a?» admits of at least one synonymic alternative, then «a?» will be said to be *more precise* than «b?».

> (4) If, and only if, every formulation expressing a positive (or negative) answer to the question «a?» also expresses a positive (or negative) answer to the question «b?», and there is at least one positive (or negative) answer to «b?» that does not express a positive (or negative) answer to «a?», and «a?» admits of at least one positive (or negative) answer, then «a?» will be said to be *more precise* than «b?».

By means of the concepts of sections 14 and 15 we can deal with problems of interpretation and preciseness of imperatives and questions in a preliminary way adapted to our main purposes, which are concerned with concepts and assertions, rather than norms and questions.

III

Misinterpretation and Pseudoagreement

III.1. To Assent and to Agree: Verbal Agreement

Let us suppose that a person P tries to communicate to another person Q a proposition and the standpoint that this proposition is tenable. Let us further suppose that P tries to express it by a sentence T_0, and that Q reacts positively in such a way as to indicate «agreement» with P. This *act of assenting* may be performed by means of words such as «yes», «sure», «certainly», «agreed», and «that is so», or by nodding or other socially accepted gestures of assenting. For the sake of simplicity, we shall in this chapter assume that Q responds verbally and in such a way that we may with great certainty infer that Q regards as tenable that proposition that he believes P tries to convey to him. In symbols:

(1) $\mathrm{Ass}(PT_0Q)$

(2) $\mathrm{Ass}(QT_0P)$

The symbol «Ass» is used to symbolize assertion.

The whole symbol «$\mathrm{Ass}(PT_0Q)$» reads, P asserts T_0 with Q as intended receiver(s).

The whole sign-complex (1) and (2) is a description of an attempt at communication. This and later symbolizations in this chapter are all symbolizations of what an analyst observes or infers.

Whenever an interaction between P and Q occurs in such a way as to make the above symbolization adequate, we shall say that at step (2) and in relation to the sequence of steps (1), (2), there is *verbal agreement* between P and Q. The observational basis is in such cases usually an act of assenting. If neither P nor Q comments on the other's use of T_0, we shall infer that at step (2) P and Q believe that they interpret T_0 in the same way, or that they, if asked, and if they understood the question, would be willing to assert that they assume they interpret T_0 in the same way. («Same» is here open to different, more or less exacting interpretations, which generate various more or less strong assumptions on the part of the analyst.) Further, we, as analysts, infer that Q believes to be tenable the proposition that he thinks P tries to express by T_0. Further, we infer that P believes that Q, by his answer, has indicated that he accepts the proposition that P intended to convey.

Sometimes the inferences may be checked carefully and found well supported, but this usually requires extensive investigations.

We talk about «steps» in the sense of successive verbal utterances in a sequence making up a discussion, deliberation, or some other kind of verbal communication between different persons, or, as a limiting case, within the same person at different moments. The successive steps may be described in terms of situations in the terminology of the preceding chapters.

If Q responds negatively in such a way as to indicate that he does not consider that the proposition he believes P is trying to convey to him is tenable, we shall say that there is *verbal disagreement* between P and Q at stage (2) and in relation to the sequence (3), (4). We symbolize this as follows:

(3) (1) $\mathrm{Ass}(PT_0Q)$
(4) (2a) $\mathrm{Ass}(Q\text{-}T_0P)$

or

(4) (2b) $\text{-}(\mathrm{Ass}(QT_0P))$

The alternative (2b) indicates that Q limits himself to indicating that he is not willing to assert T_0. Maybe he considers T_0 to be devoid of meaning or too ambiguous to be accepted or rejected, or he may consider the negation of T_0 to be tenable. If, and only if, this last possibility is indicated by Q's answer do we write (2a). In the following we shall, for the sake of simplicity, limit ourselves to discussions in which persons assert either T_0 or its negation.

III.2. Pseudoagreement and Pseudodisagreement

Let us continue the analysis of discussions starting with the two steps:

(1) Ass(PT_0Q)
(2) Ass(QT_0P)

If T_0 for P is interpersonally synonymous with T_0 for Q at step (2), then we shall say that at step (2) there is *expressed interpersonal and propositional agreement* between P and Q in relation to the sequence (1), (2), and as regards the proposition expressed by T_0 by P. The concept is formed by precization of expressions such as «real agreement» and «agreement not owing to confusion of terminology».

If T_0 for P is interpersonally synonymous with T_0 for Q at step (2a) of the sequence (3), (4), section 1, we shall say that at step (2a) there is *expressed interpersonal and propositional disagreement* between P and Q in relation to the sequence (3), (4) and as regards the proposition expressed by T_0 by P.

If T_0 as interpreted by P is not interpersonally synonymous with T_0 for Q at step (2), and T_0 expresses a proposition for Q that is different from the one expressed by T_0 for P, then we shall say that there is at step (2) *pseudoexpressed agreement* between P and Q as regards the proposition expressed by T_0 for P. By that technical term we indicate that there is verbal agreement, a kind of situation normally taken to indicate propositional agreement, but that the situation is misleading because P and Q are talking about different things. It *seems* as if they explicitly are accepting the same standpoint—and they believe they have—whereas they are not accepting the same as far as can be judged by what they have tried to communicate to each other.

If we can, on the basis of sources of knowledge other than the symbolized communication, say that Q believes that the proposition expressed by T_0 for P is tenable, then there is propositional agreement at step (2), but, nonetheless, a pseudoexpressed agreement. If Q believes that proposition to be untenable, there is at stage (2) pseudoexpressed agreement connected with propositional disagreement. We shall in that case say that there is *pseudoagreement* at step (2).

If cases of verbal disagreement are similarly treated, the following cases shall have to be distinguished. They are all defined in relation to definite types of situations, those characterized by the succession (1), (2) of steps in a communication between P and Q.

Verbal Agreement at Step (2)

A1 Verbal agreement and interpersonal synonymity give: «expressed (communicated, conveyed) propositional agreement».

A2 Verbal agreement and lack of interpersonal synonymity and propositional agreement give:

A2.1 «pseudoexpressed propositional agreement».

Verbal agreement and lack of interpersonal synonymity and propositional disagreement give:

A2.2 «pseudoagreement».

Verbal Disagreement at Step (2)

B1 Verbal disagreement and interpersonal synonymity give: «expressed (conveyed, communicated) propositional disagreement».

B2 Verbal disagreement and lack of interpersonal synonymity and propositional disagreement give:

B2.1 «pseudoexpressed propositional disagreement».

Verbal disagreement and lack of interpersonal synonymity and propositional agreement give:

B2.2 «pseudodisagreement».

The distinctions introduced are more easily surveyed if formulated in symbols. It must be borne in mind, however, that some of the members of the conjunctions below refer to step (1), and some to step (2) or later steps. Thus, we may write:

A1	$Ass(PT_0Q)$	$\& \ Ass(QT_0P)$	$\& \ Syn(T_0PS, T_0QS)$
A2.1	$Ass(PT_0Q)$	$\& \ Ass(QT_0P)$	$\& \ -Syn(T_0PS, T_0QS)$

	& Ass(QT_1P)	& Syn(T_1PS, T_1QS)	& Syn(T_0T_1PS)
A2.2	Ass(PT_0Q)	& Ass(QT_0P)	& -Syn(T_0PS, T_0QS)
	& Ass(Q-T_1P)	& Syn(T_1PS, T_1QS)	& Syn(T_0T_1PS)
B1	Ass(PT_0Q)	& Ass(Q-T_0P)	& Syn(T_0PS, T_0QS)
B2.1	Ass(PT_0Q)	& Ass(Q-T_0P)	& -Syn(T_0PS, T_0QS)
	& Ass(Q-T_1P)	& Syn(T_1PS, T_1QS)	& Syn(T_0T_1PS)
B2.2	Ass(PT_0Q)	& Ass(Q-T_0P)	& -Syn(T_0PS, T_0QS)
	& Ass(QT_1P)	& Syn(T_1PS, T_1QS)	& Syn(T_0T_1PS)

In the succession of steps (1), (2), P opens the discussion and Q acts as a receiver. Talking about propositional agreement, we always in such cases refer to propositions that the person who opens the discussion tries to express.

If both P and Q are receivers in a situation S, we may still as analysts talk about propositional «agreement» or «disagreement» between P and Q in S, but it is to be remembered that in this case there is no attempt to communicate between P and Q. The «agreement», therefore, does not extend beyond simultaneous implicit acceptance of a proposition, or, more accurately, a state of affairs characterized by two or more persons having the opinion that a certain proposition is tenable. In this chapter we are mainly concerned with attempts at communication, and our definitions and theorems are mainly concerned with types of steps in discussions.

It may happen that both P and Q read or hear T_0 without there being any person as sender, and P asks Q whether Q agrees to T_0, and P then indicates his own attitude. Under these circumstances, the cases A1, A2.1, and A2.2 shall refer to agreement about two propositions, the one P intends and the one Q intends.

Short illustrations of the distinctions introduced:

(3) P: Nothing exists.
(4) Q: You are wrong. Your foolish assertion exists.
(5) P: I meant, nothing exists in the sense of Parmenides.
(6) Q: I agree, but why did you not say that at once instead of saying something quasi-profound?

At step (4) we have a case of verbal disagreement. At step (5) P introduces a «T_1», presumably chosen among precizations of T_0 for P and with the hope that T_1 for Q means the same as it does for P.

At step (6) we may say that in relation to the succession (3)–(6), there was at step (4) a misinterpretation on the part of Q. There was at that stage of the discussion a pseudodisagreement. If the aim of P, to make more precise what he intended to express at step (3), is presumed to be successful at step (6), there is at that stage propositional agreement. We may, however, say that *there are symptoms* of propositional agreement at (6) and pseudodisagreement at (4).

(7) P: Some assertions are absolutely true.
(8) Q: No. We have not sufficient confirmation of any assertion to make its absolute truth plausible.
(9) P: I meant, there are some assertions that nobody can seriously doubt.
(10) Q: Oh, is that what you mean? I think that is an implausible psychological hypothesis.

We may, in relation to the succession (7)–(10), say that at step (8) there was verbal disagreement and at step (10) symptoms of pseudoexpressed propositional disagreement—that is, symptoms of case B2.1 of our tabulations on page 141.

III.3. Communications That Show Symptoms of Pseudoagreement and Other Undesired Properties

In the symbolized types of communication

(1a) $\mathrm{Ass}(PT_0Q)$ (2a) $\mathrm{Ass}(QT_0P)$

and

(1b) $\mathrm{Ass}(PT_0Q)$ (2b) $\mathrm{Ass}(Q\text{-}T_0P)$

there is nothing explicitly mentioned that could indicate that the attempt to convey a proposition was a failure. The analyst who maintains that it was a failure must have some material other than the utterances symbolized to prove his thesis.

Let us suppose that P continues the communication by one of the following types of sentences:

(3a) P: By T_0 I meant T_1.

or

(3b) P: By T_0 I meant T_1, not T_2.

or, in previously introduced symbols:[1]

(3as) Ass {P, Syn ($T_0T_1P(1)$), Q}
(3bs) Ass {P, Syn($T_0T_1P(1)$) & -Syn ($T_0T_2P(1)$), Q}

By means of (3b), P may indicate that a certain interpretation T_2, which he thinks Q possibly has used, is not in harmony with his intention. Another interpretation, T_1, which we safely may assume is heteronymous with T_2 for P, is offered as expressing his intention.

Offering T_1 instead of T_2 as a suitable formulation, P may have had the opinion that Q possibly interprets T_0 to mean the same as P means by T_2, or perhaps the same as P means by T_1. By substituting T_1 for T_0, he tries to eliminate the possibility that Q interprets T_0 to mean the same as P means by T_2.

Let us assume that Q answers P's assertion (3b) with one of the following sentences:

(4a) Q: That is how I interpreted your statement.

or

(4b) Q: I thought you meant T_2 by T_0, not T_1.

or

(4c) Q: To me T_0, T_1, and T_2 mean the same.

or

(4d) Q: To me, T_1 and T_2 mean the same, but something different from T_0.

Or, in symbols:

(4as) Ass {Q, Syn(T_0P(1), T_1Q(1)), P}

(4bs) Ass {Q, Syn(T_0P(1), T_2Q(1)), P}

(4cs) Ass {Q, Syn(T_0T_1Q(1), (4)) & Syn(T_0T_2Q(1), (4)) & Syn(T_1T_2Q(1), (4)), P}

(4ds) Ass {Q, -Syn(T_0T_1Q(1), (4)) & -Syn(T_0T_2Q(1), (4)) & Syn(T_1T_2Q(1), (4)), P}

In the first case, (4a), there is a confirmation that Q interprets P as he himself does, a symptom of interpersonal agreement or disagreement and, hence, of «communication of propositions», another name for «expressed propositional agreement or disagreement». The confirmation cannot be considered to be very strong, however. On the other hand, we get relatively strong confirmation of two intrapersonal synonymities, Syn(T_0T_1PS) and Syn(T_0T_1QS). We have some reason to believe that T_1 is for P and Q in S less ambiguous than T_0. It is this pair of intrapersonal synonymities that makes us look on the answer (4a) as a slight confirmation that there is an interpersonal synonymity Syn(T_0PS, T_0QS). Our assumption is that because T_1 is offered instead of T_0, this means that T_1 was selected on the basis of a more sustained effort to arrive at effective communication. Therefore, there should be a better chance that we have Syn(T_1PS, T_1QS) than that we have Syn(T_0PS, T_0QS). Moreover, since Q says that he interpreted T_0 to mean the same as T_1, we may transfer our confidence from T_1 to T_0.

The use of (4a) as confirmation of interpersonal synonymity and, hence, of propositional agreement is almost universal in spite of obvious shortcomings.

In most discussions, even within the exact sciences, the participants use weak symptoms of propositional agreement, and we do not blame them. *What we here try to do is only to make more explicit the kinds of assumptions habitually made.* A clarification of this kind tends to increase the capacity to detect and eliminate misunderstandings that result from overestimating the certainty of these assumptions.

In all the other listed cases of step (4), there is material suggesting misinterpretation and lack of confirmation of the effectiveness of the attempted communication.

In case (4b) we may safely assume that T_2 and T_1 for Q are not synonymous. There has been interpersonal *misinterpretation* at step (2), provided T_2 does not mean to Q the same as T_1 to P, for example, if it was not the case that Syn(T_1PS, T_2QS). There is, however, nothing that suggests such an interpersonal synonymity. If Q agreed with P as to T_0, there has been at step (2) either pseudoexpressed propositional agreement A2.1 or pseudoagreement (verbal agreement and propositional disagreement) A2.2. If, after step (4d), as a fifth step, we observe

(5a) Ass (QT_1P)

this is a strong symptom that there was at step (2a) pseudoexpressed propositional agreement about «a». From (2a) and (4b) we may infer that Q accepts the proposition expressed by T_2 for Q. P may or may not accept that proposition. If we observe

(5b) Ass(Q-T_1P)

this is a strong symptom that there was at step (2a) pseudoagreement about T_0.

If Q disagreed with P as regards T_0, there was at step (2b) pseudodisagreement if (5a) holds good, pseudoexpressed propositional disagreement if (5b) is observed. It is of importance to note that there must be a fifth step to get material concerning pseudoagreement, etc. Steps (3) and (4) give us material to judge relations of synonymity and lack of synonymity, not to judge standpoints toward the propositions at issue.

Case (4c), in which Q maintains that T_0, T_1, and T_2 mean the same to him, reveals a difference between two systems of intrapersonal synonymities. The difference vitiates the use of step (3) for confirmation of effectiveness of communication. Something similar applies to (4d). T_1 and T_2 are not suitable to be used as «clarifiers». P may try out a new pair of formulations, for example, by saying

(6a) P: By T_1 I meant T_3, not T_4; by T_2 I meant T_4, not T_3.

or simply

(6b) P: By T_0 I meant T_3, not T_4.

By these assertions, P brings in a new synonymity relation, presumably on the basis of a hypothesis that the new formulation, T_3, is more apt than T_1 to be used in the same sense by both P and Q.

In view of the somewhat complicated structure of the possibilities opened up by a fifth and sixth step, we shall summarize the foregoing kinds of steps as follows:

(1) P: T_0

(2a) Q: T_0

(2b) Q: $-T_0$

(3) P: $\mathrm{Syn}(T_0T_1)\& -\mathrm{Syn}(T_0T_2)$

(4a) Q: $\mathrm{Syn}(T_0T_1)$ & $-\mathrm{Syn}(T_0T_2)$

(4b) & (5a) Q: $\mathrm{Syn}(T_0T_2)$ & $-\mathrm{Syn}(T_0T_1)$.&.Q: T_1

(4b) & (5b) Q: $\mathrm{Syn}(T_0T_2)$ & $-\mathrm{Syn}(T_0T_1)$.&.Q: $-T_1$

If (2a) and (4b) & (5a), there is at step (5a) a symptom of pseudoexpressed propositional agreement at step (2a).

If (2a) and (4b) & (5b), there is at step (5b) a symptom of pseudoagreement at step (2a).

If (2b) and (4b) & (5a), there is at step (5a) a symptom of pseudodisagreement at step (2b).

If (2b) and (4b) & (5b), there is at step (5b) a symptom of pseudoexpressed propositional disagreement at step (2b).

Further efforts of communication may confirm the hypotheses about pseudoagreement, etc.[2] Let us analyze the following kinds of additional steps. We shall assume that the first three steps were (1), (2a), and (3).

(6a) P: $\mathrm{Syn}(T_1T_3)$ & $-\mathrm{Syn}(T_1T_4)$ & $\mathrm{Syn}(T_2T_4)$ & $-\mathrm{Syn}(T_2T_3)$

(7a) Q: $\mathrm{Syn}(T_1T_3)$ & $-\mathrm{Syn}(T_1T_4)$ & $\mathrm{Syn}(T_2T_4)$ & $-\mathrm{Syn}(T_2T_3)$

(7b) & (8a) Q: $Syn(T_1T_4)$ & $-Syn(T_1T_3)$ & $Syn(T_2T_3)$ & $-Syn(T_2T_4)$
.&. Q: T_3
(7b) & (8b) Q: $Syn(T_1T_4)$ & $-Syn(T_1T_3)$ & $Syn(T_2T_3)$ & $-Syn(T_2T_4)$
.&. Q: $-T_3$

Steps (6a) and (7a) confirm the hypothesis motivated by (4a) that there was at step (2a) propositional agreement about the proposition expressed by T_0 for P.

The combination of (6a) and (7a) with (4b) and (5a) gives a confirmation of expressed propositional agreement at (5a) when Q asserted T_1.

The combination of (6a) and (7a) with (4b) and (5b) gives a confirmation of expressed propositional disagreement at step (5b).

The combination of (6a) and (7b) and (8a) with (4a) weakens the status at step (4a) of the hypothesis that there was at step (2a) a propositional agreement as regards T_0. This hypothesis was strengthened by step (4a), but T_1 and T_2 were by (7b) discovered to be interpreted differently. However, at step (8a) Q accepts T_3, which to P is synonymous with T_0. The status of the hypothesis may at step (8a) be regarded as somewhat stronger than at step (2a).

The combination of (6a) and (7b) and (8b) with (4a) weakens considerably the hypothesis at step (4a) that there was propositional agreement at step (2a). The amount of strength gained by step (4a) is lost again by steps (7b) and (8b).

There are, as may be gathered from the above indication, a great number of sequences that are relevant to the hypotheses of propositional agreement, pseudoexpressed propositional agreement, pseudoagreement, etc., at steps (2a), (4a), and so on. There is in theory no limit to the succession of confirmations and disconfirmations. In practice, however, there is a tendency to cut the sequences whenever confirmation is judged strong enough for the purposes at hand, or the differences in meaning between a pair of possible heteronyms (T_{2i-1},T_{2i}) are judged sufficiently small. Or, the participants adopt methods of judging efficiency of communication other than that of comparing synonyms.

In the foregoing we have not discussed closely why we may take «agreement» about T_1 more seriously than «agreement» about T_0. We have said that the choice of T_1 as a means of communication is probably based on deeper reflection than the choice of T_0. The capacity of steps (3) and (6) to *clear up misunderstandings* depends to some degree on the properties of T_1 and T_3 compared with that of T_0. Here the theory of preciseness comes in, especially that of interpersonal preciseness.

III.4. Some Important Types of Sequences of Steps in Discussions

In the preceding section we analyzed some types of steps in a communication between two persons P and Q. P's purpose was to convey to Q that he thinks a certain proposition tenable and to learn whether Q agrees with him on the status of that proposition.

The sequence of steps (1), (2a), (3), (4a), (5a), (6a) may be viewed as the first steps in an unlimited sequence:

(1)	P: T_0
(2a)	Q: T_0
(3)	P: $Syn(T_0T_1)$ & $-Syn(T_0T_2)$
(4a)	Q: (3)
(5a)	P: $Syn(T_1T_3)$ & $-Syn(T_1T_4)$ & $Syn(T_2T_4)$ & $-Syn(T_2T_3)$
(6a)	Q: (5a)
	— — —
	— — —
(2i+l)	P: $Syn(T_{2i-3}T_{2i-1})$ & $-Syn(T_{2-3}T_{2i})$ i = 2
	& $Syn(T_{2i-2}T_{2i})$ & $-Syn(T_{2-2}T_{2i-1})$
(2i+2)	Q: (2i+1)
	— — —
	— — —

If the successive steps are carried out to eliminate ambiguities, we may predict that the larger the number of steps, the less likely it is that discussions involving T_0 will reveal a difference between the intended meaning of P and that of Q.

There is another type of sequence of equal importance, the one beginning with (1), (2a), (3), (4a), (5b), (6b):

(1) P: T_0

(2a) Q: T_0

(3) P: $Syn(T_0T_1)$ & $-Syn(T_0T_2)$

(4a) Q: (3)

(5b) P: $Syn(T_0T_3)$ & $-Syn(T_0T_4)$

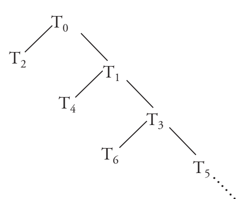
(6b) Q: (5b)

— — —

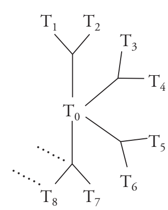
— — —

Here, the systems of precizations with T_0 as member are investigated. The differences between the two sequences and their combination may be illustrated thus:

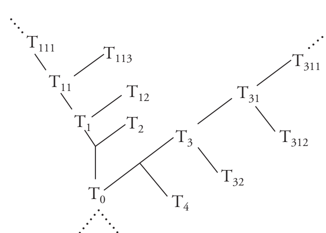
«Chain sequence»



«Radiation sequence»



Combination



III.5. Misinterpretation with Weight Effects

Suppose we observe an attempt at communication that we, by means of plausible auxiliary hypotheses, can subsume under the following form:

(1) Ass(PT_0Q)

(2) Ass(QT_0P)

(3) Ass[P, Syn($T_0P_1P(l)$) & -Syn($T_0T_2P(l)$), Q] & Pr($T_1T_0P(1)$) & Pr($T_2T_0P(l)$)

(4) Ass[Q, -Syn($T_0T_1Q(2)$) & Syn($T_0T_2Q(2)$), P] & Pr($T_1T_0Q(2)$) & Pr($T_2T_0Q(2)$)

At step (4) there is strong evidence in favor of the assumption that Q has interpreted P to have meant by T_0 something different from what P intended to convey by T_0. There is strong evidence of *misinterpretation*. Further attempts at communication may possibly furnish evidence to the contrary, but this is irrelevant to our present *contention*, which relates to the situation at step (4). P and Q may roughly be said to explain to each other what they meant by T_0. They thereby use two sentences, T_1 and T_2, that seem to them to permit fewer interpretations than T_0.

As judged on the basis of the sequence of steps (1)–(4), T_0 *has failed* as a vehicle to communicate assertions between P and Q. If P and Q use T_0 in the future, they may be expected to remember the failure and its clarification. They are apt to base the future use of T_0 on the assumptions

Syn (T_0T_1PS) & -Syn (T_0T_2PS)

Syn(T_0T_2QS) & -Syn(T_0T_1QS)

This may result in no more failures on the part of T_0 as a vehicle of communication *between P and Q*. The clarification has had an effect of «special prevention», but it is unlikely to have had an effect of «general prevention». If there is no strong evidence to the contrary, we shall have to expect that other persons using T_0 often may misinterpret each other as did P and Q.

Suppose the next steps in the sequence under consideration are:

(5) Ass (P-T_2Q)

(6) Ass (Q-T_1P)

In that case, the misinterpretation is of greater importance to effective communication than in the case of P and Q accepting both T_1 and T_2. We shall speak about evidence at steps (5) and (6) of *misinterpretation with weight effects*. That is, the misinterpretation represents differences in interpretation great enough to cause reversal or significant change in cognitive weight attribution. This means, again, that the misinterpretation causes pseudoagreement or pseudodisagreement.

It is important to take possible weight effects into consideration when investigating misinterpretation, because whereas we often misinterpret each other to some extent, we do so much [less frequently] with any weight effect. Investigation of misinterpretations without weight effects may have considerable didactic or purely theoretical value but is of slight use for direct application to concrete discussions.

If P and Q have had the experience of T_0 causing misinterpretation with weight effects, there is a heavy presumption in favor of either refraining from using T_0 in discussions with a third person R, or defining it in terms of T_1 and T_2 before entering the discussion with R. If T_0 is dropped, it is natural to use either T_1 or T_2 instead.

There may, of course, be special reasons for P to expect that R in discussion with P interprets T_0 as P does, but if P does not tell R about the misinterpretation between P and Q, the use of T_0 between P and R may, even if it is successful, do much harm, since R is led to use T_0 in discussions with new persons, some of whom may use T_0 as Q does and not as P does.

Just to illustrate the theoretical development in this section, we shall give an example of a discussion that by means of plausible auxiliary hypotheses can be subsumed under the form (1)–(6), pages 150–51. The illustration is taken from an elementary course in interpretation and preciseness.

(1) P: The newspaper is thin today.

(2) Q: Yes, it certainly is.

(3) P: I mean, there is little news in the newspaper today.[3]

(4) Q: Oh, that is not how I understood you. I thought you meant; The newspaper has few pages today.

(5) P: Well, I did not mean to say that. It does not express my opinion either. There are plenty of pages.

(6) Q: But how can you say there is little news? I think there is plenty of it.

At step (2) there is verbal agreement between P and Q. At step (4) there is strong evidence of misinterpretation on the part of Q. At step (5) the evidence of misinterpretation on the part of Q increases: the sentence that Q used to indicate his interpretation is a sentence that also for P is heteronymous with the original sentence. Further, at step (5) there is evidence that P does not have the opinion that Q intended to affirm at step (2). At step (2) there was misinterpretation with weight effect. At step (6) there is evidence that Q does not entertain the opinion that P intended to assert at step (1). The misinterpretation has had a double weight effect.

III.6. Concepts of Preciseness Based on Frequency and Gravity of Misinterpretations

The main object of precization being to decrease the chance of misinterpretation with weight effects, it may be fruitful to construct concepts of precization other than those introduced, namely concepts deliberately based on criteria of actually observed cases of such misinterpretation. If the misinterpretation is defined in terms of a relation of T_0 to a pair of formulations T_1 and T_2 (the «*discrimination*»), this pair functions to clear up the misunderstanding, and we may also call them «*clarifiers*». We may, for example, introduce the following concept:

«T_1 is more discriminating than T_0 within a discussional field S» shall in this work mean the same as «There have been cases of discussions within S in which T_1 has had the function of a clarifier in relation to a misinterpretation of T_0, but there have been no cases of discussions within S in which T_0 has had the function of a clarifier in relation to a misinterpretation of T_1».

The main difference between our previous concepts of preciseness and this concept is that the formulation «T_1 is more discriminating than T_0» expresses an account of actual development of certain kinds of discussions, namely those containing elements identifiable with steps (1)–(5), or a closely similar sequence of steps. It is a historical hypothesis, an account of past instances of usage, and a description of certain kinds of happenings involving past usage. Preciseness as defined by (1) on page 62 refers, on the other hand, to *dispositions* to use T_0 in certain ways insofar as possible future cases of use of T_0 are relevant. Future cases are by definition relevant as seen from (1) on page 57: «the expression «a» is a synonymic alternative of the expression «b»» shall mean the same as ««a» and «b» *ma*y be synonymous».

In the example of section 5 pages 150–52, the use of certain synonymic alternatives for the original sentence changed the discussion and revealed pseudoagreement. In that example, the formulations T_1 (The newspaper has few pages today) and T_2 (There is little news in the newspaper today) are both discriminators and clarifiers in relation to T_0 (The newspaper is thin today) within the discussion observed. If we declare T_1 and T_2 to be more discriminatory, this is a hypothesis that we, from general considerations and previous experiences, may have more or less reason to affirm. The affirmation of such a relation of discrimination may be made a broad or narrow working hypothesis according to how we delimit the discussional field S.

III.7. «Mere Questions of Terminology»

What is meant when a question is said to be «merely terminological»? Often, this saying is based on the argument that the answer to the question depends on the meaning of the question. Differences in meaning of the question result in differences in answer.

Such an argumentation holds good for any question whatsoever. If the question is interpreted before being answered, the answer depends at least in part on what is meant. Thus, in a sense, all questions are «terminological».

More plausible interpretations of «T_0? is a mere question of terminology» are perhaps found in the following direction of precization: «Whether one adheres to this or that answer to T_0? depends *onl*y on how T_0? is interpreted. Given a certain interpretation T_i?, all agree.» In some cases a question T_0? seems to be called «merely terminological» if verbal disagreements among answers always represent pseudodisagreements. The expression refers to existing verbal disagreements, not to any possible disagreement whatsoever. The possibilities of interpretation are not viewed as unlimited, but as limited to certain directions that are represented in current discussion.

If this usage is adopted, the classification of questions into terminological and nonterminological becomes largely arbitrary. It will depend on the range of interpretations considered «possible» in a rather indefinite way. It seems that besides frequency there are other factors determining the classification of what is «possible» in the realm of interpretation: the prestige and authority of the interpreters, the practical consequences of adopting this rather than that terminology, and so on.

In discussions, the answer «It is a question of terminology» to an opponent's question seems often to function as a convenient preface to an effort of precization and subsequent answer by conditional sentences: «If by T_0 is meant T_1, then my answer to T_0? is positive. If, however, ---.»

Concluding, we may say that questions are always terminological in a certain (rather unfruitful) sense, but in other senses are only rarely merely terminological. Elaboration of the issue leads to the use of distinctions such as those of previous sections. They are able to clarify the rather obscure but important complications of communication involving «terminological issues».

III.8. Misinterpretation and Pseudoagreement in Relation to Imperatives

To the assertion of formulations correspond announcement of imperatives and posing of questions. Verbal agreement and disagreement about formulations do not correspond closely to the announcement of imperatives that are symbolized as follows:

(1) Ann (PT_0!Q)

(2a) Ann (PT_0!Q)

(2b) Ann (P-T_0!Q)

If P uses an imperative, for example, «Q, stick to your definitions!», this may be done with Q as the only receiver of the communication or with a large public as anticipated, if not intended, receivers. To avoid confusion, we shall have to distinguish the *group of receivers* of a sentence expressing a command or exhortation (an «imperative» in the terminology of chapter 2, section 14), and the group of persons, if any, that the announcer of the sentence intends to command or exhort. We shall call the latter the *group of intended obeyers*.

Even if it is essential for the purposes of an announcement that it be heard or read by people other than the intended obeyers, the announcement may be said to be directed only to the intended obeyers.

The intention does not, any more than in the case of assertions, imply honesty: we may intend to assert a falsehood, and we may direct a command to a person without the purpose of making him obey (and without pretending that the imperative is justified). If a person announces an imperative and shows the usual behavior that is connected with the delimitation of a group of intended obeyers, that group shall, in our terminology, be said to be the intended obeyers, even if the person does not wish to make the group obey. A better word for «intended obeyers» might therefore be «the group commanded or exhorted».

A command or exhortation may or may not elicit a verbal answer. If I say «Shut the door!», the intended obeyer may shut the door (or leave it open) without a word of comment. But he may also happen to *say* «Yes» or by other words or gestures *assent* to the command. We shall presume that the assent may be expressed by the sentence «I intend to obey the command (or exhortation)». If T_0! is the command and Q is the intended obeyer, it will be symbolized by

Ass (Q, Sat (QT_0!), P)

Q asserts that Q intends to satisfy T_0! with P as the intended receiver (of this message).

In the case of requests that involve complicated or time-consuming actions, it is common, explicitly and verbally, to assert or oppose the request.

Suppose we observe the following sequence of attempts at communication:

(1) Ann (PT_0!Q)

(2a) Ass (Q, Sat (QT_0!), P)

(2b) Ass (Q, -Sat (QT_0!), P)

We shall at step (2) below speak of *verbal agreement* or *verbal disagreement* concerning the imperative T_0! between P as announcer and Q as intended obeyer.

Let us, in analogy with steps (3a) and (3b), of section 3, suppose the sequence develops as follows:

(3a) Ass {P, Syn (T_0! T_1! P(1)), Q}

(3b) Ass {P, Syn (T_0!T_1!P(1)) & -Syn(T_0!T_2!P(1)), Q}

Further,

(4a) Q: That is how I interpreted you.
Ass {Q, Syn(T_0!P(1), T_1!Q(1)), P}
(4b) Q thought: Syn(T_0!P(1), T_2!Q(1))
(4c) Q: To me T_0!, T_1!, and T_2! mean the same.
(4d) Q: To me T_1! and T_2! mean the same, but something different from T_0!.

These and other possible developments are of importance for the understanding of effective communication involving imperatives, and we shall accordingly introduce and name a set of distinctions corresponding closely to those of section 2.

Verbal Agreement at Step (2) Between Announcer and Intended Obeyer

A1 Verbal agreement and interpersonal synonymity give «expressed (communicated, conveyed) imperativistic agreement».

A2 Verbal agreement and lack of interpersonal synonymity and imperativistic agreement give:

A2.1 «pseudoexpressed imperativistic agreement».

Verbal agreement and lack of interpersonal synonymity and imperativistic disagreement give:

A2.2 «pseudoagreement».

The corresponding classification of conditions following on verbal disagreement is closely analogous to that concerning formulations. We need not discuss further steps because they all correspond to possibilities discussed in relation to formulations.

Let us, on the other hand, consider the following sequence:

(5) Ann(PT_0!R)

(6a) Ann (QT_0!R)

(6b) Ann (Q-T_0!R)

Here we also may speak about verbal agreement and disagreement, but now between two announcers (directing their appeals to the same persons or to groups that have at least one subgroup in common).

Here also we need distinctions corresponding to those introduced in relation to formulations. We shall limit ourselves to mentioning the distinction between possibilities following on verbal disagreement (symbols corresponding to those of section 2 are used):

B1 Ann(PT_0!R) & Ann(Q-T_0!R) & Syn(T_0!PS, T_0!QS)

«expressed imperativistic disagreement»

B2.1 Ann(PT_0!R) & Ann(Q-T_0!R) & -Syn(T_0!PS, T_0!QS)
& Ann(Q-T_1!R) & Syn(T_1!PS, T_1!QS) & Syn(T_0!T_1!PS)

«pseudoexpressed imperativistic disagreement»

B2.2 Ann(PT_0!R) & Ann(Q-T_0!R) & -Syn(T_0!PS, T_0!QS)
& Ann(QT_1!R) & Syn(T_1!PS, T_1!QS) & Syn(T_0!T_1!PS)

«pseudodisagreement»

III.9. Misinterpretation of Questions

Let us consider different developments of a communication beginning with a question and an answer. Let «Pos(PT_0?Q)» stand for «P poses the question T_0? for Q to answer».

(1) Pos(PT_0?Q)

(2a) Ass(QT_0P)

(2b) Ass(Q-T_0P)

Q is here the person or group of persons asked, not necessarily the total group of receivers. By (2a) we symbolize a verbal positive answer; by (2b), a negative. The symbolization is adapted only to questions that request the person asked to indicate whether he accepts or rejects a formulation. Thus, «Do you expect the United States to fight in another war within ten years?» can be subsumed under (1) if reformulated into «Do you consider T_0 tenable, if T_0 is «I expect . . .»?» A question such as «What do you think will be the biggest problem you or your family will have to face in the next few years?» cannot be subsumed, however.

As regards the possibilities of misinterpretation, a classification closely similar to that concerning formulations can be developed.

Thus, we arrive at the following distinctions in relation to communications opening with a verbal negative answer.

B1 $\quad$ $Pos(PT_0?Q)$ & $Ass(Q\text{-}T_0P)$ & $Syn(T_0?PS, T_0?QS)$

«expressed negative answer»

B2.1 $\quad$ $Pos(PT_0?Q)$ & $Ass(Q\text{-}T_0P)$ & $-Syn(T_0?PS, T_0?QS)$
& $Ass(Q\text{-}T_1P)$ & $Syn(T_1?PS, T_1?QS)$ & $Syn(T_0?T_1?PS)$

«pseudoexpressed negative answer»

B2.2 $\quad$ $Pos(PT_0?Q)$ & $Ass(Q\text{-}T_0P)$ & $-Syn(T_0?PS, T_0?QS)$
& $Ass(QT_1P)$ & $Syn(T_1?PS, T_1?QS)$ & $Syn(T_0?T_1?PS)$

«pseudonegative answer»

Let us then consider other types of questions and answers:

(1) P: T_0?
(2c) Q: U.
(3) P: By T_0? I meant T_1?, not T_2?.
(4a) Q: That is how I interpreted your statement.
(4b) Q: I thought you meant T_2?.

As a fifth step in relation to formulations, we took into consideration whether Q accepts T_1 and T_2. In relation to questions, such a development makes no sense, and we do not get any corollary to the classification into pseudoagreement and propositional agreement, etc. We may limit ourselves to stressing the importance of interpersonal synonymity of question formulations.

In case (4a) we have a symptom of interpersonal synonymity of T_0? and hence of «real» or «to the point» answers. In case (4b) we have a symptom of interpersonal heteronymity and hence of «pseudoanswer» attributable to the difference between T_1? and T_2? as interpreted by the replier.

III.10. Latent Disagreement

In the foregoing sections, a series of concepts were introduced in order to establish a fruitful classification of steps in certain kinds of discussions. The concepts, slightly modified, are, however, applicable to a much broader field of investigation.

Let P and Q be two persons who may never have met each other and may not even know of each other's existence. Suppose they both have asserted T_0. If, in the terminology of the analyst, P by T_0 means T_1 and not T_2, and Q by T_0 means T_2 and not T_1, one may still say that there is verbal agreement between P and Q concerning T_0, meaning thereby that under certain normal conditions of communication they would react affirmatively to each other's assertion of T_0. Let us say then that the agreement is *latent*. Similarly, «*latent pseudoagreement*» may be said to be present in cases of latent verbal agreement, lack of interpersonal synonymity, and propositional disagreement.

By such modified concepts, the potential development of controversies can be described. In practice, predictions based solely on investigations of latent relations may break down because the clash of individuals in oral or written debates introduces new factors that may influence what they say and how they interpret each other. Even if this is conceded, the latent structures are of importance, especially in opinion surveys.

Let us take an example of research in which concepts of the kind here introduced are convenient and fruitful. Tønnessen (1950–51) shows (roughly) that persons with rightist inclinations in politics accept certain favorable opinions about something they call «private enterprise». There is, in reference to certain formulations, a high degree of latent verbal agreement within the group studied. Detailed study of variations in interpretation of the term within the group shows that there are latent pseudoagreements of considerable interest. It is possible to distinguish two groups, rightist politicians and rightist businesspeople, that on the whole have different interpretations of the term «private enterprise» and therefore would, in relation to certain precizations of the term, disagree. There is a relatively high degree of propositional disagreement and therefore, in relation to the latent verbal agreement, a high degree of latent pseudoagreement. By intensive use of questionnaire and interview methods, the analyst can map out the structure of latent agreements and disagreements fairly accurately and supply corrections to the usual public-opinion conclusions about agreement and disagreement. Mostly, such conclusions are based on latent verbal agreement. If 100 people answer «Yes», they are listed as agreeing. Left undiscussed, however, is what they agree to, if anything.

IV

Definitoid Statements

IV.1. Synonymity Announcement Sentences

In chapter 1 section 1, the expression «synonymity sentence» was introduced as a technical term for declarative sentences showing certain common features.

The term «*synonymity announcement sentence*» will be used for a sentence obtainable by a change in a (declarative) synonymity sentence: an expression «is», «are», «has», «have», «mean(s)», or «express(es)» is changed into «shall be», «let --- be», «is to be», «are to be», «shall have», «let --- have», «is to have», «are to have», «shall mean», «let --- mean», «is to mean», «are to mean», «shall express», or «let --- express».

As in the case of a declarative sentence, one may divide the announcement sentences into expressions indicating the *semiotic relation* («shall mean the same», «are to be used synonymously with», etc.) and expressions indicating the relata. Let the latter be called indications of *intended subject matter of the announcement*. They may be conveniently divided into references to, first, the expression(s) that one says shall have (etc.) the same meaning as certain others—let them be called the «*definiendum expressions*»; and second, the expression(s) that are said to have the meaning that the definiendum expressions should (etc.) have—let them be called the «*definiens expressions*».

The separate names suggest an important dissymmetry. If somebody says ««x is meaningful» shall mean the same as «x is testable in principle»», there is a great chance that he would not consent to the substitution of his announcement sentence with the announcement sentence ««x is testable in principle» shall mean the same as «x is meaningful»». In the case of declarative sentences, such a substitution of left-hand for right-hand relatum may be expected sometimes to have no effect on the intended cognitive meaning. In the case of (declarative) synonymity sentences, a substitution of left- with right-hand relatum may, however, render the attempt at communication less adequate. If, for example, a child asks «What is democracy?» and its father answers that ««Democracy» means the same as «rule by the people»», this has perhaps a better chance of conveying something to the child than the answer ««Rule by the people» means the same as «democracy»» when the child asks «What is rule by the people?».

In addition to the definiendum and definiens expressions, the indications of intended subject matter often include *marginal references* of the kinds discussed in relation to declarative synonymity sentences.

As a convenient symbol for synonymity announcement sentences, the following will be used:

$\mathrm{Syn}\,(aM_1bM_2)$ (Ann)

The only difference from the symbol for declarative synonymity sentences is the addition «Ann» (for «announcement»). If an explicit distinction is needed, the symbol «Ass»(for «assertion») may be added in the case of declaratives:

$\mathrm{Syn}(aM_1bM_2)$ (Ass)

A synonymity announcement may, like a synonymity sentence, cover a vast field of occurrences or a very narrow field. It may be intrapersonal: let me mean by «true» the same as «real» (means to me). Or it may be interpersonal: for the sake of argument, let «space» mean to us the same as «space» meant to Newton. It may be intrasituational: let «moral» mean the same in our discussions as «of ethical relevancy» means in our discussions.

But as soon as it is asked, How is a synonymity announcement evaluated, tested, negated, justified?, very marked differences from declarative synonymity sentences immediately make themselves felt. Whereas the character of assertion usually associated with the latter has long been extensively discussed by those concerned with the methodology and theory of knowledge, the announcement character has chiefly been subjected to discussion in the twentieth century, and the discussion is still rather confused.

In view of this situation, it will be one of the aims of the following exposition to avoid controversial problems that are of minor importance to a fairly precise and detailed treatment of *terminological announcements* (conventions, proposals, regulations, norms).

A kind of concept that seems to us rather helpful is that of 'normative definition'. It will be introduced in what follows.

IV.2. Normative Definitions: Introduction

a. Definition

It is a wise rule not to use a designation with many and serious ambiguities as a concept designation. In certain fields of discussion, however, a term may enjoy such a dominating status that if an author takes care to avoid it, readers would hardly recognize that he deals with that field of discussion. The term «definition» is of this kind. It is in general use, and if its many senses are recognized, the designata cover considerable, and highly heterogeneous, fields of methodology.

The vagaries of this key term are far from unknown among logicians, and terms of qualification are added to it: «nominal» definition, «normative» definition, «ostensive» definition, «real» definition, and so on. Curiously enough, the complex designations are generally used as if they were expressing subconcepts or species concepts of a wide concept, that of 'definition in general'. Such a terminology amounts to a kind of rehabilitation of the term on the basis of the assumption that, after all, there must be some *important* characteristics of all concepts that have been called definitions. Justification of such an assumption, which is only too common in the case of well-established words, has not been forthcoming. Precization is confounded with specification.

In this work two concepts—or rather two concept families—will be introduced under the names of «normative definition» and «descriptive definition». A term «real definition» will also be introduced, but by means of definiens expressions that are so imprecise and difficult in application to concrete cases that we hesitate to talk about a *concept* of 'real definition'. There is no assumption whatsoever that things subsumable under normative, descriptive, or real definitions have common and specific characteristics that warrant the introduction of a more general concept including all. In other words, the complex designations «normative definition» and «descriptive definition» are not used synonymously with «definition of the normative kind» and «definition of the descriptive kind», but rather with «normative-definition» and «descriptive-definition», suggesting single-word designations.

Very often, sentences of the kinds «Democracy is a (mere) form of government» and «A syllogism is a logical form used to test the validity of reasoning» assert, plausibly interpreted, a subsumability of an individual under a class or of a subgroup under a wider group or a subconcept under a wider concept. By *descriptive genus definition*, or in short, «genus definition», we shall mean a sentence that—according to our view as analyst—most plausibly can be interpreted in one or more of these directions. In classical logic the expression «genus proximum» has been extensively used, but the term «proximum» seems to us unfortunate if there is no established hierarchy of concepts in reference to which the genus definition is asserted.

By «*normative genus definition*» we shall mean a sentence that most plausibly can be interpreted as an announcement that an individual shall be said to belong to a class or that a subgroup (or subconcept) shall be said to be subsumable under a wider group (or concept).

These expressions will mainly be used in argumentations to the effect that certain sentences referred to by others as «definitions» are genus definitions, whereas they are mostly discussed as if they were descriptive definitions of usage, or real definitions. Confusion is likely to arise if two sentences of the form «$x_1 \varepsilon K$» and «$x_1 \varepsilon L$» are discussed as if they were of the form ««x_1»syn«K»» and ««x_1»syn«L»». The two sentences are sometimes declared to contradict each other, whereas they are more likely to be entirely compatible insofar as two different but compatible subsumability relations are being asserted.

In dictionaries and encyclopedias, it is useful to give genus definitions, but the problem of communication should be carefully considered: what is the chance that a formulation intended to furnish a genus definition, and not a complete descriptive definition of usage, will be interpreted as a genus definition by the public?

The chance can be considerably increased by careful formulation by the author of the article. The «A is B» form is usually inadequate.

If we considered groups of occurrences of the word «definition», it should be possible to construct a great number of concepts of 'definition' that would represent precizations in relation to the total field of occurrences of «definition». Nothing like that is attempted here. The concepts introduced are held to belong to the great class of concepts that can be constructed by precization in different directions, but it is not maintained that they are somehow outstanding among the many possibilities. It is claimed, however, that when «definition» is used for what will be introduced as 'normative definition' or 'descriptive definition', then a theory based on concepts of synonymity will be applicable.

Let us consider the following statement: «It is fundamentally wrong to identify definiendum with definiendum expressions. Real philosophical analysis gives definitions of concepts, not of expressions. That which is to be defined (for example, the definiendum) is a *concept*. Words are of interest to lexicographers, not to philosophers».

To this it may be answered that concepts are certainly interesting objects of research, but if they cannot be identified with expressions or with any other phenomena that are easily identified by different investigators by observation, we need criteria such that there is a fair degree of certainty that two investigators know when they are talking about the *same* concept and when they are talking about different concepts. One method—and the usual one in research—is to give names to concepts, that is, to specify concept designations, and to lay down the rule that this designation, if found within a certain context, is meant to name the concept at issue. The names may be perfectly conventional, for example, T, X, Pruk, Punc, etc. The next step is to indicate how 'T' or 'X' is differentiated from other concepts, such that one investigator may say to another, «Aha, the concept 'Punc' that you have written about is just the same as the concept 'T' that I have been investigating». Now, such a characterization of the concept is highly difficult to give.

Suppose it happened that a person had a definite concept in mind, and had found out things about it, without ever having used a *verbal* characterization that, to him, furnished the criteria whereby the concept was distinguished from others. Now, if a person somehow has had a definite concept in mind, it is the job of the analyst to find definiens formulations that are apt to *express* the concept *named* by means of the definiendum expression «X», « T», «Punc», or «Truth», or whatever expression is selected as concept designation. The attention of the analyst is concentrated on the definiendum only insofar as it is a *concept*-designation. What is to be defined may be said to be the definiendum *expression* only insofar as that expression functions to name a concept. That is, it is proper to say that the concept 'a' is defined by means of «b», if «a» is the definiendum expression and «b» the definiens expression.

If a philosopher has found out a great many things about 'a', the sentences may conveniently be divided into, first, those that seek to give the definitional (conceptual) characteristics of 'a', that is, give a characterization that makes us know which concept he is talking about; and second, sentences that express things he *has not stipulated but has found out* about 'a'. The first kind of sentence will furnish definiens expressions («b») in a normative definition setting forth what the philosopher has decided to talk about and to label «a». The other sentences of the book are synthetic assertions about the concept 'a', including such assertions as the one that 'a' is what Spinoza expresses by the term «*veritas*» (at certain text places), or that 'a' is such that it represents a symmetric and transitive relation between two entities, and so on.

One may thus safely say that elementary analysis is concerned with concepts. Concepts are not at all neglected. But drastic efforts are made to link hazy speculations to observable phenomena such that there is a chance of delimiting fairly definite intersubjectively constant objects of research. It is not our aim to rule out some realms of research, but to give methods for their delimitation. This makes it of paramount importance to avoid hypotheses about concepts that cannot be tested by hypotheses about sentences and designations or other kinds of directly testable assertions.

b. 'Normative Definition' Introduced

> (1) In the present work, «sentence expressing a normative definition», or in short, «*normative definition*», shall be used synonymously with «sentence that announces that a certain expression within a certain field shall be interpreted or used synonymously with a certain other expression».

Let the first-mentioned expression be called the *definiendum expression*, the second, the *definiens expression*, and the field, the *intended field of application*.

Formulation (1) is insufficiently precise. Some comments and interpretations will be added that are given normative definitional status. They will, in other words, explain more accurately what (1) is intended to express.

1. Suppose a_1 is an occurrence of a definiendum sentence «a». The occurrence a_1 will be said to be used or interpreted synonymously with an occurrence b_1 of a definiens sentence «b» if, and only if, a_1 as thus used is cognitively synonymous with b_1.

   According to the general plan of exposition, a variety of concepts of synonymity are introduced later (chapter 7). It is at this stage found convenient to suggest in which common direction of precization of «synonymous» those concepts are located. The term «cognitively synonymous» is used in various ways, but the range of ambiguities is considered smaller than that of «synonymous», and the depth of intention with which it has been used, on the whole, greater. The convention expressed in item 1 is formulated in order to narrow down the ambiguities of (1) to some degree—it is adapted to the use we shall make of (1) in expositions of analysis of «definitoid statements»[1] and in analysis of metaoccurrences in general.
2. Suppose a_1 is an occurrence of a definiendum designation «a». The occurrence a_1 will be said to be used or interpreted synonymously with an occurrence b_1 of a definiens designation «b» if, and only if, a_1 is used in such a way that if we, in the declarative sentence in which b_1 is presumed to occur, substitute «b» for «a», then the new declarative sentence is cognitively synonymous with the old.
3. By «sentence that announces» is meant «sentence that by its sender is intended to announce».

   This convention makes it *per definitionem* valid to say that a formulation that expresses a normative definition means what its author has intended it to mean. Complications arise when the sender is an institution rather than an author.
4. The application reference is a reference to a field or fields of application of the definiendum expression. There may also be a reference to how the definiens expression is to be interpreted («the» standard of interpretation). The term «intended field of validity» will be reserved for the field indicated by the definiendum and definiens ref-

erences taken together. The two references will be called the *marginal references* of the normative definition.

5. The marginal references may be of any kind mentioned in connection with synonymity sentences (chapter 1, sections 1 and 2). It is presumed that a field of application is intended. That field does not need to be explicitly mentioned, however.
6. «Or» is in (1), as everywhere else in this work, used for the inclusive *or*.
7. An announcement sentence will be said to announce that something shall be, if it can be said to express a decision, proposal, or command that something shall be.
8. The definiendum expression and the definiens expression may be the same. The case of marginal references also being identical is only of theoretical interest. The shorter expression «N-definition» will often be used for «normative definition».

Convenient symbols for normative definitions:

(1s) Syn(aM_1bM_2) (Ndf)

a	definiendum expression
b	definiens expression
M1	reference to intended field of application
M2	reference to stipulated interpretation of the definiens expression, for example, by means of reference to an occurrence

Suggested reading of (1s): «a shall in M_1 be synonymous with b in M_2».

c. Identification of Normative Definitions

Normative definitions are sometimes, but not always, expressed by synonymity announcement sentences. Such sentences are, however, convenient to use for explication of normative definitions.

Comparing the 'field of intended application' with 'intended subject matter' of synonymity hypotheses and announcements we see that the former corresponds to part of the latter, namely the subject matter represented by the occurrences of one of the expressions.

Are there sentences that with a high degree of certainty can be identified as (expressions of) normative definitions? There are, but they have so far been seldom used and do not belong to the fields of discussion in which we are primarily interested. As an example of a subsumption that can be made with a high degree of certainty, that of formulation (1) in this section may be mentioned.

Far more frequent are those cases in which a sentence can plausibly be interpreted as a normative definition *or* as something closely similar. It is here contended that for many purposes it is useful to investigate whether this holds good or not. And even in cases in which the answer is «probably not», it is sometimes useful to find out what the consequences would be if the formulation were interpreted as a normative definition.

No justification of these assertions about usefulness and fruitfulness can be given at this place. On the whole, the argumentation will refer to the use of concepts similar to the above introduced in recent methodology. In discussions showing applications of the introduced concept, its merits will, we hope, become sufficiently clear.

d. Complex Normative Definitions

A synonymity announcement usually is intended to regulate a more or less considerable, more or less vaguely outlined group of expressions. As normatively defined, only one expression is the definiendum expression of a single normative definition. One may, on the other hand, abbreviate a conjunction of normative definitions into a single sentence. One may, for example, announce that «true», «*wahr*», «*vrai*», and «*sann*» should be interpreted in this or that way, thus expressing four normative definitions.

The point is of interest only because it is not uncommon for someone to announce a normative definition and mention only one definiendum expression, whereas later argumentation seems to rest on the assumption that by the one normative definition, the use of a whole, vaguely conceived, group of other but «similar» expressions in the same or another language was regulated.

Of more interest is the case of intended fields being divided into subfields, each corresponding to a definiens expression different from the others. It may, for example, be proposed that in psychology «a» should be used synonymously with «b», whereas «a» as used in physiology should be interpreted to mean the same as «c». In general, there may be a list of intended fields of application, and a list of definiens expressions (with their specific marginal references) and a convention that in field number i, the definiendum expression should be used synonymously with the definiens expression number i.

IV.3. Interpretative Announcements

The term «interpretative announcement sentence» will be used as a name for sentences like the (declarative) interpretative sentences except that instead of the words «is», «has», «means», «signifies», «connotes», «expresses», there occur at the corresponding places in the sentences «shall be», «let be», «is to be», «shall have», «is to have», «let --- have», «shall mean», «is to mean», «let --- mean», «shall express», «let --- express», «shall signify», or «shall connote».

What has been said about references to intended subject matter of synonymity announcement sentences may be said, mutatis mutandis, about interpretative announcement sentences. To symbolize the latter, we will use:

Sign (aM_1b) (Ann)

Corresponding to the introduced term «normative definition», a term «normative interpretative definition» will be introduced. To remind ourselves of the main difference in their definiens expressions, we might replace the former with «normative synonymic definition».

> (1) In the present work, «*normative interpretative definition*» will be used synonymously with «sentence that announces that a certain expression, the definiendum expression, shall mean the definiens, within a certain field».

Formulation (1) is considered to be insufficiently precise as a normative definition of 'normative interpretative definition'. No precizations or comments will be added, however, because it is unlikely that a fruitful concept can be constructed on the basis of (1). Or, stated more carefully, it is unlikely that such a concept can be of much use for the purposes of this work. The concepts of synonymity introduced in chapter 7 are such that the intended announcement of interpretative announcement sentences are well taken care of in terms of normative synonymic definitions.

There is a strong argument for the assumption that a concept of normative interpretative definition would be more fruitful than that of normative synonymic definition:

The frequency of interpretative announcement sentences in scientific literature is much greater than the frequency of synonymity announcement sentences. This may be taken as a symptom that something like an interpretative announcement is much more often intended than something like a synonymity announcement. Thus, the applicability of concepts of normative interpretative definitions would be much more extensive than that of normative synonymic definitions.

There are, however, many circumstances that weaken the strength of the above argumentation. Nothing is said in (1) about how the definiens can be identified except that an expression is used, which by the announcer of the normative definition is intended to signify the definiens. The definiens is an inferred entity from the standpoint of the public (the receiver). In practice, a normative interpretative definition can be satisfactory only if the receiver is capable of making a reliable hypothesis about what the definiens expression is intended to signify (mean), or if he is capable of immediately interpreting the expression in a way adequately rendered explicit by such a hypothesis.

Interpretative announcement sentences often—and especially often in the exact sciences—rather obviously are meant implicitly to express an announcement with a marginal reference attached to the definiens expression. A sentence such as ««a» shall mean «b»» can in such cases be transformed into ««a» shall mean b, «b» being interpreted in accordance with the introduced normative definition of «b» (or terms included in «b»)». In cases of basic terms, however, no regulations have been adopted regarding how to interpret «b». The presence of a tacitly assumed marginal reference of «b» makes it appropriate to use a synonymic announcement sentence: ««a» shall mean the same as «b» in the sense stipulated by introduced normative definitions».

If there is no explicit standard for how «b» is to be interpreted, this seems often to owe to the assumed obviousness of how «b» should be interpreted. Or, it owes to lack of definiteness of intention. Or, considerations of economy of signs play a dominant role: interpretative sentences are shorter and easier than synonymic sentences. Thus, the motive that often makes one use an interpretative announcement sentence instead of a corresponding synonymic one, is one of expository convenience.

This is not the place for a general discussion of the relation of interpretative announcement sentences to normative definitions. Suffice it to say that the greater frequency of interpretative announcement sentences compared to synonymic ones, does not constitute a strong argument for the usefulness of the concept of normative interpretative definition.

IV.4. Normative Definitions Exemplified

Note on Normative Definitions in This Work

The present work includes a great number of normative definitions. A minority of them are expressed by synonymity announcement sentences. An example of such a sentence is that which introduces the term «synonymic alternative». It has the form ««a» shall mean the same as «b»». The reason that this form is not used in all other cases of normative definitions herein is the greater expository convenience of other forms, and sometimes the requirement of style. The intended field of application is always the text of this work. (This does not preclude the possibility that proposals for extension of the field will be made under certain conditions.)

Normative definitions in this work that are not expressed by synonymity announcement sentences are expressed by means of other phrases, such as the following: «a» will be used as a collective name for b and c; the name «a» will be given to b; let us call b «a»; if, and only if, ---, then «a» will be said to be ---.

The phrases ««a» *will* be used synonymously with «b»» and ««a» *will* be used for b» are of some theoretical interest because they may plausibly be interpreted to express a *prediction* of future or forthcoming usage, or to express an *announcement* (and thereby express a normative, synonymic, or interpretative definition), or to express the conjunction of a prediction and an announcement. In this work, the intention is to express announcement of a decision. From such announcements by an author, we may safely assume that he has—at least when making the announcement—more or less complete confidence in the corresponding prediction, which amounts to the prediction that one shall be able or has been able to realize the intentions.

Example 1
A paper by W. K. Clifford opens as follows: «1. Let us define as follows. A point is taken *at random* on a (finite or infinite) straight line when the chance that the point lies on a finite portion of the line varies as the length of that portion» (see Smith 1929: 540).

Hypothesis: Clifford intends by the quoted passage to express a normative definition. Its definiendum expression is «The point(s) --- is (are) taken at random on the (finite or infinite) straight line ---». Its definiens expression is «The chance that the point lies on a finite portion of the line varies as the length of that portion». Its intended field of application is the paper called «On higher space».

Example 2
In Terrell and Corsellis's work on patents (1927), some patent rules are quoted. In the introductory section it is said, «In the construction [= interpretation] of these Rules ---, «Office» means the Patent Office, «Journal» means the Illustrated Official Journal (Patents)» (ibid., p. 503).

Hypothesis: The quoted passage is intended to express an announcement of what the terms «Office» and «Journal» shall mean within the text represented by the British Patent Rules of 1920.

Example 3
In the introduction to *Principia Mathematica*, one finds the sentence «A definition is a declaration that a certain newly introduced symbol or combination of symbols is to mean the same as a certain other combination of symbols of which the meaning is already known» (Russell and Whitehead 1910–13: 1:11).

Hypothesis: The quoted passage is intended to express an announcement of a decision that every instance of «definition» in *Principia Mathematica* is to mean the same as «declaration that [---, etc.]».

This hypothesis is strongly disconfirmed by taking into account the sentence following the quoted one, «Or, of the defining combination of symbols is one which only acquires meaning when combined in a suitable manner with other symbols, what is meant is that ---».

The or-sentence indicates that two subclasses of occurrences of «definition» must be distinguished. The quoted definiens is one that is adapted to only one of the classes of occurrences.

Example 4
In the text «The descriptive definition of the concept 'legal norm' proposed by Hans Kelsen» written by H. Ofstad (1950b), we find on page 123 the following paragraph:

> «A formulation T is *an explicatum* of a formulation U» shall signify the same as «The author of U would have accepted T as for him more precise than U if he had been aware of the possible interpretations: Y, V, W, . . . of the formulation U, which were for him intention-transcendent when U was asserted».

Interpreting in the light of the context and on the basis of other data, we infer that this paragraph is intended to express a normative synonymic definition. The definiendum expression is a declarative sentence, «The formulation T is an *explicatum* of a formulation U». We have substituted «The» for «A» in the text. Such a substitution is warranted because the normative definition of normative (synonymic) definition, (1) on page 166, is formed as a «that» sentence (in the terminology of Carnap (1947: 27). Ofstad may be said to announce that a certain sentence, «The formulation ---», shall be used synonymously with another, even if he does not announce that ««*The* formulation ---» shall be used synonymously with ---».

The definiens expression is a declarative sentence, «The author of U ---». The intended field of application is very probably what Ofstad (1950b: 122) calls «out analysis», and which may be identified with the text from which the quotation is drawn.

The announcement may be viewed as an announcement of a decision rather than of a proposal or command.

Example 5
In Anastasi's *Differential Psychology* (1937: 156), we find the sentence: «For reasons of convenience, as discussed above, we may arbitrarily define equal

practice as equal time spent in practice and express scores in terms of amount done per unit of time».

The use of the characterization «arbitrarily» makes it probable that something closely similar to a normative definition is intended. From various considerations based on reading the text, we are inclined to think that an interpretative rather than a synonymic definition is intended. No explicit mention is made of field of application, but from various sayings it may be inferred to include Anastasi's text *Differential Psychology*.

IV.5. Conditions of Two Sentences Expressing the Same Normative Definition

In methodology, sentences stating that two persons adhere to the «same definition» seem to be used in rather different senses, or at least to be applied according to different criteria in practice. Sometimes the sentence is corroborated by pointing to identical *wordings* of two normative definitions. According to the introduced terminology, a coincidence of wording may be regarded as a strong symptom of identity of announcements. The auxiliary hypothesis must be made, however, that there is interpersonal synonymity between the definiens expressions. Often, that interpersonal synonymity is openly contested. Thus, whereas proponents of different ideologies announce their adherence to the Lincoln formula as definiens expression of «democracy», it is common to find actions indicating that the outgroup does not interpret the formula as Lincoln may be supposed to have done.

In the N-definition of N-definition, (1) on page 166, a «that sentence» is used: «--- sentence that announces *that* a certain expression within a certain field shall be interpreted or used synonymously with a certain other expression». Consequently, *identity of intended meaning* of definiens is required as definitional criterion of identity of N-definitions. The requirement may be satisfied irrespective of which terms are used in the definiens formulations.

It is customary to state that two persons adhere to the «same definition» in spite of differences in definiendum expression. Some, like G. E. Moore, seem to mean by «definiendum of a definition» something expressed by designations, that is, something like concepts in the terminology adopted in this work. If one adopts Moore's terminology, the «same definition» may of course be expressed by use of very different definiendum expressions.

Even if the terminology making definiendum into concepts is not adopted, variation of definiendum expressions is tolerated. Standard translations into different languages are considered irrelevant. Thus, one may say that Einstein defines «*simultanéité*» in this or that way, even if the text of Einstein referred to is not written in French, and even if Einstein cannot in strictness be said to use any substantive as definiendum expression. In the present text, I sometimes refer to the normative definition of «preciseness». The definiendum expression is, however, «more precise than», or to be more accurate, ««a» is more precise than «b»».

According to (1), on page 166, a definiendum is a certain expression, and in our terminology, expressions consisting of different words, or words in a different order, are not identical. Thus, normative definitions may be distinguished from each other if definiendum expressions are different. Identity of two normative definitions would accordingly require identity of definiendum in the shape of identical definiendum expressions.

There are strong reasons to adopt such a requirement at least in principle.

Suppose a person interested in questionnaires asks, «How did you decide to use the expression «false»? Give me your N-definition». If I answer by saying, «I have decided to use the expression «*falsk*» (Norwegian for 'false') as follows: ---», this naturally raises the question of the adequacy of the translation of «false» into the Norwegian «*falsk*». For many purposes this translation is not adequate, but suppose we find at time S that it is, and that two N-definitions accordingly are accepted as standards. Now, if at the later moment S_1 there are symptoms of conflicting Norwegian and English theorems, involving the N-defined expressions, we may be inclined to believe that we have, after all, not used N-definitions with compatible consequences. The term «*falsk*» may after all be a bad translation of «false». The answer to the original question of how I have decided to use «false» proves misleading. If the N-definition of the expression «false» is N-defined in such a way that the expression «false», and no other expression, must occur as definiendum in all versions of the same N-definition of «false», then we are able better to distinguish different sources of disagreement. We can say, If «sameness of definition» is a hypothesis of the difficult kind relying on translation of the definiendum, the verbal or terminological components of disagreement are more apt to be confused with other sources of disagreement.

The requirement of verbal identity of definiendum expressions is, as mentioned, important to make in principle. In practice, *explicit* recognition of the requirement in all its rigor results in cumbersome and complicated wordings. In this work we shall occasionally speak of groups of normative definitions *as if* they were identical. It is often found reasonable to suppose that if a person adheres to one, he would adhere to all, if suitable situations requiring reformulations were encountered. A person giving a normative definition of «gleich-zeitig» may be expected to decide on an identical definiens of «*gleich-zeitig*» and «*samtidig*». This makes it convenient to speak as if he had already accepted a group of N-definitions, one for each language.

Traditional depreciation of explicit marginal references has resulted in two persons' normative definitions being viewed as identical without consideration of possible, or even explicitly stated, difference in intended field of application. The researcher who N-defines his terms in the way he considers most fruitful within his particular field is often criticized by reference to fields in which the terminology might not be fruitful. What is criticized in such cases is not a proposed terminology, but a terminology derived from the first by neglecting its marginal references.

According to (1), page 166, the normative definitions of two persons are not identical if the marginal references do not express the same. Interpersonal synonymity relations are implied. At this point, as in relation to previously mentioned requirements, hypotheses about sameness of normative definitions involve complicated auxiliary hypotheses.

The character of announcement that, *per definitionem*,[2] attaches to normative definitions is something highly controversial in its nature, and I have not attempted to N-define it in this work. It is clear, however, that kinds of announcements have differences relevant to decisions about whether two sentences express the same normative definition. If one person announces a proposal, another a decision, and a third a command, it is an open question whether it is still fruitful to talk about one and the same normative definition being announced, even if definiendum, definiens, and marginal references are identical.

In order to take up perplexing main problems one at a time, I have so far left unprecized the key expression of the adopted N-definition of N-definition, «synonymous», except for saying that it shall mean the same as «cognitively synonymous». Highly important differences of interpretation can be given to the latter term. It is not fruitful to treat two sentences as if they announced the same normative definition when there are reasons to suspect that different concepts of synonymity are implied, and therefore different criteria of N-definitions «being followed» are implicitly decided on.

In chapter 2, section 14, we introduced the technical terms «synonymity of imperatives», «preciseness of imperatives», and so forth. Normative definitions sometimes have the form of commands or requests, and the introduced terms therefore apply to them.

According to (1), page 166, two sentences expressing normative definitions in the form of imperatives are synonymous for P in S if, and only if, every expression that, according to P in S, designates a satisfaction (or nonsatisfaction) of the first also designates a satisfaction (or nonsatisfaction) of the second, and vice versa.

That is, if P in S imagines possible states of affairs in relation to which he would conceive the normative definitions to have been followed, he would be unable to conceive any state of affairs such that, if it were realized, he would proclaim the one normative definition to have been followed and the other not to have been followed, and vice versa. If, in relation to every possible occurrence of definiendum, those occurrences that represent adherence to (or violation of) the one normative definition also represent adherence to (or violation of) the other, and vice versa, then the imperatives express synonymous normative definitions.

If the introduced criteria of sameness of normative definitions are used, sentences expressing the same normative definitions will, if imperatives, express synonymous imperatives, and vice versa.

IV.6. Purpose of Normative Definitions

Generally, a decision to do something has the function of eliciting reactions that without the decision would not have been carried out. A decision may, however, also function to *reinforce dispositions* to certain reaction patterns or habits, which might go on as usual even without a decision. The decision may in such cases serve to strengthen the disposition, to make undesired variations less likely to occur, and to obtain other advantages connected with verbalized behavior as auxiliary stimuli for complex behavior patterns. Among these advantages the possibility of communication to oneself and others must be rated as an important advantage, even if it is partially a means for the already mentioned advantage of reinforcement of habits.

Generally, a decision to use «b» for «a» is apt to strengthen an already existent habit of using or interpreting «a» and «b» as synonyms, or to modify habits implying -Syn(abPS), or the decision will function to integrate a new sign «a» into the system of signs used by the person.

A terminological convention may be viewed as interpersonal decisions, intended to be identical in content. This presupposes rather complicated interpersonal synonymities.

As regards the *motives or reasons justifying* a decision to modify existing synonymity habits, we shall remind the reader of some prominent kinds:

1. Elimination of types of occurrences of «a» that have caused or are believed to cause misinterpretation of practical significance. A decision to use «b» for «a» is believed to change the interpretation of the occurrences in such a way that the misinterpretation will not ensue. Or, «a» will, if the decision is carried out, not occur in the situations in which those misinterpretations were likely to ensue.

2. Increase of *definiteness of intention* in use of «a», an increase believed to be necessary for some purpose or other. If «b» is a strong precization of «a», and it goes beyond the habitual definiteness of intention, the decision is apt to serve this end.

3. Simplification and standardization of language habits by making the existent system of synonymity and heteronymity relations less complicated.

To some degree, simplification and standardization are an important instrument for realizing the object of item 1, elimination of sources of misinterpretation. Apart from this, however, they also serve efficiency of communication and «economy of thought» in other ways.

As a schematical example, we shall describe how a normative definition functions to simplify and standardize language habits by decreasing the variability of meaning in relation to variation of person or situation, for example, by elimination of ambiguities in the sense adopted in chapter 1 of this work.

On the whole, the smooth operation of language habits is apt to be disturbed if a formulation «a» expresses different assertions in different situations or in relation to different persons within the same language society. Characteristics of the situations and persons have to be reacted to in addition to other characteristics. If «a» sometimes, but not always, expresses the same assertion, the bond between «a» and the organic and behavioral state supposed to be present when a person intends to make the assertion, has to be counteracted in a more or less complicated manner. If, now, there are available other formulations, which are not excessively long or in other respects as formulations inferior to «a», and which express those assertions that «a» expresses, without variations, it is convenient to eliminate «a» from use or to decide that it should always be synonymous with one of the formulations mentioned.

How such a process of simplification works in detail may be illustrated as follows:

Suppose it is found that

(1) $Syn(aP_1S_1, aP_1S_2)$

does not hold, and that S_1 and S_2 are types of situations likely to occur in the future. (This does not imply that misunderstandings ever occur.) That the synonymity relation (1) does not hold is usually taken for granted, if we find a «b» that is presumed to satisfy the requirement

(2) $Syn(bP_1S_1, bP_1S_2)$

and in relation to which «a» is variable:

(3) $Syn(abP_1S_1)$ & $-Syn(abP_1S_2)$

The decision (4) is apt to restore the desired relation (1) to postdecisional cases of S_1 and S_2; let us call them $S_1{}'$ and $S_2{}'$:

(4) $Syn(aP_1S_2{}', bP_1S_1{}')$ (Ann)

The decision, if carried out, results in:

(5) Syn $(aP_1S_1{}', aP_1S_2{}')$ & Syn$(abP_1S_1{}')$ & Syn$(abP_1S_2{}')$

This state of affairs implies a simplification and standardization compared with that described by (3).

We could also realize (1) by saying that «a» should be synonymous with «b» in neither S_1 nor S_2. But then we must know a formulation «c» with the following properties:

Syn(acP_1S_2) & Syn(cP_1S_1, cP_1S_2)

In that case we can announce:

(6) Syn$(aP_1S_1{}', cP_1S_2{}')$ (Ann)
or Syn$(aP_1S_1{}', cP_1S_1{}')$ (Ann)

Similarly, it is valuable for communication and economy of thought that we have interpersonal synonymities expressed by one and the same formulation:

(7) Syn $(aP_1S_1), aP_2S_1)$

That this interpersonal synonymity relation does not hold is usually (believed) discovered by finding a «b» that is presumed to satisfy the requirement

(8) Syn (bP_1S_1, bP_2S_1)

and in relation to which «a» is ambiguous:

Syn (abP_1S_1) & -Syn (abP_2S_1)

A decision

Syn $(aP_1S_1{}', bP_2S_1{}')$ (Ann)

results, if carried out, in the desired state of affairs:

(9) $\mathrm{Syn}(aP_1S_1{}', aP_2S_1{}') \;\&\; \mathrm{Syn}(abP_1S_1{}') \;\&\; \mathrm{Syn}(abP_2S_1{}')$

We may now continue the enumeration of motives or reasons that are considered to justify an attempt to modify existent synonymity habits.

4. Some formulations or designations are deeply and widely integrated in the language habits of a group as expressions of important, well-confirmed assertions or well-serving concepts. To rescue these from a future status of expressing disconfirmed, abandoned assertions, or unfruitful concepts, one may propose changes in the meaning of a concept designation whenever disconfirming instances occur. The change is carried out in such a way that the deeply and widely integrated expression can be maintained with, however, slightly new meanings.

Depredation in their status of confirmation is apt to happen to all hypotheses and concepts as a consequence of continued research. Thus, important physical and chemical formulations traditionally said to express certain definite laws of nature are from time to time redefined to make it possible to retain the formulations.

The rescue is effected simply by modifying the meaning of the formulations or designations in such a way that previous disconfirmations become irrelevant toward, or confirm, the new assertions. How such modifications affect the system of hypotheses in physics and how they have inspired varieties of «conventionalism» in the methodology of that discipline have been extensively studied. There is no reason for us to go into those problems.

It should be noted, however, that decisions to change meanings by normative definitions do not in any way influence the previous disconfirmations. There is no reason to speak of immunity to disconfirmation being reached by conventions. The old assertion has been disconfirmed and is still exposed to further disconfirmation. The new is not yet disconfirmed, but may at any moment prove untenable. None of them is immune to confirmation or disconfirmation. Formulations and designations are made immune, not assertions. It is in the interest of economy of signs (of sign tokens) to change a limited number of synonymity relations rather than to change innumerable formulations that otherwise would have to be modified, and to give up designations that may appear hundreds of times in the textbooks of a certain field.

The stream of discoveries within each department of science makes any system of concepts grow more or less unadapted and less fruitful. The concepts are then «changed» more or less, that is, replaced by other concepts, often with only slightly different definitional characteristics. It is in the interest of economy of signs, as well as that of preserving what is still useful of the old language and research habits, to continue using the old conceptual designations, but to modify their meaning by normative definitions. We assume that no detailed examples are needed. A number of instructive ones are developed in elementary textbooks on methodology («acid», «atom», «chemical elements», «metal», «number», «species», etc.).

As regards designations that are new in a certain field, or are absolute neologisms, motives similar to those mentioned may be present. If great modifications, or small but very influential ones, are necessary to make a concept up-to-date, the preservation of its conceptual designation may be misleading and, no short designation being found by a combination of expressions in use, a new one is coined.

5. Very often, new designations are introduced mainly for the purpose of abbreviation: instead of using a long designation, we introduce a short one by a normative definition announcing the synonymity between them.

Suppose that there is a demand for using a designation, «b», ten times in a text of one thousand words, and suppose that «b» consists of twenty-one words. If an expression «a» consisting of one word is introduced and by normative definition said to be synonymous with «b» within the text, there will be a reduction of two hundred words. The new draft of the text will then be 20 percent shorter. Even if the time required to read the text and sufficiently understand it might not decrease as much, one may still expect a significant gain. We emphasize this trivial, numerical example because many questions of terminology could profitably be reduced to simple questions of psychology of reading and economy of time.

In this work we need a concept of 'more precise than' a considerable number of times. Each time the definiendum expression ««a» is more precise than «b»» is used instead of the definiens expression, the text is reduced by thirty-two words, if (1) on page 62 is used as the definitional formulation of «more precise than».

Whether it is justifiable to introduce a new sign is primarily a question of the psychology and sociology of reading and listening. In the crowded scientific journals, sign-economical considerations tend to grow in importance.

IV.7. Preciseness of Definiendum and Definiens in Normative Definitions

It is often said that «definitions must be unambiguous». Such statements have a tendency to blur important distinctions and qualifications.

From the N-definition of N-definition, it cannot be inferred that a definiens expression must be more precise than the definiendum to anybody in any situation. This holds good before as well as after the time of announcement of the normative definition.

The hypothesis of greater preciseness of definiens expressions does not hold even sufficiently frequently to justify its adoption as a synthetic theorem of a hypothetico-deductive system.

There are, on the other hand, important connections between preciseness relations and relations within normative definitions, but of a slightly more complicated nature than the one suggested above.

1. Suppose «a» is a neologism and we plan for it to serve as a synonym for «b». To that purpose a normative definition of the decision variety is produced at the time S_1. Is «a» more or less precise than «b» before S_1? If «a» is a strict neologism, it may happen that nobody would interpret it before S_1; for example, «a» has *no* synonymic alternatives, not even itself. From this does not follow that it must be at least as precise as any other formulation, and more precise than any formulation susceptible to synonymic alternatives. This does not follow because, according to (1) on page 62, the more precise term or sentence must admit at least one synonymic alternative other than itself.

From S_1 onward, it is to be expected that «a» turns out to be equally or less precise than «b», since any ambiguities of «b» will tend to be transferred to «a». On the other hand, the people using or interpreting «a» may occasionally forget its N-definition and make slight variations in interpretation. Within a short time there will be a tendency toward incomparability of preciseness if the comparison is not made in relation to reference classes and small groups of individuals and situations.

2. Let us next suppose that the normative definition serves the readapta-

tion of a conceptual system by means of rescuing disconfirmed formulations. In these cases it is irrelevant what level of preciseness the definiendum expression had before the announcement of the normative definition. After the announcement, however, it is to be expected that the definiens expression will not be less precise than the definiendum expression. Any relation of preciseness may turn up. It is not of primary importance to the success of the normative definition that certain preciseness relations should be realized.

Similar reflections can be made regarding normative definitions serving to introduce abbreviations.

3. On the other hand, improved preciseness in some form or other plays an important role in constructing normative definitions that serve to simplify and standardize speech habits and conventions. The same holds true of normative definitions that serve the increase of definiteness of intention or the elimination of ambiguities.

It is inconvenient, however, to put the requirement of preciseness into the N-definition of N-definition. If the preciseness of definiens is deficient, the normative definition is more or less bad, but still a normative definition according to our terminology. If superior preciseness were required *per definitionem*, it would be difficult to confirm that a sentence expresses a normative definition without empirical investigations of usage. After some time, a normative definition might even cease to exist because of new ambiguities resulting from new habits of speech.

As regards the preciseness required (synthetically) of normative definitions serving as mentioned, this is not a question of preciseness in general, but of preciseness in specific situations for certain persons, and in relation to more or less definite reference systems of heteronymous interpretations.

In the case of elimination of ambiguities, the normative definition must be based on hypotheses about the relative level of preciseness in relation to a definite reference class. Generally, interpersonal synonymity relations are involved. The normative definition fails if based on wrong assumptions about usage. Thus, if a definiens expression is introduced because it is believed to be unambiguous within a certain kind of situation, and it is not, the normative definition fails to fulfill its purpose. It also fails if it is not followed fairly consistently, or if usage undergoes such changes after its announcement as to make the definiens less precise in relation to the reference class at issue.

Hypotheses on usage outside the exact sciences and the science of law tend to be based mostly on armchair methods involving questionnaires put forth and answered by the same person. It is therefore not astonishing that «definitions» are viewed with much skepticism by many people: they seem to expect cases of *obscurum per obscurius* rather than cases of *obscuritas major per obscuritatem minorem*.

If a normative definition serves to eliminate ambiguities or to increase definiteness of intention, it usually also serves to abbreviate and simplify. Thus, if a short definiendum is introduced on the basis of a long and precise definiens, the normative definition seeks to retain both the simplicity of the definiendum and the preciseness of the definiens.

If an expression «b» is more precise than «a» for P in S, «b» is usually more complicated than «a». This holds good especially if «b» is a strong precization and S is outside the exact sciences. If it is desired that «a» always should be interpreted in the more precise sense of «b», this may justify a normative definition, which makes it possible to retain the use of the short or easy expression «a» and at the same time makes it reasonable to expect a sharp decrease in undesired interpretations. The decrease makes the definiendum «a» more precise, but instead of making a normative definition, why not simply decide (or propose or command) that «a» should not be used any longer? After we have made a heteronymous reference list in relation to which the undesired, practically significant ambiguities of «a» are shown, our decision may take the following form:

«If «a» is intended to be used as synonymous with a member of the reference class R, that member should be used instead of «a»».

In practice, such decisions probably are more frequent than normative definitions. Normative definitions are more useful if there is little hope of curtailing the use of «a», or if the members of the reference class at issue are much more complicated or «difficult» from the standpoint of the intended users and receivers.

By means of chains of normative definitions, we may increase the level of preciseness step-by-step. On the other hand, the many regulations may cause such a burden on memory, and interfere to such a degree with established habits, that it does not pay to introduce the chain, but rather to use the long and complicated expression (the definiens).

By «definitional (or stipulated) interpretation» of a normative definition or part thereof, we shall here mean an interpretation that is decided on by the sender of the normative definition. The purpose is to ensure that certain ambiguities of the formulation of the normative definition shall not be sources of misinterpretation. By definitional interpretations the sender tries to convey less ambiguously what he intends. They are, therefore, proposed precizations of the original formulation.

Instead of writing out a complicated normative definition in full, one may proceed as follows:

First, «b» is used as definiens expression, and «a» as definiendum in a point-of-departure formulation. Then «b» or a part of «b» is made more precise, and it is decided that a definite interpretation b_1 of «b» or a part of «b» shall be used as synonymous with «b». b_1 is then called a definitional interpretation of «b». This process may be continued as far as necessary for the given purpose. Instead of writing out a normative definition in the shape of a single very complicated sentence, one uses a step-by-step procedure, which enables the reader to grasp the essential features before entering into stipulations concerning nuances of meaning.

IV.8. How Normative Definitions Are Criticized or Appraised: «True by Definition»

In this section we shall briefly discuss what kinds of arguments play a role in discussions centering on normative definitions among persons who agree that the sentences have the character of normative definitions or a closely similar character.[3]

Normative definitions do not directly express assertions (propositions). If I decide to use «a» for «b», the decision does not express any assertion, but we may on the basis of psychological and sociological hypotheses infer with varying degrees of certainty that I accept certain assertions.

Among these assertions we may note the following: «I have stronger reasons for deciding to use «a» for «b» than for not doing so.» However, the sentence expressing the decision is not synonymous with this assertion. I might conceivably add, «In spite of the strong reasons to make the decision, I have not made it. I decide not to use «a» for «b». On the other hand, I might issue a report that yesterday I decided to use «a» for «b», but without reason. Some obscure motive must have compelled me, or perhaps no motive (?)». It is legitimate in a discussion in which I have decided to use «a» for «b» to presuppose that I have found more reason to do so than not to do so, but this does not warrant the hypothesis that I, by the decision, have meant the same as to assert the existence of any reasons to do so.

Similar reflections may be made in relation to proposals and commands. In preceding sections we have already mentioned that we presuppose by definition that the person who announces the decision that «a» should be used for «b» affirms the practical possibility of a situation in relation to which the decision is relevant. We also presuppose by definition that the person believes it practically possible to carry the decision into effect and believes he will make an effort to do so. Such convictions, however, do not imply assertions synonymous with a decision, proposal, or command.

This conclusion has a tendency to turn analytical if the words «decision», «proposal», and «command» are precized as indicated here, but they need not turn analytical for all plausible interpretations.

A normative definition cannot without grave danger of misinterpretation be said to be true, false, confirmed, disconfirmed, certain, uncertain, probable, improbable, etc., in the senses in which these words are used as cognitive weight expressions. The distinction is in general harmony with strong trends in analytical philosophy.

For reasons not described in this work, I think it is misleading to characterize normative definitions as valid or invalid in certain senses in which «ought» norms may be said to be valid («You ought to abstain from murder», for example).

The words most convenient to sum up (rather unprecisely) what speaks in favor of a normative definition seem to me to be the following: a decision to use «a» for «b» is wise, justified, well-motivated, adequately motivated, well-founded, and so on. Speaking in disfavor of a normative definition, we may say that it is unwise, arbitrary, premature, and so forth.

The arguments *pro et contra* may more specifically and precisely be expressed by formulations of the following kind: «the decision leads, if carried out, to a convenient terminology, a sign-economical terminology, a usage fairly precise and fairly well in accordance with previous usage». On the other hand, it may be criticized as unnecessarily clumsy, hair-splitting, or inconvenient.

The proposals may be judged good or bad for similar reasons. The commands may be judged justified by their results, if carried out, by the probability that they will be obeyed, and by their authority to command.

In hypothetico-deductive systems, formulations (or assertions) are sometimes said to «follow from the definitions», by which it is presumably meant that they are derivable from normative definitions. To be justifiable within the terminology here adopted, this manner of speaking must be a shorthand for the longer formulation «derivable from assertions that describe the immediate intended result of the decision, if carried out». Thus, if I decide that «a» shall be used for «b», then the sentence ««a» is strictly synonymous with «b»» describes the intended result of the decision. But it cannot be «derived», in any strictly logical sense of this word, from a decision.

A shorthand terminology is used in this work. The theorems are often said to be «derivable» from normative definitions.

What is the relation between sentences called «analytic» and the N-definitions?

From the previous characterizations it follows that *normative definitions are not analytical sentences* in any plausible interpretation of «analytic». If a decision to use «a» for «b» is *presupposed to have been carried out*, «a is b» is analytical in some plausible senses. Normative definitions create possibilities of analytical sentences, but are not themselves analytical. The distinction is of importance to the understanding of the hypothetical character of proofs that *presuppose* normative definitions to have been carried out.

Somewhat untechnically and as a starting-point precization, «the formation «a» is a b» is analytically true» can be taken as synonymous with «'a' is a characteristic of 'b', or is a conjunction of such characteristics».

If the designation «b» is N-defined in the following way:

$$\text{Syn}\,(bP_1S_1, aP_2S_2) \qquad \text{(Ann)}$$

then the sentence «a is a b» is *according to the decision* synonymous with «a is an a» or «b is a b», provided the requirements expressed by the symbols P_1,S_1,P_2,S_2 are satisfied. That is to say, *if* «a is a b» is used according to the decision, *then* it is synonymous with the sentences mentioned. Whether it is so used, is hypothetical. If it is, then any attempt at confirmation will be a success, if «confirmation» is N-defined in such a way that «a is an a» is confirmable. The process of testing «a is a» might conceivably (in concrete cases) turn out to give disconfirmation, insofar as the confirmation is not derivable from 'a is a' and concepts of confirmation.

That a sentence or designation is used according to a decision is an (empirical) hypothesis, more or less difficult to test, and more or less likely to be confirmed or disconfirmed. In the case of highly precise mathematical language, the confirmations may be regarded as extremely strong. In the case of philosophical literature, it is different.

If we wish to give «confirm» a meaning that makes «a is a» confirmable, the confirmation will not lead to other types of observations than those of sentences expressing decisions and the interpretations of those sentences. The process of confirmation will be confined to what I shall call elementary analysis.

This is, so far as I can see, what can be said in favor of calling sentences of the type «a is a» analytically true. If they are confirmed, they are analytically true—one may say. Thus, the hypothesis that a sentence is analytically true is not itself analytically true.

Maybe ««a» is analytically true or false» could profitably be N-defined as follows: «the confirmation or disconfirmation of a requires only identification and comparison of connotations of designations or formulations contained in «a»».

The identification and comparison of connotations can be carried out only by means of hypotheses about interpretations (usage), because the connotations are probably N-defined by sentences expressing N-definitions. The various interpretations of these sentences must therefore be investigated.

The old and rather imprecise dictum that analytical sentences should have some kind of «absolute truth» or some other kind of extreme cognitive weight different from that of synthetic sentences, seems to be based on a belief in the unlimited reliability of hypotheses of elementary analysis. Sometimes investigations of what is in accordance with a decision, proposal, or command are trivial and easy; but sometimes they are not, as we shall see in later chapters.

If there are no (explicit) normative definitions covering the use of «a» and «b», the confirmation of «a is a b» must be done on the basis of hypotheses about how to interpret «a» and «b». For some plausible interpretations, «a is a b» may turn out strictly synonymous with «a is an a». When other plausible interpretations are used, this result may not follow.

If the precization «a is an a» is used, the sentence «a is a b» can be said to be analytical for at least one plausible interpretation. By this would merely be meant that, for at least one plausible interpretation, the test of the sentences is confined to identification and comparison of connotations.

IV.9. Descriptive Definitions of Usage

In chapter 1, section 2, the question was raised, What, if anything at all, is intended by synonymity sentences? Considering the variety of such sentences and the ambiguity and vagueness of their constituent words, there is no reason to expect all of them to have interesting semantic characteristics in common. In this work they are studied because they sometimes are intended to express important kinds of hypotheses about various subject matters. References, more or less explicit and painstaking, were subjected to a preliminary analysis in chapter 1, section 2. The general structure of such hypotheses about sameness of meaning has been suggested by the symbol Syn (aM_1bM_2).

A considerable number of hypotheses are referred to in technical literature as «definitions». Many of these so-called «definitions» may be plausibly interpreted to state that certain expressions mean the same as certain others. Certain other sentences called «definitions», which do not seem to have such a kind of intended meaning or which are difficult to classify, acquire a meaning of interest or an increased testability if (arbitrarily) interpreted in this way.

To remind ourselves that the structure of synonymity hypotheses is relevant to all such «definitions», we here introduce a new designation of synonymity hypotheses: «descriptive definition (of usage)». When we wish to stress that these hypotheses are (by definition) expressed by synonymity sentences, we shall use the name «descriptive synonymic definitions».

> (1) A sentence shall in this work be called a «sentence expressing a descriptive definition of usage» if, and only if, it states that a certain expression, the so-called definiendum expression, is used synonymously with a certain other expression, the so-called definiens expression, within a certain class of situations, the so-called intended field of validity of the descriptive definition of usage.

Some definitional interpretations and comments:

1. Definitional interpretation 1 concerning normative definitions (page 167) also applies here.
2. Interpretation 2 (page 167), mutatis mutandis.
3. The expression «if it states that» is used for «if it is intended to assert that or is interpreted to assert that».
4. The term «intended field of application» is reserved for the marginal reference of the definiendum. By «intended field of validity of the descriptive definition of usage» we shall mean the field that the hypothesis is intended to cover, indicated explicitly or implicitly by marginal references relating to both definiens and definiendum.
5. Interpretation 5 (page 167), mutatis mutandis.
6. According to (1), a descriptive definition must be a sentence. The expression «sentence» in (1) may, however, be replaced by «something».
7. In the point-of-departure formulation, it is said about the definiendum expression that it «is used» in a certain way «within a certain class of situations». If the class is a future class, «is used» must be interpreted as «will be used». Analogous changes may have to be carried out in relation to other kinds of fields at issue. The expression «is used» shall refer to *all* occurrences within the field intended. If there are subfields in which the synonymity relation is considered not to hold, a new hypothesis is formed in which the old, broad-field designation is replaced by a narrower one that does not include the disconfirming subfield.
8. The field of application may be as narrow as a single historical occurrence. As a maximum it may have no limitation. If the field is said to cover all occurrences up to the date of issue of the definition, we shall call it a *complete definition of usage*; otherwise, special. This is just another name for 'complete synonymity', introduced in chapter 1, page 38. If many fields are distinguished, the definition will be called complete, provided the fields together include all occurrences up to the date of issue. If different definiens expressions are listed, as in the case of complex normative definitions, but no delimitations of fields are designated or implicitly implied, then

there is no descriptive definition. This stipulation rules out most dictionary definitions.

Consider the following example. In a paper by O. Haas and G. G. Simpson (1946: 329) one reads, «In the titles of Wilson (1944, 1945) «homomorphs» obviously means «homeomorphs», as understood in the present paper».

Hypothesis: Haas and Simpson intend to give a descriptive definition of usage. Definiendum expression: «homomorphs». Intended field of application relative to definiendum: the two occurrences of «homomorphs» in the titles of two articles by A. E. Wilson, «Rafinesquina and its homomorphs Öpikina and Öpikinella» and «Strophomena and its homomorphs Trigrammaria and Microtrypa». Definiens expression: «homeomorphs». Marginal reference to definiens: all occurrences of «homeomorphs» in the article «Analysis of some phylogenetic terms.»

In the same article by Haas and Simpson it is said on page 342 that «Dacqué devoted an entire section of his book of 1935 (pp. 226–251) to «Zeitformenbildung, Zeitbaustile, Zeitsignaturen» (---), using all three of these terms indiscriminately».

Hypothesis: The last part of the quotation is by Haas and Simpson intended to express a complex descriptive definition. Definiendum expressions: «Zeitformenbildung», «Zeitbaustile», «Zeitsignaturen». Definiens expressions: the same three expressions. Intended field of validity: the text on pages 226–51 of Edgar Dacqué's *Organische Morphologie und Paläontologie*. Haas and Simpson may, according to this hypothesis, be said to assert the promiscuous synonymity of all occurrences of three terms within a certain class of occurrences.

What should by definition be meant by the formulation «The two formulations «a» and «b» express the same descriptive definition of usage (the same synonymity hypothesis)»? There is too much room for divergent interpretations to abstain from a definitional interpretation of this point. Those stipulations that have been made for criteria of identity of normative definitions (section 5) will be proposed to hold for descriptive definitions, mutatis mutandis.

The shorter expression «Ds-definition» will often be used for «descriptive definition» and «Ds-formulation» for «formulation of a descriptive definition».

IV.10. To Give Descriptive Definitions of Usage and Then to Make More Precise

In the normative definition of descriptive definitions of usage, there is no requirement as regards level of preciseness. It plays, however, a prominent role in the evaluations of descriptive definitions, a role more basic than in the case of normative definitions.

For reasons similar to those mentioned in connection with normative definitions, we find it inconvenient to put the requirement of preciseness into the N-definition of Ds-definition. We do not wish to have a normative definition that makes «Ds-definition» nearly synonymous with «good descriptive definition».

Suppose a Ds-definition

(1) $\mathrm{Syn}(aP_1S_1, bP_2S_2)$

is asserted. It is asserted with a certain public as receivers. This public consists of the asserter himself, or it may, for example, be a vast and indefinite crowd of prospective readers of an elementary textbook. Let us call the asserter P_3, the intended receiver(s) P_4, the situation of asserting S_3, and that of receiving S_4. In asserting (1), the asserter normally hopes that a second hypothesis, (2), is tenable:

(2) $\mathrm{Syn}[\mathrm{Syn}(aP_1S_1, bP_2S_2)P_3S_3, \mathrm{Syn}(aP_1S_1, bP_2S_2)P_4S_4]$

That is, he hopes, that the whole hypothesis (1) is understood in the sense intended by the asserter. Moreover, the information conveyed by (1) to the receivers is normally of interest only if what «a» expresses for P_1 in S_1, is less known than what «b» expresses for P_2 in S_2 (or vice versa). The asserter tries to explain the sense of «a» by «b». This makes it necessary that there be agreement as regards the interpretation of «b» for P_2 in S_2. This is a necessary condition of (2), and may be formulated thus:

(3) $\mathrm{Syn}(bP_2S_2, bP_3S_3)$ & $\mathrm{Syn}(bP_2S_2, bP_4S_4)$
& $\mathrm{Syn}(bP_3S_3, bP_4S_4)$

This condition is the basis of norms that «definiens should be unequivocal, precise, unambiguous» and so forth. These, or somewhat weaker requirements, must necessarily be satisfied if (1) is to express a Ds-definition purporting to let somebody better understand what is meant by «a».

No similar requirement is necessary or desirable as regards the definiendum expression «a».

Very often, definiens in good and interesting Ds- or N-definitions is a precization of definiendum for the announcer and for the receivers. Establishment of hypotheses as to preciseness is also usually an important preliminary to the announcements of normative definitions. On the other hand, there is no need for definiens to be more precise than definiendum in any situation or for any person. Neither normative nor Ds-definitions are in general able to fulfill the function of precizations, nor can precizations generally do the work of N- or Ds-definitions.

IV.11. Definitions as Condensed Characterizations (Real Definitions)

The terms «normative definition» and «descriptive definition» are designations of concepts considered to be of central importance in empirical semantics. A considerable number of sentences or assertions called «definitions» in technical literature can be fruitfully classed in terms of «normative definition» and «descriptive definition». There are, on the other hand, a considerable number of such sentences that cannot be thus handled, and that seem to have certain common characteristics of interest. They are in this section classified under the heading of «definition as condensed characterization». It does not seem possible to construct fruitful concepts that reflect the intended claim of the definitions as condensed characterizations. Very often, the sentences thus classed seem to have been produced with low definiteness of intention, or the claims made have been practically untestable.

Because of these shortcomings, the term «definition as condensed characterization» is not used to class any sentence asserting something in this work.

> (1) A formulation or system of formulations shall in this work be called a «definition as condensed characterization» if, and only if, it is intended to express a certain kind of description covering all denotata of a concept explicitly or implicitly assumed to have already been introduced. If it does not cover all denotata, but only

some, it will be called «too narrow». The description should be intended to satisfy the following three requirements:

1. There should be no other class of things to which exactly the same description applies.
2. Other specific or common characteristics of the denotata may be inferred (logically or in the form of well-established empirical hypotheses) from the characteristics mentioned in the description.
3. The description as a whole should be short, preferably consisting of only one sentence.

As mentioned above, the term introduced will be used to facilitate classification of sentences called «definitions» in philosophical and other technical literature.

Classifications made on the basis of the above N-definition must necessarily be rather rough because of the usual lack of information about the intentions of the authors concerned, and because of their usually rather limited level of definiteness of intention. Such sentences are also of importance to the understanding of dictionary and encyclopedia «definitions». These sentences seem mostly to function as condensed characterizations. This does not always prevent them, however, from having additional functions of a more exact character. They may, for example, suggest both an N-definition and a condensed characterization.

The designation used for the denotata will be called the definiendum; the description will be called the definiens of the definition as condensed characterization.

As another name for «definition as condensed characterization» we shall use «real definition», abbreviated as «R-definition».

IV.12. Definitions as Condensed Characterizations Exemplified

The world's patent claims compose a formidable collection of definitions as condensed characterizations. The highly developed art of both codification in this field is of both practical and theoretical interest to the theorist of interpretation. It is to be hoped that the future will bring more cooperation between patent drafters and theorists of interpretation. Preliminary contacts have convinced both groups of its fruitfulness.

The rules for describing inventions are (at least in the United States) such that they assume invention to have something called an «essence» or «a real nature». It is the real nature or the essence of the inventions that is to be described in a patent claim. This terminology may be a remnant of old textbook accounts of «definition». It has had profound effects on the practice of patent-claim drafting. According to patent law, the «definition must be equivalent or commensurate with that which is defined, it must be applicable to all the individuals included in the concept and to nothing else» (Stringham 1930: 17). That is, *given* the denotata, one must look for common and specific characteristics. But are the denotata «given», in the sense of being surveyable or observable? The quoted rule brings up a difficulty at once. It assumes that we already know all the members of the group to be defined (ibid., p. 18). One has to take into account all possible denotata fabricated in the future (as long as the patent will be valid). The group of objects that is to be given a definition as condensed characterization is in the case of inventions largely unknown. The characterization will be hypothetical. What Stringham says about «definitions» holds good of real definitions (in our terminology):

> The requirement of shortness applies to real definitions of inventions. A claim with about 240 words was in the Brick case characterized as «long and formidable». (Ibid., p. 224)

Example 1. The following definiens formulation appears in a real definition of the nature of an invention: «[a]n incandescent electric lamp having a filament of tungsten or other refractory metal of large diameter or cross section or of concentrated form and a gas or vapor of low heat conductivity at relatively high pressure, the combination being such that the filament may be raised to a much higher temperature than is practicable in a vacuum lamp without prohibitive vaporization or deterioration or excessive shortening of useful life, substantially as set forth». The patent was, in this case, held invalid by a British court of first instance «and by the Court of Appeal on the ground that the word «large» was not sufficiently clear in its meaning to define the ambit of the monopoly ---». The House of Lords, however, «held that there was no valid objection to the claim ---» (Terrell 1927: 118).

Example 2. For a simpler example of a real definition, we may turn to the glossary in Woodruff's *Animal Biology* (1932: 473), where we find «Abiogenesis. The abandoned idea that living matter may arise at the present time from non-living, without the influence of the former». The expression «abandoned» suggests that the sentence has a function more closely related to a real definition than to a normative or descriptive definition. If the expression were included in a normative definition of abiogenesis, the idea referred to could not be maintained as a hypothesis. This impossibility is scarcely intended by the author of the «definition», and it contrasts with usage. If the expression were left out, the quotation might well be classed as a descriptive definition or a description of a normative one.

Example 3. «Binomial nomenclature. The accepted scientific method of designating organisms by two Latin or Latinized words, the first indicating the genus and the other the species» (Woodruff 1932: 474). The expression «accepted scientific» is here analogous to the expression «abandoned» in the first quoted sentence, and the formulation is presumably classifiable as a real definition. If it were changed to «Method of designating --- species. The method is accepted in science», the first sentence could plausibly be interpreted as functioning partly as a description of a normative definition of the decision subclass. Woodruff scarcely tries to make a decision on terminology all by himself, but wishes to describe a decision made long ago by other biologists. He might also wish to describe the use of the expression «binomial nomenclature» in biological literature. In that case the sentence also would function as a descriptive definition.

Example 4. «Chlorophyll. The characteristic green colouring matter of plants, through which photosynthesis takes place» (ibid., p. 476). Here, «chlorophyll» is «defined» by a causal relation. It is improbable that Woodruff would call a substance «chlorophyll» that did not have approximately the same chemical structure, even if it should be discovered that this substance is the one «through which photosynthesis takes place», and not the one formerly believed. G. J. Peirce, in his *Physiology of Plants* (1926: 57), speaks of «chlorophyll pigments»—chlorophyll, carotin, and so forth. That Woodruff would not in a normative or descriptive formulation include reference to the very important function of the pigments often called chlorophyll, is suggested by the following passage: «--- the expression «green plant» does not refer specifically to the colour of a plant (---), but to the fact that there is present a complex pigment functionally similar to chlorophyll by virtue of which the plant is a constructive agent in nature».

(Woodruff 1932: 34). Especially the expression «functionally similar» suggests that Woodruff would not descriptively define «chlorophyll» by its physiological function, but as a subclass of pigments. We are for this and other reasons inclined to classify the sentence as a real formulation. Students more easily remember «the essence» of chlorophyll by means of a short, condensed sentence.

A number of short utterances about «democracy» and allied terms are probably classifiable as real definitions:

Example 5. «Das Wesen der demokratischen Verfassung ist ---, dass sie ohne Rücksicht auf gesellschaftliche Unterschiede alle Erwachsenen oder doch alle männlichen Erwachsenen zur Teilnahme und der Handhabung der öffentlichen Gewalt beruft» (Sering 1917: 42).

Example 6. «Demokratie (---) ist Identität vom Herrscher und Beherrschten, Regierenden und Regierten, Befehlenden und Gehorchenden» (Schmitt, 1965: 234).

We have defined real definitions in relation to denotata of a class rather than in relation to connotation,[4] because some or all of the essential characteristics may be underivable from the characteristics included in the connotation. The underivable characteristics, for example, «abandoned opinion», «accepted opinion», «something through which something takes place», in the quoted examples, account for the main difference between formulations of real definitions and formulations of normative and descriptive definitions.

Just like Ds-formulations, the R-formulations express hypotheses (theories), but whereas the former are about usage, the latter may concern anything—for example, the behavior of certain kinds of organisms in certain situations.

The R-formulations are general theories about denotata; the Ds-formulations may be particular theories about usage within narrow types of situations.

An R-formulation as defined in this work is responsible for every single denotatum. If 1,000 denotata are studied and one is left out, there is a chance that it will have a character sufficiently different to warrant a change in the R-formulation. Or, one might split the connotation in two and let number 1,001 fall under a separate connotation.

In textbooks, encyclopedias, summaries, and technical glossaries, one finds numerous formulations that could be classed as R-formulations if it were not probable that the authors had no pretensions of giving a definition covering *all* denotata or of giving only perfectly specific characterizations. More stress is laid on ease of understanding and on short, vivid expression. The formulations are mostly strong popularizations, which function to give preliminary and approximate knowledge.

Knowledge of denotata will always be limited, even if all of them are investigated separately. For most purposes, it is sufficient to form R-formulations on the basis of samples selected according to statistical sampling methods.

IV.13. Sentences with Complex Definitional Function

Let us consider a sentence of a kind commonly found in textbooks of the exact sciences.

> (1) «A point moving with a variable velocity, relative to any frame, is said to have an acceleration relative to that frame.»

The sentence is taken from A. E. H. Love's, *Theoretical Mechanics* (1897: 33). In the preface, Love states that the «purpose of this book is didactic, it is meant to set before students an account of the principles of Mechanics, which shall be as precise as possible, and which shall be in accordance with modern ideas». The exposition is built on a small number of concepts; that of acceleration is based on that of velocity and other concepts.

From the preface and the expression «is said to» and from other sources of information, I infer that (1) is a reproduction of a sentence produced beforehand, or that Love believes that the sentence, to him and to competent readers, expresses the same as what was expressed previously by the same or by other sentences by himself or by other authors. The sentence may in that case be said to be intended to function as a description of a normative definition put forth before Love produced sentence (1). Maybe this is the sole intended function; maybe it is only one of the intended functions.

If the sole intended function of (1) is to describe a normative definition, it might be formulated as «According to the stipulations of modern terminology, a point moving with a variable velocity, relative to any frame, is said to have an acceleration relative to that frame».

In the literature antedating 1897, there are sentences in textbooks that resemble (1) more or less. It is scarcely possible, however, to speak of one and the same concept of 'acceleration' being introduced by all authors, particularly because the concept is often based on concepts of 'velocity' and 'movement', which show rather obvious internal differences.

Why has Love selected (1) among the many possibilities? I think we can infer that whatever his motives are, the appearance of (1) to the exclusion of other possibilities indicates, among other things, that he has *decided* to use the word as indicated by (1) in *his* book, and that he expects his readers to test the statements of the book on the basis of the terminology adopted. There is no compulsion for anybody to adhere strictly to a particular usage. It is, therefore, usually of some importance for an author of textbooks to indicate which usage will be adhered to in the book at issue.

Suppose a student using Love's textbook interprets «acceleration», when it occurs later in that book, as synonymous with «positive acceleration». We cannot say that this usage is in conflict with (1), or that the student uses the term wrongly or has misconceived (1), or that he does not adhere to the introduced terminology—*if* (1) is solely considered to be a *description* of a particular existent usage. More correctly, we could make such reproaches under those circumstances, but not then on the basis that the student should have taken the appearance of (1) as a symptom that Love is an *advocate* of using «acceleration» in accordance with the use indicated by (1). Later occurrences of «acceleration» in Love's book seem to be in accordance with what he states «is said».

It seems contrary to scientific method to rely on guesses or inferences of the above kind, especially in mechanics, where students are trained to construct proofs in which it is crucial that terms like «acceleration» be used in fairly uniform ways in accordance with explicit decisions common to a group («conventions of terminology»).

If (1) is to function solely as a description of a particular usage, the text ought to include a normative definition, or at least a forecast of how the term «acceleration» is going to be used. Even if the normative definition in that case did not differ from previously produced normative definitions of «acceleration», it would be of importance. The text might in that case be formulated as «Most theorists of mechanics have decided to use «acceleration» in the following way: «the point, x, has an acceleration relative to the frame F» shall mean the same as «x is moving with a variable velocity relative to the frame F». I have decided to use the expression in the same way».

Now, if an author wrote in this way, he would probably be considered pedantic. Why not rely on the fact that readers will take it for granted that an author by (1) *also intends* to communicate that he has decided to use the word as indicated by (1)?

As far as I can see, (1) can plausibly be interpreted as expressing *both* a description of previous use or of a previous normative definition (with the textbook as intended field of application) *and* a decision to adhere to a certain usage.

The expression «is said to» as it occurs in (1) seems occasionally to be used descriptively and with reference to the past use of others or the future use of the author; occasionally it seems to be used in a normative definition; and occasionally, I think, it can most plausibly be interpreted as expressing a combination. I guess that (1) is an instance of such a mixed function.

If we introduce uniform interpretations permitting a sentence like (1) to have mixed functions in the sense indicated, we need not guess or infer normative definitions that are important in proofs of theorems. We can in the proofs use the argument «According to the terminology decided on by (1), we can derive this --- from that ---». We need not every time say, «If we decide to use «acceleration» in the sense described in (1), then ---».

It would seem, then, that the concept of 'sentences with mixed descriptive and decisional (or commanding) function' is fruitful, and that many sentences can plausibly be interpreted as being intended to satisfy such a complex function. Particularly, discussions in the exact sciences seem to be based on the assumption that sentences are thus interpreted—and with success: there is little room for misconceptions.

Let us consider another example. In Shull's textbook *Heredit*y (1926: 116), we find the following passage:

> (2) «*Multiple Factors*. Multiple factors are two or more pairs of genes having similar and cumulative, though not necessarily equal, effects.»

Shull himself classed the sentence as a «definition» (in a sense not explained), as is seen from the next sentence of the text, «An example that has been thoroughly worked out will make the definition clear».

The term «multiple factor» is introduced in the textbook by means of (2). In the sentence following the last citation above, a second instance of the expression occurs, «Nilsson-Ehle of Sweden found that two varieties of wheat, one having reddish-brown, the other white grains, owe their colour differences to multiple factors».

Probably very few analysts would deny that we are justified in deriving, (although even fewer would agree that we ought to make the inference) from (2) that «multiple factor» as used in the second occurrence of this expression is intended by Shull to be synonymous with «two or more pairs of genes having similar and cumulative, though not necessarily equal, effects».

What, in that case, is intended by (2)? Suppose that (2) is not an explanation of multiple factor or 'multiple factor', but rather of «multiple factor». That is, a short expression «multiple factor» is, maybe, introduced and implicitly declared to be used or to have been used synonymously with a longer one. Or perhaps a convention (group decision) is duplicated, reproduced, or described. Or a usage is predicted. Or, perhaps, the intention is to express a kind of N-definition.

More plausible interpretations besides those mentioned are found by looking for mixed functions. As examples, we might mention the following groups of sentences as possibly expressing the same as Shull intended by (2):

(2a) The expression «multiple factor» shall according to a terminological convention be used as synonymous with «two or more pairs of genes having similar and cumulative, though not necessarily equal, effects», and it is my decision to join that convention.

This formulation is a description of various decisions. Another possibility is:

(2b) The expression «multiple factor» is used as a synonym for «two or more ---, effects»; this shall also be its use in this work.

The sentence (2b) has a mixed function. It functions to express a descriptive definition of usage and to express an N-definition.

Explicitly, we shall N-define «sentence with complex definitional function» as follows.

> (3) ««a» is a sentence with complex definitional function» shall in this work mean the same as «One and the same occurrence a_1 is intended to express the same as the conjunction of two or more sentences of the following kinds:

1. sentence expressing a normative definition;
2. sentence expressing a descriptive definition;
3. sentence expressing a real definition.»

It is open to doubt whether there exist sentences with complex definitional functions involving real definitions. If a sentence at a definite place in a text is meant, among other things, to express a descriptive definition of usage, does it occasionally happen that it also is meant to express a real definition? This is a psychological question, and not easily answered. If there are strong symptoms that a sentence has both a Ds- and an R-definitional function, we expect that there would also be symptoms of confusion and low definiteness of intention on the author's part.

IV.14. Concepts of Synonymity and Concepts of Definition

Many sentences called «definitions» or said to «express definitions» fall within the domain of synonymity hypotheses and related subjects. It has been our main object to stress this connection and to base the treatment of such sentences on the methods introduced in preceding chapters. Thus, the main purpose of this chapter has been to show how the treatment of some of the sentences called «definitions» can be covered by the system of terms suggested in chapters 1 and 2.

This purpose necessitates that those subgroups of sentences called «definitions» that fall under the domain of synonymity hypotheses of some sort, be distinguished from similar kinds. Thus, we were forced to take up normative definitions and real definitions.

As seen from (1), page 166, and from other normative definitions, the treatment of these new kinds of sentences is to a considerable degree mixed up with terms and hypotheses of the preceding chapters. This gives us an additional reason to undertake analysis of sentences occasionally called «definitions», even if they are not synonymous with synonymity hypotheses of some sort.

On the other hand, we have not tried to survey the main directions of precization of the word «definition». There are a great number of occurrences of this word that we have not felt compelled to discuss or to make the basis of any concepts.

In concluding this chapter, I should like to mention some relations between «synonymity» as used outside this work and normative definitions.

Suppose two expressions «a» and «b» are introduced by two normative definitions in which «a» and «b» function as definienda, and in which the definientia expressions and the expressions of intended field of application are identical. In such a case there is a tendency to treat «a» and «b» as synonymous. It is usually very difficult to decide whether «synonymity» is in that case used to designate a concept 'synonymity' from which it is *derivable* that «a» and «b» are synonymous if introduced by identical definientia; whether it is used to designate a concept 'synonymity' that makes it *empirically plausible or expectable* that «a» and «b» are synonymous if N-defined in the same way; or whether neither of those alternatives is realized, for example, because of lack of definiteness of intention.

If «synonymity» is used according to the first alternative, then it is irrelevant to the question of synonymity whether «a» and «b» are used as decided upon. If «a» and «b» are used very differently because the decision, command, or proposal is completely disregarded, this does not prevent «a» and «b» from being synonymous if the existence of a normative definition is enough. Such a consequence is undesirable because it would entail a great number of changes in our terminology. It is convenient for us to let the difference between followed and nonfollowed normative definitions stand out clearly in our terminology. In chapter 7, the term «N-concepts» of synonymity is used to cover the cases in which an N-definition can prove synonymity.

Of greater interest is a sufficient but not necessary criterion of synonymity introduced as follows:

(1) If the normative definition
$\quad \mathrm{Syn}\ (aP_iS_j, bP_mS_n)$ (Ann)
is strictly followed, then
$\quad \mathrm{Syn}(aP_iS_j, bP_mS_n)$

Sentence (1) turns into a positively analytical sentence if «strictly followed» is precized operationally in such a way that the synonymity concept symbolized by Syn in the normative definition is used as the criterion of its being followed and if Syn in the last line of (1) also symbolizes that concept.

Sentence (1) turns into a synthetic theorem if a different synonymity concept from that introduced in the second line is introduced in the fourth line of (1). In the following we decide that (1) should be interpreted (*per definitionem*) in such a way that only one kind of synonymity concept is used in the two symbolizations of (1).

IV.15. Predictional Theories About the Use of an Expression

Suppose «a» (for example, «democracy», «be careful!», or «it rains») is an accepted vehicle of communication between people of a certain language community, and suppose it is asked, What does «a» mean when used by the people (or a definite person) of the community? The answer that «a» means 'b', but that in fact no person of the community ever intends to express 'b' by «a», would usually be considered awkward. There is, however, important research concerning the use of «a» within the community, and it is not concerned with the *intended* meaning of expressions in use. In the terminology of some authors, the research may nevertheless concern «meaning».

One may ask, Under which conditions will a definite person or group of persons produce use instances of «a»? If «a» is a declarative sentence, one may ask, Under which circumstances will «a» be asserted (by certain persons, or generally)? Or, one may be less interested in the events of production and ask, Where can «a» be expected to be found?

This kind of question ignores questions about intended meaning. It is analogous to natural-science questions of the following kinds: Under which conditions does a thunderstorm develop? Under which conditions will oxygen and hydrogen mixed together combine and form water? Where can uranium be expected to occur? The same kind of question is asked about psychological and social phenomena: Under which conditions are revolutions likely? Under which conditions will babies react with anxiety toward dogs? It makes no essential difference methodologically whether the questions are posed about past events. One may ask, Under which conditions have babies (until now) reacted with anxiety toward dogs?

Answers are attempted in a fairly general, simple, and testable form. The crux of the matter is the possibility of understanding, predicting, and explaining the phenomena on the basis of certain units of information.

Suppose the following problem is given: under which conditions will sentences of the form «x is of national interest» be asserted by U.S. government officials? The problem does not necessarily lead to an investigation of what such officials *intend* to express by sentences of the form «x is of national interest» (cf. Beard 1934).

What is demanded is a formula or theory such that the past occurrences of sentences of the quoted form are explained and future occurrences are successfully predicted.

Sometimes, as in the case of Beard's explanations, it is to be expected that the senders would deny—and maybe justly—that the *intended* meaning is something closely similar to the formula used as explanans[5] expressions in proposed explanations or predictional formulas.

Many sentences that are called «definitions», or are proclaimed to state the «meaning» of terms or sentences, may plausibly be interpreted as sentences expressing *theories* about *conditions* of occurrence of expressions or classes of expressions. They will be called *predictional theories*. They will be distinguished from theories about senders' intended meanings or receivers' interpretations. The predictional theories may occasionally contain references to sentences expressing assertions about users' intentions, but need not do so.

The importance of distinguishing predictional theories from descriptive definitions about intended use lies therein; the former often are formulated as if they were identical with the latter, but they are mostly untenable thus conceived.

Voltaire may, for example, say that mankind uses the term «truth» for mistakes and illusions, and he may thereby create a furor of indignation. He possibly meant that so many opinions put forth as «truths» are mistaken, that the best way to predict occurrences of «truth» is to consider whether the opinion in question is a mistake. If it is a mistake, he predicts, it will be called a «truth». He has scarcely intended that people call something a «truth» when they *intend to convey to listeners* that they consider it a mistake.

Mussolini declared that «Démocratie, c'est le gouvernement qui donne ou cherche à donner au peuple l'illusion d'être souverain» (quoted in le Bon 1931: 291). Mussolini scarcely entertained the opinion that those using «démocratie» intended this meaning. Studying what have been called «democracies», Mussolini was, perhaps, willing to assert that the use of the term follows the regularity expressed by his definiens expression.

In *Twentieth Century Sociology* (Gurvitch and Moore 1946: 71), Howard Becker writes, ««[m]ysticism» to many of this gentry [positivists], simply means «not orthodox Watson behaviorism»». Maybe Becker means that what these people intend to express by the term «mysticism» is a concept 'not orthodox Watson behaviorism'. It is more likely, however, that he is constructing a theory about the conditions under which they react with the characterization «mysticism». Possibly he means that if they are confronted with something that is not orthodox Watson behaviorism (in the terminology of the analyst), they are apt to class it under the heading «mysticism».

Predictional theories about the use of a concept designation are tested primarily by analysis of those things that users point out as denotata. Thus, if a predictional theory about «truth» says that «truth» is a name for «*was dem Denken das grösste Gefühl von Kraft gibt*», then the test will be a psychological one. One would have to select a fair sample of meanings and investigate the feelings of those who apply the name. It would be necessary to lay down criteria of intensity of feeling of strength and to correlate use occurrences with the findings.

If one permits oneself to use an old, rather ambiguous phrase, the predictional theories about expressions concern the symptomatic, not symbolic, functions of signs.

In practice, hypotheses about intended meanings will largely have to be tested on the basis of regularities in use of the terms whose meanings are under discussion. These regularities are also the basis of predictional theories. Nevertheless, the two kinds of hypotheses differ. Some observations are highly relevant to the one, but not to the other, and instances of confirmation of the one may not be instances of confirmation of the other.

V

Elementary Analysis

A. Description of Synonymity and Ambiguity Hypotheses and of Simple Definitions

V.1. Description of Hypotheses Expressed by Synonymity and Ambiguity Sentences

As a first kind of elementary analysis, we shall consider attempts to describe hypotheses assumed to be expressed by synonymity sentences. As analysts we read synonymity sentences and, in most cases, make the tentative assumption that they were produced with assertive intent. We are sometimes interested in finding out something about what they assert, that is, what the sender intended when sending a definite instance of a synonymity sentence, what a certain synonymity sentence mostly has been intended to express, how certain receivers have interpreted the sentence and so on. To avoid looking for exact meanings where there are none, we may feel compelled to undertake an investigation of definiteness of intention.

The attempts to describe hypotheses expressed by synonymity sentences do not presuppose that the analyst has his own concept of synonymity. He investigates events, processes, and states of affairs connected with sentences in which the term «synonymity» and other terms of the synonymity sentences occur, but he need not use such terms himself. His description will probably contain the word. He is engaged in activities of interpretation, and his account will probably contain metaoccurrences, but not necessarily use occurrences, of the terms interpreted.

As a matter of fact, in chapter 7 we shall, as analysts, sometimes use expressions such as «synonymous with» and «means the same as», but without going into details about what we mean by them. In the present chapter, however, we limit ourselves to offering rather imprecise definiens expressions: by «synonymity» between sentences we shall mean in this chapter «identity of cognitive meaning, sameness of assertive content».

A particular synonymity *sentence* may be described as one belonging to the skeletal form «--- means the same as . . .», or as containing certain marginal references, or as being written in the English language, and so on. Descriptions and quotations of synonymity sentences are not of sufficient interest to warrant detailed study.

Quite otherwise is the situation that confronts those who try to describe synonymity *hypotheses* fairly accurately. A hypothesis cannot be quoted: only the sentences supposed to express the hypothesis can be quoted. The description of the contents may, of course, be made in terms of its author, but this presupposes the validity of complicated interpersonal synonymity assumptions. Often the context of the original expression of the hypothesis is of first-rate importance.

In this chapter we are concerned with descriptions of hypotheses. The hypotheses do not assert the hypotheses described. The descriptions are, on the other hand, themselves assertions. Consider, for example, the description «Bryce makes the hypothesis that «democracy» always means the same as «the rule of the many»». The assertion intended by the analyst may be untenable, or we may find that it is ambiguous, vague, scarcely testable, and so forth. Doing this, we are engaged in activities here subsumed under the heading «elementary analysis». We are not necessarily interested in the question of whether, as Bryce asserts, «democracy» *is* synonymous with «the rule of the many», whatever that may mean.

By «description of a hypothesis», we shall mean a description of its cognitive content, not its history. The history may be of primary importance for the understanding of its contents as assertion or system of assertions, but the historical account is not what we look for.

A description of a hypothesis may not (in our terminology) be a complete description. Let us compare descriptions of hypotheses to descriptions of demands. A description of children's demand for food may be more or less complete. It may consist only of statements of the kind, «Children's demand for food is more insistent than that of octogenarians». Analogously, a description of certain synonymity hypotheses may consist merely of the following kind of statement: «the hypothesis has a cognitive meaning such that it takes years to test it». We may say that the hypothesis Crew intends by his words «--- in the time of Newton, density and specific gravity were employed as synonymous» is such that it asserts the substitutability of the two terms in texts written during the lifetime of Newton. Or, the analyst may describe it as a hypothesis that has a content such that «x has the density y» and «x has the specific gravity y» are equipollent. Neither of these contributions to a description of Crew's hypothesis may be intended to furnish a complete description.

Descriptions of hypotheses and descriptions of demands have in common that they describe something not directly observable. Demands, needs, drives are inferred entities (constructs, intervening variables, models, fictions), just as hypotheses are. Their methodological status is highly controversial. The change from formulations of hypotheses to the hypotheses themselves (expressed by the formulation) resembles to some degree the change from talking about certain food behaviors to talking about demand for food.

If a hypothesis can be reduced to the form p&q, where p expresses a synonymity hypothesis and q expresses some other kind of hypothesis, «p&q» will be said to express a hypothesis that *implies* a synonymity hypothesis. Interpretative sentences—for example, ««a» means b»—are often of that kind. If a hypothesis does not imply a synonymity hypothesis, but (in the opinion of the analyst) presupposes one to be valid, we shall say that such a hypothesis is *involved* or *assumed*.

In this chapter, not only explicit synonymity hypotheses, but also implied, involved, or assumed ones are described.

Perhaps some readers find it unjustified to devote a whole chapter to techniques of describing hypotheses that conceivably might be expressed by synonymity sentences. This critical attitude owes perhaps to an insufficiently clear distinction between sentences and what may be expressed by sentences. The distinction requires separation of a formulation of a hypothesis from the hypothesis as an assertion. Elementary analysis aims at description of hypotheses as assertions, not just as references to formulations found in texts already at hand.

Hypotheses are more or less completely formulated, and the formulations are more or less precise. If a hypothesis belongs to a system such as theoretical physics, the whole system contributes to the meaning of its formulation. This, and requirements of communication, makes it impossible to point at a certain sentence or series of sentences and to say with reason, «*There* is the hypothesis expressed in complete detail».

In psychology a great number of names suggest hypotheses—for example, «the sign-gestalt theory of learning»—but if we ask psychologists to say just what the theory asserts, there are no standard formulations and there are considerable differences of opinion. Thus, the task of describing hypotheses is difficult in the exact as well as in the less exact sciences. Hypotheses and opinions in general are, once more, inferred entities, the existence of which cannot be «shown» except by giving reasons for or against the assumption of their existence based on observations of verbal and nonverbal behavior. Descriptions of opinions necessarily involve more or less uncertain interpretations, and good descriptions of them *generally* involve precization of the formulations traditionally used to express the opinions.

The analyst who takes up the task of distinguishing between hypotheses that do and do not involve hypotheses of synonymity, and the task of constructing fairly precise formulations of their contents, encounters a host of difficulties. These are attributable, among other things, to:

1. limited definiteness of intention by the authors of synonymity sentences; lack of attention (on the part of the producers) to assertions involving hypotheses about synonymities; lack of explanations;
2. vagueness and ambiguity of marginal references;
3. extreme shortness of expressions functioning as formulations of synonymity hypotheses (much is implicit and barely hinted at);
4. extreme variability of terminology and richness of near-synonyms among the expressions of such hypotheses;
5. tendency to overlook auxiliary hypotheses necessary to subsume any hypothesis under the heading «hypothesis of synonymity»;
6. absence of independence between these and other factors, which often act together and create an almost inexhaustible complexity of texture.

Let us consider some examples of sentences that, for some plausible interpretations, express or involve descriptions of synonymity hypotheses or announcements.

Haas and Simpson (1946: 333) state in their painstaking elementary analysis of certain biological terms that «Bourne --- considers parallelism a mere synonym of homoplasy ---». The analysts, Haas and Simpson, describe something that they probably intend to be a hypothesis adhered to by Bourne. The hypothesis is expressed in the vocabulary of the analysts; Bourne is not quoted. Possibly Haas and Simpson intend to describe a synonymity hypothesis.

In the same paper, Haas and Simpson state that «--- Buckman ---, in discussing parallelism and homeomorphy, defines the former as «the tendency of different genetic stocks to pass, quite independently, through similar phases of development»» (ibid., p. 326). Here, a definiens expression is simply quoted, but the semiotic relation is indicated in terms used (not quoted) by the analysts, that is, by Haas and Simpson. The terms used by the analysts to convey to readers the kind of assertion or announcement made by Buckman are «defines --- as». A reader of Haas and Simpson's paper cannot be sure that Buckman in his paper used the expression «defines --- as».[1] In other words, Haas and Simpson attempt to describe in their own terms an assertion or announcement intended by Buckman. What Buckman may have intended by the expression «defines --- as», if he used the term «define» at all, is a question without relevance to what Haas and Simpson intend to express by «define».

Speaking about «the geometrical meaning «of homology», corresponding members of similar figures being «homologous»», Haas and Simpson say, «It may, ---, be doubted whether Owen, when defining --- «homologue» as «The same organ in different animals under every variety of form and function», had this geometrical meaning in mind» (ibid., p. 320).

Several interpretations of this quotation from Haas and Simpson's paper are of interest. Here it will be interpreted in only one direction. They may have intended to tell readers that a certain hypothesis may be doubted as to its validity, namely the hypothesis that Owen by the definiens expression «the same organ in different animals under every variety of form and function» (as occurring on page 379 of one of his works) intended to express a connotation similar to the above-mentioned geometrical meaning. Implied in this critical remark by Haas and Simpson is the hypothesis that Owen intended to define «homologue» in the sense in which Haas and Simpson use the term «define». Thus, a description of something is implied, which possibly is conceived to be a synonymity hypothesis or announcement made by Owen.

Elementary analysis may show—or make plausible—that certain synonymity sentences express under certain conditions a kind of hypothesis having definite characteristics a, b, c. The analyst may be tempted to ask, What sentences other than synonymity sentences (in the accepted sense) express at least occasionally a kind of hypothesis with characteristics a, b, c? Roughly, having found out about certain cognitive meanings represented by a (rather arbitrarily delimited) sample of sentences, one is interested in finding other sentences expressing the same or very similar cognitive meanings. We shall include under elementary analysis an investigation concerning which sentences other than synonymity sentences sometimes or mostly express hypotheses of the kinds that synonymity sentences sometimes or mostly express.

A further main task of elementary analysis consists in attempts to describe hypotheses assumed expressed by heteronymity, ambiguity, and interpretative sentences.

Descriptions of interpretative hypotheses meet the same difficulties as those of synonymity and ambiguity hypotheses, and the difficulties are often aggravated by even less adequate marginal references than for the synonymity hypotheses. The definiens expression is often used quite naively, without consideration of how it will be interpreted by the public.

Of special importance are descriptions of attempts to make lists of interpretations and of debates between advocates of different lists.

The foregoing tasks are all concerned with *descriptions of metaoccurrences* of expressions and sentences. The aim is to describe (and classify) what seems to be expressed by declarative sentences containing metaoccurrences.

Synonymity announcements as well as normative synonymic and interpretative definitions are also subjected to attempts at accurate description, mostly involving precization. To make and establish such descriptions is a further task of elementary analysis as here conceived. Whereas the assertive function of sentences seems to be fairly homogeneous and not too difficult to describe, the many variations of normative statements (imperatives, proposals, decisions, and so on) add to the complexity of the analyst's task.

The foregoing examples of descriptions that possibly are intended to be descriptions of synonymity hypotheses or announcements might be repeated here as examples of descriptions that possibly are intended to be descriptions of normative or descriptive interpretative definitions. When, for instance, an analyst P says something like «Q defines a as b», it is not easy to figure out what P is describing, owing to the ambiguity of the term «defines» and the expression «a as b».

V.2. Interpretation of Definitoid Sentences in General

Let us use the term «definitoid sentence» for any sentence or system of sentences that is preliminarily assumed to express a normative, descriptive, or real definition. The analyst is confronted with the task of attempting a classification based on hypotheses about which are the most plausible interpretations of the sentences. Of the enormous number of definitoid sentences found in technical literature, scarcely one-fourth are such that one may, without further scrutiny, establish whether they express something closely similar to normative, descriptive, or real definitions, or combinations, or do not express anything closely similar to these structures. The reader is invited to inspect published lists of «definitions», for example, those of Ries (1931b: 208ff.) and Seidel (1935: 114ff.) concerning 'sentence'. Very few members of these collections are easy to classify. The analysis of definitoid sentences has therefore a broad field of difficult application.

A large number of the eighty-three «*definitionen*» quoted by Seidel have the form «a is b», a form that has for centuries caused confusion. As an example we may cite «Die Sätze sind die kleinsten in der betreffenden Redeumgebung grammatisch befriedigten (sinnvollen) Einheiten, in die eine sprachlich korrekte Rede zerlegt werden kann» (Ahlman 1883). A number of the «definitions» are not intended to be normative, descriptive, or real definitions—for example, «Wenn wir auf das Verhältnis zweier Begriffe Acht haben, so entstehen Sätze» (Crusius). A quotation from Husserl belongs to those very few that can be classified with a fair degree of certainty: «[d]och scheint es passender --- die Einheit von Sinn und thetischem Charakter als Satz zu bezeichnen». This is probably meant as something like a normative interpretative definition.

Despite the importance of distinguishing between normative and descriptive statements, and the frequent advice in that direction in philosophical and scientific literature, such distinctions are often neglected and with serious consequences. It is seldom that the distinction is drawn as explicitly as in the following statement by Bertrand Russell (1931): «I shall adopt the arbitrary convention that «convince» is to mean «to satisfy by rational argument», for example, by adducing evidence in support of the proposed conclusion. I shall confine the use of the word «persuasion» to mean «to bring about the acceptance of a conclusion by methods other than that of offering grounds for rational conviction». Most people would, I think, say that «persuasion» covers what I have called «conviction». I have admitted that this is a correct usage, but it is inconvenient for my purpose.» Russell here clearly intends to give something closely similar to what we call a normative definition;[2] he does not intend to give a descriptive definition.

The distinction, which to us seems nearly as important, between a descriptive definition (a hypothesis of synonymity between expressions) and a real definition (a condensed characterization of things denoted) is more often neglected, even among analytical philosophers. One of the reasons that the distinction is so important is that a real definition can be tested as regards its tenability only if the definiendum has a well-established nonformulated usage, or if the sender of the real definition offers a normative definition by means of which he explains how he intends to use the definiendum. Very often, a proponent of a real definition unjustifiably presumes that others use the definiendum expression as he does. However, the real definition cannot perform both the task of giving a meaning to an expression, a connotation, and the task of giving a nonanalytical theory about the denotata delimited by the connotation of the expression.

In the following, we shall pay attention to a series of difficulties confronting those who try painstakingly to describe the hypotheses or announcements that we call normative, descriptive, and real definitions. In some cases it is sufficient to use rough descriptions and descriptions that are far from complete descriptions or reformulations, but we are interested in cases in which rough indications are not considered adequate. In cases of extensive debates about definitoid sentences or phrases (for example, «of the people, by the people, for the people»), the inadequacy of the usual levels of exactness (or rather, inexactness) is shown by frequent pseudoagreements and disagreements and other symptoms of confusion.

Examples of incomplete characterizations of normative, descriptive, or real definitions:

«Carnap defines 'value judgment' in such a way that value judgments by definition are excluded from all kinds of empirical test; ---» (Ofstad 1951: 44).

By this sentence, Ofstad says something about the (normative) definition that Carnap attaches to the term «value judgment». No complete description is aimed at. How Carnap formulates his definition is not revealed; this is not a description or quotation of a definitional sentence produced by Carnap, but a hypothesis about an expressed announcement.

A further example of incomplete description is found in the second part of the following quotation: «If «analogy» is to retain --- any technical meaning in comparative anatomy and phylogeny, it can be but the one implying function or use. This is the meaning given to this term by Owen (1843) and maintained in the biological sciences, though with certain qualifications, ever since.» (Haas and Simpson 1946: 324). Haas and Simpson seem to refer to a normative definition proposed by Owen. About that normative definition they assert that it implies function or use. It is not asserted that Owen proposes to use «analogy» for «function or use». The information intended is partial, not equivalent with a complete description.

V.3. Some Distinctions Exemplified and Tabulated

Suppose we aim at a description of normative and descriptive definitions, and choose definitions of «denote» and «denotation» in classical logic as our subject matter. As a preliminary step we shall have to state rather precisely what we mean by «classical logic», a term used somewhat loosely in contemporary philosophy. When this is done, we have specified a class of contexts to be investigated. Our conclusions will be hypotheses with direct bearing on this and only this class of contexts. We shall be responsible for descriptive characteristics of *every* formulation expressing a normative or descriptive definition within this field of intended application, but for none outside it.

Suppose the term «classical logic» is defined in such a way that the following formulation from *Formal Logic* (Bennett and Baylis 1939: 232) is included: «[a] term that signifies a class property is said to denote each of the members of the class determined by that property».

Our business as analysts would then be to find out whether the formulation, or a part of it, expresses an N- or Ds-, or N- and Ds-formulation relating to «denote», and, if necessary, to reformulate the supposed definition so as to make it more precise (receiver-precise) for the readers of the analyst's description, that is, the readers of this section.[3]

The analyst has to determine whether the cited formulation is an N- or Ds-formulation or both. It seems probable to us that Bennett and Baylis intend to *describe* the use of the word «denote» in certain contexts—for example, that they intend to give a Ds-formulation, a description of existing usage, by means of an expression that they hope readers will interpret as they do, or very similarly. On the other hand, they themselves use the word «denote» on their own, and we, therefore, and for other reasons, guess that they also intend to give a normative formulation. The analyst with scientific pretensions must carefully take into consideration what can be said for and against hypotheses about what the authors in this case intend. As an argument for the hypothesis that a normative definition is involved, I think it could be mentioned that Bennett and Baylis probably are aware of other uses of the word «denote», besides the one they mention, even within logic.

If we conclude that the cited formulation of Bennett and Baylis is an instance of a Ds- or N- and Ds-formulation within our field of investigation, other things have to be determined, for example, the limits of the context that Bennett and Baylis intend to cover by their definition (its intended field of application). Without a hypothesis on the limits of this context, we cannot make statements of the kind «In this instance Bennett and Baylis do not follow or use their definition» or «In this case Bennett and Baylis do follow or use their definition». It may be that they intend to use «denote» in the sense defined in all possible contexts, but it may also be that they do not pretend to use the word in that manner outside their texts on logic or outside discussions with persons presumed to have read the texts. They may not feel responsible for their usage in family quarrels or newspaper articles, or in texts of literary criticism.

From the quotation itself, very little may be inferred. «A term that signifies a class property *is said* to denote ---». The expression «is said» is fairly representative of the kind of words used to express synonymity hypotheses and also normative definitions. We shall leave the issue. It is our aim in this chapter to show the kind of assumptions made even in the most elementary kind of analysis, not to perform an analysis.

The analyst will have to pay attention to the restrictive phrase «that signifies a class property». Do Bennett and Baylis intend to say that «denote» connotes something different according to whether a denoting term signifies a class property or signifies something else? Do they intend to give a general Ds- or N- and Ds-formulation relating to «x (a term) denotes ---», or only a special, restricted formulation referring to «x (a term signifying a class property) denotes ---»? We shall have to decide for or against these kinds of hypotheses about the field of intended application. If we do not, we cannot easily judge whether Bennett and Baylis express a tenable or an untenable hypothesis. There is probably in the authors' texts material relevant to the hypothesis that they intend a rather general definition. If such material is found and used, the analyst's description of Bennett and Baylis's hypothesis probably ought to consist of expressions that will be interpreted as the analyst interprets the hypothesis, even though the receivers are not familiar with all of Bennett and Baylis's texts. Their formulation is then too tied up with their texts in general to allow any isolation from those texts.

A description of a definition as here understood is not simply a collection of quotations, but an exposition of definitions formulated in such a way that readers of the exposition interpret the formulations as closely as possible to the interpretation of the sender of the definitions. The analyst is a kind of mediator, taking care of the necessary reformulations.

In the particular instance mentioned above, the reader of the description of definitions cannot be supposed to know exactly how Bennett and Baylis intend to delimit the class of terms said to signify a class property. He may not, for example, be able to interpret the expression «each of the members of the class» in the manner that Bennett and Baylis do. They themselves discuss that point, and the material thus available may profitably be used to reformulate their formulation to make it more receiver-precise to the readers of the description.

So far, I have tried to direct attention to the distinctions among the following:

1. The context F investigated directly by an analyst. This is *included* in the defined field of application of the analyst's description. In the ex-

ample considered, we limited ourselves to an examination of a single passage in a book by Bennett and Baylis, and only superficially took into account the rest of that work. The passage corresponds to what is called «Formulation group No. X within the field» in figure 1.

2. The field E intended to be covered by an ordered description of definitions based on the investigation. This corresponds to what is called «The field E to be covered by the description» in Figure 1.

   The analyst's description has the character of a hypothesis, and its intended field of application E may be much greater than the directly investigated context F. In the example under consideration, the field E is the whole of classical logic.

3. The context intended to be covered by an author of an N-, Ds-, or N- and Ds-definition. This is the field within which the sender of an N-definition intends to use the definiendum as a synonym of the definiens, or the field within which the author of a Ds-formulation claims that the definiendum is used synonymously with the definiens. If it is a question of a definition with double aspects, it may be necessary to distinguish between two fields of application, that of the expressed normative definition and that of the descriptive definition.

   Further, we wish to stress some implications of the rather trivial difference between a definition and a formulation of a definition. If an analyst finds a formulation that he thinks can be interpreted so as to express a definition, his interpretation may be based on extensive study of the particular terminology found in the context of the formulation. If, now, the analyst limits himself to quoting the formulation in his description, it may be practically impossible for the readers of that description to arrive at the same interpretation. It will be necessary for the analyst to rewrite the definition in search of a formulation that will induce his readers to interpret it in the best possible harmony with the intention of the author. We therefore stress the possible difference between an original formulation—an object studied by the analyst—and the formulation of the analyst in his description of definitions.

If, for example, we compare various axiomatizations of a field, there may be formulations of definitions that are identical in all systems, in spite

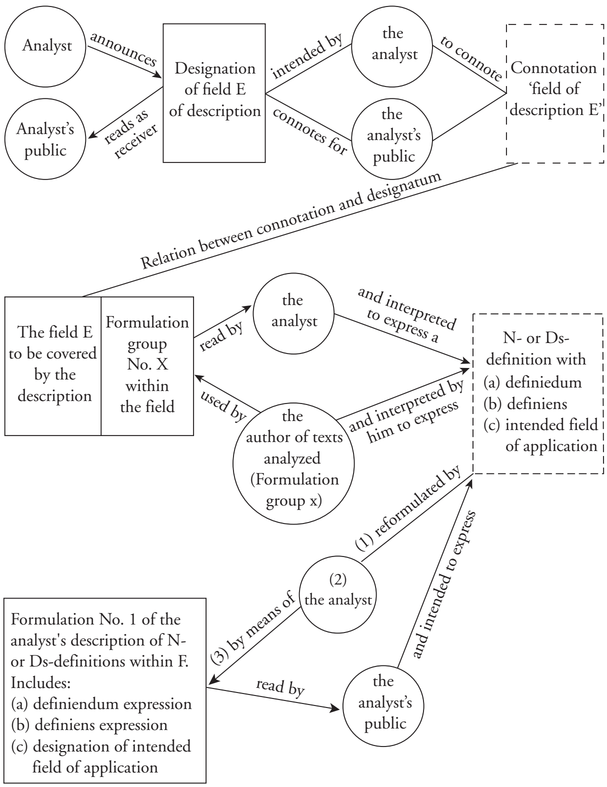


Figure 1. Some items involved in the construction and use of a description of normative or descriptive definitions. Persons involved are indicated by circles; expressions, by rectangles; and significations (connotations), by rectangles with dashed lines.

of vast differences in their meanings. These are given by rules or by «implicit definitions». For example, there may be said to be many propositions in Russell and Whitehead's *Principia Mathematica* that are «propositions» in other systems (e.g., in Lewis's system of strict implication). An analyst describing the «propositions» should not, however, use such an ambiguous formulation, but should limit himself to asserting that some *expressions* of «propositions» are the same. His description of the propositions involved may show them to be very different.

If the original formulation cannot be interpreted so as to indicate its intended range of application, the analyst has to make hypotheses as to this range. Such hypotheses we take as parts of the description of definitions.

In the description we expect, therefore, to arrive at formulations expressing all three components of the definition: the definiens, definiendum, and intended range of application (see figure 1).

Let us suppose that we decide to describe and test hypotheses of an analyst who publishes a description of certain N- or Ds-definitions. We may in that capacity call ourselves «meta-analysts». As part of the material available for our investigation, we have the analyst himself, if he is alive and agrees to be observed. We have, further, his designation of field of description E, and the formulation group x within the field F of investigation. If we are lucky, we shall also have at our disposal the author of the texts analyzed. Finally, we are, as meta-analysts, able to point out a formulation No. 1 of the analyst's description of normative or descriptive definitions within F.

Other items illustrated in figure 1 are usually less readily observed. What is the analyst's public? It can hardly be certain definite people at definite moments. We may as meta-analysts find out that certain people without doubt should be classed as denotata of the 'public', and that these people seem to have interpreted the designation of field E as has the analyst, but normally we cannot say more than that we have provided some instances of confirmation of a hypothesis of the analyst.

The so-called «field E of description» can be delimited only by testing interpersonal synonymity hypotheses. As meta-analysts, we shall have to investigate the interpersonal synonymity of the field designation for the analyst and his public. If we strongly confirm the interpersonal synonymity, the hypothesis illustrated by making the analyst and his public share one and the same connotation is strongly confirmed. If it is not confirmed, we shall have put two connotations into the picture, as shown in figure 2.

The field E to be covered by the description may in some cases be a small collection of formulations readily surveyed, or the field may be «given» only as the designatum of a designation such as «classical logical texts». In the latter case, the field has no definite boundaries. Different investigators will almost certainly delimit the field in different ways, and, probably, no investigator will try to survey the whole field (as interpreted by him). Thus, the neatly drawn rectangle representing field E (figure 1) must not be taken as a symbol of one definite, easily surveyable observational field, such as, for example, a small collection of formulations arranged in an easily surveyable list.

As for the dotted rectangle that symbolizes what formulation group x expresses, we can say about it what has already been said in reference to the connotation 'field E of description'.

We stress that most of the items illustrated are more or less unsurveyable and unobservable (in many plausible senses of that word). They are intervening variables, in the terminology of E. C. Tolman and C. L. Hull.

If the description is not perfect in all respects—an expression I use with low definiteness of intention—some of the areas illustrated in figure 2 will have to be duplicated. The whole illustration will then be seen as if out of focus.

In figure 1 there are two designations of the intended field of description E. This is to remind us of the difficulties that arise from the habit of repeating at various intervals what field should be investigated and thereby using different designations. If the analyst selects one field as the main one and the «standard» from which interpretations should proceed, then there is no complication. Figure 2 is adapted to the case of two designations on equal footing. As an analogy, consider a standard meterstick in Paris and in New York, both defining the length of one meter.

The designations of field intended to be covered (for example, «classical logic», «works of Bryce on democracy», «William James on truth», «common usage») give rise, according to the illustration, to three different interpretations, one by the analyst and two by the public. The latter may be classed as misinterpretations. The fields E corresponding to the different interpretations are different, and the formulation x picked out as «defini-

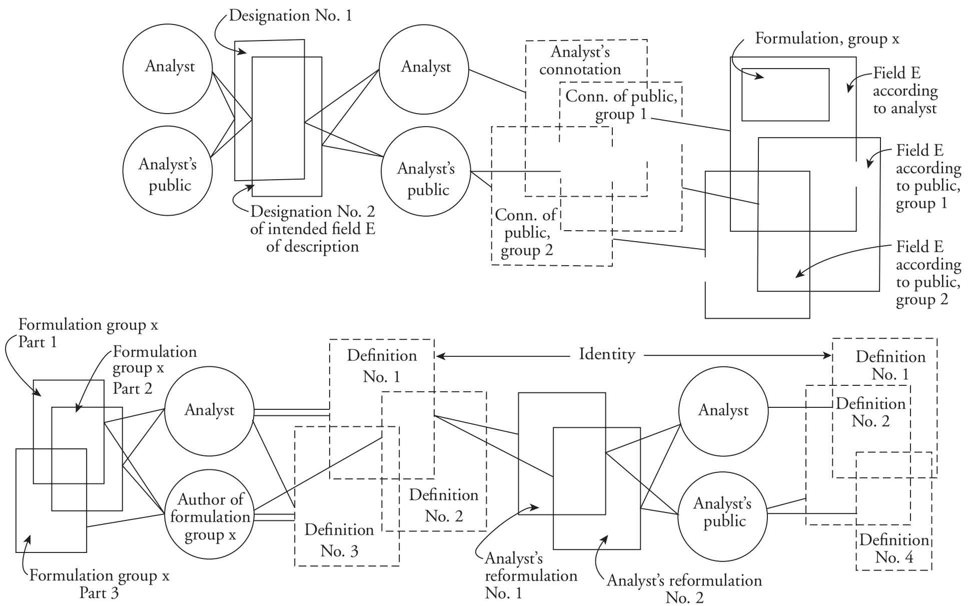


Figure 2. Construction of a description of normative or descriptive definitions adapted to the case of two designations of the intended field of description. Persons involved are indicated by circles; expressions, by rectangles; and significations (connotations), by rectangles with dashed lines.

toid» occurs within the field as conceived by the analyst, but not within those conceived by the public.

The boundaries of the connotation are shown as incomplete to remind us of the indefiniteness of intention always present. The effect of the indefiniteness is symbolized by the incomplete boundary of the field E.

It is usually difficult or impossible to single out one definite formulation as the one expressing the definition. There may be several sentences and often not in a series, but with irrelevant ones in between. In the illustration two parts of the formulation group correspond to how the analyst has delimited the so-called «formulation group x». According to the interpretation of the author of the text analyzed, there is a third part of group x, which it is necessary to take into account. It belongs to the formulation of a definition, and without it, parts one and two do not express any of his definitions. The definition expressed by the formulation group x is conceived somewhat differently by the author and the analyst. The most plausible interpretation, according to the analyst, gives descriptive definition No. 1; a less plausible interpretation, in his opinion, gives descriptive definition No. 3. The author of the text entertains the opinion that his intention most probably was that of expressing descriptive definition No. 3. He thinks it less probable that descriptive definition No. 2 covers his intention, and does not think No. 1 gives a plausible interpretation at all.

As meta-analysts, we find that the analyst has in his description given two reformulations of the definition he believed the author tried to express. The reformulations are synonymous for the analyst, both expressing descriptive definition No. 1. To the public, the analyst's versions express two other definitions: No. 2, which is a plausible, but not the most plausible, interpretation of the author according to his own hypothesis, and No. 4, which is considered plausible neither by the analyst nor by the author.

In elementary analysis there are a host of complications not hinted at in figure 2. Thus, we have in our illustration assumed that we can directly compare connotations (and assertions), whereas we shall, in practice, have to compare precizations, using complicated procedures. Even if the analyst, his public, the author, and the meta-analyst all are available and willing to discuss what they mean by their talk, we shall meet great and methodologically important difficulties when trying to confirm or weaken the hypothetical descriptions of the analyst. Elementary analysis is «elementary» in the sense of «propaedeutic», not in the sense of «easy».

The intention of the author of a definition may fall short in many ways that may profitably be distinguished. Let us suppose he intends to give a formulation of a definition—a *convenient* and *fruitful* normative definition or a tenable (correct) descriptive definition. It is not the business of a describer of definitions to judge whether the underlying intention has been successfully realized. Whether the formulation is fruitful or not fruitful, the author in both cases intends to give a formulation of a *definition*, and to describe the intended definition is in both cases the job of elementary analysis. Sometimes, however, even the intention itself may not be complete. The author's formulation may, for example, lack any indication—explicit or implicit—of range of application, because of lack of definiteness of intention. The description of definitions has to take into account such shortcomings and indicate what the minimum criteria are for stating that something is presented as a realization of an intention to give a definition. As analysts of definitoid formulations, we are concerned with the basic characteristics of any normative, descriptive, or real definition, fruitful or not fruitful, tenable or not tenable.

V.4. Illustrations of Elementary Analysis

Illustration 1

A field of description of practical importance is found in the definitoid statements that appear in traffic regulations. A vast number of cases before the courts are decided on the basis of normative definitions of «blind curve», «emergency vehicle», and other such terms. Let us suppose that we are interested in material relevant to a description of that field, and that we find as part of the text material to be investigated the pamphlet *Traffic Regulations*, by police commissioner L. I. Valentine. Section 1 opens with a series of «definitions»:

> The following terms when used in these regulations unless otherwise expressly stated, or unless the context or subject matter otherwise requires, shall be deemed to mean and include:
>
> 1. «Authorized emergency vehicle» shall mean vehicles of the fire department (fire patrol), police vehicles, ambulances, and emergency vehicles

> of federal, state, or municipal departments or public service corporations and such other vehicles as are designated or authorized by the Police Commissioner.
>
> 2. «Bicycle» shall include any vehicle consisting of an arrangement of a combination of two wheels, one following the other, supported by a frame, propelled by the feet acting on pedals.
> 3. «Blind curve» means a curve on a two-way street where the straightaway of the street is not visible from the center line of the street at the start of the curve.

We use these formulations as a first instance of easily describable normative definitions because they are unusually explicit. So far I can see, without having made any empirical investigations, they offer unusually strong precizations of some rather ambiguous and vague expressions. At the same time, they do not invoke technical vocabulary beyond the scope of the majority of the intended public. However, even such recommendable specimens of N-definitions offer some problems for the elementary analyst.

The quoted passage can be divided into an introductory note and three numbered formulations. The introductory note says something about the three terms referred to in the numbered formulations. It says that each of them «shall be deemed to mean and include:». In the numbered formulations, however, somewhat different expressions are used: «shall mean», «shall include», and «means». A reformulation seems warranted. It is to be noted, however, that it is based on highly uncertain assumptions.

> When used in these regulations unless otherwise expressly stated, or unless the context or subject matter otherwise requires:
>
> 1. «Authorized emergency vehicle» shall mean vehicles (etc.).
> 2. «Bicycle» shall mean any vehicle (etc.).
> 3. «Blind curve» shall mean a curve (etc.).

In this reformulation adapted to quite another public, namely, the readers of this section, the talk about what is included is left out on the assumption that its only function was to remind us that if «a» means b, all things denoted by «b», for example, all things included, are denoted by «a».

A sentence of the kind ««Bicycle» means and includes any vehicle of kind A», is of some interest, because «means» requires that «any vehicle of kind A» express a connotation (concept), whereas «includes» requires that «any vehicle of kind A» designate certain things. Reformulating in more pedantic terminology, we might say, ««Bicycle» means 'vehicle of kind A', and the class of bicycles includes the class of vehicles of kind A». When the sentence is thus formulated, the second member of the conjunction follows from the first, but not vice versa.

From the nature and character of the *Traffic Regulations* booklet, it seems justified to assert that the following expressions (among others) are intended as complete synonyms within that booklet: «shall be deemed to mean and include», «shall mean», «shall include», «means», «shall mean and include», «means and includes».

All these expressions occur within the text covering the first fourteen definitions. The ninth definition has no expression of that kind:

> «9. «Designated parking space». That part of any street designated by competent authority ---.»

On the basis of previous sentences, it is justifiable to assume that the pair of sentences in item 9 are intended to be synonymous with «The expression «designated parking place» shall mean that part of any street designated by competent authority ---».

Taken in isolation, an expression such as «includes» might be expected to refer to a part of the denotation of something, not the connotation. The introductory statement («The following terms ---»), which covers all subsequent definitions, and a similarity among the various formulations designated by 1, 2, 3, etc., suggests that connotation rather than denotation is referred to. This conclusion is not weakened by inspection of the definiens formulation of item 2. The definiens is such that it may well represent a connotation rather than a denotation. We stress, however, that decisions on questions of interpretation are shaky and largely intuitive.

The three sentences are reformulated as normative interpretative sentences («a» shall mean b) rather than as normative synonymity sentences («a» shall mean the same as «b»).

In the present case, it is rather certain that the interpretative sentences express something that involves the corresponding synonymity sentences, and *possibl*y assert something more. The additional content might be formed as an answer to the question ««a» shall mean the same as «b», but what does «b» mean?» In this work we do not try to formulate what answer is implied in the interpretative sentence other than the rather trivial one:

«b». That is, we treat the interpretative sentence (1) as if it were synonymous with the synonymity sentence (2):

(l) «a» shall mean b.
(2) «a» shall mean the same as «b», and «b» means b.

If the analyst, in his description of Valentine's N-definitions, uses Valentine's own definiens expressions, he limits himself to a quotation of them. More interesting is the case in which the analyst tries to convey to his public the intended meaning of the definiens expressions by using other words. The analyst may, for example, say, «By «vehicles of the fire department (fire patrol)» Valentine means the same as «any vehicle of the fire department that is a fire patrol vehicle». He evidently does not intend to include all vehicles belonging to the fire department». If the analyst uses his own words, it is convenient for him to give his description as a «that» formulation: «Valentine announces *that* «---» shall mean . . .».

Illustration 2

Here, our field of description is definitoid statements about «patent claim» in technical literature. Our field of investigation is a statement from Alf B. Bryn's *Patentloven* (Patent Law 1938).

On page 38 Bryn mentions some «words which are permanently used in connection with patent cases, and which in this connection have their special connotation ---». One of these designations is «patent claim».

> Patent claim[:] A definition that comes at the end of the patent description and indicates what the applicant holds to be his invention and wishes to have patented.

Let us suppose that the analyst aims at a description of Ds-formulations of «patent claim». In this case he may write:

Context in which the instance is found:	A. B. Bryn, Patent Law, page 39
Definiendum expression:	patent claim
Definiens expression:	(as quoted above)
Range of application:	patent cases

It is to be expected that the expression «patent cases» will create some difficulties in practice. As a designation of the intended field of validity, it will probably give rise to conflicting interpretations among those who are not trained jurists. If the description of Ds-formulations is written for a public with poor knowledge of law, it would presumably be desirable to give a simple definition of «patent cases», as understood by Bryn, or to substitute for «patent cases» the definiens expression in such a popularizing definition. We mention this to give an example of how the analyst's description may differ from the original.

It is presumably Bryn's aim to help students of law get a better hold on the use of the expression «patent claim» than they would by just reading instances of use. He may be said to aim at a delimitation, and therefore a precization, of a term that is used too loosely in ordinary life to serve a student of law. He probably does not aim at a precization among professional patent lawyers. For that aim, the definiens is probably too elementary.

V.5. Levels of Preciseness of Descriptions of Definitoid Statements

In an article called «The developing science of democracy», reprinted in *The Analysis of Political Behavior* (1951), H. D. Lasswell offers a definitoid group of formulations that has the important function of delimiting the definitional subject matter of a prospective science—the science of democracy. The formulations are found on page 8 and run as follows:

> A democratic government can be defined in terms of shared power, a democratic society in terms of shared deference (power, respect, insight) or shared influence (deference, safety, income). What are the limits within which sharing may vary in a government or in a society that is entitled to be called «democratic»? With respect to power, we may stipulate that a democratic government authorizes majority participation in the making of important decisions. The majority may express itself directly (direct legislation) or indirectly (elected officials). The majority must participate actively (a large majority—let us specify a two-thirds majority—must qualify to vote and take part in elections). The overwhelming majority must be free of intimidation. Moreover, they must have confidence in their capacity to exert effective control over decisions, whether or not they vote on any given occasion. Communities are democratic in the degree to which they conform to them.

The formulation cluster contains two definiendum expressions, «democratic government» and «democratic society». A third expression, «democratic community», probably intended to be synonymous with the second, can be constructed on the basis of the last sentence quoted. The definiens expressions are relatively complicated and need rearrangement if we, as analysts, wish to compare them with those of other authors. It is of much greater importance, however, to know exactly what kind of statement Lasswell wishes to make.

Does he intend to give a normative definition? The book is not a textbook, and Lasswell is not the kind of person likely to try to coerce his readers in matters of terminology. We may, therefore, safely assume that he does not intend to express an imperative. More plausibly, he tries to express decisions: decisions to use «democratic government» and «democratic society» as indicated by the definiens expressions within his own works. Given that the whole article is rather programmatic and favors the development of a science of vast complexity, the definition is probably also to be interpreted as the announcement of a proposal directed to competent readers.

Does Lasswell intend to give a descriptive definition? There are strong reasons to believe that the definitoid sentences are not intended to be entirely normative. The word «democracy» is used numerous times in the article before the quoted passage. There is no indication that Lasswell intends to introduce a usage that differs from what he expected readers to understand by the word «democracy» before page 8. On the other hand, there are indications that some parts of the quotation are meant to be less descriptive than others. He says «let us specify a two-thirds majority», but he does not say «let us by «democracy» mean ---».

Someone might say, «Let us see what Lasswell says, and not speculate about what he might possibly mean. Lasswell says, «A democracy can be defined ---». Therefore, what Lasswell intends is to give *one possible* definition, not *the* definition of democracy. Obviously, he refers to the word «democracy» as used so far, and he tries to express one of its senses, that is, to offer a precization, a descriptive definition».

To this we may say that the indicative form of «can be defined» in no way implies that the expression cannot function in a normative definition. On the contrary, most N-definitions have an indicative form, so far as I can judge. Moreover, the word «can» does not imply that the author limits his claim and indicates the existence of other adequate definitions (and not only definitional formulations). He also uses the expression «Communities *are* democratic if ---». In this expression there is no «can». If the last sentence functions to recapitulate and sum up the previous ones, it is difficult to see how the dogmatic «are» can be reconciled with the weak «can be defined» if we stick to «strict word meanings», as the hypothetical analyst seems to do.

Without going into further details of argumentation, I shall venture to assert the hypothesis that Lasswell intends to state something very similar to what is called a precization in chapter I, but that the inclusion «let us specify a two-thirds majority» does not belong to the definiens of the descriptive definition. (It belongs to the normative definition intended, I suppose.) The intended field of application of the description of usage is not hinted at. Possibly, Lasswell refers to twentieth-century use of «democracy» in England and the United States among students (professionals and amateurs) of political theory and of law. This is only a guess. It is fairly certain, however, that Lasswell does not intend to cover every use of the word «democracy». Thus, he probably does not think that the use made of the word in *Pravda* harmonizes with his definition.

Does Lasswell intend to give a real definition, a definition as a condensed characterization of democracies? That is, does he give a condensed characterization of denotata of a concept not introduced by the quoted passage? There is no part of the definitoid group of formulations that points toward real definition rather than descriptive definitions if the methodological trend of the author suggests influence from traditions foreign to the doctrine of real definitions. The methodological trend of Lasswell may roughly be called «Anglo-American empiricism», and the use of the word «define», therefore, tends to point to normative or descriptive definition rather than real definition. The trend is enhanced in cases of influence from test-psychology and parts of social psychology in which terms are more or less operationally defined by criteria that are admittedly to some degree arbitrary. These parts of social psychology are well known to Lasswell.

Let us try to reformulate the quoted passage and work out some precizations of it. The following formulations and announcements express to me, and I hope to my readers, some plausible precizations of Lasswell's passage or parts of it:

> A. «A democratic government» I propose should be used synonymously with «a government that authorizes majority participation in the making of important decisions, and in such a way that

1. The majority participates actively. A majority of at least two-thirds qualifies to vote and takes part in elections.
2. The overwhelming majority is free of intimidation.
3. The overwhelming majority has confidence in its capacity to exert effective control over decisions, whether or not it votes on any given occasion».

B. «A democratic government» I propose should be used synonymously with «a government that authorizes majority participation in the making of important decisions».

C. «A democratic government» is, by students of forms of government, used synonymously with «a government --- [the rest as A or as B]».

D. «A democratic government» is used, and shall in the following be used, synonymously with «a government --- [the rest as A or as B]».

E. «A democratic society» I propose should be used synonymously with «a society in which

1. The majority participates actively in the making of important governmental decisions.
2. The overwhelming majority is free of intimidation.
3. The overwhelming majority has confidence in its capacity to exert effective control over decisions, whether or not it votes on any given occasion».

The list of plausible interpretations that are relevant to at least one purpose of description could be extended indefinitely.

A system of descriptions of a definition can be worked out on the following lines and with contents classed as follows:

I.a. Descriptions 1) on the level of preciseness of the author (Lasswell) and 2) with highly competent people as the intended public (professional students of forms of government and related subjects) of the elementary analysis.

I.b. Descriptions 1) on the author's level of preciseness but 2) with people who are not highly competent as intended receivers.

II.a. Descriptions 1) possibly transintentional, on higher levels of preciseness than that of the author and 2) with highly competent people as the intended receivers.

To get higher levels of preciseness, it will be necessary to reformulate with a view to excluding some possibilities of interpretation that are present when highly competent people read the passage within its context. What should be taken as «the context» must be decided on. We suggest that chapter 1 of *The Analysis of Political Behavior* be taken as standard context and not the whole book, because chapter 1 was originally an independent essay published in 1942 in *The Future of Government in the United States: Essays in Honour of Charles E. Merriam*.

Even in cases of descriptions of type I, reformulation may prove necessary because the description cannot include the whole chapter, and the reader of the analyst's description is therefore handicapped in relation to the reader of the chapter. To make the passage as precise among the intended receivers of the analysis as it is when read by the same persons as part of the whole chapter, we shall probably have to reformulate, because of interpretational vibrations caused by elimination of context (chapter 2, section 13).

> II.b. Descriptions 1) possibly transintentional, on higher levels of preciseness than that of the author and 2) with people who are not highly competent as the intended public.

On the whole, we must expect descriptions of type II to be rather lengthy, especially in the case of a public with very little knowledge of theory of government. In limiting cases we shall get descriptions that are so lengthy and contain so much information that they must be conceived of as courses of study that make the receivers more competent, and therefore lead them out of their original class of competency.

> III.a. Descriptions 1) on lower levels of preciseness than that of the author and 2) with highly competent people as the intended public of the analysis.
> III.b. Descriptions 1) on lower levels of preciseness and 2) with people who are not highly competent as intended receivers.

This class of descriptions (type III) contains popularizations. Maybe it is fruitful to precize «popularization» in such a way that precizations can at the same time be popularizations. Thus, the word might be introduced as follows: «a *popularization* of a definitoid statement» shall mean the same as «a description of the statement with a less competent group of people as the intended public».

The levels of preciseness mentioned in the above classification can be measured only in relation to a group of people. The group of people of most interest to the elementary analyst is his own intended public. This means that the level of preciseness of the author (in the above example, Lasswell) is measured in relation to the intended receivers of the elementary analysis. In other words, it is asked, How would the public reading the analysis have understood Lasswell if, instead of reading the analysis, it had read the original? What is the ratio between the range of misunderstandings that would occur in reading the original and the range of misunderstandings that occurs in reading the description constructed by the analyst? If the latter range is narrower and part of the range of the former, the level of preciseness of the analyst will, according to the above convention, be said to be higher than that of the author.

A definitoid statement such as the quoted passage from Lasswell may be found to contain several definitions even if only one interpretation of each part of the passage is used. Thus, in the quoted passage, several expressions seem to function as definienda expressions:

1. «democratic government»,
2. «democratic society»,
3. «democratic community»,
4. «degree of democraticity of a government»,
5. «degree of democraticity of a society»,
6. «degree of democraticity of a community».

Expressions 4–6 do not directly reproduce expressions occurring in the quotation because this would be fairly difficult. Expressions 2 and 3 and expressions 5 and 6 are plausibly intended to express identical definienda. A great many possibilities are relevant to the difficult question of determining *exactly* which expressions in the passage are intended to function as definiens expressions for the definiendum expressions listed. The sentence «The majority may express itself directly (direct legislation) or indirectly (elected officials)» may be interpreted as a part of some definientia expressions, or as an elaboration or elucidation added to such expressions. The argumentation for or against these possibilities will necessarily be rather uncertain.

With regard to the question of which definienda expressions are connected with which definientia expressions, there are various interesting interpretations. Thus, a democratic society is said to be definable «in terms of shared deference (power, respect, insight) or ---». Now, with respect to power, maybe Lasswell would insist that in a democratic society there must be a government that «authorizes majority participation in the making of important decisions». Or, maybe the just-quoted expression is meant only as part of a definiens related to «democratic *government*». It seems to me that there are arguments in favor of both interpretations.

Anyone who thinks that these distinctions are of no importance is invited to try to classify governments, societies, and communities by means of the quoted passage. We suggest that, for example, the attempt to classify the governments, societies, and communities of the southern United States from 1860 to 1948, of Norway from 1820 to 1890, and of the Spanish-American republics will show the necessity of strong precizations and therefore of many distinctions. On the other hand, it may be conceded that a serious attempt at classification on the basis of definitions is unduly optimistic in the social sciences, wherein perhaps the signal function of words is dominant and the symbolic function still rather undeveloped.

No attempt is made in this section to find out exactly what purpose the quoted definitoid statement of Lasswell is intended to serve. We have outlined *possibilities* of description on the basis of a plurality of purposes. Thus, there is in the section no direct criticism of the passage. In terms of the classification of pretended level of preciseness, our illustration does not make any definite claim to furnish more precise formulations than the author, but rather to develop material of use for descriptions of higher levels of preciseness. As our receivers, we have intended a highly competent group interested both in the theory of democracy and in semantics.

Suppose we decide to make a fairly precise description of that which we suppose Carnap (1936: 435ff.) intends to convey by his «definitions». The definitional formulation is begins with «We will say that the confirmation of S is completely reducible ---». Just what is intended by sentences of the form «We will say that ---»? In all, seven of Carnap's definitions make use of that phrase. Does the phrase express a decision (in plausible psychological or social-psychological senses)?

It cannot be our purpose here to deal at length with psychological descriptions of what decisions are, how one tests for whether a decision has taken place, and what authors intend when they express decisions. What we wish to point out is the imminent danger of overestimating the definiteness of intention with which such phrases are used. To reduce the danger it is appropriate to study, for example, other phrases that Carnap uses in the sentences called (or expressive of) «definitions». Of the thirty numbered definitions and subdefinitions in the first half of «Testability and meanings», sixteen make use of the phrase «--- is called ---», for example, «A predicate 'Q' is called reducible --- if ---». Seven contain the phrase «--- is said to have --- if ---», for example, «A sentential function is said to have molecular form if ---».

It is unlikely (but of course possible) that Carnap intends to convey different kinds of announcements by means of the different phrases. Therefore, the analyst will probably be led astray if he looks for fine shades of meaning possibly associated with the expression «will say» that are not associated with «is said to have» or «is called». To describe as exactly as possible what Carnap intends to express, we must indicate something that is adapted to both the «is called» announcements (or assertions) and the «will say» announcements (or assertions). The wording and context of his definitions do not give us much material from which to draw inferences about his definitions. We are in such cases justified in relying tentatively on his sentences about «definitions» in general—his doctrine about definitions. This must be done with strong reservations, because an author cannot be expected to follow his doctrine with complete consistency. A doctrine about definitions may, however, be taken as symptomatic of dispositions of particular usages of sentences such as «--- will be called ---».

Suppose the analyst tells his audience, «The sentences headed «Definitions» in the paper «Testability and meaning» are, by its author, intended to *express* a series of *decisions* on his part about how to use certain expressions within the text at issue».Two questions immediately arise: To what degree are the ambiguous terms «express» and «decision» expressive (for the analyst) of the meaning intended by Carnap? What are the most probable ways in which the analyst's public will interpret the terms «express» and «decision»?

To find material relevant to the first question, one may use Carnap's own «definition»(?) of a subclass of definitions: «[b]y an (explicit) definition of a descriptive predicate 'Q' with one argument we understand a sentence of the form Q(x) ≡ . . . x . . . where at the place of ' . . . x . . .' a sentential function—called the definiens—stands which contains 'x' as the only free variable» (Carnap 1936: 439). An examination of evidence in favor of the assumption that $Q(x) \equiv \ldots x \ldots$ is intended to express decisions in vernacular or psychological connotations, would lead us into detailed examination of the function of such expressions within the texts of Carnap and others, and possibly to the use of questionnaires and interview methods aimed at stimulating Carnap to produce theories about his own usages.

Logicians use a variety of expressions to indicate normative definitions and related announcements and predictions. Thus, in the short introduction of the article «A basic logic» by F. B. Fitch (1942: 105), the following phrases are used: «by --- will be meant», «--- is used in this paper as a synonym for ---», «--- is to be understood as meaning the same thing as ---», «--- is said to be ---», «--- may also be called ---», «--- will be called ---», and «--- is ---». An example of the last form is «A calculus is a «combinatory calculus» if its «formation rules require only a single binary mode of combination of expressions»».

The aim of elementary analysis of definitoid sentences is not merely to give quotations, but somehow to convey to the readers of the analyst's text the contents of decisions or assertions assumed to be intended by definitoid sentences. The variation in terminology is one of the complicating factors.

V.6. Descriptions of Explicit Definitions

If an author gives one explicit formulation expressly called «a synonymity hypothesis» and expressed in language well adapted to the analyst's public, the analyst's job as a describer tends to be reduced to that of merely quoting the author's formulation and adding an introductory note, «This is the hypothesis: ---». In other cases, there are still definite formulations on the part of the author that more or less certainly are meant to express a hypothesis very similar to a synonymity hypothesis, but are less precise, less complete, and perhaps mixed together with other hypotheses. Still more complicated cases are those in which the author has produced scattered formulations that together seem to reveal a hypothesis, or that can be explained by the assumption that he makes a hypothesis but presumes it to be known to the reader and therefore does not give a complete expression of it.

In still other cases, the analyst's work will more closely resemble that of a constructor of rather indirect and speculative theories than that of a describer: he may find it fruitful to ascertain which hypotheses the author *might* have had in mind, such that his scattered sayings are rendered coherent and expressive of a synonymity hypothesis. This activity may involve transintentional precizations and may have the character of an attempt to improve and make fruitful obscure parts of an author's work. The result may be presented as possible explicata of the author's formulations, or as other kinds of so-called rational reconstructions of them.

A special case of considerable importance should be noted: that in which an author makes formulations that seem to be intended as expressions of conceptual characteristics, but makes no formulation intended as a complete conceptual determination. These characteristics may belong to a normative or descriptive, *unstated*, definition.

In this and in other cases in which there are no formulations that seem to be intended as *expressions* of a (complete) definition, one can say that there may be, nevertheless, an unexpressed definition intended by the author of the text surveyed. The term «intended», as used technically, refers to intended meaning of expressions. However, one may say that the author probably has a definition, possibly unexpressed, that to some extent regulates what he says expressly in his texts. This is no more speculative than to look for opinions that people entertain but do not express.

When H. Ofstad (1950b) says that he tries to find the descriptive definition of «general legal norm» intended by Hans Kelsen, what Ofstad seeks is the descriptive definition entertained (possibly as an unexpressed opinion) by Kelsen. Kelsen's assertions, if they are to be meaningful and tenable, seem to *presume* such a descriptive definition, and a normative definition with the same definiens formulation. If no such definitions are held and as a rule used by Kelsen, it is of interest to construct some that are adapted to Kelsen's assertions and to make them coherent and as tenable as possible.

V.7. Description of Definitions and Philosophical Analysis

The task of describing and interpreting definitoid formulations may be considered trivial and unphilosophical. Nevertheless, the task is clearly involved in philosophical analysis and, more generally, in various kinds of theoretical work in science, law, and administration. If anybody judges the task to be too trivial or unimportant, he should be careful not to rely on assertions that presuppose such investigations. If he does rely on such assertions, either he will have to give up pretensions of having a critical habit of mind, and thus give up research, or he will perforce have to carry out investigations that he may not find interesting. If he does not rely on such assertions, he may use «if» or «suppose that»: «if by «a» is meant «b», *then* ---».

Among the theories presupposing more or less strict and more or less exhaustive descriptions of definitions, we especially call attention to the following kinds:

> «In philosophy the term x is defined as follows: ---», «Bryce defines «democracy» as follows: ---», «The pragmatists say that «truth» means ---», «According to Tarski, the traditional notion of «truth» is ---», «A democratic government has always meant one in which ---»
>
> «He does not follow his own definitions», «In the discussion, contradictory definitions are given ---»
>
> It follows from the notions introduced, that ---»
>
> The definitions in Kant's works ought to be made more precise or modified in some cases, because ---»
>
> His system of definitions is unfruitful ---»

Very often, philosophers give an exposition of the opponent's views that is inadequate for the purpose of interchange of opinions. Of the hundreds of formulations pretending to state what pragmatists say they mean by «truth», very few can be called plain, honest reproductions or interpretations of statements representative of William James, F. C. S. Schiller, John Dewey, or other persons called «pragmatists». The descriptions of definitions tend to be oversimplifications and caricatures. They are apt to secure easy victories over real or fancied opponents and to entertain, but not instruct, the readers. On the other hand, a philosopher like William James lavishly produced definitoid formulations, many having more literary than scientific value. It is in such cases the function of the serious analyst to compare the various formulations with one another and to concentrate on those that seem to be most precise and representative of James's intentions.

B. Analysis of Complex Definitoid Statements and Groups of Definitoid Statements

V.8. Inconsistencies and Contradictions Within Complex Definitoid Statements

Let us go back to formulations such as ««a» means (or shall mean) the same as «b»» and ««a» means (or shall mean) b». They have been called synonymity sentences, interpretative sentences, synonymity announcement sentences, and interpretative announcement sentences. The expression «b»—the definiens expression—is often rather complicated. Suppose a definiens expression can be brought into the form «x is a K_1 and x is a K_2 and . . . , and x is a K_n» The expressions «K_1», «K_2», . . . , «K_n» are called «conceptual characteristic expressions» of a concept 'b' expressed in the sentence «x is a b» (cf. chapter 1, page 80).[4]

Sentences of the forms ««a» means the same as «K_1 and K_2 & . . . & K_n»» and ««a» means «K_1 and K_2 & . . . & K_n», in which a, K_1, K_2, . . . are designations, are often discussed under such names as «analytical definitions», «material defintions», and «analysis of terms».

One of the chief aims of logical analysis has been said to be to find out whether a concept contains contradictions. In terms already introduced, this question can be said to refer to possible pairs of inconsistent conceptual characteristics.

Except in the most highly developed fields of the exact sciences, complex definiens formulations are usually capable of a variety of highly different plausible interpretations. Suppose K_1 to K_n are each capable of m important mutually independent plausible interpretations. This results in a great number of possibilities even if n and m are small numbers. Thus, if n = 3 and m = 4, there are $4^3 = 64$ possible interpretations to take into account. It is, in view of the difficulties encountered, of importance to distinguish, among others, between assertions expressed by T_1–T_4:

T_0: The complex definiens b contains inconsistent elements.

T_1: For at least one plausible interpretation, «b» contains at least one inconsistency.

T_2: For any plausible interpretation, «b» contains at least one inconsistency.

T_3: For most plausible interpretations, «b» contains at least one inconsistency.

T_4: For the most plausible interpretation, «b» contains at least one inconsistency.

These assertions may be intended to be understood in relation to a reference class of interpretations.

In philosophical writings there is a tendency to proclaim that this or that concept is contradictory without mentioning anything about different interpretations being possible and without mentioning which auxiliary hypotheses are constructed to arrive at the conclusion «contradictory». No differentiation between definiens expression «b» and the intended concept, 'b', is made, and likewise «K_1», «K_2» . . . are confused with 'K_1', 'K_2'. . . .

Even a well-established hypothesis that at least one set of interpretations of K_i and K_j results in contradiction does not warrant rejection of the concept involved, as long as there are sets in relation to which the concept is not contradictory. The analyst's verdict according to which the concept «is» inconsistent seems usually to be intended in a rather absolutistic way, namely that there is inconsistency for the (correct) interpretation of the elements of the complex definiens formulations. If this absolutistic verdict were not intended by the analysts, their polemics against the views considered to express contradictions would not be easily understandable. It would be of great interest to the theory of interpretation and preciseness to see such hypotheses about contradictions worked out explicitly and confirmed by methods carefully described.

Commenting on previous drafts of this work, L. Løvestad (1944: 63) points to the great amount of work necessary to work out inconsistencies by comparing all plausible interpretations, and he remarks, «So much brain work may certainly be put to better use though it may be of some significance. To convince us that there is confusion of thought ---, I think it more than enough to show that one set of plausible interpretations makes the definitions contradictory». The moral we draw from this is that instead of pretending to find full-fledged contradictions, we ought normally to limit ourselves to showing *symptoms* of confusion, this being sufficient for many (good or bad) purposes. If we want to assert something more definite, we may assert that if certain interpretations are correct (in relation to the usage of an author, or a particular public or semantical system, or whatever else), then there is a contradiction. Normally, the diversity of plausible interpretations is so marked, that it does not hold that contradictions are present whatever interpretation is selected. If the level of precization is high, there is a greater chance that the analyst can arrive at reliable conclusions concerning interpretations. The chances of establishing contradictions increase.

The analytical philosopher who proclaims the discovery of a contradiction may seem to think that he discovers a fatal weakness in the works of others, whereas he, at least in my eyes, makes an important concession: he implicitly grants them an unusually high level of preciseness.

The terms «inconsistency» and «contradiction» are used in various senses, and it is not always easy to find out which one is used in a particular context. Roughly, two main directions of precization may be singled out, the one leading to concepts of logical inconsistency and the other leading to concepts of empirical inconsistency. Logical inconsistency may roughly be said to arise when there is a definitional characteristic of 'b' that is the negation of one of the other definitional characteristics, or is derivable from that negation. In other terms, there is logical inconsistency within the system of conceptual characteristics

$$\text{'b'} + \text{'}K_1 \,\&\, . . . \,\&\, K_i \,\&\, . . . \,\&\, K_j \,\&\, . . . \, K_n\text{'}$$

if, and only if, the right-hand side implies a characteristic 'c and not-c'.

«Empirical inconsistency» may be said to exist within the set of conceptual characteristics if the joint attribution of two (or more) of those characteristics to one and the same thing is logically incompatible with assertions that are empirically established. There is no general agreement about what is established empirically: therefore, the claim of inconsistency must be explained in detail.

As an example, let us say that two characteristics, 'made up exclusively of helium' and 'speaks fluent Spanish', belong to the definiens characteristics. The resulting concept may be said to contain an empirical inconsistency in the above sense if we assume that the author holds that gases cannot speak.

In examples of more interest, the inconsistency is more indirect and open to doubt.

Analysis of possible consistency or inconsistency of a definiens concept ‘b’ can conveniently proceed as follows:

1. A list of plausible interpretations of «K_1», «K_2», . . . «K_n», is constructed and the items made precise and standardized in form to such an extent that there is maximum comparability between the interpretations of the various expressions of conceptual characteristics.
2. The precizations are conceived as logical terms, classes, or properties, and some logical calculi are adopted in relation to which one may decide whether there is contradiction between any subclass of conjunctions of the items or whether a contradiction is derivable from subclasses of conjunctions.
3. Empirical inconsistencies are mapped out on the basis of more or less reliable assumptions of empirical kinds and relating to the empirical opinions of the concept constructors or to a system of opinions adopted because of its importance socially or in terms of competency. All conclusions about empirical inconsistencies will be relative to these sets of premises.

Now, if the complex definiens expressions are highly vague and ambiguous, it is not practicable to proceed as above. In the verdict «contradictory!» there is in our eyes a component of flattery; one concedes that such a high degree of unambiguity has been reached that contradictions have been established beyond reasonable doubt. Only high-level precizations can be expected to justify the conclusion that there *are*, for all plausible interpretations, inconsistencies. Pieces of rock may collide squarely, but not patches of fog.

V.9. Analysis of Groups of Definitoid Formulations

A central concept in the work of an author is not often defined within definite parts of the work and by means of one single definitional formulation. More often, we find a number of definitional formulations scattered throughout the major parts of the text or heaped up in introductory chapters. It is a difficult job for the elementary analyst to collect the definitoid formulations and to find out on the basis of all of them what the author seems to intend by his basic definiendum formulations, as judged from what he himself explicitly tells us by means of definitoid formulations. The effort is not primarily one of finding inconsistencies, but of using *all* available definitoid formulations as a context in the attempt to make every single one of them more precise, or to find out which of them are most precise.

Among scientists specializing in the nonexact sciences, there are (unhappily) no established mores governing how to indicate what kinds of definitoid formulations are intended. Thus, one formulation may be intended to give a condensed characterization and another a normative definition without this being indicated anywhere. Or, the *author* may consider one formulation of an N-definition the «basic» one that he tries to follow, but that he needs to repeat for didactic purposes. His repetitions are not exact duplications, however, and the *reader* has, often, no means of finding out which formulation is intended to be basic. He is unable to find any information about which measuring rod of several slightly different ones is to be considered the standard.

Even the question of whether two definitoid formulations of one and the same author designate «the same» is often difficult to answer and may call forth somewhat arbitrary decisions.

Usually, more than one expression is classed as definiendum in a text. We speak about «the definitions of Democracy», but concepts of 'Democracy' in the relevant literature are not always expressed by the *one* word «Democracy», but by hosts of more or less synonymous words, for example, «democracy», «popular government», «truly popular government», «truly democratic order», «modern democracy», «democratic state», «more democratic than», and «republican». As analysts we must make up our minds which expressions are to be considered definiendum expressions. If, now, the analyst finds out that the definitions expressed by «a» and «b» are logically contradictory, this conclusion may be premature, because he has not taken into consideration different hypotheses as to which expressions within «a» and «b» must be regarded as definiendum expressions of the same concept. In short, «a» and «b» may have definiendum expressions intended to express different connotations.

Suppose we find that two definitoid formulations, «a» and «b», have the same definiendum expression or two different but intrapersonally sender- (affirmer- or announcer-) synonymous definienda expressions. A systematic comparison involves, first of all, the following questions:

1. Do the definitoid formulations «a» and «b» belong to the same main subclass of definitions? For example, are they both normative, descriptive, or real definitions? If both are normative definitions, are they both proposals, both decisions, or what?
2. Do both formulations have the same *range of intended application*? If they do not, do they have overlapping ranges? If they have no part in common by definition, do they have something in common empirically?
3. Are the definiens formulations *intended to be strictly synonymous*? Is the one intended to be merely a reproduction of the other, perhaps just to remind the reader of it? Is the one a sort of short reference for the other? Or is the one a sort of definitional precization of the other? Or is a difference in connotation intended, perhaps in view of the author's having used two slightly different concepts adapted to different purposes?

Until we can answer these sets of questions with reasonable certainty, it is premature to start a profound discussion of conflicting concepts. A conflict presupposes a common area within which there is conflict.

In philosophical literature there is a tendency to ignore the problems that have to be solved before one can conclude, «The two authors both try to define *one and the same* thing, namely ---».

It is common to speak of «the coherence theory of truth», «the pragmatic theory of truth», and so on. We must ask, theories of --- *what*? Protocollation of definitoid formulations referred to as «definitions» or «theories» of truth reveals hundreds of different definiendum expressions. There is not much evidence for the view that a definiendum expression «*die Wahrheit*» or «the Truth» found in a Hegelian or neo-Hegelian text is intrapersonally synonymous with a definiendum expression «a is true» found in contemporaneous texts by empirical philosophers or logicians. The ranges of intended application are scarcely the same, either. Why should we have discussions on the basis of assumptions that we take here as hypotheses about the same subject matter? If knowledge is the goal, the procedure seems utterly misleading.

If indications of intended range of application are vague or not explicitly mentioned, two definitions said to contradict each other may in fact be compatible, because their intended range of application may not have any point in common. If a term is defined in one way as a *terminus technicus*, it may very well be defined otherwise for use in nontechnical contexts. The definitions are in that case perfectly compatible.

The more a philosopher stresses analytical problems, the more strictly and exhaustively he will have to deal with the matters mentioned in this section. It is not my intention to recommend strictness and exhaustiveness without qualification, but to say, «*If* you make such and such claims, then you must be able to answer *how* you reached such and such conclusions». But why rely on hypotheses presupposing vast and boring elementary analyses? Perhaps the aims of argumentation might often be reached without pretending that certain such hypotheses were tenable. It is not in the line of this work that such hypotheses should be made.

Within the texts of a single author we may expect a much higher degree of uniformity and consistency in usage than in a group of texts by different authors. The attempt to compare definitoid sentences is made difficult by the complexity of criteria of interpersonal synonymity. Added to this are the particular difficulties arising from the chaotic terminological differences in how words such as «definition» are often used in definitoid sentences.

If the definiendum and the definiens expressions of an author are identical with those of another, this does not imply interpersonal synonymity. Thus, many authors use the same definiens expression in definitoid statements on «democracy», but they would eagerly stress that they do not mean the same by the definiens expression. As an example, we may mention Lincoln's famous formula of «government of the people, by the people, for the people». Theorists from very different camps, Communist authors (for example, Zaslavski in his *La démocratie soviétique*) included, accept the formula as an expression of the definiens, but there is approximate general agreement that, within the different ideological camps, the definiens expression expresses different concepts. This general agreement may prove more or less illusory—owing partly to the tendency to stress divergencies for propagandistic reasons, partly to different terminology—but fairly reliable judgments in these matters have not, so far, been possible. There is simply no empirical basis, and no theoretical tools, for stating precise hypotheses in the field.

Incidentally, it may be mentioned that Lincoln, whose formula is widely used as a definiens expression of «democracy», rarely used the word «democracy» in his speeches.[5] The famous passage in his Gettysburg Address (1863) containing the formula reads, «--- It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion—and that government of the people, by the people, for the people, shall not perish from the earth». Extensive discussions on «Lincoln's definition (or concept) of democracy» have been carried out on the basis of rather weak criteria of identity of N- or Ds-definitions (cf. chapter 4, section 5).[6] Lincoln uses no definiendum expression that is probably synonymous with «democracy» as used by adherents of the Lincoln formula. Against the contention that weak criteria of identity are being used, it may be objected with some justification, I think, that it is not clear that the participants in the discussion intend to discuss something closely similar to N- or Ds-definitions, even when words such as «definition» and «concept» are used. These words seem to carry rather different meanings among different groups of theorists—as already mentioned. The objection is difficult to refute, but also difficult to confirm. We should still hold that some participants intend by «definition by Lincoln» something sufficiently similar to an N- or Ds-definition to warrant my contention.

V.10. Illustration 1: Bryce on 'Democracy'

Specialists in political science, constitutional history, and other fields in which the word «democracy» and closely related words are used in technical senses offer N-, Ds-, and R-formulations generally consisting of about twenty to forty words. Most of the words in the definiens expressions are taken from the vocabulary of everyday life and from ideological propaganda. The resulting definitoid formulations are difficult to use other than in a loose manner. In this section we shall not exemplify the difficulties of use, but rather the preliminary difficulties that arise when we try to answer a humbler question, What does the theorist P in his texts on «democracy» *intend to assert* about what he means or intends to mean by «democracy»?

James Bryce, recognized as an eminent analyst of concepts of «democracy», was also an influential ideologist. In the following, we shall study his parallel formulations. Not all of Bryce's texts are subjected to analysis. We limit ourselves to his *Modern Democracies*, vols. I, II (1921), and *The American Commonwealth*, vols. I, II, III (1888). In the works mentioned, at least ten formulations may be classed as definitoid statements. In addition, there are a host of formulations that give important reflections on the use of the word «democracy» (and a group of synonyms or near-synonyms) without seemingly having pretensions to contain complete conceptual determinations.

a. List of Bryce's Definitoid Formulations on «Democracy» in Modern Democracies *and* The American Commonwealth

1. «. . . Democracy really means nothing more nor less than the rule of the whole people expressing their sovereign will by their votes» (1921: I:viii).
2. «The word Democracy has been used since the time of Herodotus to denote that form of government in which the ruling power of a State is legally vested, not in any particular class or classes, but in the members of the community as a whole. This means, in communities which act by voting, that rule belongs to the majority, as no other method has been found for determining peaceably and legally what is to be deemed the will of a community which is not unanimous. Usage has made this the accepted sense of the term, and usage is the safest guide in the employment of words» (ibid.).
3. «Democracy, as the rule of the Many, was by the Greeks opposed to Monarchy, which is the rule of One, . . .» (ibid., p. 23).
4. «Thus it [Democracy] came to be taken as denoting in practice that form of government in which the poorer class, always the more numerous, did in fact rule; . . .» (ibid.).
5. «. . . it is better to employ the word [Democracy] as meaning neither more nor less than the Rule of the Majority, the «classes and masses» of the whole people being taken together» (ibid.).

6. «Where the will of the whole people prevails in all important matters, even if it has some retarding influences to overcome, or is legally required to act for some purposes in some specially provided manner, that may be called a Democracy» (Bryce 1921: 25).
7. «In this book I use the word in its old and strict sense, as denoting a government in which the will of the majority of qualified citizens rules, taking the qualified citizens to constitute the great bulk of the inhabitants, say, roughly, at least three-fourths, so that the physical force of the citizens coincides (broadly speaking) with their voting power» (ibid., p. 26).
8. «An Ideal Democracy—the expression comes from Plato's remark that a pattern of the perfect State is perhaps stored up somewhere in heaven—may be taken to mean a community in which the sense of public duty and an altruistic spirit fill the minds and direct the wills of the large majority of the citizens, so that the Average Citizen stands on the level of him whom we sometimes meet and describe as the Model Citizen» (ibid., p. 53).
9. «The word democracy is often used to mean a spirit or tendency, sometimes the spirit of revolution, sometimes the spirit of equality» (1906: 3:323).
10. «For our present purpose it is better to take it [the word «democracy»] as denoting simply a form of government, that in which the numerical majority rules, deciding questions of state by the votes, either directly, as in the ancient republics, or mediately, as in modern representative government, of the body of citizens, the citizens being if not the whole, at least a very large proportion of the adult males» (ibid.).

As a first task of multiple-definition analysis, we shall attempt to classify the formulations in relation to the distinction among N-, Ds-, and R-formulations. The tentative results are indicated in table 1. This classification is highly hypothetical. Of the hypotheses of interpersonal synonymity made use of, the following one is typical: «the word «denote» in the definitoid formulations of J. Bryce is interpersonally synonymous with the word «connote» in the present work».

Some of the definitoid statements may be intended to be definitions

Table 1. Classification of Bryce's Definitoid Formulations on «Democracy»

Definitoid-Statement No.	Definiendum	Subclass of Definition	Field of Intended Application
1	Democracy	Ds	All (most?) occurrences since Herodotus?
2	Democracy	Ds	All (most) occurrences since Herodotus?
3	Democracy	Ds and R?	Ancient Greek occurrences
4	Democracy	N?	A subclass of ancient Greek occurrences?
5	Democracy	N?	Universally?
6	Democracy	Ds	Universally?
7	Democracy	N and Ds? Ds	Occurrences in Bryce's *Modern Democracies*
8	Ideal democracy	N?	? 1) Universally, or ? 2) No. 8 is a plausible interpretation, or ? 3) No. 8 is sometimes the most plausible interpretation
9	Democracy	None?	Some occurrences (indefinite)
10	Democracy	N?	Texts having the purpose of Bryce's *The Amer. Commonwealth*

with complex function (see chapter 4, section 13). This is alluded to in the table. Definitoid Statement No. 9 is a hypothesis about usage that can be brought into the form «There exist occurrences of «a» such that «a» means the same as «b»; there exist occurrences of «a» such that «a» means the same as «c»; and so on». It is very difficult to test the hypotheses empirically if there are great numbers of occurrences of the definiendum. For this and other reasons, the concept of descriptive definition has not been made to cover the «existence hypotheses» about usage. They are classed as dictionary definitions, which, in the adopted terminology, are not a subclass of descriptive definitions.

The listed indications of «field of intended application» in terms of occurrences are still more hypothetical. As quoted in Statement No. 2, Bryce says, «The word Democracy has been used since the time of Herodotus to denote ---». It is not reasonable to infer that this expression is meant to be synonymous with «The word Democracy has been used since the time of Herodotus to connote *one and onl*y one connotation, namely that expressible by ---». It is not reasonable because it is too obviously untenable to be intended by Bryce. Further, if Statement No. 4 is classed adequately, Bryce is of the opinion that «democracy» in Greece sometimes referred to the rule of the poor, and if Statement No. 9 is classed adequately, the term has sometimes referred to the spirit of revolution or of equality. It is reasonable to suppose that the occurrences that Bryce has here in mind are not occurrences that he thinks represent usage No. 2. It is difficult to avoid inconsistency between No. 2 and Nos. 4 and 9 if «has been used since the time of Herodotus» in No. 2 is interpreted to mean the same as «has always been used since the time of Herodotus».

Definitoid Statement No. 7 is classed as a descriptive definition, but as indicated in the table, it may also be interpreted as a combined N- and Ds-definition. In support of the latter indication we can reason as follows: When an author tells us, in the opening sections of a book, and after having discussed various possibilities of definition, that he *uses* a term in a special way in that book, he may thereby intend to convey to the reader a decision about how to use the word in that book. Suppose the reader finds an occurrence later in the book that cannot be subsumed (he thinks) under the definiens indicated by the author, and suppose the author agrees about the insubsumability. It is in that case plausible that the author will reformulate his occurrence sentence rather than his definitoid sentence. This would be a curious way to straighten things out if the definitoid sentence were meant as a purely descriptive definition, but a reasonable way if the sentence were meant to have a normative function. The author would then reformulate in order to follow his decision expressed by the definitoid sentence conceived as a combined descriptive and normative definition.

We might quote passages indicating that Bryce attaches particular importance to a sense intended to be expressed by No. 2, No. 1, and No. 7. The wordings of No. 1 and No. 7 are themselves indications of this. The problems involved are of practical importance in contemporary ideological conflicts. Authors contending that Marxists misuse the word «democracy», and Marxists contending that their critics misuse the same word, all seem to rely more or less on statements of experts like Bryce, even in cases where the definitoid formulations are astonishingly vague and ambiguous as regards intended range of application.

Turning to the question of *synonymity among the various definiens expressions* indicated more or less precisely by the ten statements, we shall at first limit ourselves to a rough answer. The ten definiens formulations fall into four heteronymous groups, one consisting of the definiens formulations of Nos. 1, 2, 3, 5, 6, 7, 10, one consisting of No. 4, one consisting of No. 8, and one consisting of No. 9. It is probable that No. 8 has to be disregarded because there is rather strong evidence that it is defining «something else» than the other formulations, even if we use a rather broad concept of identity of definitions.

The main group of definiens formulations are possibly meant to express or suggest one and the same concept. Which concept? That question leads us to the construction of lists of plausible interpretations. Before we attack that question, however, some slight reformulations are suggested with the aim of making the statements easier to compare with one another and with similar formulations of other authors.

b. Reformulation of Some Definiens Expressions to Facilitate Comparison and Increase the Level of Preciseness

The following reformulations are made on the basis of a context comprising the ten statements plus comments, some of which may be meant as definitional, found in the texts of Bryce.

Statement No. 1

From No. 2, I infer that Bryce means to speak about forms of government of *states*. In No. 3, Monarchy is spoken about as the opposite of Democracy. Monarchies usually are classed as states. This also suggests that the «government» alluded to in No. 1 are state governments.

The reference to «sovereign will» might be interpreted in a way that made the existence of a sovereign will a presupposition of the author of the statement. Or it may be interpreted to indicate that one of the requirements of a state government's being democratic is that the will of the people should be sovereign. There are other interpretations that seem just as plausible. Here is a single, very tentative definiens reformulation:

> (01.1) A state ruled by the whole people by means of the technique of voting and in such a way that their will is sovereign.

Statement No. 2
In view of No. 5, No. 7, and No. 10, reference to the «will of the majority» seems to be meant as part of the definition. No. 9 uses the even more precise term «numerical majority». If there is an important state issue on which a majority cannot be constructed by any known means, the definition does not apply. If there are regularly no majority decisions, the state government probably cannot be called democratic in the sense discussed. In view of the extensively debated questions turning up here, I shall construct several reformulations that are more or less plausible interpretations of the definiens of Statement No. 2.

> (02.1) A state with a form of government in which the ruling power is legally vested in the members of the community as a whole.
> (02.2) A state with a form of government such that the ruling power belongs in practice to the majority of the members of the community as a whole, the members acting by vote.
> (02.3) A state with a form of government such that the ruling power is legally vested in the majority of the members of the community, the members acting by vote.

Statement No. 5
Statement No. 5 is probably a deprecization used for the sake of short reference. «Rule» may be taken to refer to the form of government, to the practice of government, to both, or to the disjunction.

Statement No. 6
Taking into account the reference to majority and to other factors, we venture to set forth the following sentences as plausible interpretations:

> (06.1) Where the will of the people prevails in all important matters.
> (06.2) Where the will of the majority prevails in all important matters.

Statement No. 7
For Statement No. 7, we suggest the following reformulation:

> (07.1) A form of government by which the will of the majority of the qualified citizens rules, the class of qualified citizens being

> delimited in such a way that roughly at least three-fourths of the inhabitants are included in the class.

Statement No. 8

It is not clear whether Bryce means to accept a concept of 'Ideal Democracy'. The following reformulations are suggested:

> (08.1) A community in which the sense of public duty and an altruistic spirit fill the minds and direct the wills of the large majority of the citizens.
> (08.2) A community in which the Average Citizen stands on the level of him whom we sometimes meet and describe as the Model Citizen.

Maybe Statement No. 8 ought to be interpreted as stating what would be the ideal (best conceivable) state of affairs within a democracy. In that case, it should not be included in any list of definitions.

Statement No. 10

The following reformulations seem to us plausible interpretations of the definiens of Statement No. 10:

> (10.1) A form of government in which the numerical majority of citizens decides questions of state by vote, the class of citizens being delimited in such a way that it comprises all adult males or at least a very large proportion of them.
> (10.2) A form of government in which the numerical majority of citizens rules. Insofar as the rule consists in making decisions in relation to questions of state, the majority decides by the votes, directly or mediately. All adult males, or at least a very large proportion of them, are considered to be citizens.

The reformulations have been made primarily to illustrate the activity of reformulating definitoid statements. There are many other reformulations that might be of interest in special situations. Thus, if Bryce's definitions are to be compared with those of another theorist, reformulations are needed that increase the similarity of *intentional structure* of the concepts compared.

If we are asked *which* concept of Democracy Bryce uses, we should have to answer that there are differences in formulations that make different interpretations possible, the differences being large enough to exclude fairly precise formulations. The majority of his definitoid statements suggest that he intends concepts of constitutional democracy, a subdivision of the class of concepts of political democracy.

c. Tentative Precizations of Bryce's Definitoid Formulations

The reformulations proposed above are precizations for *me*. They need not, of course, be precizations for others, but I expect that some of them will be. Some of them, I think, Bryce would have acknowledged as precizations for him; others, he would presumably have classed as misunderstandings. We try to exemplify the construction of tentative lists of precization based primarily on study of definitoid formulations, not of formulations of usage. In the last part of this chapter, and in later chapters, the study of usage in the sense of study of *all* occurrences of an expression is made our subject of description.

Our first direction of precization is one that may vaguely be indicated by the following questions: Are, *per definitionem*, *states*, and no other things, democratic, or can clubs, manners, individuals, and distribution of goods be democratic? Can some of the combinations (or/and combinations) be democratic?

It should be stressed at the very beginning of these attempts at precization that we ask about what can be democratic by N-definition or Ds-definition. Which are the *conceptual characteristics* (*Begriffsmerkmale*), if any, that refer to states, clubs, and so on, as being democratic? It is perfectly possible to use the expression «democratic manners» even if a concept of '*state* democracy' is adhered to and *concepts* of 'democratic manners' are explicitly rejected. The expression may be precized into «manners (empirically) typical of democratic states». If one such democratic manner is to wear green trousers, it is perfectly consistent with concepts of 'democracy' as something by definition applying only to states, to speak of «democratic trousers», meaning, for example, «trousers used only in (state) democracies».

The old distinction between conceptual and other characteristics may sometimes be difficult to apply and sometimes unfruitful in application, but on the whole I think it is of great practical and theoretical value. The distinction is explicitly mentioned in this connection because it is often slurred over in dictionaries and encyclopedias.

In Statement No. 2, Bryce refers to states: «form of government in which the ruling power of a *state* ---». He also refers to «states» in No. 9. No expression in any of the formulations seems to provide strong arguments against the assumption that democracies are, by N- or Ds-definition, states according to Bryce. But what does «state» mean here? Does the word include federations of states, as for example, that of the United States in 1800? What about the United States in 1900? From the use of the word «state» in Bryce's *Modern Democracies*, it would seem that both the United States as a totality and its individual states are «states» in Bryce's sense. Would Bryce have called the Ukrainian Soviet Socialist Republic a state? Or the Estonian Soviet Socialist Republic? From the definitoid statements and commentaries to these statements, it is difficult to judge. In any case we tentatively put forth the following genus proximum precization:

> T_1: A form of state government, or a form of federation of state governments.

What is meant by a «*form* of government»? Mostly I have interpreted Bryce to mean something like «government as legally determined by constitutions and other kinds of legal documents». But maybe something similar to «kind of government» is meant. This brings us to the next direction of precization to be considered: Is «government» to be taken in a broad sense of «rule»—covering not only legal institutions but also the whole political «life»? Is «government» to be understood as something like «making and carrying out decisions of state», or is it mainly the «making» that is involved? Or is «government» to be understood in narrow senses, as in phrases such as «the government obtained a vote of confidence» and «the government has changed twice this year»? Is «government» to be thought of as «ruling *power*» in such senses that make it plausible to state that «the people govern»? In the sphere of legislation, is to govern to make laws—as is done, for example, by legislatures—or to be the source of law? (Compare John Austin's view of sovereignty as source of law [1875].) Does government include local government? the courts? the activities of price-regulation institutions? Is «government from day to day» involved, or only «ultimate basis of long-run influence»? In the former alternative, what is meant by saying that a state *is* democratic—does this imply «is always» something like «in times of war, or threats of war, --- may be excluded»?

It is not our aim to point out how many factors of importance to high levels of preciseness are left unmentioned in Bryce's definitoid formulations. He has himself warned against pretensions of constructing formulas that are precise enough to make classification into democracies and non-democracies possible in *all* cases. He touches on the questions of the direction of precization now being mentioned in the following words: «There are countries in which the Constitution has a popular quality in respect to form, but in which the mass of the people do not in fact exercise the powers they possess on paper». --- «It is the facts that matter, not the name». «[T]hough we cannot define either Oligarchy or Democracy, we can usually know either the one or the other when we see it» (Bryce 1921: 1:25). After this sentence comes definitoid Statement No. 6, which is the one containing the most explicit reference to actual influence on decisions rather than legally vested influence. Also, Nos. 1, 3, 5, and 10 seem to point to broad interpretations of «government».

Each of the following formulations seems to me to be a plausible interpretation of at least one of the statements depicting the use of «democracy» as proposed by Bryce:

> (1.1) «S is a democracy» means (according to Bryce's N-definitions) the same as:
> «1. S is a state or federation of states, and
> 2. S has a written or unwritten constitution providing the legal basis of institutions of such a kind that they, if the provisions of the constitutions were followed, would guarantee that important decisions of state were made in accordance with the will of the people, and
> 3. Except in grave cases of emergency or possibly even then, important decisions of state are in S made in accordance with the will of the people».
>
> (1.2) «S is a democracy» means --- : «1.--- and 2.---».
> (1.3) «S is a democracy» means --- : «1.--- and 3.---».
> (1.4) «S is a democracy» means --- : «1.--- and 2.--- or 3.---»

Statement No. 2, perhaps Bryce's most influential definitoid statement, as judged by frequency of quotation, lends itself well to precizations in the direction of (1.2). Taking all the definitoid statements as context, this direction seems to me to be the least plausible. There are, however, no reasons to reject the practical possibility of (1.2) being intended by some of the definitoid formulations (but not by all). In those cases, requirement 3 may be looked on not as a conceptual characteristic, but as a criterion of «real», «strict», or «good» democracies, meaning thereby to indicate a subclass of democracies approved of somehow.

Statement No. 6 may plausibly be interpreted in the direction of (1.3) or (1.4). When all the definitoid statements are taken into account, the plausibility turns more toward (1.1), however.

Considering all the statements together, I consider (1.1) to be the most plausible interpretation of the four listed. This conclusion, as well as the whole approach, is highly speculative in the sense that we do not try to collect detailed evidence. The argumentation is loose and as stated here very sketchy. These critical remarks have as a basis certain norms about adequacy of evidence, argumentation, and exposition that are more rigorous than those that seem to be generally adopted, however.

In the tentative partial precizations (1.1)–(1.4), some very obscure expressions are still left unprecized, for example, «will of the people», «important decisions of state». These expressions are left untouched because they are convenient point-of-departure expressions for new directions of precization. Let us take the expression «the people». Precization of this ideologically important word gives us perhaps the most profitable direction of precization from the point of view of elimination of pseudoagreements, which is of practical importance in contemporary ideological controversies.

Who are «the people» mentioned in the definitoid statements? Bryce has himself precized the expression to some degree. Here are some expressions used in his definitoid formulations:

U:	the people
U_1:	the whole people (see Statements No. 1 and 6)
U_2:	the members of the community as a whole (No. 2)
U_3:	the Many (No. 3)

U_4: the Majority (? No. 5)
U_5: the «classes and masses» of the whole people being taken together (? No. 5)
U_6: the inhabitants (? No. 7)
U_7: the great bulk of the inhabitants (? No. 7)
U_8: the qualified citizens (? No. 7)
U_9: the majority of qualified citizens (? No. 7)
U_{10}: the citizens (? No. 10)
U_{11}: if not the whole, at least a very large proportion of the adult males (? No. 10)

We have in the cases of Statements No. 5, 7, and 10 indicated by question marks that we are undecided as regards which, if any, expressions in these formulations correspond to the expression «the whole people» in Statement No. 1. In the reformulations on page 253, the catchphrase «will of the people» is used. That use can now be avoided.

Each of the following formulations seems to me to be a plausible interpretation of at least one of those statements that may be meant as N-definitions:

(2.1) «S is a democracy» means (according to Bryce's N-definitions) the same as:
«1. S is a state or federation of states.
2. The source of power to decide questions of state is in S legally vested in the whole body of qualified citizens.
3. The qualified citizens comprise legally all or at least a very large proportion of the adult male inhabitants of S.
4. The decisions are in S legally made by majority vote among the qualified citizens, directly or indirectly».

(2.2) «S is a democracy» means (---) the same as:
«1. S is a state or federation of states.
2. The power to decide questions of state in S is in practice in the hands of the whole body of qualified citizens.
3. The qualified citizens include all or at least a very large proportion of the adult male inhabitants of S.
4. The decisions are in S made by majority vote among the qualified citizens, directly or indirectly».

(2.3) Identical to (2.2) except for conceptual characteristic 4, which runs as follows:

4. Questions of state are in S decided in accordance with the decisions that would have been made, provided the citizens had made the decisions by majority vote.

(2.4) Identical to (2.2) except for the fourth requirement, which runs as follows:

4. Questions of state are in S decided, directly or indirectly, by the qualified citizens.

Many additional plausible interpretations may be formulated by combining these four, by leaving out stated requirements, or by combining the resulting broader concepts. We shall limit ourselves to mentioning some of fairly high relevance to contemporary controversies.

Requirement 4 in (2.1) and (2.2) is difficult (if plausibly interpreted) when a voting group splits in such a way that no proposal attracts as much as 50 percent of the vote. Bryce explicitly justifies the «majority» clauses in his definitions by saying that no other method has been found to determine «peaceably and legally what is to be deemed the will of a community which is not unanimous» (Bryce 1921: 1:23). These two factors point toward the possibility of leaving requirement 4 out of the definition. This would make it possible to leave out complicated references to governmental machinery within precizations of (2.1) and (2.2).

Someone may object that strong precization ultimately would have to mention concrete procedures of voting. Such an objection, however, implies a misconception of the procedures of definition. We may strongly precize what in the theory of patent-claim drafting is called a «function» or «effect» as contrasted with the structure (devices) of machinery, and give a highly operational definition of function in terms of effects, without answering questions of how the effects are produced beyond certain links in cause-effect chains that are very close to the effects.

The phrase «source of power» («sovereignty» in some interpretations of this word) is a weak spot in the wording of requirement 2. Further steps of precization might conveniently use negative phrases, such as «No group of the inhabitants is excluded from performing certain acts of influencing state decisions on account of race, income, property, sex, political opinion, ---».

Concept (2.3) may lead to the inclusion of state governments such as that of Napoleon III, or even of Hitler, among democracies. The «will of the people» may in some sense «prevail» under authoritarian governments, just as authoritarian parents may let their children have their way.

The interests (needs and desires) of the populace are not referred to in any of Bryce's definitoid statements. It may be a tacit assumption that the «will of the people» announces the interests of the people (for example, that the people are not deceived so as to vote against their interest or vote against it because of lack of insight). In contemporary discussions there is much talk about what determines the «will of the people» if that will is identified with certain answers put before the citizens or their representatives by powerful organizations and institutions.

There are many directions other than the three mentioned in which «democracy» may be precized. Bryce's definitoid statements do not contain much material, however, that could be used as evidence for or against hypotheses of interpretations in those directions. We shall therefore leave the subject.

A low level of preciseness may have been sufficient for Bryce's purposes. He is primarily interested in studying and describing the political institutions of France, Switzerland, Canada, the United States, Australia, and New Zealand, and he is especially concerned with certain common trends and patterns in the development of those states. He is only secondarily interested in a broad classification adapted to detailed comparisons of a great number of states. Just as a physiologist of certain plant genera may have little use for the niceties of the plant classifier, so the student of certain intimate functions of a handful of modern states may not need to use highly sophisticated tools of a systematic classification of states, past and present.

The quotations and discussions of this section are part of the material necessary to give an exact answer to an inexact question, *What does Bryce say he means by the word «democracy»?* The answer may be an undigested list of quotations—a very bad answer. Or we may comment on them, saying that this or that formulation probably does not—for the reader—give as good an expression of Bryce's intention as this other formulation.

For many purposes, it is valuable to try to find one particular formulation especially adapted to the title «a fairly precise formulation of the sense James Bryce says he gives the word «democracy»». Here is a candidate:

A state or federation of states, S, satisfying the following requirements:

1. S has a written or unwritten constitution providing the legal basis of institutions of such a kind that, if the norms of the constitution were followed, it would guarantee that the source of power to decide questions of state would be in the hands of the whole body of qualified citizens.
2. The norms of the constitution of S are followed.
3. From the delimitation of 'qualified citizens', as prescribed by the constitution or other legal documents, it follows that under all practically conceivable circumstances, all, or at least a very large proportion, of the adult male inhabitants of S will be qualified citizens.
4. The legal delimitation of 'qualified citizens' is followed in practice in S.
5. Except in grave cases of emergency, or possibly even then, important decisions of state are in S according to law, only if made by majority vote among the qualified citizens, directly or indirectly.
6. The legally prescribed procedure of voting is followed in S.

A considerably shorter formula is: «democracy» connotes for James Bryce a form of government and government practice whereby at least three-fourths of the adult males have voting power and in which this power gives the majority of the voters or the majority of their chosen delegates power to decide basic questions of policy.

A question not discussed here is, How does Bryce actually *use* the word «democracy»? An answer involves study of subsumption of instances under general rules, a subject treated in the last part of this chapter and in later chapters. So far, our concern has been the definitoid statements on use, not the use itself.

We have singled out the word «democracy» and the author Bryce in order to give an illustration of analysis of groups of definitions. The choice has brought to the fore problems of analysis that are neither unusually difficult nor unusually easy. Bryce is regarded as a man of extraordinary clearness of thought and expression, and an analysis of «democracy» as expressing forms of government does not present special difficulties. In spite of this, a great many difficult questions are presupposed solved by anyone who, without restrictions and with scientific pretensions, says, «*This* is what Bryce says he means by «democracy»: ---». Even more is presupposed if we say, «Between the concept of 'democracy' adopted by Bryce, and that adopted by Laski, there is the following difference: ---», or «The concept of 'democracy' adopted by Bryce is inconsistent».

V.11. Illustration 2: Bradley on «Truth»

In this section we propose to leave the analysis to the reader. A list of formulations is presented, the author of which is the well-known English philosopher Francis Herbert Bradley.

If these are formulations of definitions, how are they related to one another? How are they related to a D-formulation such as «truth means agreement with reality»? Is «truth» in that formulation meant to connote the same as «truth» in Bradley's formulation? Or perhaps one has to distinguish «truth» as a collective name for «truth», and «truth» as an all-comprehensive unique system? How, in that case, is the discussion between Bradley and the pragmatists to be understood? How is the definiendum «truth» to be related to the definiendum «true» in the works of Alfred Tarski?

We mention these questions to invite the reader to formulate problems presupposing the kind of elementary analysis dealt with in this paper. Here are some of the formulations representing the object of study, all of them direct quotations from Bradley (1914).

1. «The identity of truth, knowledge and reality, whatever difficulty that may bring, must be taken as necessary and fundamental» (p. 113).
2. «--- truth, if it were satisfied itself, and if for itself it were perfect, would be itself in the fullest sense the entire and absolute Universe» (p. 113).
3. «Truth claimed identity with an individual and all-inclusive whole. But such a whole, when we examine it, we find itself to be the Universe and all reality» (p. 116).
4. «Truth is the whole Universe realizing itself in one aspect. --- And those aspects in which truth itself is defective are precisely those which make the difference between truth and reality» (p. 116).
5. «Truth is an ideal expression of the Universe, at once coherent and comprehensive. It must not conflict with itself, and there must be no suggestion which fails to fall inside it» (p. 223).

6. «To gain truth the condition of the predicate must be stated ideally and must be included within the subject. This is the goal of ideal truth, a goal at which truth never arrives completely.»
7. «--- truth is identical with Reality in the sense that, in order to perfect itself, it would have to become reality. On the other side truth, while it is truth, differs from Reality, and, if it ceased to be different, would cease to be true. But how in detail this is possible cannot be understood» (p. 343).
8. «For me truth gives the absolute Reality, the whole Universe as in its general character it really is» (p. 351).

V.12. Metaoccurrence Analysis in General

Definitoid sentences make up an important subclass of sentences that say something about «use», «interpretation», «meaning», and so forth, of sentences or designations. The importance of the definitoid sentences lies in the broadness of their claim: they seem to furnish a complete indication of how an expression is (or shall be) used or a condensed description of all possible denotata.

Metaoccurrences may also contribute to our knowledge, even if they do not have such a broad claim. Their analysis may therefore be of importance, especially in the case of authors whose terminology is difficult to understand because they have not provided any normative definitions.

Our first example of a nondefinitoid metaoccurrence comes from Pericles' *Funeral Oration*, 431 B.C. «It is true that our government is called a democracy, because its administration is in the hands, not of the few, but of the many» (Thucydides, trans. C. F. Smith 1921–30: 323).

Here is another example. «By «predicates» I [Quine] mean, not properties (or classes) and relations, but merely certain notational expressions» (Quine 1945: 1). Quine gives what is, in this work, called a genus definition («predicate» stands for members of a subclass of notational expressions, a genus of notational expressions).

Richard von Mises (1939: 7) proposes the terminological convention «dass wir im folgenden unter einem Wort, einem Satz, einem Text immer nur ein in der Schrift festgehaltenes Bild verstechen». He wishes differences in pronunciation by different people to be ignored, along with certain other differences that are not indicated in writing. It is scarcely his intention to give a normative interpretative definition of the kind «By «sentence» shall be meant picture of sentence as part of written text». Maybe he intended to offer such a definition, but his statement may at least plausibly be interpreted as offering a piece of information about proposed usage without the pretensions of a normative definition.

As another example of a metaoccurrence that may be important for adequate interpretation of a term, but that does not furnish a normative or descriptive definition, we may quote a statement of Carnap's: «--- in the book under discussion, I do not apply the term «proposition» to sentences or to any other expressions» (Carnap 1945: 154). This hypothesis about one's usage is not a descriptive definition, but in a metaoccurrence analysis of the term «proposition» the statement may be of value to the analyst.

C. Subsumption Analysis

V.13. Scope and Definition of Subsumption Analysis

Whenever there is a problem of testing whether anything conforms to a given characterization, whether or not it is an instance of something having a described property, one may speak of a problem of *subsuming* an instance under a characterization or rule. Classification and exemplification involve subsumption thus conceived.[7]

In this work a narrower concept is more useful, but let us, as a preliminary, consider some of the features of subsumption, taking the term in its wide and vague connotations.

In relation to any doctrine whatsoever, one may ask, What are the signs of its tenability? of its untenability? What are the limits of irrelevancy? Subsumption under such categories presupposes that the doctrines are somehow expressed and that the expressions satisfy requirements of preciseness. «Tenability» must be given a definitional precization, and all alleged evidence for or against must, if put forth seriously, be expressed in such a way that the subsumability hypotheses can be judged. It is now generally conceded that there is no *experimentum crucis* for this: a mass of observations may be taken to establish tenability only if various kinds of auxiliary hypotheses are employed. These auxiliary hypotheses may always be formulated as subsumability hypotheses—hypotheses that, together with certain data, make the data subsumable under a characteristic. The auxiliary hypotheses justify these data being judged relevant as positive evidence of something.

In courts, and in jurisprudence in general, subsumability hypotheses are often expressly and lengthily discussed: Is this or that law applicable? Is this or that action subsumable under the rules of competency set up for this or that institution? Often, the expression «to interpret» is, in jurisprudence and administration, used in such a way that subsumption of concrete instances under general rules is part of the interpretational process.

In social science, the extensive use of questionnaires worked out to obtain evidence for or against hypotheses has made it necessary to rely on the codification of answers. Systems of auxiliary hypotheses must be mentioned in order to make explicit how the researchers are able to class certain answers as more or less strongly positive evidence, and certain others as more or less strongly negative evidence.

Lack of explicitness in explaining subsumptions makes the auxiliary hypotheses untestable. If each of two scientists who support rival theories declares that a certain mass of data confirms his own and disconfirms the rival theory, there is not much value in gathering new data. It will first of all be necessary to investigate how the scientists manage to carry out their conflicting subsumptions: what are the main auxiliary hypotheses of each instance of subsumption of evidence?

Every testable assertion about usage, or rules intended to regulate usage, has an intended field of application. Its delimitation may be more or less explicitly formulated or totally unformulated, but if no possibility of subsumption is thought of, the «assertion» makes no claim. Whether one should still call it an «assertion» is open to doubt.

If «a» is a definiendum expression and S the field of application, a normative definition announces something about every instance (occurrence) of «a» within S. It announces a synonymity relation between «a» within S and a definiens expression «b». Further marginal references delimit the usage of «b» that is intended by the sender of the normative definition.

Let us suppose that the sender wishes «b» to be interpreted as the readers of his texts interpret it. Some complications result from such a stipulation. Telling his readers that in his texts «a» shall mean the same as they, the readers, mean by «b», he can only be said to have followed his normative definition if any occurrence a of «a» in the texts is intended to express the same as «b» expresses for the readers when they substitute «b» for «a». That is, there must be synonymity between a for the sender and b for the readers. In symbols:

$$(i)(j)\mathrm{Syn}(a_iPb_iQ_j)$$

where P is the sender and $Q_1, \ldots, Q_j, \ldots$ the readers.

The normative definition cannot be followed unless all the readers interpret the definiens expression in the same way. That is, if the normative definition is to be followed, the following condition must hold:

$$(i)(j)(k)(l)\,\mathrm{Syn}(b_iQ_kb_jQ_l)$$

The analyst charged with the task of testing whether the sender of the text sentences and of the normative definition has or has not followed his normative definition is confronted with various problems. He must find out about the meaning intended by the sender of occurrences $a_1 \ldots a_i \ldots$, that is, the occurrences of the definiendum expression. Those intended meanings must be compared with the interpretations representing how readers have interpreted $a_1 \ldots a_i \ldots$. Suppose the readers have interpreted $a_1 \ldots a_i \ldots$ as they would have interpreted «b» at the same places in the text; that is, they have followed the announcement of the sender. If now their interpretations of «b» as substituted for $a_1 \ldots a_i \ldots$ coincide with the sender's intended meanings of $a_1 \ldots a_i \ldots$ then the sender has followed his normative definition. If not, he has violated his stipulations.

This example has been considered in detail because it shows a kind of normative definition that makes consistent application dependent on interpretation processes, not only of the author of the normative definition, but of a group of people that is usually open and of rather indefinite boundaries. Hypotheses of interpersonal synonymity are involved.

V.14. Some Preliminaries Involved in Subsumption Analysis

Schematical Survey

Assertions or announcements relevant to subsumption analysis may be expressed within the following scheme:

$\mathrm{Syn}(aPS_1, bQS_2)$ (Ann or Ass)

The symbols «a» and «b» stand for two designations or two formulations. The synonymity hypothesis or synonymity announcement states something about *every occurrence* (instance) of «a» satisfying the requirement that «a» must be «for P in S_1» and every occurrence of «b» satisfying the requirement that «b» must be «for Q in S_2». In other words, occurrences of «a» and «b» are relevant only provided they are denotata of the concepts 'occurring in S_1 for P' and 'occurring in S_2 for Q'. The relevance of the synonymity hypothesis or announcement in relation to any set of occurrences of «a» and «b» depends on the subsumability of «a» under the first concept and «b» under the second. It is not this kind of subsumability, however, that has given subsumption analysis its name.

If a set of occurrences of «a» and «b» is subsumable under the concepts mentioned, a *synonymity hypothesis* of the kind

$\mathrm{Syn}(aPS_1, bQS_2)$ (Ass)

states that for every such set of «a» and «b» there is a relation that *holds good*, namely 'synonymity between «a» and «b»'.

If a set of occurrences of «a» and «b» is subsumable under the concepts mentioned, an *announcement* of the kind

$\mathrm{Syn}(aPS_1, bQS_2)$ (Ann)

states that for every such set there is a relation that *holds good if the announcement is followed*, namely 'synonymity between «a» and «b»'.

If, and only if, an occurrence of «a» for P in S_1 is a denotatum of the concept 'synonymous with «b» for Q in S_2', then the schematical synonymity hypothesis is confirmed in relation to that occurrence of «a».

We call *subsumption analysis* the inquiry into whether given occurrences of «a» for P in S_1 can be subsumed under the concept 'synonymous with «b» for Q in S_2'. The aim of that analysis is to find the arguments for and against subsumability and to weigh them against each other.

If we use synonymity concepts by which synonymity is defined operationally as the occurrence of certain types of answers to certain types of questions, subsumability may be easily shown or refuted. Normally, we use synonymity concepts that are more independent of such questionnaires.

The general scheme of synonymity hypotheses and announcements is unnecessarily abstract and complicated for our discussion of subsumption analysis. We may adapt the terminology of our discussion of definitoid statements to our present purpose and use the terminology indicated below:

Syn(TM, UM´) (Ann or Ass)

T	definiendum expression or expressions (sometimes also used for the class of definiendum expressions)
M	intended field of application of the synonymity hypothesis or announcement
U	definiens expression or expressions
M´	the standard interpretation

Using the terminology of analysis of definitoid statements, we write:

T	expression somehow indicating class of definiendum expressions
M	expression somehow indicating field of intended application
U	expression somehow indicating class of definiens expressions

We use the nonspecific «somehow indicating» so that we may include a great many rather obscure, but important, definitoid formulations found in all kinds of literature. If, for example, we try to determine whether certain usages of «democracy» within certain types of propaganda follow the indications the authors give as determining their use of the word, we shall have to analyze rather obscure indications, not clear-cut synonymity hypotheses or announcements.

By the symbols M_1, M_2, . . . we refer to interpretations of the expression, M, indicating the intended field of application—if there is any such explicit or implicit indication. For the designatum of M_1, that is, the field itself, we use M^1.

By the symbols T_1, T_2, . . . we refer to interpretations of the expression, T, indicating class of definiendum expressions. If several expressions make up the denotata of the class, we write T^1, T^2. . . .

For example, let T be the expression «the term democracy». Differences of interpretation of that expression owe in part to the habit of taking «democracy» to stand, not only for the English word, but also for various other translations of the corresponding Greek term. The denotata T^1, T^2, T^3 . . . of the class of definiendum expressions are in such cases «democracy», «*démocratie*», «*Demokratei*», and so on.

By the symbols U_1, U_2, . . . we refer to interpretations of the expressions indicating class of definiens expressions.

By these symbolizations we stress the separateness of the series of interpretations of expressions (M_1, M_2, . . . , T_1, T_2, . . .) and the series of expressions themselves (M^1, M^2, . . . , T^1, T^2, . . .).

If it is asked, «Has the word T the meaning U within context M?» we may very roughly say that the prevalent technique for finding out whether any particular instance of T within M has the meaning U is to ask, «Does U fit in where T is written?» «Do we get a *good meaning* within the context of that occurrence, when we suppose T is used in the meaning U?» On the superficial dictionary level it may, for instance, be asked whether «democratic» as used within a certain context means «pertaining to the Democratic party (in the United States)». Within a text we find as occurrence No. 1 «The democratic city states of the ancients did not have many inhabitants». We conclude: this occurrence does not fit in with «pertaining to the Democratic party»; therefore, the word must have some other meaning in this context.

This is only a very rough indication. As soon as we try to formulate more precisely the types of arguments used, and the way they are tested, great difficulties arise—difficulties that, so far, no one has extensively investigated and described.

Figure 3 has been prepared to facilitate the survey of the distinctions introduced in this section. It uses the same model as figures 1 and 2 (pages 221 and 224).

The top portion of figure 3 illustrates how an analyst reads a definitoid

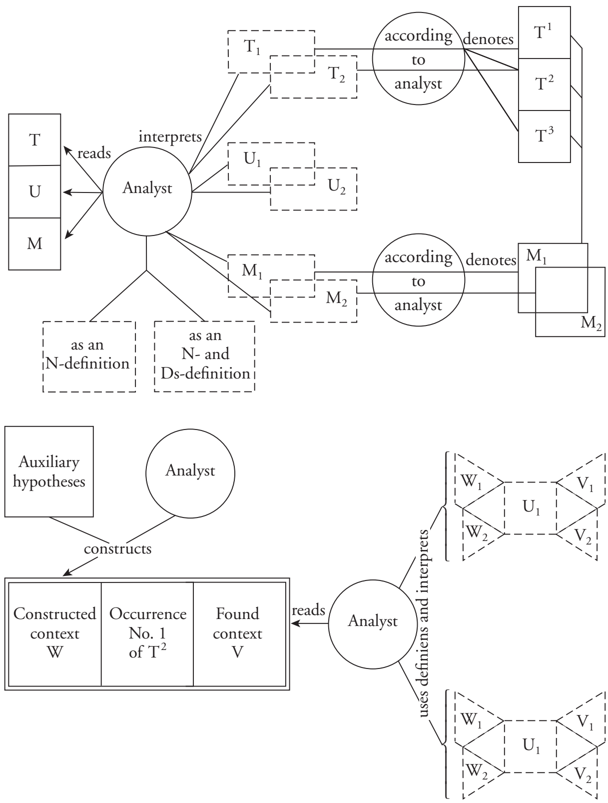


Figure 3. Schematic model for subsumption analysis.

formulation. He interprets the formulation to express either a normative definition or a combined normative and descriptive definition. For the sake of simplicity, M´ is left out of the picture. The expression indicating definiendum expressions he interprets in two different ways, T_1 and T_2. As regards definiens and field of intended application, he likewise cannot limit the interpretation to a single most plausible one, but works with two different interpretations. The definiendum expression denotes, according to the analyst, various expressions. If T_1 is the definiendum interpretation, then T^1 and T^2 are the only denotata. If T_2 is chosen as definiendum interpretation, then T^2 and T^3 are the only denotata within the intended field of application—however this field is interpreted. (This is illustrated by lines from M^1 and M^2 to T^1, T^2, and T^3, indicating that the T's are part of both M^1 and M^2.)

In the lower part of the diagram, we have to the left singled out an occurrence (instance) that is to be judged subsumable or not subsumable under the definitoid statement analyzed. It is occurrence No. 1 of the expression T^2 that is to be considered a definiendum expression of the definitoid statement, however T is interpreted. For the sake of simplicity, we assume that T^2 is a formulation, not a designation.[8] To the right of T^2 is symbolized the verbal context V, which the analyst finds surrounding T^2. We may think of sentences immediately preceding and following T^2 within a monograph, or we may think of larger context units.

To the left of the rectangle symbolizing occurrence No. 1, we have a rectangle W symbolizing a written «constructed» context of T^2. By this we mean an exposition of relevant information concerning T^2, for example, data on the historical epoch in which T^2 probably was written, hypotheses about the political inclinations of its author—in short, anything we use as premises for our interpretation of T^2 except the verbal context V, which simply is «found» as a part of the physical environment of T^2. The constructed context may normally be thought of as including quotations from various sources that throw light on the use of T^2. Many of the sentences of the constructed context may be based on intricate, for example, historical, auxiliary hypotheses. These are symbolized by a box above rectangle W.

The analyst approaches the task of subsumption analysis when he reads the sequence WT^2V and interprets T^2 as meaning the same as the definiens, that is, U_1 or U_2. Doing this, he may be influenced in his interpretation of each unit—W, T^2, and V—by every other, as schematically outlined in the discussion of interpretational vibrations caused by broadening the context (see chapter 2, section 13). We have not, however, found it advisable to illustrate the complications of such vibrations. We have limited ourselves to symbolizing that the analyst operates with two interpretations W_1 and W_2 of W, and two interpretations V_1 and V_2 of V. Thus, the sequence WT^2V gives rise to eight interpretations:

$W_1U_1V_1$	$W_1U_1V_2$	$W_1U_2V_1$	$W_1U_2V_2$
$W_2U_1V_1$	$W_2U_1V_2$	$W_2U_2V_1$	$W_2U_2V_2$

At this stage we face the decisive and so far only roughly suggested problem, Does U^1 or U^2 fit in if it is placed in the context instead of T^2? Let us at once presuppose that we do not consider stylistical impossibilities to furnish disconfirmations of fitness. U^1 and U^2 may be long sentences or sentences in different languages from T^2 and therefore do not fit the text from the literary point of view. This does not imply anything as regards the fitness of the cognitive meaning of U^1, that is, U^1 as expression of an assertion.

If U^1 is found to fit into the context W_1V_1, this is taken as a *weak confirmation* of T^2 being synonymous with U^1, that is, of occurrence No. 1 of T^2 being *subsumable* under the concept 'occurrences of T^2 within M_1 (or M_2) that satisfy the definitoid D-formulation TUM interpreted in one plausible way, T_1 (or T_2) U_1V_1'. If U^2 also is found to fit into the context W_1V_1, this is taken as a weak confirmation of subsumability under T_1 (or T_2) U_2V_1. (There is no limit to the number of diverse interpretations $U_1, U_2, U_3, \ldots$ under which a given occurrence might be subsumable.)

If U^1 is found to fit into the context W_1V_1, but not into the context W_2V_1, the weak confirmation is followed by a weak disconfirmation. To answer the question of whether occurrence No. 1 of T^2 satisfies[9] the definitoid formulation TUV_1, we shall have to go through all eight interpretations listed above. Such an analysis may be expected to turn out rather complicated and hypothetical.

If one *presupposes* that a certain definiendum, T^2, is used in the same sense every time it is used within a context, a strong confirmation (or a strong disconfirmation) in relation to one occurrence can automatically be taken as a strong confirmation (or disconfirmation) in relation to the total context. There is, however, seldom any reason to believe that such a presupposition adequately describes usage within the context.

If the subsumption analysis belongs to the consistency-analysis subclass—authors being studied as regards their tendency to follow their own introduced terminology—one of the chief difficulties is the limited number of instances of the definienda. Sometimes the authors hardly use their defined terms. Furthermore, there is the difficulty that most occurrences give rise to only very weak confirmations or disconfirmations.

It is time to go into detail about what is to be understood by a meaning that fits the context, and what criteria of fitness can profitably be used in research. As an introduction to such a study we propose to give some illustrations of subsumption analysis.

V.15. Illustration 1: Irving Fisher on 'Wealth'

The first example that I shall give is rather trivial and simple. Its aim is to illustrate figure 3. Examples from philosophy would easily run into hundreds of pages. This does not imply that logical analysis carried out according to the principles of this book cannot be presented within reasonable space, but that the working material and inferences from it would demand very extensive space. This is analogous to linguistic research and many other scientific contributions: the published material is generally but a small fraction of the systematized material collected and analyzed.

Irving Fisher (1919: 3) says in his *Elementary Principles of Economics*, «Properly speaking man is wealth, just as, properly speaking, man is an animal. But we so seldom need in practice to take account of man as wealth that the ordinary meaning of wealth includes only *material objects owned by human beings* and external to the owner».

In a commentary on his statement, Fisher says, «The above definition of wealth --- agrees substantially with the usual understanding of businessmen».

That is, Fisher offers a definition as a description of usage among businessmen. The definiendum is expressed by «wealth» (and perhaps with synonyms, some of them in foreign languages). As analysts, we propose the following reformulation:

If x is an instance of the expression «wealth» within a context definable as «professional talk or writing of a businessman», x may—without a change in connotation—be replaced by the expression «material objects owned by human beings and external to the owner».

It is to be noted that this version of the definition is adapted to the language habits of the analyst, or, in the last resort, to the readers of the analyst's papers. The reformulation is not adapted to businessmen without logical training.

What Fisher claims is somewhat reduced by the word «substantially». The definition is said to agree «substantially with the usual understanding of business men». Considering the frequency with which the word «wealth» is used (more than once a second?), we have an enormous amount of material at hand that is relevant to the hypothesis. It is, however, not easy to decide in any concrete case whether an instance of the expression «wealth» confirms or disconfirms the hypothesis.

In connection with his definition, Fisher says, «In this book we shall follow ordinary usage by employing this narrower meaning except occasionally when it will be found convenient to refer to the broader meaning» (Fisher 1919: 13). From this we conclude that his definitoid formulation also intends to express a definition as rule, and that the intended field of application includes his book, «except occasionally». Maybe Fisher also can be regarded as a businessman. Two things are here to be tested: first, the hypothesis on actual usage; and second, the question of whether Fisher follows his own rule.

After the introduction, the word «wealth» occurs four times on the next page. We shall confine our discussion to the first occurrence. He says, «It [wealth] is confined to this little planet of ours, ---». Substituting the definiens for «it», we get the formulation «Material objects owned by human beings and external to the owner are confined to this little planet of ours». May this instance be taken as confirmatory?

One of the most direct, most reliable methods of deciding the issue is to interview Fisher, convincing him that our purpose is so important that he should listen attentively and think deeply before answering. We then would simply ask him if he thinks he used «wealth» as a synonym for his definiens in this particular instance. A positive answer counts as confirmation; a negative, as disconfirmation.

This method of questionnaires and interviews is, however, generally not possible. The author may be dead, uninterested, not sufficiently honest, or not sufficiently trained in analysis. We will, therefore, presuppose that our only direct material is the written text containing the immediate context of the instance of «wealth».

In the absence of other kinds of material, we have to rely on rather crude inferences: if the formulation in which definiens is substituted for definiendum seems malapropos in the wider context, or if it expresses a view that we do not believe the author would agree to, then it is warranted to conclude, «Nonsubsumable, an instance of disconfirmation». In the present case, one may tentatively assert that the first occurrence of «wealth» following the quoted definition of Fisher confirms the hypothesis that he follows his own definition.

V.16. Illustration 2: Historians on «History»

Our second illustration is worked out in some detail to stress the various more or less difficult questions involved in subsumption analysis and in preliminaries that have to be discussed before going into subsumption analysis proper.

The Social Science Research Council, Bulletin 54, entitled *Theory and Practice in Historical Study: A Report of the Committee on Historiograph*y, contains a chapter called «Propositions». Concerning these «propositions» we read, «The committee assumed that every branch of knowledge presents or rests upon a number of propositions accepted by persons competent in such fields as valid in themselves and for application» (*SSRC Bulletin* 1946: viii). The chapter «Propositions» is a tentative list of such propositions. I strongly recommend that readers consult the SSRC bulletin from which this illustration is taken, not only because doing so will enable them critically to evaluate my analysis, but also because the efforts of clarification carried out by the Committee on Historiography are instructive.

Professor Gottschalck defines some of the basic terms used in the propositions. This is done in an introduction (ibid., p. 133), the first part of which reads:

> «In order to promote clarity and understanding, the committee has deemed it wise to define the meaning it has attached to certain basic terms frequently used in the Propositions.
>
> The word *histor*y is used in at least five overlapping senses: (1) the systematic study of, or a treatise dealing with, natural phenomena—as in «natural

history» or «life history»; (2) the past of mankind (or any part thereof)—as in «history as actuality» or «the totality of history»; (3) the survivals and records (whether primary or secondary) of the past of mankind (or any part thereof)—as in «history as actuality» or «the totality of history»; (3) the past of mankind (or any part thereof)—as in «recorded history», a «history book», or a «case history»; (4) the study, representation, and explanation of the past of mankind (or any part thereof) from the survivals and records—as in «written or spoken history»; and (5) the branch of knowledge that records, studies, represents, and explains the past of mankind (or any parts thereof)—as in «department of history» or «school of history».

The sentence «The word *histor*y is used in at least five overlapping senses:» may be interpreted in different ways. To eliminate some ambiguities of importance in the present connection and to adapt it closely to the terminology of this work, we shall use the following somewhat pedantically formulated precization. The precization is fairly strong, but scarcely the most plausible. More plausible precizations are discussed on page 283.

«The occurrences of the word «history» within the context of the section «Propositions» (not including the four footnotes) on pages 134–140 of the source are instances of «history» being used as designation for at least five different concepts (connotations, propositional significations), each occurrence being a designation of one of these concepts or possibly of other concepts. Each of the concepts may be expressed by conjunctions (and connections) of formulations of conceptual characteristics in such a way that some formulations occur in more than one conceptual characteristic expression (designation).»

The first part of the above quotation will be called «the five-sense theorem». It may plausibly be interpreted as follows:

Each instance of the word «history» within the context «Propositions» (not including the four footnotes) on pages 134–140 of the source is for the eight persons of the Committee on Historiography synonymous with one of the following five numbered expressions or classes of expressions, or with expressions heteronymous with all of them. There is at least one instance of synonymity for every one of the numbered expressions or classes of expressions.[10] (The numbered expressions are reproduced on page 280.)

Interpreted in this way, the five-sense theorem can be tested by subsumption analysis. Each of the questions characteristic of subsumption analysis and mentioned in sect. 13 is relevant to the test. The first question, about intended field of application, appears an easy one at first glance. The field is the aggregate of sentences composing the twenty-one propositions. One of the doubtful instances is the occurrence in the *headings* of propositions 19–21. Do the headings belong to the propositions? We shall include them in the context surveyed, even if this conclusion does not follow from the most plausible interpretation of the designation of field of intended application. Further, the instances of the complex expressions «written-history» and «history-as-actuality» are somewhat doubtful. Does the «-»-sign indicate that the expression as a whole should have word status? In the formulation of the five-sense theorem given by the committee, the expression «history as actuality» (without a «-»-sign) is quoted as an instance of the second concept. But there is in the propositions no instance of that expression. This suggests that the expression «history-as-actuality» should be interpreted as «history as actuality», and therefore as three words. This, in turn, indicates that «written-history» should be interpreted as two words, the «-»-sign having a different function from that of indicating word status. The discussion in this paragraph about the intended field of application presupposes the auxiliary hypothesis «The word «history»» is interpreted to mean the same as «the word «history», if having word status», and not as «the letter-sequence «history»».

Before we continue to illustrate subsumption analysis, we wish to point out that we have not the slightest reason to insist that publications of subsumption analyses normally should go into such details as are exposed in this section. However, if elementary analysis is to be a part of the accepted techniques of research, and if the affirmations presupposing such analysis are ever to achieve the status of testable, well-confirmed hypotheses, then the research worker must go into all details appreciably affecting the scope and validity of the hypotheses. The pedantic exposition of details of procedure are carried out here only because few hypotheses presupposing elementary analysis seem to be based on painstaking research. When new habits of research are developed, extreme condensation of exposition, such as is found in the highly developed parts of the life sciences, will not only be possible without loss of interpersonal preciseness, but will itself be part of the requirements of research.

Let us proceed to formulate the five-sense theorem. It may be plausibly interpreted as a sort of synonymity hypothesis, an effort toward a complex descriptive definition. The definiendum expression is «history»; the field of intended application is the text («Propositions») referred to. As regards the definiens expressions, they may be formulated as follows:

1. «the systematic study of, or a treatise dealing with, natural phenomena»,
2. «the past of mankind (or any part thereof)»,
3. «the survivals and records (whether primary or secondary) of the past of mankind (or any part thereof)»,
4. «the study, representation, and explanation of the past of mankind (or any part thereof) from the survivals and records»,
5. «the branch of knowledge that records, studies, represents, and explains the past of mankind (or any parts thereof)».

The five-sense theorem is a descriptive definition if the expression «as in» (see the original quotation, pages 277–78) can be interpreted so that it may be taken to be synonymous with «as in and only in». If—which is more plausible—it is stated only that the occurrences, for example, of «life history» and «natural history» include *instances of* «history» being used synonymously with definiens expression 1, then there is not the slightest indication of the limits of that subclass of occurrences that make up the intended field of application of the synonymity hypotheses concerning «history» and definiens expression 1. That is, we get a sort of dictionary technique of indicating senses, which, as stipulated in chapter 4, pages 192–93, cannot be viewed as giving descriptive definitions. We have in that case a total field of application for five different synonymity hypotheses, but no delimitation of the fields intended to be covered by each of the hypotheses. This does not make any difference to our illustration of subsumption analysis, however.

The five-sense theorem might also be plausibly interpreted as a description of normative definitions made by the committee members and covering the propositions within their intended field of application. We shall, however, use the interpretation making the theorem a *descriptive* hypothesis of usage, but not a descriptive definition or normative definition.[11]

Let us then, after these preliminaries, take up the subsumption analysis itself. The first instance occurs within proposition II, which reads:

«The utmost understanding of history attainable to the human mind is to be acquired by extending historical research and thought as far as possible in the direction of comprehensiveness and synthesis as well as by inquiring more deeply into the particular and the unique».

Substituting definiens expressions 2 and 3 for «history», we obtain the following formulations:

> (1.1) «The utmost understanding of the past of mankind (or any part thereof) attainable ---».
> (1.2) «The utmost understanding of the survivals and records (whether primary or secondary) of the past of mankind ---».

In relation to these sentences and three others obtained by using the remaining three definiens expressions, we shall have to pose the question, «Is occurrence number 1 subsumable under the concept 'occurrence in conformity with the synonymity hypothesis x'?»—where x is a number corresponding to a definiens expression number.

Now, what we have to answer primarily is not whether or not the committee assumed (believed) the occurrence to be in conformity with hypothesis x. We have, as analysts, to take the standpoint of subsumability. On the other hand, we shall primarily have to investigate subsumability based on hypotheses about how the committee interprets the definiens expressions and the sentence within which each occurrence is found. Thus, we shall have to try to find out what the committee meant by proposition II.

Now, I think it is rather certain that (1.1) and (1.2) do not contain contradictions in any plausible logical or empirical sense. If they had, we should have said that occurrence number 1 is not in conformity with synonymity hypotheses 2 and 3, stating that there is intrapersonal synonymity for the committee between the sentence headed «Proposition II» and the sentences (1.1) and (1.2) obtained by substituting definiens expressions 2 and 3 for «history».

A criterion of disconfirmation that is not necessary, but is sufficient, may be stated as follows: substitution of definiendum with definiens in the occurrence sentence results in a sentence containing logical or empirical contradictions from the point of view supposed to be that of the authors, and there is in the immediate or remote context no indication that the sentence was intended by the authors to express contradictions.

As regards the question of whether the authors of the sentence assumed the occurrence to be in conformity with synonymity hypotheses 2 and 3, a third clause may be added to furnish a criterion of disconformity: there is nothing in the immediate or remote context that makes it plausible that the authors should not have been able to see the contradiction and avoid it.

Absence of logical and empirical contradictions excludes strong disconfirmation of the synonymity hypotheses, but it does not necessarily bring any confirmation. Absence of disconfirmation may be an effect of extreme vagueness and ambiguity, which make it practically impossible to find out anything as regards contradictions.

There is, so far as I can see, nothing in the total text called «bulletin 54» that can give any appreciable confirmation of the synonymity hypotheses.

This property of occurrences—that they do not afford appreciable evidence in support of synonymity relations—is very common.[12] Thus we shall limit ourselves to concluding that «Occurrence number 1 is subsumable under the concept 'occurrence in conformity with the synonymity hypotheses 2 and 3'». As regards those hypotheses themselves, we can only conclude that occurrence number 1 did not bring disconfirmation, but a *very weak* confirmation (the substitutions give good meaning).

I imagine that the committee intended to use the word «history» in the first rather than in the second sense, but that is only a hypothesis of a rather speculative kind based on some acquaintance with historiography.

Let us now proceed to definiens expressions 1, 4, and 5. The substitution of these expressions for the definiendum does not seem to result in a proposition involving logical or empirical contradictions. The abovementioned criterion of disconfirmation gives as a conclusion «Not strongly disconfirmed», but other criteria should also be used. Taking the rest of the chapter as a context, I think we may assume that a proposition about «natural phenomena» does not fit in. There would be a breach in continuity that is seldom found in the writings of presumably sane persons. Thus, a synonymity hypothesis corresponding to definiens expression 1 is ruled out by a disconfirmation that I think may be classed as strong, even if the relevant arguments and observational evidence are in practice difficult to obtain. The same may be said in relation to expression

4 and even to expression 5, except that the degree of disconfirmation is here less strong.

Although the point is not relevant to our present analysis, I should like to mention that the continuity hypothesis used as an *auxiliary hypothesis* in disconfirming some synonymity hypotheses can also be applied to the question of whether a mistake appears in the introduction quoted on pages 277–78. It is there stated, «The word *histor*y is used in at least five overlapping senses: (1) the systematic study of, or a treatise dealing with, natural phenomena ---». Is «history» used in this sense in the propositions, or would it be a mistake, a disconfirmable hypothesis, to state that it is?

So far as I can judge, the assumption of synonymity between «history» and definiens expression 1 goes strongly against the assumption of thematic continuity, and this holds in relation to every single occurrence of «history». The hypothesis seems to be disconfirmable. Nothing is said about natural phenomena, in general, in the propositions. Maybe I misinterpret the definiens expression «natural phenomena». My interpretation of the definiens expressions is an auxiliary hypothesis acting as a premise in all the subsumption hypotheses.

We accept the conclusion «disconfirmed» in relation to the synonymity hypothesis according to which «history» as used in the propositions is at least once used synonymously with definiens expression 1, «the systematic study of, or a treatise dealing with, natural phenomena». This definiens expression and the propositions are here interpreted as we, as analysts, believe the committee would interpret them.

The disconfirmation is a disconfirmation also of the five-sense theorem as precized on pages 277–78. However, as indicated briefly on that page, the interpretation is not the most plausible one. My respect for the historians writing the SSRC bulletin makes me take the disconfirmation as a symptom of the precization's not being the most plausible one. Let us, therefore, take up for consideration five-sense theorems derived by other precizations of the introductory note quoted.

The first sentence of the introduction (see page 277) suggests that the committee has attached some definite meanings to terms (a) occurring in the propositions and (b) used in the propositions. It seems natural for a committee to «attach meanings» (in many plausible senses of that expression) to words as they are used by the committee *in the writings of the committee*. Thus, I think it is plausible to interpret the first sentence of the introduction in such a way that «the Propositions» can be viewed as a designation of the field of intended application of the following synonymity hypotheses—not only as an indication of where the definienda are to be found.

The next sentence, «The word *history* is used in at least five overlapping senses ---», gets a fairly well delimited meaning as regards field of intended application if «is used» is taken to mean the same as «is used in the propositions». As we have already pointed out, however, the definiens expressions and the propositions taken as context suggest that the intended field of application must have been a broader one. What, then, is the field intended? Textbooks of history? Writings of historians? Writings of those historians who are members of the committee?

We are here concerned with a difficulty that nearly always turns up in connection with subsumption analyses involved in testing whether authors follow their own definitions: what is the intended field within which the definitions are to be tested?

For all heteronymous hypotheses about which field is the field of intended application, there is a corresponding five-sense theorem. On account of the great number of nearly equally plausible interpretations, we shall abstain from explicit formulation of any of them.[13]

So far, we have analyzed only one occurrence of «history», namely, the one in proposition II. Let us proceed to take into account occurrence number 3 found in proposition V:

«In a scientific methodology, clear distinctions must be maintained between the unrecoverable totality of the past, the records of the past, and written or spoken history».

Inserting each definiens expression into the sentence instead of «history», I think no logical contradictions arise, perhaps not even clear-cut empirical contradictions. Nonetheless, the text is made rather incoherent, malapropos, stupid, and discontinuous if definiens expression 3 is inserted. The same holds for some of the other insertions. How this argument about incoherence, stupidity, and so on, is to be made precise and validated, I do not know.[14] The attitude I should tend to adopt is to let the impression of incoherence or stupidity count as a rather strong disconfirmation of the synonymity hypothesis involved, at least until somebody challenged it. If that happened, I would find it fruitful to try to make it precise and go into detailed argumentation.

Definiens expression 4 seems to fit the context best. It expresses, probably, the sense given to «history» by the committee, if the sense is one of the five mentioned. This conclusion conforms with indications in sense number 4, as described in the introduction (see pages 277–78).

In concluding this discussion, I should like to stress the uncertain, vague, and elusive character of the arguments that one has to rely on in subsumption analysis. This character makes it of great methodological importance to omit assertions that presuppose subsumption analysis from argumentations in which those assertions do not play an important role for the validation of the conclusions. Further, that character makes it advisable not to invite disputes about assertions involving subsumption analysis. One may expect the dispute to develop in such a direction that only rather difficult and tedious empirical investigations, which none of the disputants are willing to carry out, can settle the issue.

As material for our illustration in this section, we chose a text written by authors who probably did not have the aim of working out exact hypotheses of usage, but only of *reminding their readers* of some persistent ambiguities in basic terms.[15] Our analysis does not imply any criticism. The quoted introduction seems to us admirably apt to warn readers of ambiguities. It is to be hoped that it also will stimulate research on terminological issues as a part of historical foundation research (*Grundlagenforschung*).

V.17. Survey of Difficulties of Testing Descriptive Definitions by Means of Subsumption Analysis

The practical and theoretical testability of hypotheses involved in descriptive definitions is largely uninvestigated. Testing normative definitions for whether or not the rules laid down are followed meets with the same difficulties. When we form a hypothesis that the rules are followed, the test of being followed is identical with a test of a descriptive definition. In the following we shall therefore limit ourselves to discussing descriptive definitions and synonymity hypotheses in general.

There are important properties of normative definitions other than that of being followed or not followed. We may ask: Is the normative definition fruitful (convenient)? The criteria and concrete testing of answers do not belong to elementary analysis as here conceived, however.

Difficulties of testing descriptive definitions are caused, among other things, by the following shortcomings: insufficient preciseness, specification, and elaborateness of

1. indications of definiendum,
2. indications of definiens, and
3. indications of intended field of application.

Even if we suppose that we have methods of raising the level of preciseness, specification, and elaborateness as much as we wish, there are still difficulties to overcome owing to

4. lack of knowledge about the denotation of the definiens (for example, objects denoted by the definiens), and
5. lack of knowledge about objects denoted by the statement of the intended field of application.

We may, of course, classify difficulties in other ways. As indicated in the preceding section, we have to assume that we know the beliefs of the author of a text. In the case of Fisher, we shall have to assume that we know the beliefs of businessmen. Difficulties arise from ignorance about the authors and from an inability to handle the many auxiliary hypotheses that must be evaluated before we can conclude, «Confirmative instance!» or «Disconfirmative instance!».

V.18. Definiendum Indications: Their Lack of Preciseness and Elaborateness

As mentioned previously, there is seldom only one expression functioning as the definiendum expression. Usually, it is tacitly understood that ordinary dictionary equivalents in foreign languages are to be included in a class of expressions functioning as definiendum. Sometimes, broader and less specified classes are included.

Seidel's list of eighty-three «*Satzdefinitionen*» (see page 215) is not limited to quotations in which the expression «*Satz*» occurs as the definiendum expression. Such a limitation would be rather arbitrary in relation to the purposes of his list. Among the definiendum expressions, we find «*Satz*», «*Sätze*», «*oratio*», «sentence», «*propositio*», «*enunciatio*», «*Grundform des elementaren Satzes*», «*Rede*», «*frase*», «phrase», and «*logischer Satz*».

There are hundreds of so-called «definitions of truth», and their definiendum is hardly ever «truth». Occasionally, it seems as if the definiendum is not conceived or defined as an expression or class of expressions, but as a «notion» or «idea», or even a class of inorganic bodies. In such cases it must be asked, How is the definiendum expressed? The answer is, By means of words *such as* «true», «truth», and so on. These expressions are—in accordance with our terminology—the class of definiendum expressions. If no definite expressions are presented, there can be no normative or descriptive definition. A descriptive definition is an attempt by means of the definiens expression to indicate as exactly and precisely as necessary, for given purposes, what is expressed by the definiendum expressions. The definitions as descriptions describe the use of these expressions (for example, describe what sense they have, what they express). The material is usage in the form of *instances of use*, not primarily rules of use or definitions. The elementary analysis cannot presuppose that such rules and definitions are known.

When some philosophers state that they intend «to define truth», this does not give us any precise indication of what is conceived as definiendum. Not only «true» and «truth», but possible synonyms in foreign languages are thought relevant. Moreover, expressions such as «false» and «incorrect» are to some extent brought into the discussion.

Further, and this is very important, it seems as if a statement such as «Caesar died in the year 44 B.C.» is somehow thought relevant. This is perhaps because it is taken for granted that the author writing this sentence could just as well have written «*It is true* that Caesar died in the year 44 B.C.». In general, statements in textbooks are thought relevant. This is, however, a sort of anticipation from the point of view of analysis. It is one of the points to be reached as a possible conclusion, that «true» is used in such a manner that any assertion claims something that may be expressed by the word «truth».

It seems probable that *if* Bradley (see page 264) had specified which expressions he intended to speak about (for example, if he had specified his definiendum expressions), it would appear that he was talking about different things. His definienda would not be the same class of expressions. The same, I suppose, would be probable in many other cases. As long as there is no agreement about what the disputants choose as the definiendum, there will be no discussion, but just declamation about things that might happen to coincide, but also might not.

I have herewith the pleasure of inviting the reader to find possible definienda on the basis of the following utterances of truth specialists:

«*Denn Wahrheit ist nichts anderes als* ---» (B. Erdmann).

«*Wahrheit eines Urteils besteht darin, das* ---» (ibid.). Meant as a synthetic theory, not a descriptive definition?

«*Die behaupteten Urteile, deren wir uns als giltige bewusst sind, nennen wir wahre* im allgemeinsten Sinne des Wortes» (ibid.). Note the indication of intended field of validity.

«*The truth of the sign consists of its adequateness* ---» (Fleming).

Real truth is, therefore, the correspondence of ---» (Hamilton).

«Hence *the definition of truth* which modern philosophy proposes: the agreement of ---» (Hodgson).

Truth means nothing but this, that ---» (Dewey).

«Ich glaube, *das Wort* Wahrheit in seinem gewöhnlichsten und natürlichsten Sinne *bezeichnet* ---» (Shute). Note the indication of range of application.

Perhaps many people are sure that these philosophers speak about the same thing. But I venture to predict that if the philosophers were invited to pick out from a given text instances that confirmed their theses, they would not agree as to which expressions were relevant. As long as there is no explicit delimitation of the class of expressions intended to constitute the definiendum, no hypothesis with scientific pretensions can be formulated. The extensive disagreements among philosophers make such explicitness highly desirable.

In other discussions, ambiguities as regards the indication of the definiendum are still more palpable. In the literature of symbolic logic, there is much talk about implication, and many attempts at definitions with descriptive pretensions. In such cases, what is the definiendum? If the expression «if --- then» in scientific literature is taken as such an expression, many definitions, for example, those derived by means of a matrix, meet with grave difficulties. If «if --- then» or «implies» in scientific literature is not taken as definiendum expression, what is then taken as definiendum?

It seems improbable that discussions on «the meaning and symbolization of implication» can be fruitful without a more precise indication of what the discussion aims at. One of the things to be done here is to clarify whether one wishes to give the definitions of «implication» any descriptive function, and if such a function is aimed at, to choose a class of expressions acting as definiendum.

V.19. Definiens Indications: Their Lack of Preciseness and Elaborateness

If the definiens expression in a descriptive definition is not described fairly precisely or if it is not a fairly precise expression, then nothing definite has been asserted and nothing definite can be tested. If we succeed in delimiting the ten most plausible interpretations $U_1 \ldots U_{10}$, our conclusions may run as follows: «if by U is meant U_1, the synonymity hypothesis expressed or implied may be viewed as strongly confirmed; if U_2 is meant, it may be viewed as neither confirmed nor disconfirmed, ---; if U_{10} is meant ---».

Suppose we single out 100 controversial statements all of which can be given the form «T's have the property ---» (for example, «Democracies are ---»). If, now, a definiens formulation of T permits as plausible directions of precization $U_1, U_2, \ldots U_{10}$, the ambiguity of the definiens might be tolerated if the 1,000 statements created by using $U_1 \ldots U_{10}$ instead of T in the 100 controversial statements would not result in a new distribution of acceptances and rejections among the disputants.

The importance of the difference between harmless and harmful ambiguities of definiens is aptly suggested by Schumpeter (1942: 243):

> Equating «making decisions» to «ruling», we might then define democracy as Rule by the People. Why is that not sufficiently precise? It is because it covers as many meanings as there are combinations between all the possible definitions of the concept «people» (demos, the Roman populus) and all the possible definitions of the concept «to rule» (kratein), and because these definitions are not independent of the argument about democracy.

Instead of a single definiens expression, there are usually several. For each, there is a separate field of application tacitly assumed or explicitly mentioned. In such a case the question arises of whether the various definiens formulations form a list of heteronymous expressions. If they are not fairly precise, we cannot treat them as expressions of different «senses» of the definiendum.

These weaknesses would make subsumption analysis impossible, because nothing definite is provided under which to subsume. We can only resort to systems of if-statements. When there are many definiens expressions, however, the construction of such systems is apt to require too much work relative to our need to test the synonymity hypothesis. We are thus led to give up the test or to make an unsatisfactory, incomplete one. It would seem to be in the interest of the future development of elementary analysis as a science to give up the test, in such cases, and reject the synonymity hypothesis as unworkable, that is, as being too ambiguous for use.

Consider the following situation. At a conference on standardization of terminology within political science, it is proposed that the scientists stick to the «correct» use of the word «democracy». To clarify what concept of «correctness» is implied, the conference decides to stick to the definition of the expert in linguistics, Otto Jespersen (1922). He says, «Our conceptual delimitation (*Begriffsbestimmung*, *begrepsbestemmelse*) of the correct as applied to language (*det spårkriktige*) is ---, that it is the socially accepted (*samfunnsmessige*), that which is required by the language community. What is opposed to that is incorrect from the point of view of language. And if this delimitation is maintained consistently (*skarpt*), then really all is said that needs to be said».

Now, let us suppose that some of the rival interpretations of «democracy» are put forth by their advocates. How can we attempt to subsume the usages under the definiens of 'correct as applied to language'? What is meant by «required by the language community»? Is the requirement of a language community different from the requirements of its members? If so, how am I to find out the community requirement? Are the requirements somehow detected inside usages, or have they the form of logical constructs?

So little is indicated by the quoted definiens expression that there is scant reason to bother with lists of precizations, and without such lists, subsumptions would be highly arbitrary.

The list of formulations on truth on page 288 exemplifies a low level of preciseness as regards definiens. In the discussion about the so-called «definition of truth», the expression «truth» is extensively commented on. Several directions of precization are found to be plausible. In spite of this, there are still published statements on truth with crude definiens formulations obscuring the discriminations already adopted by others. In such cases, the statements seem to us to be devoid of research value. The following examples do not belong to the statements with the most indisputable ambiguities.[16]

1. «Ein Urteil darf «wahr» genannt werden, «wenn feststeht, dass es sich immer und unter alen Umständen verifizieren wird»» (Moritz Schlick).

   From the context, it may perhaps be inferred that Schlick here refers to sentences that *by definition* are given the «truth value» «true». Thus, for example, «It is Monday today or it is not». Basic ambiguities of philosophical importance are associated with the words «*darf*», «*feststeht*», «*Umständen*» and «*verifizieren*». Possibilities of subsumption on the basis of well-established auxiliary hypotheses are scant. The term «*darf*» makes it difficult to determine whether an N- or a Ds-definition, or a combination, is intended.
2. «Ein Urteil ist wahr, wenn es einen bestimmten Tatbestand eindeutig bezeichnet» (Moritz Schlick).

   In the definiens formulation of this definitoid statement, the expressions «*Tatbestand*» and «*eindeutig bezeichnet*» are especially difficult to interpret so as to make subsumption possible. There are a great number of directions of precizations, some of which have been adopted by Schlick's critics, and others by his sympathizers.
3. «Das Kriterium für die Wahrheit oder Falschheit des Satzes liegt dann darin, dass unter bestimmten (in den Definitionen angegebenen) Bedingungen gewisse Gegebenheiten vorliegen oder nicht vorliegen» (Moritz Schlick).

   In this sentence the expressions «*Bedingungen*», «*Gegebenheiten*», and «*vorliegen*» make it difficult to carry out subsumption.
4. «When we say: something is true, we mean that «it agrees with observed facts» (Bertrand Russell).

   The ambiguities of «agree with», «observed», and «fact» have been extensively discussed. Such a formula has no research value unless we precize it in one of the directions already indicated in past and contemporary discussions among philosophers and scientists. For purposes of popularization it *may* have some value. Even that seems implausible, however, because even among persons who have never read a philosophical text (except perhaps some parts of the Bible) there is some tendency to ask for precizations. I think the tendency—which is not prevalent among them—should be encouraged by offering them fairly precise formulations.

5. «A form of words is true if a person who knows the language is led to that form of words when he finds himself in an environment that contains features that are the meaning of those words, and these features produce reactions in him sufficiently strong for him to use words that mean them» (Bertrand Russell).

The extensive discussions going on among professional philosophers indicate that the discussions are not thought of as discussions about alternative formulations of one and the same proposition (statement), but about different statements on one and the same issue. They are conceived as rival «theories», perhaps rival theories about usage and about characteristics deducible from usage. On this point there are, however, divergent views and considerable lack of preciseness.

To test the so-called «truth theories» conceived as descriptive definitions, we prepared a list of about 8,000 occurrences of «true», «truth», «truly», «*vrai*», «*vérité*», etc., in scientific literature. The next step was to inspect the definitoid formulations on «true», «truth», etc., in the light of these instances. Let us consider an example picked out at random:

L. V. Pirsson says in his *Textbook of Geology* (1924), «The actual rate at which geological work is accomplished, from the human standpoint, is, in general, very slow. Of course, in some cases, as where in a volcanic eruption, a very large amount of matter is suddenly transferred from the inside to the outside of the earth, the work done is not only evident, but startling. The same would be true for instance in the case of heavy landslides. But, in general, the amount of work done at this rate is small, compared with that accomplished, much of it imperceptibly, most of it so slowly, that it is only in viewing the results achieved that we can *truly* judge of its extent». . . . «The erosive power of a current varies as the square of the velocity, with equal size and distribution of particles. That this is true may be easily proved.»

The juxtaposition of instances such as these of the use of «true» with definitoid formulations reveals so many difficulties of subsumption that we may wonder how philosophers can have taken seriously the discussion about so-called «theories of truth».

V.20. Indications of Field of Application: Lack of Preciseness and Elaborateness

Dictionary meanings are usually presented with rough indications of intended field of application for each meaning. Some definiens expressions are listed as meanings. What is asserted about them might perhaps be expressed thus: «every single instance of T (definiendum) is synonymous with one and only one of the members of the following heteronymous list of expressions: U_1, U_2, . . . , U_n». Thus, the lexicographer perhaps intends to assert that the definiens expressions taken together have a total field of application that is vaguely limited, but he does not intend to trace out the field for each definiens expression U_i. This means that one cannot use the list to interpret any found instance of T. The only thing we may infer about the instance is that it is synonymous with one of the members of the definiens list.

Usually the lexicographer probably intends to make less pretentious assertions, for example, that in certain representative classes of texts, most of the meanings of the expression T are indicated roughly by the definiens expressions U_1 . . . U_n. Sometimes it is explicitly stated that the total field is not equal to the total class of occurrences of the definiendum. Thus, in the *Dictionary of Philosophy and Psychology* (Baldwin 1960) we read, «In political and ethico-political reasoning, different meanings of freedom may be distinguished: (a) a nation is said to be free when not under the rule of another nation, or when not subject to a tyrant who is above law. (b) ---».

In the article on «vague» in the *New English Dictionary* (Murray 1884–1928), one reads, «l. *Of statements, etc.*; Couched in general or definite terms; not definitely or precisely expressed: deficient in details or particulars. 2. ---. 9. ---». Looking through the nine dictionary meanings listed, we find that «statements» are not mentioned except under item 1. From this we may infer that the three synonymity hypotheses under item 1 have a *total* intended field of application covering all cases in which «vague» is used as a predicate of «statements». The «etc.» may indicate that the hypotheses cover a somewhat larger, not specified field.

The absence even of implicit indications of intended field of application for each definiens in ordinary dictionaries makes most entries fall outside the domain of normative and descriptive definitions, but not outside the scope of hypotheses about synonymic alternatives. Entries in technical dictionaries and statements found in scientific and philosophical literature fairly often contain traces of indications. We shall mention some examples.

Bryce's definitoid Statement No. 7 (quoted on page 250) implies that «in its old and strict sense» «democracy» denotes («connotes» in our terminology?) «a government in which the will of the majority of qualified citizens rules, ---». We may interpret Bryce's formulation to imply the following: «Sometimes «democracy» is used synonymously with «a government in which the will of the majority of qualified citizens rules, ---». The class of instances covered by this definiens expression is the class of old instances that also is the class of strict instances.» Thus interpreted, the expression «old instances» indicates the field of intended application. This is a somewhat imprecise and vague expression! The expression «strict» seems to be even less apt to function as an indication of field of application because no criteria of strictness are given. Given an instance, how am I to decide whether the instance is within the field of application delimited as the field of strict application? «T means U within the field of strict use, and the use of T is strict when T means U.» Such tautologies do not help us in subsumption analysis.

Here are some definitoid formulations that can be so interpreted that they give rudimentary or tautological information about the intended field of application:

1. «*Right*. (1.) --- *Philosophically or ethicall*y the term is often used to apply to benefits or privileges that the individual or group feels that it ought to receive from society or from the world at large ---» (Fairchild 1957).

   «Philosophically» may mean «as used within philosophical discussions» or it may mean «when used in philosophical senses» (or it may, of course, mean something else). In the first case, a somewhat more helpful suggestion for subsumption analysis is made than in the second case.

2. «*When we speak of* the democracies we mean those countries where the governments ---» (Blaich and Baumgartner 1966).

   «We» may refer to the two authors, T. P. Blaich and I. C. Baumgartner, and the «speaking» may refer to the book from which the quotation is taken—but presumably a larger field is intended.

3. «*In a wide sense*, democracy means a kind of society or way of life, one of the main characteristics of which is equality: ---» (Wade 1946).

The information intended to be conveyed is, perhaps, only the information, first, that there *exist* occurrences of the term «democracy» such that it means the same as «a kind of society ---», and second, that if different concepts of democracy are classified in terms of richness in connotation, the one mentioned belongs to the rather poor ones. Nothing is thereby said about how to recognize the occurrences that are examples of the wide sense mentioned.

It is, of course, not contested that information about the existence of certain usages often helps us to understand a text, but such statements about usage should not be identified with descriptive definitions. In descriptive definitions the subject matter must be somehow delimited independently of the definiens indication. If it is not, the statement may be formulated thus: «occurrences of class G of the term «a» are such that «a» is synonymous with «b»». The first part of the formulation introduces a reference to a field of application, but it is, in the last part of the sentence identified with the field in which definiendum is synonymous with definiens—an instance of *circulus in definiendo*.

About «equivocate», the *Oxford Dictionary* includes, among other things, «4. In bad sense: to mean one thing and express another, to prevaricate». The subsumption analyst will here have to go into complicated problems of ethics. In the article on «vague» in the *New English Dictionary*, one reads, «2. *Of words, language, etc.* not precise or exact in meaning». At first glance, the field indication of this definitoid formulation may seem fairly precise, but as quoted on pages 293–94, the field of application related to sense number 1 is «Of statements, etc.»; and that of sense number 3 is «Of ideas, knowledge, etc.». How are we to distinguish these fields? It seems natural to elaborate the «etc.»'s of the three field indications in such a way that they overlap. If there are no field indications specific to each sense listed, each hypothesis of synonymity becomes indefinite as regards its scope.

More precise is the following field indication: «democracy—*in political science*, that form of government in which the people rules itself, ---».The indications of intended field of application in the statements of Bryce listed on pages 249–50 are all more or less difficult to use in concrete cases. Some of them seem to imply that the field is the total class of instances of «democracy», but such pretensions seem preposterous and are not in harmony with my high opinion of James Bryce. This makes me reject synonymity hypotheses implying such fields. If that interpretation of Bryce is rejected, however, we are left with such a multiplicity of approximately equally plausible interpretations that it is hard to make a choice.

The importance of fairly precise indications of intended field of application does not need to be argued in detail. Lack of preciseness and elaborateness makes it necessary to add to subsumption hypotheses «*if* the occurrence is one covered by the synonymity hypothesis». The confirmatory or disconfirmatory weight cannot be judged as long as we cannot decide in most cases whether an occurrence of an expression belongs to the class of occurrences intended to be covered by the definition.

V.21. A Vicious Circle Created by Interpreting Definiens on the Basis of Examples Offered in Support of Normative and Descriptive Definitions

Subsumption analysis soon reveals that presumably intelligent and competent subjects are astonishingly uncritical when they read texts containing definitoid statements and applications of those statements. The uncriticalness seems so great that it is necessary to try to find special reasons for it. Herman Tønnessen (1948) worked out questionnaires that included small texts in which definitions were used. Some of the texts were worded as follows: «The word «typical» seems to be used in different ways. Occasionally it is used in the sense of «frequent», as, for example, in the sentences: ---.---». He inserted sentences that made it preposterous to believe that the word was used as indicated in the text. Nevertheless, there was a tendency among the subjects to agree to the subsumability. Some questionnaires were constructed with questions such as «Do you think «a» is a good or bad example of «b» being used in the sense of «c»?» They revealed lack of definite criteria of subsumability.

According to Tønnessen, one of the main reasons subjects' uncritical attitude toward definiens formulations, and the subsumption of occurrences under the definiens concept, is their tendency to interpret the definiens formulation in the light of subsequent occurrences of the definiendum expression. Thus if «type» is defined, and the author uses the sentence «a is a type», the subjects change their interpretation of the definiens formulation if the properties they attribute to a seem not to allow subsumption if they stick to their initial interpretation. They dare not rely on their initial interpretation of the definiens. This procedure radically destroys the function of the definition: instead of giving us precise hypotheses and norms for usage to be tested by observing usage, the definitional formulation is looked on as a formulation the meaning of which is to be understood by means of the use of the definiendum within the field of application. As a result, there is a tendency to accept uncritically whatever subsumptions are explicitly or implicitly asserted.

The uncriticalness toward definitions is partly fostered by a bad tradition within elementary analysis. To quote Tønnessen (1948: 42; my translation):

> It is current analytical and lexicographical practice to slur over the difficulties of subsumption by avoiding explicitly mentioning whether exemplifications are meant to be didactically useful illustrations of a definite theory of usage or whether they are meant to furnish material for a decisive verification of the theory. This brings the proponents of the theory into a favorable position from the point of view of tactics in controversies. The favorable position enhances the self-deception concerning the unassailability of the theory—without improving appreciably its tenability in practice. «To bring out more precisely what I mean, I shall give an example ---» is a stereotype cliché. Under such circumstances, the readers tend to perform the subsumption easily because the choice of example influences the interpretation of the described usage [the definitoid formulation] in such a way that it nearly by definition implies the subsumability of the example. This is then taken to support the tenability of the theory [the Ds-definition] as a symptom that the theory covers the field of application represented by the «example».

V.22. A Vicious Circle Created by Interpreting Occurrences (Instances) Offered in Support of a Synonymity Hypothesis on the Basis of That Hypothesis

The uncritical attitude toward definitoid formulations suggestive of descriptive definitions seems also to owe in part to a tendency within lexicography to describe instances (occurrences) halfway as didactical illustrations and halfway as confirmatory instances. Because of the vague, incomplete, and imprecise way in which the instances are offered, readers use their interpretation of the definitoid formulation as a basis for their interpretation of the instances (occurrences).

The incompatibility of this circle with scientific methodology may perhaps be illustrated as follows. Suppose a zoologist suddenly announces that five species of a genus of animals must be distinguished, and not just two as has been done so far. He then gives a definitional description of the five species, adding a brief description of animals of the five species. Now, any zoologist interested in testing the five-species hypothesis would probably request specimens of animals classified into the five classes, or at least descriptions sufficiently precise and elaborated for him to make a decision about subsumability. He would most emphatically reject the possibility of verification by interpreting the words used in descriptions of specimens in the light of the five-species hypothesis. Let us suppose the description of a specimen of species number 4 includes the vague phrase «very long bones» and that the testing zoologist finds fifty senses of the phrase that, if one of them were intended, would support subsumability under species number 4, and fifty senses that would not support subsumability. It would undermine zoology as a science if the testing zoologist concluded «Confirmatory instance!» on the basis of the fifty interpretations that make the vague phrase «very long bones» fit the definitional description of species number 4.

Even in the, presumably, most authoritative dictionaries and encyclopedias, it is often not clear whether quoted passages are meant as occurrence sentences that support a synonymity hypothesis or whether they are didactical illustrations. Moreover, when the quotations are clearly to be understood as examples of subsumable occurrences, it is often not clear whether the authors mean that every instance of the quoted expression gives subsumable occurrences or whether the expression only sometimes has the sense described. If it is only meant that it sometimes has the sense, and sometimes not, it is very difficult to test the hypothesis.

Some lexicographers may be very clear about what they intend, but in no lexica or dictionaries have we so far been able to find fairly precise descriptions of what they intend. This seems to be an important source of the prevailing uncritical attitudes toward «dictionary meanings».

In concluding this chapter, we might once more indicate the nature of subsumption analysis and the difficulties involved in its implementation: the observational material of subsumption analysis is made up of definitoid formulations and occurrences of expressions presumed—on the basis of more or less confirmable and confirmed hypotheses—to fulfill the requirements of being definiendum expressions in the definitoid formulations.

The subsumption analysis consists in attempts to solve in a fairly reliable way questions of the following kind: is the observed occurrence a_1 of a definiendum in conformity with, or in disconformity with, or irrelevant in relation to, the definitoid formulation «b» interpreted in the way «c»?

As a special case, we have the question of whether an author follows his definitions.

From philosophical and other literature one gets the impression that conclusions in the field of subsumption analysis are thought to be easily obtained. By pointing to some of the difficulties encountered in trying to reach conclusions, the preceding sections have perhaps contributed to dispelling that impression.

The next chapter, «Occurrence Analysis», deals with a more comprehensive subject, which includes subsumption analysis. The problem will be: given a set of occurrences of a designation or a sentence, can a usage characterization be found such that it can account for the occurrences as subsumable under the characterization and such that (in certain types of cases) prediction can be made of future occurrences?

The main difference between subsumption analysis and occurrence analysis is that in subsumption analysis we start from given definitoid statements, whereas in occurrence analysis the construction and reconstruction of definitions are part of the job to be done.

VI

Occurrence Analysis

A. Occurrence Analysis Characterized

VI.1. Introduction: Meaning Revealed by Use

It is a valuable slogan that to find the meaning of a term, one should not *ask* about it but observe what people *do* with it. From the use of the term, as observed in concrete situations, the linguist is believed to «see» what it means or to «infer» its meaning by clear-cut methods.

Bronislaw Malinowski, the anthropologist, plunges into the activities of the natives, accompanies them on their fishing trips, listens to their shouts during work requiring cooperation—and he *understands* what they say.[1]

Whereas Malinowski sees meanings by enjoying life in the South Pacific, P. W. Bridgman «sees» the meanings of physical terms by looking at physicists handling measuring rods and other laboratory equipment. Bridgman's maxim is also to disregard the explanations that physicists give of their terms and to look closely instead at how they use them, or to observe «which operations they mean». Bridgman and others seem to catch meanings of terms by direct awareness of behavior. There is very seldom any description of *inferences* from described observations of behavior to meanings.

The reasons for not taking ordinary people's or politicians' definitions of terms seriously are too well known to warrant explicit formulation. But there are also well-known reasons not to trust experts. Einstein disregarded Newton's normative definitions of «space» and «time» and studied the use of time and space designations in concrete research situations, especially in situations in which physicists confirm or disconfirm hypotheses involving measurements of time and distance. The transition from analysis of definition to analysis of use is a primary concern in analytical philosophy as well as in scientific methodology.

The slogan that to find meanings one should observe what people *do* with terms rather than listen to people's answer to questions about how they use them is valuable insofar as it undermines the belief that we always follow our normative definitions, or always *can* follow our (vague) normative definitions, or always are capable of making tenable descriptive definitions of terms we use.

In this chapter some features of analysis of use are systematically described. First of all, it has been our aim to give explicit form to procedures that so far have been carried out without being described and evaluated as to their validity and presuppositions.

Our aim is to concentrate on cognitive meanings of abstract terms and therefore to develop a technique for constructing and testing descriptive definitions of use. To limit our task to manageable proportions, we shall not discuss ostensive definitions and related problems, but mainly look for meaning by analysis of occurrences of terms in *texts*.

One of the chief imperfections of traditional attempts to find meaning by «seeing how a term is used» is the tendency to keep secret just *which occurrences of the term* are covered by the analysis, and which are the *auxiliary hypotheses* made use of in each case to arrive at the conclusion that a definite occurrence of a term conforms to the adopted definitional description of use.

If, in the future, thorough methods are developed for finding meanings from observation of use, then the insistence on exposition of minor research activity units, such as inferences from quoted individual occurrences, may safely be left out; however, the confused state of affairs in semantics makes broad explicitness a necessary condition for progress.

The importance of connecting hypotheses about usage with definite, quoted, or otherwise described instances of the term whose use is under investigation, has motivated us to call the quest for reliable hypotheses of usage by analysis of occurrences by the name «occurrence analysis».[2]

VI.2. Natural Occurrences and Artificially Produced Occurrences

The occurrences taken into consideration by lexicographers before they formulate their dictionary meanings are mostly occurrences in printed texts.

The works of some representative authors are gone through and all occurrences of certain terms are listed, usually together with the immediate verbal context.

In the case of slang dictionaries and others dealing with highly fluid language structures, there is a greater tendency to ask users to articulate their meaning: «what do you mean by --- ?»; «how do you use ---?»; «is this a word for thief?»; and so on. Or, more indirect methods are used: «how would you translate --- into ---?»; «what do you call this thing ---?»; «what do you see there?»; and so on.

In the latter cases the immediate verbal context, and sometimes the psychological and social situation, is deliberately controlled with a view to producing occurrences of special interest and importance. When occurrences are produced in this way, we shall speak of «artificial» occurrences and distinguish them from «natural» ones.[3]

In a completely general description of a usage, the cases of artificial occurrences are intended to be covered by the description. There are occurrences that, strictly speaking, are not produced by those who answer questions of the kind mentioned above, but nevertheless are imputed to them. If the analyst asks, «Do «a» and «b» in this text express the same cognitive meaning to you?», and «Yes» is answered, the very short answer is expanded into ««a» and «b» express the same, etc.», and an occurrence of «a» and «b» is put into the occurrence protocol.

If colored papers are placed before a test subject and he is invited to classify and name colors, the answers contain occurrences of color names that profitably can be made the basis of occurrence analysis. That the experiment may be intended for nonsemantical purposes does not preclude the pertinence of occurrence analysis to many conclusions traditionally based on the answers. When in experiments of psychological aesthetics, people are asked which shapes of triangles or other items they «prefer», some differences in answers can be taken as evidence of differing interpretations of «prefer» and other words in the questionnaire. If the respondents had interpreted the crucial terms in the same way, their answers might have been identical. Thus, interpretational differences may in many cases be of importance to the evaluation of conclusions about «which shapes are preferred». It is, however, usually ignored that such conclusions, and similar ones to any questionnaire whatsoever, have their semantical aspects, which, if ignored, render the conclusions scientifically of little value. The possibility that differences in answers may be attributable to different interpretations or different solutions of subsumption problems is taken seriously by only a small percentage of researchers using questionnaires.

The analyst presumes that all respondents interpret the questions in the same way that he does. All the advanced techniques by which attempts are made to eliminate this source of error are based on kinds of occurrence analysis. The basic hazards and difficulties of occurrence analysis are implicitly presumed to be mastered.

The use of occurrence analysis in psychological and social science techniques is not illustrated in this chapter. It deals more generally with those basic difficulties of occurrence analysis that must be overcome to make it a reliable tool in all sciences, formal and nonformal, social or nonsocial.

VI.3. Main Steps of a Standard Connotational Occurrence Analysis

1. Identifying and Specifying of Occurrences to Be Analyzed

To make a critical evaluation of methods of occurrence analysis feasible, we need a fairly precise description of possible methods. At this stage of preliminary research in semantics, it is not of prime importance that all details of the described procedures should prove fruitful. The description of details is important only to make sentences about occurrence analysis practically *testable*. It is the requirement of testability that makes us go into details in the following descriptions. We shall describe a procedure that we shall call «standard connotational occurrence analysis». It is meant to function as a sort of reference scheme in relation to which a great number of procedures may be described in a few words by reference to possible modifications of the standard.

Let us suppose that a class of instances of the use of a designation is given in the form of a list. In that list, each occurrence is numbered occ. 1 to occ. n and distinguished by a quotation giving the immediate verbal context, or by some details of the nonverbal situation. Somehow, the class of occurrences must be delimited in a way that makes it possible for different analysts to study the same occurrences. This is very simple if, for example, we can define the class as «the class of occurrences of the designations «*demokratisch*» and «*Demokratie*» in the collected works (edition specified) of Karl Marx». To ensure that different researchers have their attention concentrated on the same occurrences, it is convenient to use a numbered list or card index of occurrences, regarded as complete. In the following, we presuppose that the occurrences made use of in a standard analysis are numbered. In Norway there is a card index covering all instances of all words used by Ibsen in his complete works. A great number of similar occurrence collections are available in various countries, but few are of interest to those studying technical terms and cognitive meanings rather than all kinds of functions of all kinds of words.

In jurisprudence it is often important to know where to find every occurrence of a certain term or expression that has been produced by certain individuals or institutions. Seldom, however, are complete descriptive definitions of use sought. It is usually sufficient to establish narrow subsumability hypotheses, a much less difficult task. Suppose there is a controversy about whether an action A is a case of 'murder'. If a defendant can convince the court that any acceptable use of «murder» is such that every act called an act of murder has the property B, and if he can also convince the court that A does not have the property B, then there is no need for the defendant to go into further analysis of use. It is of no use for him to try to convince anyone that a certain complete descriptive definition of murder is correct.

It is our view that the *first step* of an acceptable standard connotational occurrence analysis is the orderly arrangement of the class of occurrences to be analyzed.

To many it may seem pedantic to ask for better delimitation of a pretended field of application than that given by names of texts or authors, but expressions such as «Marx's use of the term 'democracy'» and «'democracy' as used in Aristotle's *Politics*, translated by Ross» are difficult to apply in concrete research work. If one attempts to construct easily testable hypotheses about usage on the basis of fairly well defined classes of instances of use, there must be indications about how to decide whether an instance of a term is an instance of a definite author's use.

Let us, as an illustration, suppose that we are interested in analyzing Andrej Y. Vyshinsky's use of the terms «democratic» and «democracy» in his *Law of the Soviet State*, translated by H. W. Babb. The first chapter of that book contains about sixty-five instances of the sequences of letters d-e-m-o-c-r-a-c-y and d-e-m-o-c-r-a-t-i-c, but in only about fifty cases should they—as far as I can judge—be classed as use occurrences of these terms. The others are found in quotations, or in other contexts suggesting that they are not meant to represent Vyshinsky's own usage. Thus, disagreement among analysts about his usage may in some instances owe to different rules for delimiting occurrences. This can be avoided by constructing a list of occurrences—a list of references to definite places in a text, or a list of sentences with page references. We have on page 334 offered a list of the latter kind.

2. *Listing Occurrence Implicates*

As a *second step* we take successively the first, second, and so on, occurrence sentences and ask for each, What can be inferred from this sentence, by simple means, about the cognitive meaning of the designation under consideration with a fairly high degree of certainty and without departing appreciably from the author's actual wording? What we answer to this kind of question is formulated under the heading «*occurrence implicates*».[4]

It is necessary in this procedure to take rather unproblematic and simple inferences first, because of the tremendous complexity and disheartening uncertainty of most inferences that are needed to reach reliable descriptive hypotheses of usage.

It is, of course, arbitrary, within certain limits, where we trace the line between implicates in the sense indicated and other inferences. This does not destroy the usefulness, however, of stating whether one views a suggested inference as an occurrence implicate or not. Ultimately, the distinction between occurrence implicates and other inferences is purely heuristic: we claim only that the distinction makes occurrence analysts less likely to succumb to uncritical guesses and the analysis easier to survey, to communicate, and, in practice, to test.

The procedure for formulating a preliminary system of occurrence implicates is most easily surveyed in the case of a more or less isolated text being analyzed, in which there are n successive occurrences: occ. 1, occ. 2, . . . , occ. n. By isolation, we here refer to (a) a real absence of detailed knowledge of the text's author or public, ignorance of external and internal circumstances of publication, and so on, or (b) a methodologically motivated decision to limit argumentation (ad hoc or indefinitely) to arguments based on the text in more or less complete isolation from special information about the nonverbal context, and from verbal contexts other than the text itself. In the following discussion, for reasons of simplicity, the sentences that describe procedures refer to isolated texts, if nothing else is explicitly mentioned.

Let us consider some examples of kinds of inferences and their formulation:

Designations: democracy, democratic. Text: Vyshinsky, *The Law the Soviet State* (1948), translated by H. W. Babb. Occurrence: no. 21, page 43. Quotation from the context:

> The essential and fundamental preeminence of Soviet democracy [occ. 20] consists in the fact that for the first time in history the nation itself truly carries state government into effect in its own interest, depriving exploiters of all their privileges and advantages. Herein is also the fundamental feature of Soviet State order (the only truly democratic [occ. 21] order) guaranteeing the satisfaction of all demands and needs, of all the interests and requirements of the popular masses of toilers.

Some suggestions for implicates based on occurrence sentence 21:

1. As used at occ. 21 by the author of the text, the term «democratic» expresses something that makes it meaningful to say about a state order—in the author's sense of «static order»—that it is truly democratic, or that it is not truly democratic, or that it is democratic, or that it is not democratic.
2. As used at occ. 21 by the author of the text, all state orders except one are subsumable under the class 'not truly democratic state order'. Or, more accurately: as used at occ. 21 by the author of the text, the expression «state order» denotes—on the basis of the opinions Vyshinsky entertains about state orders—things that, with the exception of one, are subsumable under the class 'not truly democratic state order'.
3. As used at occ. 21 by the author of the text, «democratic» expresses something that makes it meaningful to say, «Soviet state order—in the author's sense of «state order»—is a truly democratic order» and «Soviet state order is not a truly democratic order».[5]

4. As «democratic» is used at occ. 21, it is not only meaningful, but also expresses a tenable assertion according to the author to say that «Soviet state order is a truly democratic order»—on the basis of those opinions that the author entertains about what he calls «the Soviet state order». (The last phrase is of importance because Vyshinsky's assertion about the democraticity of the Soviet state order depends both on his usage and on his theory about how things are in the Soviet state. These two factors must in occurrence analysis be kept apart as clearly as possible.)
5. The signification of the term «democratic», as interpreted at occ. 21 by the sender Vyshinsky, and the opinions on state orders entertained by him are such that it is possible for one and the same state order—in the sense of the author—to have the two properties (a) being truly democratic in the sense of the author, and (b) guaranteeing the satisfaction of all demands and needs, of all the interests and requirements of the popular masses of toilers (all the terms being taken in the sense of the author).

The use of the expression «truly democratic» in occurrence sentence 21 is problematic: it is possible that it expresses a concept with the conceptual characteristics of 'democratic' plus some additional ones, or, that 'truly democratic' and 'democratic' each have at least one conceptual characteristic that the other does not have. In that case there may be truly democratic things that are not democratic, and there may be things found to be democratic that would not be truly democratic if certain additional characteristics were found. In the above implicates, it is assumed that if something, in the terminology of Vyshinsky, may be called «truly democratic», it might also (without logical contradiction) have been called «democratic».

It is tempting to infer from occurrence sentence 21 a closer relation between the two properties distinguished in implicate 5, but it is found convenient in a preliminary list of implicates only to include moderately reliable ones. A closer relation may be inferred from the total context comprising occurrence sentences 20 and 21.

The five implicates are all made on the basis of occurrence sentence 21. Other occurrences are not used in the premises of the implicates, nor is special information used that could make the conclusions more precise or elaborate.

An indefinite number of inferences other than the listed ones might be added by careful analysis of all that Vyshinsky has said about subjects mentioned in the references. Thus, to implicate 1 might be added an accurate description of state orders on the basis of available information about Vyshinsky's opinions on state orders. According to implicate 1, state orders belong to the class of things that may be «democratic» in the sense of «democratic» intended at occ. 21. Thus, a description of Vyshinsky's classification of state orders is (if implicate 1 is valid) relevant to any hypotheses about the cognitive meaning of Vyshinsky's assertions of the type «x is democratic».

Similarly, Vyshinsky's opinions (at the moment of his sending occ. 21) about the Soviet state order are relevant in efforts to elaborate implicate 4. Just this richness in relevant issues makes it advisable to proceed from the narrower, more easily surveyable sources of information to the broader, less easily surveyable and describable sources. Therefore, step 2 in our procedure is delimited to the listing of occurrence implicates. If it is not, analysts can make no effective collective effort to arrive at well-established, precisely formulated hypotheses about usage.

Indirectly, any kind of knowledge may turn out to be important for the establishment of a descriptive definition. Therefore, if such a definition is put forth as valid without specification of sources of information, the immense fields of observations that possibly could confirm or disconfirm it are relevant to its evaluation. If two analysts arrive at incompatible conclusions about Vyshinsky's use of the term «democratic», it is of prime importance to rapid progress of research on the subject that the analysts can and do specify their premises and sources of information. As such a specification is particularly easy in the case of close inferences from occurrence sentences, we suggest that implicates be made to occupy a prominent place in a preliminary system of occurrence inferences.

The above-formulated inferences from occurrence sentence 21 seem to be sufficiently closely related to the sentence to warrant their classification as implicates. At a mature stage of the development of occurrence analysis, there will be room for a more precise classification of inferences based on a classification of the kinds of premises used.

The listed formulations expressing the implicates from occ. 21 are all sentences with similar conditions listed. Standardized implicates can be formulated thus:

> «At occurrence number x of the term «a», the author intends by the term something that makes --- subsumable under 'a', provided «---» is interpreted as does the author and provided he does not make false subsumption inferences».[6]

The cumbersome repetition of references to the author's usage at occurrence number x, and to the author's opinions about things denoted by certain terms, makes it convenient to abbreviate the occurrence implicate sentences.

Reformulated and abbreviated, the class of implicates from occ. 21 runs as follows:

i_1: A state order may be democratic or it may not.
i_2: There is only one truly democratic state order.
i_3: The Soviet state order is a truly democratic order.
i_4: A democratic state order may have the property of guaranteeing the satisfaction of all demands and needs, of all the interests and requirements of the popular masses of toilers.

If we are to avoid far-reaching misunderstandings and untenable implicates, it is of paramount importance to remember that these formulations are abbreviations by which essential references are left out.

Implicates 4 and 5 are here given the labels i_3 and i_4, because inference 3 has not been found sufficiently certain and interesting to be included in the definitive version of implicates of occ. 21.

The reason for the omission is not that number 3 is implied by number 4. If one or more implicates within a class are implied by another of the same class, this is not a sufficient reason to eliminate the weaker ones and retain the strongest, that is, retain the implicate implying the weaker ones. To make the logical relations—especially the consistency—between implicates of different occurrence classes easily surveyable, it is safe to split strong implicates into a series of weak ones, the conjunction of which is equivalent to the strong one. This does not, however, make it superfluous to state the strong implicate. It is a bit of inferred information that has a stronger foundation in observation than an equivalent sentence constructed by weaker sentences if these are the only implicates at hand.

If the occurrence analysis is limited to a study of instances of a designation or sentence within a given text, the second analytical step is completed when, for each occurrence, there is listed a class for implicates.

It might be objected that the standard connotational occurrence analysis, as described so far, attaches too much importance to occurrences of the term investigated as compared with other words of the surveyed text.

This objection would be well founded if the number of sentences we, here in this exposition, use to describe the technique of implicate construction on the basis of occurrence sentences were to be taken as the measure of their importance. Actually, considerations of testability have made us stress the details of implicate construction on the basis of such sentences. As long as the ultimate goal is to construct valid descriptive definitions of usage, no other sentences than occurrence sentences are relevant except indirectly. If a text about democracy includes the occurrence sentence «Democracy is the rule by the people», a descriptive definition of «democracy» may conceivably be chiefly based on ninety-nine sentences containing the word «people» and only the quoted one containing an occurrence of the term «democracy». The relevance, however, of the ninety-nine other sentences is completely dependent on the one occurrence sentence. If that particular sentence had not been in the text, the connection between the use of the term «people» and that of «democracy» would no longer exist. The ninety-nine sentences would have no validating power whatsoever in relation to hypotheses about the use of «democracy».

Thus, the occurrence sentences occupy a unique position among the sentences of a text being surveyed. This should not lead, however, to an exaggerated view about the amount of evidence that can be collected without taking other sentences into account. The latter sentences may turn out to be far more important, but their importance owes to what we find formulated in the occurrence sentences.

If we were to turn away from descriptive hypotheses regarding the use of terms, and were to study the use of concepts, then occurrences of specific concept designations would not have a unique position. In that case, any term expressing the same concept would be equally relevant.

3. *Interpreting Occurrence Implicates and Constructing Other Inferences*

An occurrence sentence may give rise to various conflicting, but plausible, interpretations. The translation into the vocabulary of the analyst and his readers implies use of interpersonal synonymity hypotheses. Observations and theories from the most dissimilar fields may be of importance to their tenability. This explains our stress on making an implicate list before interpersonal synonymity hypotheses are put forth. By making that list, we survey the context as a whole, and we concentrate our attention on the language of the author. Precocious hypotheses about exactly *what* the author intends to say easily develop into prejudices. Interpretation of implicates ought to be a third step of analysis, after one has been through the text at least once. Possibilities of interpretations are considered in reference to the text as a whole and to the implicate list.[7]

Let us consider the fifth occurrence sentence in Zaslavski's *La démocratie soviétique* (1946–47: 20):

> Le régime soviétique est démocratique sous tous ses aspects, y compris son aspect économique.

An implicate:

1. Regimes may be classed into democratic and nondemocratic ones.

It might also be formulated that «Some or all democracies are regimes», but scarcely that «All democracies are regimes».

The last formulation furnishes us with a genus definition (see chapter 4, page 163). On the other hand, it presupposes that the transition from «democratic» to «democracy» is justifiable.

How is implicate 1 to be interpreted? The wording is in part borrowed from Zaslavski—from him stems the word «regime»—and in part we have used our own expressions.

Some difficulties arise from *uncertainty regarding how to interpret the sentence schema* consisting of all words of the occurrence sentence except the designation to be analyzed. The possibility must be reckoned with that two or more different interpretations T_1, T_2, . . . of each occurrence sentence,

T_0, have to be considered separately. Two or more corresponding classes of inferences should then be formulated for each occurrence sentence.

i_1 of T_1	i_1 of T_2	---
i_2 of T_1	i_2 of T_2	---
---	---	---

If most inferences of the various classes are identical or very closely connected, then the common or nearly common inferences may be retained in one class and the rest ignored. If inferences vary widely, the total class of classes may be unsurveyable, or at least it may be unfruitful to try to formulate it in detail.

If inferences are to be formulated in such a way that the analyst attributes a fairly precise meaning to them, this normally requires extensive reformulation and elimination of terms used by the sender of the text. In implicate 1 the term «regime» is basic, but personally (as analyst) I do not attach a definite meaning to the term. An inference formulation that expresses a sufficiently precise meaning to me cannot contain the word «regime» as it occurs in implicate 1. If I eliminate the term, however, I must do so on the basis of solutions to the problem of how to interpret the sender of the text.

What does Zaslavski mean by a «regime»? This word as used by Zaslavski is ambiguous, and for each plausible strong precization, I would have to formulate specific inferences. On the one hand, a regime may be identified with a particular government; on the other hand, forms of government may be meant.[8] Even forms of government and governmental practice may be meant («ancien régime»), so far as I know. The terms «government» and «form of government» are highly ambiguous and require elimination.

Ultimately, an occurrence analysis should furnish the analyst with inference classes containing formulations that are as precise as can be constructed without assuming a depth of intention that transgresses that of the sender. It is probably unwise, however, to try to map out directions of precization the first time a text is studied. The possibilities of precization are so manifold at the initial stages of study that one would be overwhelmed by inferences derived from different interpretations of one and the same implicate.

The following rules are suggested:

1. The text author's expressions used in implicate formulations contained in the preliminary list of implicates are to be interpreted (by the analyst and his readers) as if *used by the author* of the text.
2. Inference formulations contained in the definitive surveys of inferences are to be interpreted in conformity with the *usage of the analyst*.

The latter rule does not (of course) imply that the analyst may indulge in his own terminological idiosyncracies: he should formulate the inferences in such a way that there is maximum likelihood that readers of the analysis who have been informed about the rule interpret the inferences as does the analyst himself. The reader of the occurrence analysis may therefore legitimately reason as follows: «if the analyst is competent, his wording of this sentence is such that I should be able to understand it as he intends—if I can class myself as a reader with such interpretational dispositions as are foreseen by a competent analyst».

It is not necessary for the analyst to interpret the system of implicate formulations with greater definiteness of intention than is required to justify their being inferred from the occurrence sentence. Because it is a characteristic of the implicate that it can be derived fairly simply, the amount of interpretation should be very small. A method of interpretational suspension is convenient and justified. To take an example: if an occurrence sentence reads, «What Smith says is perfectly correct; all democracies are colorless», I would not hesitate to construct the (abbreviated) implicate sentence «Democracies are colorless». This I would do in the preliminary implicate survey even if I had only vague ideas about what the text's author might mean by such a phrase—*if anything*.

It has in the foregoing been stated that the definitive system of inference classes should provide the analyst with formulations that are as precise as possible—within the limits of the depth of intention of the author of the text analyzed. In this respect, the aspirations of the occurrence analyst are different from those of the analyst trying to construct connotational or denotational explications (cf. chapter 2, section 3), or explications in the sense of Carnap (1950: chapter 1), or formalizations in the sense of Woodger (1939).

Systems of inferences in occurrence analysis are systems of purely descriptive, historical, biographical assertions. Written in full, an inference about the term analyzed is formulated so as to show this character: «as used at occ. i by the author x, the designation «a» expresses ---». Assertions of the kind

$$\text{Syn}\ (aP_1S_1, bP_2S_2)$$

are all of the biographical kind, provided P_1 and P_2 are specific individuals or groups.

The constructor of explications and formalizations needs occurrence analysis—but his final product has a normative character: the «definition» he gives may express a usage not exemplified in the past by anybody; it is a construct that may in the future prove convenient or not. Very often, it proves inconvenient or impossible to use, because, after all, to be used the definiens must somehow be connected with the vernacular. If the connection is such that vague and ambiguous phrases are used to explain the intended rules of use, then the explication or formalization may be misleading. Different researchers may easily get inconsistent results because of different interpretations of «*Zuordnungsdefinitionen*».

The very difficult task of going from the formulation of a preliminary system of implicates to the establishment of a definitive system is necessary to provide connecting sentences between explication or formalization and the vernacular or the nonformalized technical jargon of a scientific discipline.

So far, we have discussed the translation of occurrence implicates into the language of the analyst. During this stage of the work, it is convenient also to note any inferences from the occurrence sentences that have not led to occurrence implicates because of their uncertain or free character. Let us consider another passage from Zaslavski's *La démocratie soviétique* (1946–47: 33):

> Démocratie [occ. 70] est le pouvoir du peuple. La démocratie [occ. 71] est l'antithèse de l'aristocratie, du pouvoir des nobles. La démocratie [occ. 72] est aussi l'antithèse de la ploutocratie, du pouvoir des riches.

Suggested inferences:

1. A democracy in the sense of Zaslavski cannot possibly be identical with a society in which the nobles—in a sense of «nobility» used in bourgeois countries—have the decisive political power.
2. A democracy in the sense of Zaslavski cannot possibly be identical with a society in which the rich have the decisive political power.

These inferences are of some interest. They are too uncertain, however, to be classified as «implicates» and cannot be included in the preliminary implicate list. They are rather *interpretations* of the occurrence sentences that are inferred on the basis of uncertain hypotheses about what Zaslavski means by «antithesis», an important word in Marxist doctrines.

Now we turn our attention from the inferences explicitly based on occurrence sentences. The special properties of the occurrence implicates (see page 306) warrant discussion before other inferences are developed systematically. It is now convenient to note any inference whatsoever—short of complete descriptive definitions—that can be drawn from analysis of sentences in the text, whether those sentences are occurrence sentences or not.

The passage from Zaslavski quoted above strongly suggests the relevance for the analysis of the word «democracy» of inferences from sentences containing such words as «people» and «power». The following inferences from sentences in Zaslavski, page 33, are therefore important:

1. It was the people who exercised the power in the Athenian Republic.
2. The people exercise the power if the people have the custom of assembling at a public place and their representatives make decisions about the administration of the state by means of consultation and votes.

Figure 4 illustrates the step-by-step widening of the scope of analysis. Analytical step 4 is discussed in the next section (see page 319).

VI.4. Consistency Problems

The review of inference formulations in the light of the total context may result in reinterpretation of occurrence sentences and implicates and modification of inference classes. The theory of interpretational vibrations caused by broadening the context is relevant here (see chapter 2, section 13).

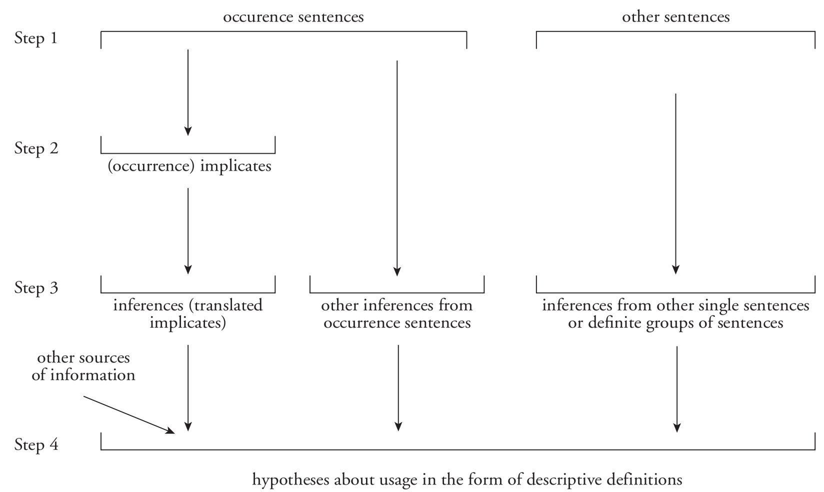


Figure 4. Steps in connotational occurrence analysis.

As soon as more than one of an author's sentences have been translated into the vocabulary of the analyst and his readers, a new set of problems can be attacked: that of the internal coherence and consistency of a set of assertions. Can they be integrated into a consistent doctrine? What are the relations within the total body of assertions made by the author? The result of inquiries into consistency and coherence may be such that initial translations are doubted and new ones attempted. The total body of assertions changes for every reinterpretation and creates fresh consistency problems.

Logical or empirical (synthetical) inconsistencies (see chapter 5, section 8) between conclusions in inferences from the implicates or directly from occurrence sentences are of some importance. Suppose a designation at its occ. i is used in such a way that an assertion 'a' seems to be implied, but 'non-a' seems to be implied by occ. j; that is, suppose there seems to be a logical inconsistency implied by the joint assertion of two parts of the same text. This may be taken as a symptom of

1. use of the designation at occ. i in a sense different from any that would imply 'a' or use at occ. j in such a way that 'non-a' is not implied, or
2. untenable auxiliary hypotheses used by the analyst, or
3. logical inconsistency on the part of the author.

If the weight of the evidence supports symptom 2 better than it supports symptoms 1 and 3, a revision of the system of inferences is called for. The new system may, of course, contain fresh inconsistencies, but we may safely assume that repeated reviews will decrease their number and seriousness.

If symptom 1 seems most probable, and thus the author seems to be using a designation in two ways, this makes it necessary to construct two descriptive definitions to be used in the next version of the translated occurrence sentences.

By empirical inconsistencies we refer to the appearance of two (logically consistent) implicates 'a' and 'b' of such a kind that there is a body of assertions 'c' (presumably) adhered to by the author as a body of empirically tenable assertions, and this body of assertions makes 'a&c' logically inconsistent with 'b', and 'b&c' logically inconsistent with 'a'. for example:

Implicate ‘a’:	No monarchy can be democratic.
Implicate ‘b’:	Norway is democratic.
Assertion ‘c’:	Norway is a monarchy.

Examples of assertions cannot be given without using sentences. In the above example, «Implicate ‘a’: No monarchy can be democratic» can be read as «implicate ‘a’: the assertion that the analyst expresses by the implicate sentence «No monarchy can be democratic»».

If, and only if, one may assume that the author of the text at the time of formulating the occurrence sentences entertained the opinion that Norway was a monarchy, then there is empirical inconsistency between the implicates ‘a’ and ‘b’: they cannot both as conceived by the author analyzed.[9]

Empirical inconsistencies may be taken as symptoms of the three conditions mentioned. There is, however, the additional source of uncertainty represented by the assertion ‘c’: Is it safe to assume that the author believed in ‘c’ when writing the occurrence sentences from which ‘a’ and ‘b’ are derived? How do we know?

In the above exemplification of ‘a’ and ‘b’, the expression «a» for ‘a’ is not satisfactory as a member of the definitive system of inference sentences. In the preliminary system, it may be useful, in spite of the ambiguities of «monarchy»; but in the definitive one, it is important to know whether, for example, «limited (constitutional) or unlimited monarchy» is meant by the analyst, or maybe «unlimited monarchy». If ‘a’ is reexpressed as «No unlimited monarchy can be democratic», and ‘c’ is reexpressed as «Norway is a constitutional monarchy», no synthetical inconsistency arises.

The definitive system of inference classes ought to be arranged in such a way that internally consistent classes can easily be surveyed and thus made the basis for construction of hypotheses about usage in the form of descriptive definitions.

4. Forming and Testing Hypotheses About Usage in the Form of Descriptive Definitions

An occurrence analysis is called «connotational» if the final step is an attempt to establish complete hypotheses of use in the form of descriptive definitions. Such hypotheses may, for example, have the following form:

«The author N. N. uses the designation T_0 to mean the same as:
1. T_1 when using T_0 at occurrence numbers --- of the text F,
2. T_2 when using T_0 at occurrence numbers --- of the text F, etc.»

The designations T_1, T_2, . . . are here definiens formulations of descriptive definitions, with T_0 as definiendum and a certain class of occurrences as the intended field of application.

As an example of hypotheses of use that are not in the form of descriptive definitions, and therefore are not representative of conclusions in connotational occurrence analysis, we mention the following genus definition sentence:

«Aristotle used the designation «democracy» to mean a kind of government, not a kind of society».

By such a sentence something is asserted about the use of a term, but not in the form of a descriptive definition. Nothing is said about what kind of government «democracy» is used to designate.

The tentative descriptive definitions are, in principle, guesses or assumptions guided by the implicates and whatever evidence is at hand, and not sentences derivable by logic from the system of implicates or from any established theory of human verbal behavior. To «see» that a designation or sentence is used in a certain sense by «looking at» the context is a metaphor that well depicts a common attitude of optimism in matters of semantics. It stems perhaps from the frequent cases in which we are pretty sure that either T_1 or T_2 is meant by T_0; no other possibilities may be expected. Any symptom that T_1 cannot be meant will in that case make us postulate that T_2 is the correct interpretation. The general situation is usually such that no great level of preciseness is required. Occurrence analysis is, on the other hand, first, an instrument by which to find out about cognitive meanings without presuming to already know approximately where to find the solution, and second, an instrument by which to test tentative solutions derived by mere guessing.

Against the thesis that there is never a relation of strict or material implication between classes of implicates of occurrence sentences and descriptive definitions, two objections deserve to be mentioned. The first may be phrased as follows:

«If a man introduces a normative definition of a designation and proclaims all his future texts to be the field of application, he may well forget his intention and violate his own definition the next moment. But in the definition itself he at least uses the designation as defined. Thus, from the occurrence sentence consisting of the normative definition itself, the appropriate descriptive definition can be inferred without chance of error—the definiens of the descriptive definition that solves the problems of the occurrence analysis under the specified conditions is the definiens of the normative definition.»

Our answer is: If a person introduces a normative definition by which a T_0 is defined by a T_1 (the definiens), the occurrence of T_0 as definiendum in the normative definition is not an instance of T_0 being «used», but of T_0 being talked about. It belongs to the metalanguage. If T_0 in the normative definition were intended to be interpreted as T_1, the normative definition would be the rather trivial «By T_1 I shall in the future mean T_1».

A second objection runs as follows: «Suppose an author intends by the designation «the Scandinavian countries» to express the same as «the countries Sweden, Denmark, and Norway» within a given context. Now, if the implicates found by occurrence analysis are «Sweden is a Scandinavian country», «Denmark is a Scandinavian country», «Norway is a Scandinavian country», and «There are three and only three Scandinavian countries», then the definiens of the correct descriptive definition is *derivable* from the conjunction of the implicates».

It is admitted that if I had the above system of four implicates, I would be very sure that «the Scandinavian countries» was used as mentioned. It is important to note, however, that my conviction would not stem from inspection of the system of four implicates. These four implicates are also compatible with the assumption that the author by the designation «the Scandinavian countries» meant «countries the kings of which were in 1940 more than six feet tall» or «constitutional monarchies the most southern points of which are more than 50° north of the equator».

There are also other considerations that throw light on the untenability of the objection and its basic misconceptions. The so-called «implicates» of the last sections are—as mentioned—not implicates in any of the senses of modern logic. From the implicate «Sweden is a Scandinavian country», nothing about the *intention of the author* of the occurrence sentence can be derived. Whatever I say, it cannot *by logic alone* be inferred what

I intend by my words. To avoid some of the misconceptions that arise from underestimating the distance in meaning between conjunction of occurrence implicates and descriptive definitions, we must bear in mind that the usual manner of formulating those implicates owes to an abbreviation of rather complex formulations (see pages 309–10).

For many purposes it is of slight importance to know exactly what an author intended (if anything at all). In that case one may close the occurrence analysis when it is found that all descriptive definitions of a certain class of similar definitions are consistent with all the occurrences under investigation.

Let us take an example just to illustrate how we need occurrence analysis to find a class of descriptive definitions consistent with the occurrences in a text. Suppose we are interested in the creation of a fairly exact introduction to the mathematical theory of matrices. By «matrices» we do not need to mean anything very definite at the initial stages of the investigation. We simply begin reading various mathematical texts that claim to deal with matrices. Among the many authoritative texts, we find the work of Frazer, Duncan, and Collars (1938). One of our problems will be, Should we accept these authors' concept as the most exact and fruitful basic concept of our own account? One of the first things to do, then, is to see how the authors explicitly define «matrix». The work opens with a sentence that strongly suggests a normative definition:[10] «[m]atrices are sets of numbers or other elements which are arranged in rows and columns as in a double entry table and which obey certain rules of addition and multiplication» (ibid., p. 1).

There are no other sentences that suggest a normative definition. The sentence, whether intended as a normative definition or not, would probably suggest to many readers that the simplest matrix would be one in which there were just enough elements to allow a distinction between vertical and horizontal arrangement. This would suggest an arrangement with four elements, such as (1) below, or an arrangement with three elements.

Readers who from the quoted sentence inferred that the authors intend to use the expression «rows and columns» in such a way that one may in every matrix distinguish rows from columns, would get into difficulties of interpretation when they reached page 2 of the text. There the authors speak about «a matrix with only a single row of elements». A matrix with only one column of elements is also mentioned (ibid., p. 2). Now, the plural in the introductory sentence («rows and columns») might plausibly be interpreted to imply that any set of elements consisting of fewer than two rows and two columns could not possibly be a matrix. The occurrences on page 2, however, strongly suggest an interpretation such as «A matrix is a set of elements arranged in rows or columns or both (and in that case as in a double entry table)—the limiting case being one row or one column, ---».

The following sets of elements would then be matrices in the sense suggested by the occurrences on page 2:

$$(1)\quad \begin{matrix} a_1\, b_1 \\ a_2\, b_2 \end{matrix} \qquad\qquad (2)\quad a_1\, b_1 \qquad\qquad (3)\quad \begin{matrix} a_1 \\ b_1 \end{matrix}$$

Case (1) would also be a matrix in the sense suggested on page 1, with a_1 b_1 and a_2 b_2 being two rows, and a_1 a_2 and b_1 b_2 being two columns.

On page 6, however, the authors state that a certain «product» of two matrices is a matrix with only one row and one column and being identified with only one element, for example, identical with the element a_2 in matrix (1). A single element like a_2 is, according to what is said on page 6, a matrix. To speak of this single element as being arranged in a row or a column goes against the usage suggested by the opening sentence. The occurrences of «matrix» on pages 2 and 6 are such that no normative definition that is supposed to cover those occurrences can imply the possibility of a distinction between row and column within any matrix.

From these occurrences on pages 2 and 6, we conclude: on the assumption that the introductory sentence is a formulation of a normative definition with the whole text as part of its intended field of application, the introductory sentence is an example of a formulation that for some plausible interpretations furnishes normative definitions *not* consistently followed in the intended field of application.

In such a case, an occurrence analysis is warranted, which can result in descriptive definitions such that all or nearly all occurrences of the text are subsumable. The construction of a suitable normative definition proceeds on the basis of descriptive definitions obtained by occurrence analysis. In the above example, a mere glance at the occurrences on pages 2 and 6 of the text probably suffices, for readers accustomed to mathematical devices of concept formation, to make them infer that the authors intend a concept 'matrix' of a rather broad kind. No elaborate occurrence analysis is called for.

It is common to undertake an analysis with a prejudgment in favor of normative definitions that *resemble as closely as possible the unfollowed one*. Not making such a prejudgment leads to complicated observations and inferences as described in the exposition of the standard connotional occurrence analysis.

The shortened analysis does not differ from an ordinary subsumption analysis in other respects than that modified definitions are constructed on the basis of the definition originally given.

Now, if our task is to formulate a fairly exact account of matrices, we shall probably try to make the account include most or all sentences in the cited text dealing with properties of matrices of various kinds. There is no chance, however, that occurrence analysis will be able to furnish a concept of matrix implied by the occurrence sentences. It is, for example, possible to use (a) a concept by which rules of multiplication of matrices are contained in the concept of matrices as conceptual characteristics, or (b) a concept by which such rules are not part of the concept. Further, it is possible to use (c) a concept such that inkblots may be elements of matrices, or (d) a concept such that inkblots cannot be elements.

All theorems in the cited work can—as far as I understand it—be retained as theorems in accounts that have such different concepts at base. Frazer, Duncan, and Collars themselves introduce a very general concept as regards what can be elements (including inkblots), but they offer no theorem about kinds of elements other than numbers and, perhaps, letters.

Inspection of the definitive system of inferences suggests to the analyst the direction in which adequate descriptive definitions may be found. He will tentatively formulate such definitions and try to test formulations. The test consists in trying to determine whether the occurrences are subsumable under the descriptive definition, that is, whether the definition «suits» the instances intended to be covered. One must take each occurrence sentence, use the implicates with their translations, and substitute the definiens of the descriptive definition for the definiendum occurrence. Such a test is, of course, not independent of the assumptions made at the first steps of occurrence analysis. It can only help the analyst, because he usually cannot have all occurrences in mind when framing the tentative descriptive definitions.

The questions of subsuming instances under the definiens of tentative definitions are those of subsumption analysis mentioned in chapter 5, part C. Subsumption analysis is, in other words, one of the tools of connotational occurrence analysis.

The first steps of occurrence analysis are, on the other hand, necessary steps in subsumption analysis, if we ask for subsumability of a series of occurrences of an expression. The differences between connotational occurrence analysis and subsumption analysis may be formulated thus:

1. Subsumption analysis starts with an explicitly formulated normative or descriptive definition that is *given in advance*. Occurrence analysis starts with occurrences and aims at well-founded descriptive hypotheses that are not given but must be constructed.
2. In both subsumption analysis and connotational occurrence analysis, the examination of occurrences normally results in either confirmation or disconfirmation. If the verdict is disconfirmation, subsumption analysis ends, whereas the next step in occurrence analysis is the search for a modified descriptive definition that is not disconfirmed in relation to the occurrence.
3. In subsumption analysis, a conclusion that all occurrences under consideration are subsumable is an ultimate conclusion. In connotational occurrence analysis, the conclusion that all descriptive definitions of a certain class are equally warranted is not an ultimate conclusion. There is still the question, Which occurrence, if any, expresses the intended use of the text's author?[11]

VI.5. Relation Between Practical Testability and the Extent of a Hypothesis's Intended Field of Application

If a hypothesis about the use of a term, let us say a descriptive definition of the use of the term «democratic», is so formed that its intended field of application comprises all occurrences up to 1950, it can, in principle, be confirmed or disconfirmed in relation to a vast number of occurrences. If, on the other hand, the descriptive definition's intended field of application is narrowed down to only one occurrence, let us say to occ. 5 in Zaslavski's text, the practical possibility of testing it is limited to this occurrence, which is only an infinitesimal fraction of all occurrences up to 1950. The vulnerability of the descriptive definition is in this case very much smaller, but so also is its capability of being confirmed. Normally, the test will prove inconclusive because of lack of evidence.

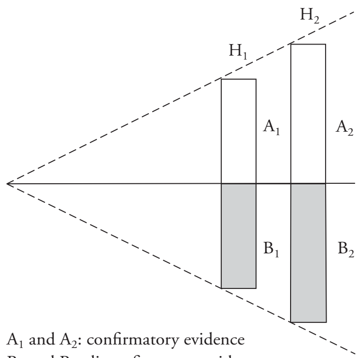
If we try to test a descriptive definition on the basis of a very small number of occurrences, it is highly probable that we shall succumb to the temptation to use as auxiliary hypotheses conclusions obtained from acquaintance with other occurrences. The limitation of occurrence analysis to a definite set of occurrences is very difficult to carry through, and it is utopian to believe in strong confirmations or disconfirmations on its basis. Consider the student of so-called national character. He may *pretend* to base his conclusions on definite tests applied to a small number of people, whereas he in practice largely bases them on general impressions and on current stereotypes concerning the alleged national character.

For methodological reasons, hypotheses intended to cover a large group of occurrences are preferred (other things being equal) to hypotheses covering a small group, because of *the greater testability* of the former.

Suppose a text contains 200 occurrences of «a», and two hypotheses are put forth, one covering all occurrences, another covering only a part. There is a greater chance of building up occurrence inferences suggesting descriptive definitions by means of all occurrences than by means of a part. Thus, there is more material by which to test a descriptive definition claiming to cover all occurrences.

Suppose, however, as is done in the case of occ. 5 in Zaslavski's text (see page 312), that there is some evidence that «democraticity of the economic aspect» means «openness to inspection and discussion of the economic life», and that there is a later occurrence suggesting with the same amount of evidence that the designation at occ. 5 is used in a certain broader sense. Should we then prefer the hypothesis that the expression is used in one sense in both cases or the hypothesis that it is used in two different senses, one narrow and one broad?

The answer would be that *if the evidence is stronger* for the hypothesis implying two senses, then it should be preferred. I do not see, however, that this can easily be the case, and the explanation is in part found in preceding references to small practical testability. To make the point clearer, we symbolize the amount of evidence by the height of rectangles:



$$\frac{A_1}{B_1} = \frac{A_2}{B_2}$$

but

$A_1 > A_2$
$B_1 > B_2$

Hypothesis H_2 should be preferred to H_1 because of a larger amount of evidence.

A_1 and A_2: confirmatory evidence
B_1 and B_2: disconfirmatory evidence

When we prefer the narrow definiens expression «openness to inspection and discussion of the economic life», our preference can be explained, I think, partly by a commonly observed overestimation of the immediate context in judging meanings and partly by expectations derived from occurrences in other texts. The plausibility of this explanation may be illustrated by looking at the following occurrence of the word «steep»:

«Mount Everest is steep. On no mountain is there such a uniformity in the angle of inclination of the rocky slopes».

It would be rash to conclude from the immediate context of the first sentence that the author by «steep» means «uniformity of inclination of angle», and as applied solely to rocky slopes, not to ice. The second sentence is probably not meant to be synonymous with «No mountain is as steep as Mount Everest», which might be inferred if the above rejected hypothesis were tenable. The second sentence would probably have to be taken as an argument supporting a thesis on steepness that is broader than a thesis on the *uniformit*y of inclinations of rocky slopes.

Other examples might be adduced that illustrate how the immediate context can be deceptive and how expectations may easily be overlooked as a factor determining one's judgment of degrees of confirmation. From previous use of «steep» I would tend to expect broader concepts than the one hastily inferred from the immediate context. That makes me not take that context very seriously as an indicator of the meaning of «steep». In the case of the immediate context of the designation «economic aspect of democracy», some analysts may expect meanings close to those suggested by the immediate context, whereas others may recall other occurrences that make them attach low value to the evidence of the immediate context.

An objection might be, How can the above complicated, highly speculative, uncertain argumentations and illustrations be taken as the basis for rejecting one hypothesis of usage as false and accepting a competing one as true? To this it may be answered that there is no question of taking one as true and rejecting others. In the field of elementary analysis, we may try to single out one hypothesis as the *most* tenable among a group of hypotheses, but this does not preclude the requirement that other hypotheses be considered nearly as tenable. In argumentations and plans of actions based on the conclusions, all the hypotheses above a certain level of tenability must be kept in mind. Furthermore, we often lack the necessary basis for picking out one hypothesis as the most tenable within a group, because the components or factors determining tenability are complex, and sometimes only crude oversimplification makes it possible to arrange hypotheses in a one-dimensional order indicating tenability. It must also be borne in mind that, for many practical purposes, we need no clear-cut hypotheses on connotation if many instances of use of the expression are well known to us. We may talk about democracy in a way approved of by our environment without bothering about what the designation means in the sense of connotation.

It might be thought that in occurrence analysis one should first concentrate on finding the meaning of a designation within very small groups of occurrences, and then look for possibilities of meanings common to greater groups. Thus, one would proceed from hypotheses involving the possibility of ambiguity to hypotheses representing attempts to find common meanings that can bridge apparent ambiguities.

The close relation between number of occurrences and practical testability severely limits such a procedure. On the other hand, the possibility that each new occurrence represents a new sense cannot be ruled out, nor should the possibility be overlooked that the designation under analysis may not have any meanings at all in the sense of cognitive meaning. The designation may have only extracognitive meaning or may be used with such a low definiteness of intention that even rough delimitation of connotations is practically impossible.

VI.6. Limited Choice Analysis

Under the name «limited choice analysis» we shall describe a kind of analysis that is not a standard connotational occurrence analysis, but that can be carried out as a partial or simplified one.

A hypothesis of one of the following kinds is postulated, or accepted on the basis of evidence of one kind or another:

(1) «T_0 has the connotation T_1 or T_2 or . . . or T_n.»
(2) «T_0 has the connotation T_1 or T_2 or . . . or T_n or none.»
(3) «T_0 has a connotation with small or no meaning distance from T_1 or . . . or T_n.»

In short, limited choice analysis proceeds from a postulate or initial assumption about which possibilities are at hand. This causes the analysis ultimately to break up into a *limited* set of subsumption questions, which may all be given the form «Is T_0 subsumable under a descriptive definition with T_a as definiens?»

Let us suppose that a preliminary analysis on the basis of hypothesis (1) gives as result that T_0 is subsumable under both T_1 and T_2. The weight of evidence is in that case reexamined on the assumption that T_0 has either the connotation T_1 or the connotation T_2. Any difference in weight will decide the issue. In a standard connotational occurrence analysis, such a simple decision would never be warranted.

Let us, on the other hand, assume that a first analysis on the basis of hypothesis (1) gives as result that T_0 is subsumable under none of the connotations T_1, T_2, . . . , T_n. A reexamination of evidence on the basis that one of them nevertheless *is* the connotation, will tend to justify that one is picked out at least as the one that is most likely to be correct. Such a procedure is inconsistent with the principles of standard connotational occurrence analysis. According to those principles, no limited group of possibilities can be postulated.

Much lexicographical work seems to proceed as a limited choice analysis rather than as a standard occurrence analysis. Sometimes explicitly, but usually implicitly, it is taken for granted that T_0 «must» mean something like T_1 or T_2 or . . . T_n.

The possibilities of choice are determined by transformation (translation) hypotheses, syntactical considerations, or hypotheses about which objects have a name. A limited choice analysis may, or may not, in practice be identical with a portion of a complete connotational occurrence analysis. The first steps of an occurrence analysis may suggest choices of definiens expressions used in a limited choice analysis and may help one decide between the alternatives. But as the term «limited choice analysis» is used here, the analyst may not make use of any steps of occurrence analysis, but immediately proceeds to try out subsumptions on a more or less intuitive basis.

I am not suggesting that limited choice procedures are «bad»—only that it is important to make explicit the assumptions or postulates that from the very beginning of the procedure limit its scope. In any analysis, only a limited number of subsumption attempts can be carried through.

Therefore, even in standard occurrence analysis only a limited number of possibilities can be tried out. The difference lies in the fact that, in the complete analysis, no assumptions are made that limit the claim of the conclusions. Compare the following two kinds of tasks: to decide whether a text, *assumed* to be written by either Bacon or Shakespeare, was written by Bacon or was written by Shakespeare; and to decide—without any a priori assumptions about authorship—who has written the text. We can in both cases try out only a limited number of authors, but evidence sufficient to decide the first case may not be sufficient to decide the second with an equal degree of certainty.

Given a group of occurrences, occ. 1–occ. n, of a designation T_2, let us suppose it is somehow definitively known that all occurrences are occurrences of one and the same connotation T_1.[12] Whatever the number or kind of occurrences given, there will always be connotations T_2 . . . T_m that are such that occ. 1–occ. n are subsumable under them. However much we increase m, there will always be a T_{m+1} for which this holds good.

Although there is reason to believe this theorem, it would have to be precized to reach a satisfactory level of practical testability. Efforts to limit the possibilities in standard connotational occurrence analysis, other than by postulating limits, have never succeeded, and I see no reason why they ever should succeed.

The theorem might be called the «*theorem of unlimited possibilities of subsumption*». It is analogous to the theorem that whatever the number of points dotted on a plane surface, as long as the number is finite, there are always infinitely many different curves that can be traced through all the points.

VI.7. Analysis of Single Designation on the Basis of Hypotheses About Structure

To find «the» connotation of a designation by occurrence analysis, one must—even in the case of «pointings» («*This* is . . .»)—formulate hypotheses about the meaning of the context. It is often stressed that one cannot find connotations except within a system or structure of connotations. This is all very well, but what if no one knows the structure?

At present, there is a rough, programmatically adequate working knowledge of important meaning relations in nearly all languages that have written literatures. As long as rough, low-level knowledge is sought, it is justifiable to rely heavily on existing vocabularies and grammars. If, however, finer shades of meaning and definite occurrences are of interest, let us say occurrences in a definite natural science text, then such a reliance involves working with prejudices that might completely destroy the analysis.

Among the things to be noted about vocabulary meanings of «unusual» words (for example, technical ones) is that they are often mere definiens formulations found in some technical text. Typically, the formulation is taken out of its context without consideration of the changed meaning it thereby will acquire. Or the formulation may be changed to avoid long phrases, cumbersome restricting clauses, and so on. Often, no occurrence analysis, or even limited choice analysis, has been made: one may say that questionnaires with one respondent, the lexicographer, have been used.

The more existing occurrence analyses there are, the less we may expect on the average to need to perform new ones. However, because languages are rich in designations, and rich in meaning-relevant contexts, progress must be slow. So far, narrow practical purposes have limited the quality of the work. Occurrence analysis of *sentences* is even slower to develop; very little has so far been done in that field.

B. Illustration of a Connotational Occurrence Analysis

VI.8. Delimitation of the Class of Occurrences to Be Analyzed

The following analysis has two aims: to illustrate distinctions, concepts, and theorems introduced in preceding chapters; and to describe by means of an example the kind of analysis that might be called «standard connotational occurrence analysis», since we search for complete connotations in the form of descriptive definitions.

The epithet «standard» is used to indicate that the steps recommended in the analysis are not the only possible ones, but delimit a kind of norm.

We have already referred several times to a booklet that we shall now use to exemplify connotational occurrence analysis, the booklet by D. Zaslavski called *La démocratie soviétique*, officially translated into French by J. Hepner and incorporated in the *Editions sociales* for 1946.[13] The book covers certain aspects of the USSR, chiefly those under discussion when comparisons between the USSR and Western countries are undertaken.

Zaslavski is one of the editors of *Pravda* and has been prominent among the propagators of Communist ideology. His book is preferred to the works of Lenin or Stalin as an object of analysis because in the latter works, the term «democracy» occurs relatively seldom, whereas in Zaslavski's text of 107 small pages, it occurs 192 times. This high number of occurrences and the high relative frequency make it convenient for our purposes of illustrating the methods and difficulties of connotational occurrence analysis.

Our main objective will be to try to find out what, *if anything*, Zaslavski means by the words «democracy», «democratic» (etc.), by exploring his use of those words within the booklet. Evidence from other sources will indirectly be taken into account, but no occurrences other than those in the booklet will be consulted.

The class of occurrences to be analyzed is the class of instances of the words

démocraties	*démocratiques*	*antidémocratiques*
démocratie	*démocratique*	*antidémocratique*

The text analyzed is that of Zaslavski, including its headings and the title on the book's title page. Any instance of «*démocratie*» (etc.) as a separate sequence of letters will be counted, regardless of the nearest letter sequence. Thus, in the expression «*la démocratie soviétique*», there is an occurrence. Whether the author might conceive «démocratie soviétique» as one indivisible designation is not taken into account in listing the occurrences. The possibility that «*démocratie*» is never used as a complete designation is, however, of importance to the conclusion. It might imply that «*démocratie*» is never intended as a concept designation. To express concepts, Zaslavski might use only complex designations such as «*démocratie soviétique*» and «*démocratie bourgeoise*».

The above indication of which occurrences our main hypotheses claim to cover is not sufficiently accurate to make it possible to class all text units into two separate classes, occurrences and nonoccurrences. There will be doubtful cases. The best method would be to offer a copy of Zaslavski's booklet as an appendix and to number every occurrence meant to be included.

In the absence of such an appendix, we offer a list (table 2) showing the pages on which occurrences are found. Clear-cut metaoccurrences are not numbered. Instances that can plausibly be interpreted as metaoccurrences, and plausibly as use occurrences, are numbered. The bulk of the numbered occurrences are clear-cut use occurrences.

VI.9. Implicate List

In the following pages I have not placed «democracy» in *guillemets*. The term recurs a great many times, and *guillemets* merely lengthen the text without introducing appreciably more clarity. I have therefore decided to write, «The designation «x» is used of a certain kind of democracy» instead of «The designation «x» is used of a certain kind of something that (by the author of the text analyzed) is designated by the term «democracy»».

Table 2. Occurrence List of «Démocratie», etc., in Zaslavski

Occ. No.	Page	Occ. No.	Page	Occ. No.	Page	Occ. No.	Page.	Occ. No.	Page
1	5	51-	30	meta	36	meta	50	178	72
2	12	56	30	94	36	154	50	179	78
3	12	57-	31	95-	37	155	51	180	79
4	12	64	31	104	37	156	51	181	83
5	20	65	32	105-	38	157	51	182	89
6	22	66	32	113	38	158-	52	183	95
7-	23	67	33	114-	39	161	52	184	97
14	23	meta	33	121	39	162	53	185	99
15	24	68-	33	122-	40	163	53	186	101
16	24	72	33	127	40	164	53	187	103
17-	25	meta	33	128-	41	165	54	188-	106
24	25	73	33	133	41	166-	57	191	106
25-	26	74	33	134-	42	170	57	192	107
31	26	75-	34	141	42	171	58		
32-	27	82	34	142-	43	172	58		
40	27	83-	35	146	43	173	59		
41-	28	91	35	150	44	174	59		
44	28	92	36	151	47	175	69		
45-	29	93	36	152	48	176	69		
50	29	meta	36	153	48	177	69		

Note: A hyphen indicates all occurrence numbers falling between the number that precedes the hyphen and the number that follows.

Thus, even if we write «democracy» without guillemets, we do not ipso facto admit that the word belongs to our own vocabulary. We reproduce a designation used by others. What it designates is an open question for us as analysts; it belongs always to our metalanguage, never to our use language.

Occs. 2, 3, and 4 are found in a paragraph that may profitably be quoted in full:

> Certains des nouveaux Etats surgis après le Traité de Versailles firent preuve de manque de stabilité et de solidité. Ils s'octroyèrent des Constitutions démocratiques [occ. 2] du dernier modèle, des Parlements, des suffrages universels et des programmes de vastes réformes sociales. Cependant, des discordes in-

> testines firent bientôt leur apparition dans ces nouveaux pays, où des coups d'Etat amenèrent l'abandon des Constitutions démocratiques [occ. 3] et l'établissement des régimes les plus antidémocratiques [occ. 4] et même les plus réactionnaires. Telle est, par exemple, l'historie de la jeune République polonaise, ainsi que d'autres pays comme la Yougoslavie, la Bulgarie, la Roumanie et la Hongrie. (Zaslavski 1946–47: 12)

Proposed implicates of special interest:

i_1: Constitutions can be classed into democratic and nondemocratic ones.
i_2: Democratic constitutions can be the latest models or older models.
i_3: Regimes can be more or less antidemocratic.
i_4: After the Treaty of Versailles, the countries Poland, Yugoslavia, Bulgaria, Romania, and Hungary adopted constitutions that were democratic; the democratic constitutions were of the latest model.
i_5: Later, these countries abandoned the democratic constitutions and established the most antidemocratic regimes.

Occ. 5 reads, «Le régime soviétique est démocratique sous tous ses aspects, y compris son aspect économique» (ibid., p. 20).

Suggested implicates of special interest:

i_6: Regimes may be classed into democratic and nondemocratic ones.
i_7: The Soviet regime is democratic.
i_8: Regimes may be democratic in various aspects, and can be democratic in some and nondemocratic in others.
i_9: One of the aspects is the economic aspect.
i_{10}: The Soviet regime is democratic in all aspects.

Occ. 6 comes after the sentence «La vieille société féodale ne voulut pas non plus reconnaître la société capitalistique et bourgeoise» (ibid., p. 22). The occurrence sentence reads, «La démocratie du peuple français au XVIII^{e} siècle était également une «énigme» pour le roi et la noblesse».

Occurrence implicates of interest:

i_{11}: There was a democracy of the French people in the eighteenth century.

i_{12}: That democracy was an «énigme» for the king and the noblemen.

Occs. 7–11 are all within one paragraph:

> Les derniers temps, on entend les étrangers s'interroger beaucoup au sujet du système d'administration soviétique, au sujet des Soviets. On se demande ce qu'il représents. On dit que ce n'est pas de la démocratie [occ. 7]. On ne se contente pas de le dire, mais on le crie. On ne fait pas que le crier, on le hurle. C'est surtout cette partie de la presse opposée à toute démocratie [occ. 8] qui s'y évertue particulièrement. Elle devrait, semble-t-il, se réjouir que, de son point de vue, le pays soviétique ne constitue pas une démocratie [occ. 9]. Mais cette presse, qui est représentée en Amérique par Hearst et C^ie^ et en Angleterre par les conservateurs les plus réactionnaires est la plus effrénée à accuser le pays soviétique qui, voyez-vous, n'est pas une démocratie [occ. 10] et auquel il faudrait interdire l'accès au sein des puissances démocratiques [occ. 11]. (Zaslavski 1946–47: 23)

Suggested implicates of special interest:

i_{13}: Outside the Soviet Union a part of the press is opposed to all democracy.

i_{14}: It is the part of the press that is especially eager to announce that the Soviet Union is not a democracy.

i_{15}: It is in the United States represented by Hearst & Co.

i_{16}: It is in England represented by the most reactionary of the conservatives.[14]

For the sake of brevity, implicates are in the following listed without direct quotation.

Occ. 17 (page 25):

i_{17}: There is something new about Soviet democracy (compared with previous and other democracies).

Occ. 18 (page 25):

i_{18}: History did not know of a democracy such as Soviet democracy before the birth of the Soviet state.

Occs. 22–23 (page 25):

i_{19}: Countries can be classed as democratic and antidemocratic.
i_{20}: By the Second World War it was clear which countries were democratic and which were antidemocratic.

Occ. 24 (page 25):

i_{21}: The Second World War was a war of the democratic peoples against fascism.

Occ. 28 (page 26):

i_{22}: It is the hatred of democracy that is the common feature of the fascist states.

Occ. 29 (page 26):

i_{23}: Hitler and Mussolini set themselves the task of liquidating democracy in all its manifestations.

Occ. 32 (page 27):

i_{24}: During the war the menace of fascism cemented the union of all states practicing the various forms of democracy.
i_{25}: During the Second World War, there existed various forms of democracy, and these fought Mussolini's Italy and Hitler's Germany.
i_{26}: A state may practice democracy.

Occs. 33 and 34 (page 27):

i_{27}: The war established a perfectly clear demarcation line between democracy and enemies of democracy. The line coincided with the line between the war camps.

Occ. 42 (Zaslavski 1946–47: 28):

i_{28}: The Atlantic Charter is a document that has the aim of affirming democratic principles in the whole world.

Occs. 48 and 49 (page 29):

i_{29}: If one could measure the strength of democratic feelings[15] in degrees of hatred of fascism, the first place among democratic peoples would be occupied by the Soviet people.

Occ. 52 (page 30):

i_{30}: There is an American democracy.
i_{31}: It tolerates even now fascist propaganda in its press.
i_{32}: It is not incompatible with democracy to tolerate fascist propaganda in the press.

Occ. 53 (page 30):

i_{33}: There exists an English democracy.
i_{34}: It still upholds relations with fascist Spain.

Occ. 56 (page 30):

i_{35}: The friends of the Soviet Union outside that union constitute the democratic elements of their nations.

Occ. 62 (page 31):

i_{36}: It is to the Soviet Union that international democracy owes its salvation (consider the war events).

These are all implicates extracted from the sixty-six occurrences in the first chapter of Zaslavski's book. That chapter is mainly concerned with argumentation in favor of the conclusion that the Soviet Union is as much a democracy as other democracies, and even more so. In the next chapter, «The Power of the People», the main theme is a discussion of the essence of democracy, its definitional and most important nondefinitional characteristics.

The short second chapter (eight pages) contains occs. 67–133, and among them, some definitoid statements. The first pages of the chapter are of great interest for the theory and practice of elementary analysis. They are also well suited for illustrating the difficulties of occurrence analysis and the necessity for making distinctions that might on first sight seem pedantic and unnecessary. The discussion of those points (see section 17) is intended also to illustrate interpretational oscillations (chapter 2, section 13).

Zaslavski's second chapter opens thus:

> Qu'est-ce qu'une démocratie [occ. 67]? Le mot répond, semble-t-il, par lui-même. Le mot démocratie [metaocc.] est d'origine grecque. *Demos* signifie peuple et *kratos* pouvoir. Démocratie [occ. 68] est le pouvoir du peuple. La démocratie [occ. 69] est l'antithèse de l'aristocratie, du pouvoir des nobles. La démocratie [occ. 70] est aussi l'antithèse de la ploutocratie, du pouvoir des riches. Les grands créateurs de la démocratie [occ. 71] américaine établirent une forme plus étendue de la démocratie [occ. 72] en la définissant comme le pouvoir du peuple, pour le peuple, par le peuple. (Zaslavski 1946–47: 33)

The following implicates are suggested:

Occ. 68 (page 33):

i_{37}: Democracy is the power of the people.

Occ. 72 (page 33):

i_{38}: The great creators of the American democracy defined democracy as the power of the people, for the people, by the people.

Occ. 79 appears in the following passage:

> La démocratie [occ. 79] ne fut pas toujours de même nature au cours de l'histoire de l'humanité, car ses formes se modifièrent. A une époque déterminée, le

mot «peuple» signifiait une chose, alors qu-il changeait de sens à une autre époque. (Zaslavski 1946–47: 34)

Suggested implicates of occ. 79:

i_{39}: Democracy has not always been of the same nature throughout the history of humanity.

i_{40}: Its forms have changed.

For the rest of the chapter, it suffices to state some implicates:
Occ. 80 (page 34):

i_{41}: In countries with a majority and a minority, democracy is the power of the majority of the people.

Occ. 81 (page 34):

i_{42}: Because workers make up the majority in such countries, power should belong to the workers in democratic countries.

Occ. 84 (page 35):

i_{43}: A state where the power is in the hands of a minority is no true democracy.

Occ. 85 (page 35):

i_{44}: It is no more than a partial democracy.

Occ. 86 (page 35):

i_{45}: England is a bourgeois democracy.

Occ. 87 (page 35):

i_{46}: Bourgeois democracy is a limited, imperfect form of democracy.

Occ. 95 (page 37):

i_{47}: History does not know of an eternal and unchangeable democracy.

Occ. 96 (page 37):

i_{48}: Democracy develops as do all other forms of society.

Occs. 97 and 98 (page 37):

i_{49}: Soviet democracy does not resemble the old form of democracy.

Occs. 101 and 102 (page 37):

i_{50}: Democracy in a state in which there exist several classes with opposing interests differs radically from democracy in a state that does not know of class struggle.

Occs. 103 and 104 (page 37):

i_{51}: Not the absence of capitalists and landlords, but their presence hinders numerous states from developing into authentic democracies.

Occs. 107 and 108 (page 38):

i_{52}: Fascism, which is a sworn enemy of democracy, has declared war on all democracies, old as well as new.

Occs. 110–112 (page 38):

i_{53}: Soviet democracy and bourgeois democracy have a common origin.

Occs. 114 and 115 (page 39):

i_{54}: Without bourgeois democracy, there would have been no Soviet democracy.

Occs. 119 and 120 (Zaslavski 1946–47: 39):

i_{55}: Soviet democracy is the historic rejection of bourgeois democracy.

Occs. 121 (page 39):

i_{56}: Germany is crushed, but the menace to democracy is still present.

Occs. 122 and 123 (page 40):

i_{57}: United action is necessary to the development of new forms of democracy, such as U.N.O.

i_{58}: International democracy is not possible without the various democratic states continuing to stand together.

Occs. 126 and 127 (page 40):

i_{59}: Reaction is the common enemy of both the new Soviet democracy and the old bourgeois democracies.

The rest of the book is devoted to the subjects mentioned in the headings of the chapters—political parties, elections, and the press—and gives arguments in favor of the Soviet Union being a democracy, and being an authentic democracy, whereas the bourgeois democracies are not. Here are some implicates of importance:

Occs. 138 and 139 (page 42):

i_{60}: If plurality of parties were a criterion of democracy, the existence of parties would have been mentioned in democratic constitutions.

Occ. 141 (page 42):

i_{61}: If the number of political parties ought to be an index of the democratic character of a country, priority (*primauté*) would have to be given to the Austro-Hungarian monarchy.

Occ. 156 (page 51):

i_{62}: The existence in the Soviet Union of only one political party recognized by the constitution is a new phenomenon characteristic of a democracy of a new type.

In connection with these occurrences, Zaslavski states the doctrine that political parties result from class antagonism. Absence of such antagonisms results in absence of plurality of parties.

Occ. 158 (page 52):

i_{63}: Soviet democracy is therefore the power of the people, for the people, and by the people.

This conclusion is stated after the following section: «Le pouvoir y appartient au peuple et au peuple seul qui est le maître de toutes les richesses de la terre. C'est dans l'intérêt exclusif du peuple que travaillent l'industrie et l'agriculture soviétiques. Seuls, les représentants des ouvriers, des paysans et des intellectuels, les élus du peuple, exercent le pouvoir. Les intellectuels soviétiques constituent une partie intégrante de la classe ouvrière et paysanne.» (Zaslavski 1946–47: p. 52)

Occ. 163 (page 53):

i_{64}: The new feature of the Soviet democracy is that it is an authentic democracy.

Occs. 175 and 176 (page 69):

i_{65}: The essential condition of an authentic democracy applied to elections is that it is made by the entire populace.

i_{66}: The elections to the Supreme Soviet satisfy this condition and are the most democratic in existence.

Occ. 192 (Zaslavski 1946–47: 107):

i_{67}: Soviet democracy is the profoundest and most extensive democracy in the world.

i_{68}: The most extensive democracy in the world is not only the power of the majority; it is the power of the people as a whole.

VI.10. Inferences in Relation to Occurrences 1–66

The implicates are sentences that are assumed to have meaning for the author of the texts analyzed. It is assumed that he would not only understand them, but also approve of them as tenable assertions about his own verbal habits or rules.

The next step in occurrence analysis is the formulation of sentences in the vocabulary of the analyst and his public—sentences that to him and his public express the same as the implicates are assumed to express for the author analyzed.

If an expression, T_0, used in an implicate, makes the analyst wonder whether the author has by T_0 intended T_1 or T_2 (T_1 and T_2 being expressions in the vocabulary of the analyst), the aim at this new step of occurrence analysis will be to find out whether T_1 or T_2 is the more plausible interpretation of T_0. If, on the other hand, the analyst is confident that the author did not have sufficient definiteness of intention to intend either T_1 or T_2, then neither T_1 nor T_2 can be used in the analyst's version of the implicate. The criteria of definiteness of intention are so difficult to apply that in the following we do not take into consideration the possibility that the analyst's versions of the implicates are in part based on transintentional precizations.

In the following, some reformulations of the implicates are listed. They are inferred on the basis of more or less uncertain hypotheses (auxiliary hypotheses) that cannot all be made explicit because of their multiplicity and their complicated content.

In the following, we have not found it practicable to report on interpretations of every occurrence sentence or implicate. Those not mentioned in what follows are assumed to have been interpreted by the analyst, even if no report is given. Such assumptions are necessary in order to justify the concluding steps of the analysis.

Occurrence 1: «The Soviet Democracy»

Occ. 1 is in the book's title, *La démocratie soviétique*. Tentative interpretations of the title are:

T_0: Soviet democracy.
T_1: The particular democracy with the name «USSR».
T_2: Democracy of the kind realized in the USSR.
T_3: Democracy-by-Soviets («Soviets» used as the name for a certain kind of group to be discussed).

T_3 is excluded without further discussion because of the secondary importance attached to discussion of Soviet groups within the text.

Tentatively proposed inferences based on the above interpretations are:

There is a democracy.	T1 – inference
The Soviet Union is a democracy.	T1 – inference
There is a Soviet democracy.	T2 – inference
The USSR is a Soviet democracy.	T2 – inference

Let us at once admit that these interpretations and inferences are suggested by previous reading of Soviet literature and by preconceptions about Zaslavski. Thus, I presume he is a defender of all that he calls «*soviétique*». Without such preconceptions, a greater number of directions of precization would have to be considered. The hypotheses that Zaslavski has a consistent positive evaluation of all that is called «*soviétique*», and a predominantly positive evaluation of all that is called «*démocratique*», are used as auxiliary hypotheses in need of confirmation. For further discussion of this point, see pages 351–52.

If a fourth interpretation, «the so-called Soviet democracy» (T_4), were taken seriously, there would be inferences such as:

Some call the Soviet Union a «democracy».

Some call something «a Soviet democracy», etc.

Using our working hypotheses about positive evaluation and a hypothesis about negative evaluation expressed by «so-called democracy», we leave out these inference possibilities.

The designation «*démocratie soviétique*» is perhaps used as a *terminus technicus* for a kind of democracy, a subclass of democracies. The interpretation of «*démocratie soviétique*» in this direction implies the conceivability of Soviet-democracies besides the USSR (for example, that the USSR is taken as an example of something).

There are sentences on (Zaslavski 1946–47) pages 34ff. on types (forms) of democracy that support such an interpretation. The comparison of «*démocratie soviétique*» suggests the possibility of using the term as a class name. Zaslavski names several bourgeois democracies and uses the term in the plural (for example, on page 35), so the class-name nature of that designation is fairly certain.

There is, however, no single occurrence of «*démocratie soviétique*» that cannot plausibly be interpreted in accordance with T_1, «the particular democracy with the name «USSR»», whereas some occurrences are not easily interpreted in accordance with T_2. To take an example: «Mais ce ne sont évidemment pas ces documents [la Charte de l'Atlantique, etc.] qui comptent le plus. Ce qui importe davantage, ce sont les actes historiques que ces documents reflètent et qui en font la valeur. Ces actes sont les sacrifices sans exemple de la démocratie soviétique consentis pour le salut de la culture mondiale et de la démocratie internationale» (ibid., p. 28).

In view of the somewhat heavier evidence favoring T_1 over T_2, the former is selected as the main interpretation.[16] There is, however, no clear-cut reason to believe that Zaslavski always intends to convey T_1 rather than T_2, or vice versa. At some places the one may be intended; at other places, the other. Moreover, sometimes there may not have been sufficient depth of intention to permit us to distinguish discrimination possibilities of the kind required.

From the inference «The Soviet Union is a democracy», it may be educed that «There is nothing that truly can be affirmed about the Soviet Union (up to 1946) that is incompatible with its being a democracy».

It is of basic importance to this analysis that the criterion concerning what «truly can be affirmed» is *agreement with Zaslavski's views at the moment he produced the text*. Roughly, we may say that as long as we are concerned with implicates from occurrence sentences, our subject matter is the *language of* Zaslavski. Our inferences mainly concern Zaslavski's *opinions* and our conclusions in the form of descriptive definitions concern his *language*.

If occ. 1 were followed by details on the Soviet Union, then we would collect details on characteristics compatible with democracy as conceived by Zaslavski. In the course of the book, Zaslavski asserts quite a number of propositions about the Soviet Union, and these will be collected in relation to occ. 1, to enable us to infer as much as possible from that occurrence. When we consider what can be inferred from the inference «The Soviet Union is a democracy», not only are *propositions* involving what is «*soviétique*» important, but also clarifications and definitoid statements on «the Soviet Union» and «*soviétique*». Thus, on page 7, it is said that «L'Union Soviétique --- créa --- une nouvelle forme de gouvernement, à savoir les Soviets» (ibid.). This saying suggests some relation between being the Soviet Union and being a form of government, which in turn suggests an intimate relation between being a form of government and being a democracy.

Occurrences 2–4: Democratic and Antidemocratic Regimes

We now move on to a discussion of implicates i_1–i_5 (for full text, see pages 333–34).

The «more or less» of i_3 («Regimes can be more or less antidemocratic») is of interest because it suggests a use of «antidemocratic» and «democratic» for a graduated characteristic, a characteristic being present in varying degrees. The existence of such a gradation would make it of subordinate interest to find a sharp line of delimitation between democratic and antidemocratic, because the gradation would probably be caused by corresponding gradations of conceptual characteristics.

As a matter of fact, theorists usually abandon the dichotomies democratic/nondemocratic and democratic/antidemocratic in their detailed discussions of what is meant by «democracy». Most definitoid statements do not go into details, however, and they are formulated in terms of the dichotomy. Definitions based on «more (less) democratic than» rather than «democratic» or «democracy» are comparatively rare. Instances are found, for example, in Alf Ross (1946), J. Jørgensen, Naess (1942), Salvador de Madariaga (1958), and Harold D. Lasswell (1948).

Some plausible, legally oriented interpretations of «constitution» as used in implicate i_5 provide useful hints about what might be meant by constitutions being democratic. This leads us to a survey of some constitutions of the past and Zaslavski's opinion of those constitutions. These opinions can probably be somewhat more easily inferred and described than his view on the *regimes* called «antidemocratic». Descriptions of characteristics of a constitution may be expected to vary less than descriptions of regimes when by «regimes» is meant, for example, particular historical governments as they operate, rather than forms of government. Thus, we would guess that if we cannot find direct statements by Zaslavski about the regimes referred to, we may expect to obtain more reliable hypotheses about his use of the term «democratic» by following up the path of i_4 rather than i_5.

If a broad occurrence analysis including information on denotata of 'democracy' were aimed at, i_4 would in itself constitute a result of analysis. However, the information on Zaslavski's opinion of Yugoslavia's relation to democracy is only of value as a possible basis for hypotheses about what is meant by «democratic».

From occs. 3 and 4 we might tentatively infer: as long as the constitution of a state is democratic, antidemocratic regimes cannot be established.

Finally, we may say that occs. 2–4 indirectly provide us with a great mass of information by their references to historical happenings and documents.

Occurrence 5

After occurrence sentence 5 (for text, see page 335), Zaslavski makes statements that probably are meant to document his assertion that the Soviet regime is democratic in the economic aspect. About the millions of workers, engineers, and so forth, he says, «Il est indispensable qu'ils sachent ce qui se passe dans l'enterprise en «état d'émulation»; ---». Just before the occurrence sentence, we read: «Le collectivisme qui y est appliqué signifie que les plans de nouvelles entreprises, les nouvelles méthodes de travail sont examinés et discutés non pas dans le bureau d'un entrepreneur, mais dans les réunions publiques où la presse a accès. Les inventions des stakhanovistes deviennent l'apanage du peuple entier. Nous ignorons les «secrets de production», sous la form où ils existent dans l'industrie capitaliste, où le propriétaire d'une entreprise est aussi le propriétaire du secret.»

Maybe the democraticity of the economic aspect according to Zaslavski (1946–47: 20, 21) means, roughly speaking, that every man or woman engaged in economic activities is allowed to inspect and discuss how these activities are led, that he or she has access to all information on all industrial processes and related matters, except military secrets. In recent discussions, the term «industrial democracy» is sometimes used in meanings closely related to this, whereas «democratic in the economic sense» is taken to refer to equality of opportunity, income, salaries, and so on. There is no indication that the term is thus used at occ. 5.

If the above rough indication of the sense in which Zaslavski uses «economic aspect» is tenable, it would confirm the assumption that the sentence following the occurrence sentence is intended to elaborate what is implied in the phrase «economic aspect». That sentence reads, «Dans aucun pays du monde, l'observation de la vie n'est aussi libre que dans le pays soviétique».

The democraticity of the economic aspect might then perhaps be said to consist in the possibility of every citizen being able to inspect, discuss (and criticize) every feature of economic life.

This vaguely formulated hypothesis about Zaslavski's usage is neither confirmed nor disconfirmed strongly by later occurrences. Unhappily, the expression «democratic in the economic aspect» does not again appear in the text.

Other hypotheses may work just, or nearly, as well—for example, the hypothesis that democraticity in the economic sphere consists in all industrial engineers having access to all inventions and to all information about industrial plants. Such conditions might be contrasted with those prevailing in countries with patent laws.

Both hypotheses may prove to be misleading and the result of too much stress on the immediate context.

The heading of chapter 1 reads, «L'état soviétique n'est ni une utopie, ni une expérience, ni une énigme». Occ. 5 is part of a trend of argumentation in that chapter against the Soviet Union's being an enigma. Therefore, Zaslavski stresses that the economic life of the Soviet Union is open to inspection by foreigners through publications, reports, and so on. This broader context of occ. 5 would thus in part explain why the sentence elaborating the democraticity of the economic aspect is limited to the topic of openness to inspection and discussion. If there were a chapter on distribution of economic goods, one might find occurrences such as to make a third hypothesis more probable than the first two.

A verdict that «hypothesis 1 and not hypothesis 2 about occ. 5 is strongly confirmed (or weakened) by analysis of further occurrences» presupposes that each hypothesis's intended field of application is extended beyond occ. 5. Such an extension is rather inevitable if we hope to collect a satisfactory amount of evidence. As a matter of fact, very little evidence for one or the other can be gathered from analysis of Zaslavski's text. On the other hand, there is even less evidence of «democratic in the economic aspect» being used to connote 'equality of opportunity to work and earn money', or 'equality of income'. Such a situation is very common in connotational occurrence analysis of a single, only moderately long text. There is insufficient material to confirm or disconfirm strongly any hypothesis of interest. One way out of the difficulty is to create a supplementary text of high relevance. This can be done by questionnaire methods. The questions can be constructed in such a way that answers are apt to throw light on just those hypotheses that have been tentatively formulated on the basis of occurrence analysis. Generally, however, it is more convenient to use questionnaires first, then go into occurrence analysis, or to mix the two methods during all stages of the investigation.

Occurrences 6–11: Various Democracies

For the identification of the phenomenon that Zaslavski calls «the eighteenth-century French democracy», the sentences that follow occurrence sentence 6 (see implicates i_{11} and i_{12}, pages 335–36) are important: «Ils ne *pouvaient* pas comprendre cette énigme, car ils ne *voulaient* point la comprendre. Et ils ne le voulaient pas parce qu'ils *craignaient* de comprendre. La politique des Louis avant la grande Révolution bourgeoise en France était une politique d'autruche qui cache sa tête sous son aile.» The usefulness of i_{11} is somewhat reduced because Zaslavski does not say much more about the old French system of democracy.

Occs. 7–11 (see implicates i_{13}–i_{16}, page 336), with the exception of occ. 8, are doubtful because one cannot be sure that Zaslavski intends to use the word in his own sense. He may intend to quote the Westerners in their own terminology. I suppose, however, that Zaslavski wishes to be understood to state that the part of the press under consideration denies that the Soviet Union is a democracy in the sense that «democracy» has for the readers of his book, and that sense I suppose he would consider identical with his own.[17]

Zaslavski seems to be of the opinion that some people fear the consequences of admitting that the USSR is a democracy. He further thinks that they cannot, on the other hand, classify it as an aristocracy, plutocracy, or other such form of government. Therefore, the USSR must be an enigma in their eyes (cf. Zaslavski 1946–47: 22ff.). If those people, by «democracy», meant something very different from what Zaslavski means, then Zaslavski would not be sure why they should be frightened. These and other reflections support the status of occs. 7–11 as genuine occurrences, that is, occurrences of Zaslavski's own usage.

Occurrences 12–66

Occurrence sentences 12–66 are among the most important for our analysis, but only a few of them will be discussed in what follows. More adequate exposition would require too much space.

From occ. 14 and its context (ibid., p. 23), we infer:

inf_2: A democracy is neither an aristocracy nor a plutocracy.

Although important, this inference is highly uncertain; therefore, it was not listed among the implicates. The inference «Soviet democracy is neither an aristocracy nor a plutocracy» is much less uncertain, but also less important.

Implicate 18 (page 337) suggests, but very weakly, that «democracy» here is used about a state form. It supports the claim that «Soviet democracy» in occurrence sentence 17 is used as a class name. If the designation were, for example, a name for «the regime in the USSR», occ. 18 would be rather trivial: «history did not know of the regime in the USSR before the birth of the Soviet state». Implicates 21 and 22 (page 337) are of importance because occ. 28 is followed by a description of what fascism is the negation of. From occs. 24 and 28 and the description, we derive:

inf_3: The democratic peoples have fought the negation of the following phenomena:
sovereignty of the people,
their independence and freedom,
the equality of citizens,
the civil liberties,
the democratic culture,
philosophy,
science,
theory and practice of parliamentarism.

Implicate 27 (page 338) and some of the foregoing implicates are of special interest because by means of them we can construct a list of denotata of 'democracies' for the time interval between 1939 and 1945 or a large part of it. In i_{27}, «line between democracy and enemies of democracy» may be interpreted in the direction of «line such that *all* democracies were on one side, and only enemies of democracies were on the other side». If this interpretation holds, the list of the Allied countries during the Second World War is a complete list of denotata. The class of common and specific properties (as conceived by Zaslavski) of these countries contains all the conceptual characteristics of 'democracy'. A complete list of denotata valid for a certain time interval is one of the most valuable assets in occurrence analysis, but, alas, several difficulties have to be surmounted to make adequate use of the material.

The conjunction of the common and specific properties of a class of things implies the conjunction of conceptual characteristics of the concept that has that class of things as its complete class of denotata. But if the class is very rich, and the conceptual characteristics poor, there will be a pronounced uncertainty in the inferences leading from the conjunction of common and specific characteristics to the conjunction of conceptual characteristics. To give an illustration: if some A pearls or parts of them make up all B pearls, and this is all we know about B pearls, and if there are many

A pearls and few B pearls, there is little chance that we can pick out just those A pearls that also are B pearls. If the list of Allied countries is conceived as a *complete* list of denotata of 'democracy', then the absence of Sweden and Switzerland from the list makes it complicated to find common and specific characteristics for the listed countries.

Let us, on the other hand, interpret «line between democracy and enemies of democracy» in the direction of «line such that on one side all were democracies, and on the other side all were enemies of democracies». On the basis of this interpretation, Zaslavski may not be willing to take the list of Allied countries as a *complete* list of denotata. There are still difficulties, however. Finland is not on the Allied list, but on the list of enemies of democracy. We shall, therefore, have to find common and specific characteristics of Denmark, Greece, and Poland in contrast to Finland such that among the common characteristics of the three countries, all the conceptual characteristics of 'democracy' are to be found.

One may here legitimately ask, Do we not by the implicates and their interpretation transcend the definiteness of intention of the sender? It may well be that the sender does not intend to make a strict and accurate line between Allies and their foes. He may not have thought about particular countries at all. In that case we have no basis for making a list of denotata. There are, however, in the text many symptoms that such a line is intended:

> Le danger cimenta l'union contre le fascisme de tous les Etats pratiquant les diverses formes de démocratie [occ. 32]. La guerre établit une ligne de démarcation absolument nette entre les deux camps. Ce qui était d'un côté de cette ligne appartenait à la démocratie [occ. 33]. Tout ce qui était de l'autre aux ennemis de la démocratie [occ. 34], au fascisme. Il apparut clairement que la coexistence de ces deux systèmes était impossible. II devint tout aussi clair qu'il ne saurait y avoir de formes intermédiaires ou transitoires. Démocratie [occ. 35] ou fascisme, tel était le problème de vie ou de mort posé par l'histoire.
>
> (Zaslavski 1946–47: 27)

I suspect, however, that it is untenable to attribute the following opinion to Zaslavski: «Denmark, Greece, and Poland in 1939–1945 (including the time just before declarations of war), in contrast to Finland, manifest all conceptual characteristics of democracies».

The question is then, How should we modify or interpret the occurrence sentences and our implicates to avoid the consequence that such an opinion can be inferred from them?

One possibility is to interpret «democratic people» and «war» in occs. 24, 33, and 34 and certain other designations of other occurrence sentences in such a way that (a) «war» and «fight» refer also to conflicts that do not have the status of war in the sense of international law and (b) those fighting need not be «peoples» in the sense of «nations» but can also be factions within nations. By making interpretations in this direction, we remove the line of demarcation between democrats and fascists during the world war that can be inferred from the list of belligerent nations.

Or, it is possibile that Zaslavski has reasoned somewhat as follows: «The readers of this booklet have, on the whole, rather confused ideas about which countries were engaged in the fight. They will not spend much time reading my sentence and will apply my indications only to those countries mentioned in the text. They will either not think of Finland, or only remember the severe criticism it suffered in the press of the Allied powers. Thus, on the whole, my readers will get a correct picture of the situation even on a somewhat doubtful basis.»

Such a possibility involves the hypothesis that in writing the booklet, Zaslavski occasionally abstains more or less consciously from interpreting his sentences in a fairly precise way because his main task is to convey something to readers who interpret with very low definiteness of intention and on the basis of very meager information.

We do not need to decide which possibility is most plausible. The present analysis is an illustration of occurrence analysis, and the present dilemma shows some of the kinds of hypotheses that must constantly be evaluated during the work with inference classes.

VI.11. Inferences from Zaslavski's Definitoid Statements on Democracy

Implicate 37 (see page 339) may be interpreted in various directions. One involves the type of sentence intended. We may say that it concerns precizations of «is». We venture to suggest that the following, among others, are based on plausible interpretations of Zaslavski:

$T_1(i_{37})$: The word «democracy» signifies, as used by competent persons, 'the power of the people'.

$T_2(i_{37})$: The essential characteristic of a democracy is the power of the people.

$T_3(i_{37})$: The word «democracy», as used correctly, has the connotation 'the power of the people'.

$T_4(i_{37})$: 'The power of the people' is a necessary and a sufficient criterion of democracy and the one I [Zaslavski] use.

What «correctly» in $T_3(i_{37})$ means, how the criteria of correctness are applied, and so on, are here left unprecized.

From occs. 69 and 70 of the quoted passage (page 339), we extract the following inference:

inf_4: If power is in the hands of the noble or the rich, there can be no democracy.

To understand this inference as well as the definitoid statements, it is important to obtain information about how Zaslavski (1946–47) uses «power» and «people». He says on page 33 that «the words people and power have not always been used *à bon escient*», and discusses their use:

> Le mot démocratie [metaocc.] est d'origine grecque et la forme démocratique [occ. 73] d'administration d'Etat naquit dans l'ancienne Grèce. La République d'Athènes fut une démocratie [occ. 74]. C'est le peuple qui y exerçait le pouvoir. Il avait coutume de se réunir sur une place publique et ses représentants prenaient des décisions sur l'administration de l'Etat par voie de consultation et de votes.
>
> Toutefois, ce n'est pas la population entière qui était considérée comme *démos* et prenait des décisions sur les questions d'administration. Les esclaves, fort nombreux à Athènes, n'étaient pas considérés comme *démos* et ne faisaient pas partie du peuple. Ils ne jouissaient ni de droits civils, ni de droits civiques, bien qu'ils fussent les artisans de la richesse de la démocratie [occ. 75] athénienne. Cela signifie que la première démocratie [occ. 76] était une démocratie [occ. 77] esclavagiste. Elle n'était pas une démocratie [occ. 78] dans notre sens du mot. Le pouvoir appartenait non pas au peuple, mais à une partie du peuple.
>
> Les temps anciens ne sont pas les seols à avoir connu une telle situation.
>
> (Zaslavski 1946–47: 33)

The first section of the quoted passage strongly suggests that «democracy» in occs. 73 and 74 is by Zaslavski intended to be used in the sense he attaches to the word himself. Similarly, the first section suggests that «people» and «power»—important definiens expressions—are intended to be used in the sense Zaslavski would use them himself. Accordingly, we extract:

inf_5: The democratic form of state administration was born in ancient Greece.

inf_6: The Athenian Republic was a democracy.

inf_7: It was the people who exercised the power in the Athenian Republic.

inf_8: It is a sufficient condition for calling a state administration democratic that the people of the state have the custom of assembling at a public place and their representatives make decisions on the administration of the state by the way of consultation and votes.

inf_9: It is a sufficient condition for calling a state a democracy that the people exercise the power.

inf_{10}: The people exercise the power, if they have the custom of assembling (etc.).

inf_{11}: It was a part of the populace, the free citizens, who exercised the power in the Athenian Republic.

In the second section of the quotation, however, it seems as if Zaslavski intends to use «the people» as synonymous with «the entire population».

Using this precization of «people», we may formulate important new precizations of i_{37}:

$T_5(i_{37})$: Democracy is the power of the entire population, etc.

Making the last sentences of the second section the basis of our interpretation of Zaslavski, we conclude that inferences 5–10 are misleading. If «democracy», «people», and «power» are taken in the sense intended by Zaslavski—for example, «the people» taken as synonymous with «the entire population»—then he would reject inf_5–inf_{10} as false assertions. He even *explicitl*y denies inf_6.

The inferences might be retained but precized, for example, as follows:

T_1 (inf_6): The Athenian Republic was a «democracy» in at least one sense of the word.

Our contention is that, having read the first *and* second sections of the quoted text, and having read them in close connection with the opening sentences of the chapter, we would do the right thing to reject «occurrence» 74 («The Athenian Republic was a democracy») as an example of «democracy» being *used by Zaslavski*. Similarly, we reject the sentence «It is the people who there exercised the power» as evidence of Zaslavski's use of «people» and «power». All the sentences of the first section of the quotation (except the first sentence) we take as a sample of indirect speech by which Zaslavski characterizes a usage that is *not* as it should be (not «*employés à bon escient*»).

This conclusion I consider very shaky, but better confirmed than the rival view described on page 356.

In conformity with this conclusion, occs. 75–77 should also be rejected as examples of the usage of Zaslavski. One inference may be noted, however, based on occs. 76–78:

inf_{12}: The first so-called democracy, the Athenian Republic, was a slave democracy, not a democracy in our sense of the word.

The reader of inf_{12} is expected to read it as if it were formulated by Zaslavski, which implies the use of $T_5(i_{37})$.

Is it fairly certain that Zaslavski intends to use «democracy» in his sense in i_{39}? In view of the last sentence of the quotation and related to the previous quotation, I am inclined to answer no. What Zaslavski means by «democracy» in occ. 79 may be «so-called democracy», «anything called democracy at least within one epoch». If so, then we get the so-called «forms of democracy» as descriptions of the classes of things *at least once called «democracy»*. Accordingly, i_{39} should be changed to something like:

$T_1(i_{39})$: What has been called «democracy» was not always of the same nature throughout the history of humanity.

In accordance with this, we interpret the implicates on pages 340–41ff.: Occ. 80:

inf_{13}: In countries with a majority and a minority, what is called «democracy» is the power of the majority of the people.

Occ. 81:

inf_{14}: Because as workers make up the majority in such countries, power should belong to the workers in so-called «democratic countries».

Occ. 83 and context:

inf_{15}: In bourgeois democracies the real power remains in the hands of a capitalist minority—even when the workers have the political power in a parliament.

Occ. 84:

inf_{16}: A state in which the power is in the hands of a minority is no democracy (in the sense of Zaslavski).

Occ. 85:

inf_{17}: It is no more than a partial democracy (which is not a democracy in the sense of Zaslavski).

Occ. 87:

inf_{18}: Democracy in the sense of Zaslavski is true democracy.

Occ. 88:

inf_{19}: It is also democracy in the strict sense of the word.

Occ. 95:

inf_{20}: History does not know of anything eternal and unchangeable called «democracy».

Occ. 96:

inf_{21}: What is called «democracy» develops as do all other forms of society.

Occs. 97 and 98:

inf_{22}: Soviet democracy does not resemble the old form of so-called «democracy».

Occs. 101 and 102:

inf_{23}: So-called «democracy», in a state in which there exist several classes with opposing interests, differs radically from democracy in a state that does not know of class struggle.

Occs. 107 and 108:

inf_{24}: Fascism, which is the sworn enemy of so-called «democracy», has declared war on all that has been called «democracy», old as well as new.

Occs. 122 and 123:

inf_{25}: United action is necessary for the development of new forms of so-called «democracy», such as U.N.O.

Occs. 124 and 125:

inf_{26}: International democracy is not possible without the various so-called «democratic» states standing together.

VI.12. Other Inferences

This investigation of Zaslavski's *La démocratie soviétique* is made to *illustrate* the somewhat abstract theoretical structure of occurrence analysis. It would take too much space to construct detailed inference lists. We shall therefore limit ourselves to mentioning only a few additional inferences:

inf_{27}: The USSR is a state of workers and peasants, and because socialist economy is in the interest of both, no antagonism of class can develop, and therefore no multiplicity of political parties (Zaslavski 1946–47: 51).

inf_{28}: The Communist party in the Soviet democracy is a power that guides and directs (page 67).

From implicates i_{38} and i_{63} (occs. 72 and 158), we infer:

inf_{29}: Democracy is the power of the people, by the people, for the people (page 67).

Occ. 158 (i_{63}) furnishes additional evidence that Zaslavski accepts the definiens formula so often found among Western ideologists and quoted by him in chapter 2.

In the Soviet Union there is universal, direct, equal, and secret suffrage, according to Zaslavski (page 55). This declaration is useful for constructing hypotheses about the requirements that Zaslavski would make definitional for authentic democracies. As regards elections, Zaslavski sets forth requirements (necessary conditions of authentic democracy) explicitly.

From occ. 166 and its context (page 57), we infer:

inf_{30}: No democracy exists where election machines of parties organize and prepare elections, because usually to prepare an action means to realize it.

inf_{31}: No democracy exists where only a small minority has access to the preparation of elections.

From occ. 172 and its context (page 58), we infer:

inf_{32}: No true democracy exists where the people not belonging to a political party—that is, the vast majority of the people in any country—cannot choose their candidates.

VI.13. Narrow Concepts of 'Authentic Democracy' Versus Broad Concepts of 'Democracy, Authentic or Nonauthentic'

We have quoted only from Zaslavski's *La démocratie soviétique*, and the occurrence inferences are all from that book. This does not mean that when we now construct hypotheses about Zaslavski's usage, we use *onl*y the sentences of that book as evidence. Such a procedure would be interesting and valuable as an illustration of the exceedingly meager results that emerge from strict adherence to the evidence of a text taken in isolation. In practice, however, such adherence would prevent us from acquiring material necessary to establish descriptive definitions of usage.

It is our intention to let the hypotheses on usage have as a *primar*y observational field the text of Zaslavski. We shall feel particularly responsible for mistakes in evaluation of evidence from that source. In reality, however, our choice of hypotheses is determined to a large extent, and in a way that is difficult to test, by previous reading, especially of literature on democracy by Soviet and other authors.

In the foregoing we have used the expression «hypotheses about Zaslavski's usage» to designate what we are trying to find. The expression should be interpreted as a deprecization of «synonymity hypotheses giving a precization, or many precizations, of «democracy» such that the readers of the hypotheses will in their interpretation come as near as possible to the interpretation or interpretations that Zaslavski himself applies to the occurrences of «democracy» in the text *La démocratie soviétique*. Zaslavski's intended interpretation at the moment[18] of the production of the text is the objective of our analysis.

A survey of the inferences suggests that it is unfruitful to *start* our discussion of descriptive definitions covering Zaslavski's use of «democracy» by references to the hypothesis suggested on pages 357ff. that very few or no occurrences are subsumable under the definitions Zaslavski himself gives of the term, and that the rest are not occurrences of the use of «democracy» but occurrences in the metalanguage.

Two main directions of precization can be indicated by the interpretations T_1 and T_2:

T_0: Democracy.

T_1: Authentic democracy.
T_2: Democracy, authentic or[19] nonauthentic.

The expression «authentic democracy» (T_1) is one that Zaslavski uses himself; the expression T_2 is not used by him. T_2 gives concepts of wider connotation than T_1. T_2 has the form of a disjunction of two characters, «a v b», in which one is a concept expressed by T_1.

Our first hypothesis will be:

At least once, Zaslavski uses «democracy» to express something nearer to a plausible interpretation of «authentic democracy» than to a plausible interpretation of «democracy, authentic or nonauthentic». At least once, the opposite is the case.

This hypothesis is a hypothesis of ambiguity, with a rough indication of a difference in meaning.

In chapter 2 and also in later chapters, Zaslavski takes great pains to make distinctions that he tries to clarify by expressions such as the following:

i_{45}, i_{46}, i_{53}, i_{54}, i_{55}, i_{59}, inf_{15}:	bourgeois democracy
inf_{12}:	slave democracy
i_{44}:	partial democracy
i_{46}:	imperfect and limited form of democracy
i_{49}:	democracy of the old form
inf_{19}:	democracy in the strict sense of the word
i_{51}, i_{64}, i_{65}:	authentic democracy
i_{62}:	democracy of a new type
i_{43}, inf_{18}, inf_{32}:	true democracy

The distinctions are closely related to Zaslavski's evaluations. The Soviet Union is the only denotatum of 'authentic democracy,' and it is said that it is the profoundest and most extensive democracy in the world (see i_{63}). What is said about authentic democracy seems always intended as praise. There is ample reason to suppose that Zaslavski never intends to say anything unfavorable about the Soviet Union. Thus, 'authentic democracy' may be considered something highly and consistently valued. We may accordingly rely on the hypothesis that if something unfavorable (in the supposed estimation of Zaslavski) is said about «democracy», the word is not used in the sense of «authentic (true) democracy»; if something unfavorable is said, the wide concept T_2 or some other concept is used.

The wide concept T_2 includes authentic democracies, but it is seldom used without a qualifying phrase making the sentence tell something about a subgroup of T_2 democracies, such as «bourgeois democracies». The subgroups qualified in this way are never praised unconditionally. They are mainly valued as stages in the development toward authentic democracy. The denotata of the wide concept seem to be positively evaluated, but not as strongly as the narrower concept of authentic democracy.

Zaslavski's valuations are mentioned because, as we look for evidence of whether a given occurrence is an instance of T_1 rather than of T_2 or vice versa, the estimations cannot but play an important role.

Some of the implicates subsumable under T_2 are:

«The war established a perfectly clear demarcation line between democracy and enemies of democracy. The line coincided with the line between the war camps» (i_{27}).

«Fascism, which is a sworn enemy of democracy, declared war on all democracies, old as well as new» (i_{52}).

Let us now turn to occurrences more easily subsumable under the narrow kinds of connotations than under the wide ones.

Zaslavski says that the United States is a democracy (i_{30}, i_{38}), using the word in the wide sense (T_2), but he describes elections there and comments, «That is not democracy» (occ. 166, inf_{30}). Here we subsume under the narrow sense (T_1). In other words, we maintain as a subsumption hypothesis that Zaslavski intends to say something better expressed by certain plausible interpretations of «That is not authentic democracy» than by «That is no democracy, authentic or nonauthentic».

Zaslavski says that in a «true democracy» the power cannot be in the hands of a minority. Such a state can at most be «a partial democracy» (occ. 85, i_{44}). Maybe Zaslavski here means by «democracy» something in the direction of «authentic democracy». He in that case maintains that in a state in which the power is in the hands of a minority, not all conceptual characteristics of an (authentic, true) democracy are realized, but only some. Zaslavski may, however, also have meant to use a broad concept, or, as a third important possibility in this connection, he may have intended to use «partial democracy» and «true democracy» as two two-word designations incapable of being analyzed into a concept designation «democracy» with «true» or «partial» as qualifying words. Similar reflections are relevant to occ. 87, i_{46}: «imperfect and limited democracy».

Occs. 85, 87, and 166 are the only instances that may be taken to support Zaslavski's using «democracy» in the narrow sense—and those subsumptions are uncertain. The word «democracy» in occ. 166 may be used as synonym for an adjective «democratic»: «This is not democratic!» «This is not in agreement with requirements of democracy even in the broad sense!» «This is a feature of U.S. society that makes it drop in degree of democraticity.»

There are many instances in which Zaslavski says that different forms of democracy must be distinguished, that Soviet democracy is a new, better form: that it is an example (the only one so far realized) of a new form, and so on. This usage is well documented by implicates, for example, implicates 17, 18, 40, 49, 62 and 64.

There is insufficient evidence, however, to say that Zaslavski ever uses «Soviet democracy» as synonymous with «democracy». He may have used it as a synonym for «authentic democracy», but the evidence is too meager to establish such cases with reasonable certainty. Our puzzling conclusion is that Zaslavski *says* that «democracy» means «power of the people, etc.» and he takes «people» to mean «the entire populace» in contrast to «a part of the people».[20] (cf. $T_5(i_{37})$), but there is scarcely a single *clear-cut* instance of his *using* the word that way. Whenever he uses the word, he seems to apply it in order to express broader concepts, which presuppose rigorous requirements as necessary and sufficient criteria of 'democracy'.

In other words, we arrive at the conclusion that if the definitoid statements made by Zaslavski are meant to express something similar to a normative definition, it is a normative definition that he probably has not followed a single time in his work. If the definitoid statements are meant to express something similar to a descriptive definition with an intended field of application covering his work, it is an untenable description.

Zaslavski insists, as has been mentioned, that there are different forms of democracy, each having its peculiar characteristics. This might be interpreted to mean that a democracy is an authentic democracy, or a bourgeois democracy, or a slave democracy, or some other form of democracy. It cannot be democracy without exhibiting one of the peculiar, mutually exclusive, forms of democracy. A democracy must belong to such a subgroup. This interpretation may seem, however, to be an assertion too trivial to be attributed to Zaslavski. It is difficult to conceive a *rose in general*, a rose that is neither white nor red, nor any other color, and just as difficult to conceive a democracy having no other character than the conceptual ones. Zaslavski, perhaps, intends to stress that one should not identify certain subgroups of democracy such as bourgeois democracy with democracy. There not only may be, but certainly are, very different ones, for example, Soviet democracy.

Some of the occurrences of «democracy» without qualifications clearly do not lend themselves to any but rather broad interpretations—for example, when Zaslavski says that Athens was a democracy but a slave democracy (inf_{12}), or when he insists that fascism is an enemy of all forms of democracy, old and new (i_{52}). Consider further his assertion that democracy develops as do all other forms of society (i_{48}), and that democracy in a state with class struggle differs radically from democracy in a state without class struggle (i_{50}). It is difficult in these cases to believe that by the word democracy he means «Soviet democracy», «bourgeois democracy», or any other special kind of democracy. He does not intend to say that Athens was a «slave democracy but a slave democracy» or that authentic (or any other form of) democracy may be either classless or not. When he says that the Athenian Republic of was the first democracy (inf_5 and inf_6), he probably does not intend to say that it was the first slave democracy. It seems more probable that he thinks that in Athens for the first time certain phenomena were created that qualified for the title «democracy», but democracy having peculiar specific characteristics. He suggests what made him use the title «democracy» by speaking about the «democratic form of state administration» (inf_5) in Athens.

In this connection I think it appropriate also to mention his saying that «Soviet democracy is the historical rejection of bourgeois democracy» (i_{55}) and «Without bourgeois democracy there would have been no Soviet democracy» (i_{54}).

By means of highly speculative auxiliary hypotheses, one might bring the above implicates into harmony with the interpretation of Zaslavski according to which he never intends to use «democracy» for a fairly broad (general) concept, comprising kinds of subgroups of democracy, and therefore subconcepts such as 'bourgeois democracy'. If the pros and cons are weighed, however, the evidence favors a fairly broad interpretation, even if this (of course) also implies auxiliary hypotheses and certain disbeliefs in what Zaslavski himself seems to assert about his own usage.

VI.14. Precization Possibilities of Broad Concepts, Especially Their Specific Conceptual Characteristics

In the foregoing, we have argued that Zaslavski talks about, but does not use, or at least very seldom uses, a narrow concept of 'democracy', by which «democracy» is intended to be used synonymously with «authentic democracy» and this again with «the power of the entire populace». On the other hand, he often seems to use a broad concept, designating something that is an authentic democracy or something else, 'a', which we so far merely have alluded to by the expression «nonauthentic democracy».

The determination of 'a' is highly speculative and so is, therefore, the determination of the broader kind of concept intended by Zaslavski. In the foregoing, we have not given evidence in support of any definite determination of 'a', but of the existence of two directions of precization, one in the direction of authentic democracy, the other in the direction of authentic or nonauthentic democracy. We now ask, What is the delimitation of the group of phenomena intended to be called «nonauthentic democracy», but still «democracy»?

The broad concept of democracy may be said to comprise two main subconcepts, authentic and nonauthentic democracies.

There are, in Zaslavski's text, some names of phenomena that he considers *subsumable* under the nonauthentic democracies, for example, designations of denotata and of subgroups of nonauthentic democracies:

Bourgeois democracy

Slave democracy

British democracy

U.S. democracy

The democracy of the Athenian Republic

The democracy of France in the eighteenth century

Democracies that are democratic in at least one but not in all aspects (cf. occ. 5, i_8)

There are in the text also names of phenomena falling outside both groups, authentic and nonauthentic democracies:

Fascist states (i_{52})

The government of Hungary after Versailles

The government of Poland after Versailles

The government of Yugoslavia after Versailles

The government of Bulgaria after Versailles

The government of Romania after Versailles (i_4 and i_5)

If there is a line of delimitation between nonauthentic democracies and nondemocracies, we shall have to try to find it somewhere between the two groups of phenomena named in the above lists.

Let us try to determine the aspects in which a state can be democratic according to Zaslavski.

1. States may be classed according to how great a part of the entire populace «exercises the power». It is said about the Athenian Republic that a part of the populace, the free citizens, had (more accurately «exercised») the power (inf_{11}). The capitalists have the real power in bourgeois democracy (inf_{15}). Soviet democracy, the most extensive democracy in the world, is not only the power of the majority; it is the power of the whole people (i_{66}, i_{67}). But the boundary between nonauthentic democracy and nondemocracy cannot, without qualifications, be said to be identical with the distinction between the total and a part of the populace having the power. Zaslavski says that democracy is neither an aristocracy nor a plutocracy (inf_2, inf_3, and inf_4). The aristocracy and plutocracy are, on the other hand, parts of the total populace. Lacking more specific indications of where the boundary should go, we propose the following hypothesis:

> (A) A state is democratic if the power is in the hands of a fairly large group of the populace, and the more democratic, the larger the part.

To guide an estimation of what is «fairly large», we can offer two instances from Zaslavski's text: the number of free citizens of Athens compared to the total population; and capitalists in twentieth-century England compared to the total population of England.

If our hypothesis is to be applicable to inference 15, the capitalists must, in the view of Zaslavski, be considered a fairly large group in the total population. That is, some minorities must be considered numerous enough to be called «fairly large groups of the populace».

To guide an interpretation of «power lying in the hands of somebody», we can offer Zaslavski's characterization of Athens: representatives of Athenian citizens took decisions on state administration by consultation and votes (inf_8).

2. Probably relevant to the decision of whether a state is democratic is which part has power, not just how great the part is. Thus, it is a plus in democraticity if the part having power is relatively poor and (once in the past, or in the present) underprivileged (inf_2 and inf_4). Let us try to formulate a hypothesis in which reference is made to poverty and lack of privilege.

> (B) A state is democratic if the power is in the hands of the poor, or the poor and other groups. The greater the power of the poor and traditionally underprivileged, the more democratic the state is.

This concept 'democratic'—which is highly similar to one of Aristotle's—must, I suppose, be integrated into any broader concept covering the Zaslavski's intention over large fields of occurrences. He says that democracy is not a plutocracy, the power of the rich. From that statement one might expect that the United States and Great Britain would not be called «democracies» by Zaslavski, but actually they are. That they are so called makes it plausible that he would restrict «plutocracy» to extreme forms of what is generally called by that name,[21] or that in these occurrences (occs. 14, 69, and 70, inf_2 and inf_4), he uses «democracy» for «authentic democracy». The latter is, however, less probable. (Cf. the quotation on page 339 as a whole.)

The importance to democracy of the populace's being, or having been, poor and traditionally[22] underprivileged, is confirmed, I think, not only by occs. 14, 69, and 70, but also by occ. 6 (i_{11}). According to Zaslavski, the French people had a democracy in the eighteenth century. From the sayings of Zaslavski we may infer that this democracy did not exist before the outbreak of the revolution in 1789. Zaslavski scarcely means that a fairly large part of the French nation in the «democracy of the French people in the eighteenth century» had power just as had the free citizens of Athens. He would probably admit that not much voting was done and that no consultations of a fairly large part of the populace were carried out. But Zaslavski may want to stress that poor and underprivileged people were involved, and that leaders tried honestly to make decisions in favor of the great majority of the population. This may be one of the important things that makes him call a phenomenon between, let us say, 1789 and 1795 a «democracy». If so, we obtain support for hypothesis (B) rather than (A).

Nevertheless, not every occurrence is subsumable under (B). Thus, what is said in the sentences before and after occ. 83 (cf. inf_{15}, page 358) is not consistent with the view that in any democratic state, power is in the hands of the poor or underprivileged.

The phrase «has the power» is especially vague and ambiguous in the wording of (A) and (B). However, it would probably be difficult to precise these phrases. Zaslavski says that the USSR is guided by the Communist party (inf_{28}), but the power is in the people as a whole (i_{67}, i_{68}). It is not necessary, as just mentioned, that there should be an *institution* by which power is legally vested in the entire populace.

The hypothesis that Zaslavski's intended use follows (A) or (B) is not only rather vague, but also rather uncertain. I cannot see any reason to maintain that it is well established. The evidence is too meager. Of rival hypotheses I think the following are of high interest:

> (1) Zaslavski uses «democracy» in a broad sense of «authentic democracy or state of society lying in the line of development toward authentic democracy».
> (2) Zaslavski uses «democracy» in a broad sense of «authentic democracy or phenomenon traditionally called democracy».

In favor of hypothesis (1) we mention that Zaslavski stresses lines of development, and especially the necessity of bourgeois democracy as a stage in the past development toward Soviet democracy (i_{48}, i_{53}, i_{54}). The present-day nonauthentic democracies are all conceived to be in transition to something else. A state like that of democratic Athens might, if existing today, not have been called democratic by Zaslavski, because it would in his century not represent a new stage of development toward authentic democracy.

Zaslavski mentions, as an argument for not talking about democracy in general, that the forms are changing (i_{39}, i_{40}). This might indicate that the word «democracy» is retained whatever the changes, the conceptually essential thing being its causal relation with the first democracy, the Athenian Republic.

Against this argumentation in favor of (1), it may be objected that there is not much in the text to suggest that *causal* development is meant. Zaslavski seems just as likely to mean a succession of phenomena resembling in more and more aspects authentic democracy, but not necessarily causally connected as events within a country during a century. The criteria for whether a state is a link in such a development may not be anything other than the criteria of (A) and (B) already stated.

If a causal relation were intended and no stress were laid on (A) and (B), the rule of the thirty tyrants would be a further development of the democracy of the Athenian Republic, insofar as that republic developed causally into the rule of the thirty tyrants.

The causal interpretation of (1) is also difficult because, if there are a number of stages of development toward authentic democracy, all representing democracies but not authentic ones, one cannot but ask how the first link of the chain is recognized as such. I assume that Zaslavski would maintain that causally there is no break anywhere, and the ability to single out the Athenian Republic as the first link in the chain probably owes to certain minimum criteria of being a democracy, not to assumptions of causal nearness or weight. Thus, we arrive at the criteria of (A) or (B) or a combination of these with a third:

> (C) If a state is democratic at a time S_1, when the criteria (A) and (B) are used, but its democraticity is doubtful at an interval S_1 to S_2 following upon S_1, the continuity in time and space may be taken as an additional criterion of democraticity and the state may still be called democratic.

The evidence of an additional criterion (C) being used, is, however, very shaky, and I would not find it justifiable to adopt it alongside (A) and (B).

With regard to hypothesis (2), a similar hypothesis was used on page 361ff. to interpret certain implicates. The instances that Zaslavski offers of nonauthentic democracies are all, except one, states or societies called «democracies» within a main Western tradition. This may suggest that by nonauthentic democracies Zaslavski simply meant «the phenomena *called* «democracy» within the literature of certain traditions». He may not have used criteria other than the verbal label itself.

Hypothesis (2) may be said to maintain that Zaslavski only *uses* «democracy» in some sense of 'authentic democracy', and that when the term «democracy» occurs in wider senses, he might have placed it in quotation marks or replaced it with «so-called democracy».

Zaslavski says that a democracy with class antagonisms differs radically from one without such conflicts (i_{50}), and that Soviet democracy does not resemble the old form of democracy (i_{49}). If this is meant to imply that the two groups of phenomena have no politically relevant conceptual characteristics in common, then there would be no general concept of democracy including both authentic and nonauthentic ones. The nonauthentic, insofar as they showed class antagonisms, would not be democracies but could conveniently be referred to by the expression «so-called democracies».

When Zaslavski speaks of a democracy in eighteenth-century revolutionary France (i_{11}), he scarcely has the opinion that it was an authentic democracy. It was far too short-lived and confused to develop into something that Zaslavski would be willing to call «authentic democracy». If we accept hypothesis (2), we must therefore assume that Zaslavski classifies what he calls «democracy in France» as a 'so-called democracy'. This is unlikely, however. To speak of a «democracy» in eighteenth-century France is not usual outside Marxist literature. Thus, his use of a term like «so-called democracy» could no longer be taken as involving what he calls «bourgeois democracy» and politically similar structures, but would have to include «democracies» in Marxist usage. «So-called» would refer to «so-called within some tradition or other including the Marxist». If such a usage were intended, one would expect to find evidence of a still greater variety of phenomena being classed under «nonauthentic democracies», but the «French democracy of the eighteenth century» is *the only* subsumption under nonauthentic «democracy» that leads outside a main Western trend of usage. This may be taken as an argument against the assumption that Zaslavski intends to mean by «democracies, nonauthentic» the same as «anything whatsoever called «democracy» at some time or other».

It may well be, however, that the fact of something's having been *called* «democracy» has made Zaslavski more apt to call it «democracy»—regardless of definientia of (A) or (B) or any other, nonlabeled definientia.

Even if that is granted, however, something more is needed to make it likely that he intended the label to be a conceptual characteristic of «nonauthentic democracy».

The strongest argument against (2) and related hypotheses, I think, may be drawn from Zaslavski's discussion of the nonauthentic democracies as stages in a development toward authentic democracy, and his insistence that the nonauthentic democracies have something in common that makes fascism their common enemy (i_{52}), etc.

In sum, I think it justifiable to maintain that the hypotheses that Zaslavski intends to use sense (A) or sense (B) are more tenable than hypotheses (1) and (2).

It would be rash, though, to conclude that (A) or (B) can be maintained as a fairly well confirmed hypothesis. Either one is a good working hypothesis for further investigation, but it should not be considered alone. There are a vast number of other hypotheses more or less similar to (A) or (B) as regards definiens and field of intended application that are at least as plausible.

A hypothesis of some interest can be constructed by combining of the definientia of (A) and (B):

> (A v B) A state is democratic if the power is in the hands of a fairly large group of the populace or if the power is in the hands of the poor and traditionally underprivileged. The larger the part having power and the greater the power of the poor and traditionally underprivileged, the more democratic the state is.

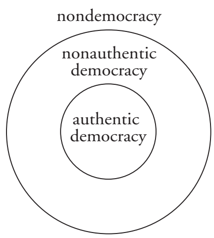
As a hypothesis covering all occurrences, (B) has to be excluded, but it has some plausibility in relation to small groups of occurrences. Hypotheses (A) and (A v B) are the only ones among those considered above that can be used as working hypotheses with maximum intended field of application—the whole body of the 192 use occurrences in Zaslavski's text.

Since the primary aim of this chapter is to give a *general* description of occurrence analysis, we need not continue this discussion.

VI.15. Precization Possibilities of Narrow Concepts of 'Authentic Democracy'

In the following we shall try to make our hypothetical descriptive definition somewhat more precise by looking for evidence of what Zaslavski means by one of the phrases of the definiens expression, namely «authentic democracy». This avenue of increasing the preciseness of our description of Zaslavski's usage seems more promising than concentration on the delimitation of concepts of partial democracy.

Using a graphic analogy, we may say that our attention is concentrated on the border of the inner circle. In the foregoing sections we discussed grounds for determining the outer circle boundary, but found very few.



Looking for this kind of evidence, we shall use «total democracy» as a synonym for «authentic democracy». The former is more apt to guide us because «authentic» may more easily be given meanings in isolation from «democracy», and when it is thus isolated, the burden of evidence once more falls on search for the outer circle. «Authentic democracy» may be interpreted as «a democracy (in a broad sense) that is as it should be».

Some hypotheses:

H1: «Total democracy» means to Zaslavski the same as «a state of society by which the total populace, in contrast to only a part of it, determines policies in questions concerning the society».

H2: «Total democracy» means the same as «total absence of privileges for a part of the populace of a state, the privileges being economic (economic goods being bestowed without compensation for services to the community) or in the form of exclusive or heightened access to media of influence (communication media, or voting and eligibility powers, or powers to influence the preparation of voting processes)».

H3: «Total democracy» means the same as «a state of society in which all available means of influencing the state of society are made to serve the interests of the total populace rather than any specific part of it».

H4: «Total democracy» means the same as «a kind of organization of society by which the possibilities of each member of the community to influence decisions and policies affecting it are maximized».

H5: «Total democracy» is a name of a state in which the highest degree of democraticity has been reached. A state is to be considered more democratic than another if there is a greater chance that policies serving the interests of all inhabitants will prevail over policies in the interest of only a fraction.

These expressions, I confess, seem rather lengthy, considering the low level of preciseness gained by them. We would, however, encounter a number of difficulties if we attempted to improve the level without launching forth into the thin air of hypotheses that can be neither confirmed nor disconfirmed.

Compared with other texts providing so-called «definitions of democracy», Zaslavski's text is conspicuously lacking in one-word characterizations of the genus category. Usually «democracy» is said to be a form of government, a way of life, a kind of society, a kind of state, and so on. When Zaslavski says that «democracy» is «the power of the people», it does not help us much to conclude that democracy is a kind of power. Zaslavski does not call democracy a form of government or rule. He says, however, «The Athenian Republic was a democracy. The people there *exercised* the power» (inf_6, inf_7). There is a fairly great stress not only on actual ruling—administration and exercise of influence—but also on the interests of the populace being served (cf. i_9, i_{22}, and occ. 158 with preceding section, quoted here on page 343). The populace is not said to «direct» and «guide»; these terms are reserved to characterize the activity of the Communist party (inf_{28}).

The resemblances and differences between the activity of the Communist party in the USSR and the activity of minorities in bourgeois democracies are not extensively discussed. This makes it difficult to precize «having power» and related expressions in Zaslavski's definitoid statements and other important sentences. He does not seem to regard it as a practical possibility that antagonisms could arise owing to divergent interests between members and nonmembers of the Communist party (inf_{27}). It is, therefore, not warranted to look for precizations of his term «authentic democracy» in which the expression «having power» is precized in such a way that the operation of mechanisms for obtaining and keeping influence are stipulated *per definitionem*, for example, in the normative definition of «authentic democracy».

It seems that, according to Zaslavski, the Soviet Union is the only state or federation of states that has reached the stage of authentic democracy (i_{18}, i_{64}, i_{68}). This might be taken as justification for attributing to Zaslavski a concept of total democracy by which concrete, precisely delimited procedures in the Soviet Union were mentioned in the definiens expression. It would be untenable, however, to maintain that for Zaslavski «authentic democracy» and «the Soviet Union» are synonymous. Many of his statements, especially those stressing that democracy is always in development (i_{48}), make it plausible to think of total democracies as being able to undergo variation in space and time. The Soviet Union is only the first authentic democracy. Consequently, it is not justifiable to conceive characteristics of the Soviet Union as conceptual characteristics of 'total democracy' without specific evidence. That the Soviet Union has a certain characteristic according to Zaslavski is a necessary but not a sufficient condition of its being a conceptual characteristic of 'total democracy'.

The above-formulated five tentative precizations seem (to me) to express rather different concepts. In spite of that, we do not find substantially more evidence favoring one of them over the others. The evidence is in every case meager, so meager that we consider it unprofitable to discuss it at length. If compelled to choose, we would prefer H3, but this choice would probably largely reflect preconceptions, formed before our study of Zaslavski's text began.

The concept H1 refers to the question «Who influences and who determines policies?» H1 stresses that the people as a whole do the job. H2 stresses absence of inequality, not only in influence, but also in more direct possibilities for gratification of needs. H3 shifts the emphasis still more toward ends rather than means, stressing actual satisfaction of needs and interests according to principles of equality.

H4 reverts to means and stresses equal and maximum *possibilities* of influence of each person. It differs from H1 mainly in the fact that H1 stresses actual causal relationships, whereas H4 speaks of possibilities (for example, by certain institutions) and precizes in one direction the metaphor of a total populace «determining» something.

H5 introduces a scale «more democratic than», which might well be introduced in H1–H4 as well. It stresses *consequences* of decisions rather than the structure of power and influence within society.

The differences among the hypotheses are considerable if we measure them by the degree of differentiation of standpoints prevalent among political scientists and ideologists. This mirrors the uncertainty of our conclusions, and probably also a large degree of indetermination in Zaslavski's usage.

C. More on the Theory of Occurrence Analysis

VI.16. The Function of Assumption About Uniformity of Use

In the foregoing discussion certain kinds of relevant arguments were left out of consideration. This was done because, despite of their great *potential* power of confirmation or disconfirmation owing to a high degree of relevance, the amount of supporting evidence that can be collected from the text is very meager and doubtful. The kinds of arguments can be likened to cups placed far out on the arms of a balance scale. A small weight placed in one of the cups may outbalance great weights on the opposite side when the latter are placed at fairly small distances from the center of the scale—but, alas, there is no material or very little material at hand that it would be justifiable to place in the distant left cup rather than in the near right one, or vice versa.

A hypothesis may stand up well if the intended field of application is limited to a certain part of the occurrences or text. In other parts, other hypotheses may fit better.

We have in the discussion of certain hypotheses about usage implicitly assumed that Zaslavski uses «democracy» in, at most, not more than two different ways. We have not discussed the possibility that he uses it in several other ways, and that one can find material to show how the occurrences are well accounted for by multiple ambiguity.

There is a very strong argument in favor of *starting* our occurrence analysis with step 4, without any hypothesis of ambiguity. The natural way to proceed is to try out one hypothesis on usage, and to refrain from taking up a new one until an occurrence is found that is difficult to subsume under the initial hypothesis. The evidence of plurality of meanings must go with analysis of a multiplicity of occurrences. Some of the occurrences considered in the foregoing sections suggest the existence of ambiguities, but for expository reasons those ambiguities were not mentioned. We shall now discuss to what degree they and their contexts warrant a partition of the text into various fields of application of hypotheses, each of which occupies only a part of the text. Let us consider some such hypotheses:

H1: At occs. 73 and 74 (see page 356, inf_5, inf_6) Zaslavski uses «democracy» to mean the same as «state of society in which the people or elected representatives gather to decide questions of state by discussion and vote». This may also be the sense intended in occs. 75–77.

The hypothesis may account for occ. 78 as well. At least, the occurrence sentence does not need to be so interpreted that it disconfirms H1 as applied to occs. 73–77; it may be interpreted as «Slave democracies do not belong to a kind of democracy we designate by the word «democracy» when used for *our* kind of democracy, namely, authentic democracy». Zaslavski intends, in other words, to say that when he uses «democracy» for «authentic democracy», its sense is not identical with «democracy» as used in «slave democracy». If «slave democracy» is not taken as one technical term, but is interpreted as «democracy», subclass «slave democracy», then «democracy» as a designation of the wider class can be interpreted as indicated by H1.

H2: «Democracy» as used in occs. 101–02 (i_{50}; see page 359) is by Zaslavski intended to mean the same as «authentic democracy or anything called «democracy» within the Western bourgeois tradition».

H3: In occs. 86–123 Zaslavski intends to use «democracy» in the sense of «authentic democracy or a state of society lying in the line of development toward authentic democracy».

In favor of H1 it can be said that occs. 73 and 74 (see quotation, page 355) easily lend themselves to the construction that a republic is a democracy if there is democratic administration, this being a sufficient criterion of democracy, and a definitional one. The next text sentence, I think, can also be taken as confirming H1. There, «to exercise power» seems to be taken as criterion, and considering the opening phrases of chapter 2 (see quotation, page 339), where «democracy» is said to be «the power of the people», it may well be taken as definitional. To exercise power seems, then, in the next sentence (quotation, here page 355) to be described in terms of electing representatives and voting.

When the Athenian Republic is termed a «slave democracy» (cf. occs. 76 and 77, page 357), the difference from authentic democracy can be thought of in terms of a limitation of electing and voting power within the total populace.

The crucial point to discuss now is whether hypotheses H1–H3 should be regarded as confirmed to such a degree that a partition of the total field of application is warranted. What is the status of the already discussed universal hypotheses (A) and (A v B) in relation to the restricted hypotheses H1–H3? What is the weight of arguments for and against a partition of the total field of application into a major field covered by hypothesis (A) or (A v B), and one or two small fields covered by H1, H2, or H3? Such a partition amounts to a hypothesis that Zaslavski uses «democracy» in two or three ways.

At occs. 73 and 74, Zaslavski describes the administration of the Athenian Republic and says that this republic was a «democracy». It is, of course, tempting at this place to attribute a connotation to «democracy» in terms of the description of the Athenian Republic, but the connotations of hypotheses (A) and (A v B) are also applicable to occs. 73 and 74. There are no strong reasons to suspect that because Zaslavski at occs. 73 and 74 happens to discuss the Athenian Republic, he adopts a concept of 'democracy' with conceptual characteristics more or less identical to the characteristics of the Athenian Republic. His saying that it was a «democracy» (occ. 74) would then be of little interest in the general discussion about «democracies». It is more reasonable to expect a certain amount of *uniformity of intended use*, which makes the statement that the Athenian Republic was a «democracy» into a hypothesis of subsumption: the republic can be subsumed under a concept under which a number of other states or societies can be subsumed.

If H1 is adopted, the statement would not in its pretensions differ much from a tautology: the Athenian Republic was the Athenian Republic.

Occs. 101 and 102 are subsumable under (A) and (A v B) without serious difficulties. One may conceive (A v B) as better adjusted to those occurrences than (A), but neither of them gets any disconfirmation by reference to occs. 101 and 102. One may, therefore, say that those occurrences do not motivate any abandonment of the universal claim of (A) and (A v B).

In the case of H1–H3, as in many other cases, a hypothesis of discontinuity in the use of a term introduces serious disturbances into the general argumentation of the text. The presumption should in such cases be in favor of uniformity.

Apart from this argument for a presumption of uniformity of use, one may roughly formulate a very general one: if someone uses a term in a definite sense at one place, there will on the whole be a disposition to use the term in the same or a very similar sense at other places. Without such a disposition, communication would be difficult indeed.

If the field of application of H1, H2, and H3 is widened, they are heavily disconfirmed: they cannot compete with (A) and (A v B) in relation to broader fields. They presume a sudden discontinuity or discontinuities in use of the term «democracy». Such discontinuities may, of course, exist, but the presumption is against them, if special reasons are found for their invocation.[23]

Applied to hypothesis H1, the uniformity argument says that if «democracy» in some or all occurrences other than occs. 73 and 74 seems to be used otherwise than indicated in H1, this justifies a presumption that «democracy» is used that way even in the intended field of application of H1, that is, even in occs. 73 and 74. Thus, occurrences other than occs. 73 and 74 are relevant to the question of how «democracy» is used in occs. 73 and 74. Claim and relevancy must be distinguished.

When we say that the likelihood that the same sense is intended in occurrence number y as in occurrence number x is greater than the likelihood of ambiguity, the kind of hypothesis made can be written in our usual terminology:

> «The likelihood of $\mathrm{Syn}(aP_1S_1, aP_1S_2)$ is greater than $-\mathrm{Syn}(aP_1S_1, aP_1S_2)$ if S_1 and S_2 are both part of the same text».

Or better, if «occ. x» stands for «as used in occurrence sentence x of a certain text» and «occ. y» applies by definition to the same text, we can write:

> «Given a pair of occurrence sentences selected at random from a certain text, the likelihood of Syn(aP_1Occ.x, aP_1Occ.y) is greater than that of -Syn(aP_1Occ.x, aP_1Occ.y)».

If it is objected that, at least for the interpretations of «same meaning» adopted in the next chapter, this cannot hold or is at least highly speculative, I would answer that at least in the case of «a» in the formula standing for «democracy» and P_1 for Zaslavski, we have no reason to imply a definiteness of intention that would make it possible to distinguish, let us say, 100 different meanings within the text *La démocratie soviétique*.[24]

The contention that one cannot expect the word ever to be used twice with *exactly* the same meaning either presupposes a much looser and wider connotation of «meaning» than is introduced in the next chapter, or applies only to well-delimited concepts in which small differences of meaning can be detected and mapped out in relation to an exact frame of reference.

VI.17. Assumptions About Definiteness of Intention

Painstaking occurrence analysis of cognitive meaning[25] may roughly be described as an analysis of intended meanings, but it would greatly increase the likelihood of misunderstanding if occurrence analysis were said to be an analysis of the exact meanings intended. It seems often to be implied that exact analysis leading to exact results is impossible if highly vague and ambiguous expressions are investigated. I should rather say that a number of formidable practical obstacles are met with in such cases, but none of principle.

The guiding hypothesis of the last sections has been that Zaslavski's usage follows two patterns. They can be indicated by two main directions of precization, one suggested by synonymity between «democracy» and «authentic democracy», the other by synonymity between «democracy» and «authentic democracy or nonauthentic democracy». The definiens expressions in these descriptive definitions have a comparatively low level of preciseness, primarily because we do not presume Zaslavski's definiteness of intention to have been deeper than is normal in texts of a propagandistic nature.

The greater the preciseness of the definiens expression, the greater will be the number of items to be confirmed or disconfirmed by occurrence analysis. The total amount of evidence is, however, very small. This is another important reason for keeping the definiens expressions of guiding hypotheses on a low level of precision.

Comparing the guiding hypothesis (page 361) with H1 (page 373), we find that the lack of preciseness of the former constitutes a fairly strong argument in its favor, but having confirmed to some degree that Zaslavski uses T_2 rather than T_1 throughout his book (page 361), we may proceed to state hypotheses of a somewhat higher level of preciseness. This is in accordance with the general procedure to circumscribe Zaslavski's usage within narrower and narrower borders until the coarseness of the object studied makes it unwarranted to proceed further, for example, until the limit of Zaslavski's definiteness of intention seems to be reached at every point.

It is, of course, highly speculative to decide where such limits lie on the basis of occurrence analysis. If Zaslavski had written a longer book on the same subject and we had 10,000 occurrences to analyze, the prospects of tracing his usage (in the fairly narrow sense of cognitive connotation) would be better. Two hundred occurrences cannot be viewed as a big number for our purposes. This we wish to stress, because judged from prevalent practice in analytical philosophy and opinion analysis, much smaller numbers of occurrences seem to be viewed as sufficient for establishing descriptive definitions with great pretensions of preciseness and tenability.

VI.18. Linguistics and Occurrence Analysis: Method of Opposites

Linguists may ask whether occurrence analysis makes use of the method of delimitation of meanings that is so fruitful in general linguistics and in philology. In those fields, to find out what an author means by a word, it is often convenient to ask, What is the word or designation for the opposite? By always looking for opposites and for how the term and its opposite or opposites mutually divide the semantical field, we can step-by-step delimit the meaning of each term. In no case is it possible to delimit the meaning of a definite term without investigation of the use of other terms.

From the foregoing discussions it should be clear that occurrences of «democracy» in which «democracy» is declared to be the opposite of something else, are particularly welcome to the occurrence analyst. It would, however, lead us astray if we were to take at face value such conventional opposites as are commonly supposed to exist. It is, for example, sometimes said that «monarchy» is an opposite of «democracy». If Zaslavski's text had contained an occurrence such as «No democracy is a monarchy», it would have been eagerly listed by the occurrence analyst. There is, however, no such occurrence. Zaslavski speaks about «bourgeois democracy» and mentions as an example the English «democracy». He would probably hold that some of the bourgeois democracies are monarchies. There is at least no clear evidence of a consistent opposition between «democracy» and «monarchy» in Zaslavski's terminology. Opposite authentic as well as nonauthentic democracies—in one of the terminological systems that might be attributed (not without some arbitrariness) to Zaslavski—we find what Zaslavski terms «fascist states». From occurrences we can infer that, for example, the government of Bulgaria after Versailles was not «democratic» in any sense that Zaslavski seems to make use of. By hypotheses about how Zaslavski conceived that government, we can obtain some evidence about general features characterizing governments being «antidemocratic».

One of the complicating factors is the existence of an adjective «democratic» such that a state held to be «democratic» in one single respect might be called a democracy (cf. occ. 5, i_8). This makes it possible for Zaslavski to use—sometimes—a very broad concept of democracy. At other times he seems to have more restricted concepts in mind. We shall therefore in any case have to consider a great variety of systems of opposites. It does not lead us anywhere to inquire about «the» opposite.

Many terms in occurrence sentences are relevant to the central term studied. Thus, the term «people» needs special attention. All occurrences of that term ought to be carefully considered, because «democracy» and «rule of the people» in some sense seem to be closely associated in the mind of Zaslavski. Thus, many terms that are not opposites of «democracy» need auxiliary analysis.

Close attention to all occurrences in which something is said *not* to be a democracy, or is otherwise taken as «opposite» in some of the many senses of this term (cf. the logical «square of opposition»), is highly recommended in occurrence analysis, but the technique does not give the analyst an *open sesame* by which reliable conclusions can be rapidly obtained.

One of the reasons that looking for opposites is so important in philology seems to be that when usage is stable, single words often acquire as opposites other single words. Thus, there is often a pair of words mutually determining each other's meanings. A change in the one affects a change in the other. We get relatively simple semantical fields.

In semantical analysis of more or less technical and unstable terminology, there is much less time for such systems of single words to evolve. Designations consisting of several words play a much more important role. In Zaslavski's text we have a series of complex designations of central importance to the study of his use of «democracy»: «bourgeois democracy», «slave democracy», «authentic democracy», and many others.

There are some combinations that we may expect to be consistently ruled out in his terminology, for example, «fascist democracy».

He would, perhaps, not *use* the designation «monarchical democracy» or «plutocratic democracy», but this would not rule out the possibility that he considers many democracies to be monarchies or plutocracies. The variety of complex designations makes systems of opposites complex and unstable. Thinking about the opposite of «slave democracy», we may concentrate our attention on «not-slave democracies» or «slave not-democracies» or «not-slave not-democracies» or «not-(slave democracies)». In cases of a designation with three important words, the «not»'s can be placed in eleven different arrangements of the kind indicated. One may not expect that an author makes a consistent choice, but rather that he uses his key terms to suit the general argumentation according to rhetorical rather than logical rules.

Summing up, we should say that looking for opposites is a good rule of thumb to be recommended in occurrence analysis. The most important expressions functioning in one or more occurrence sentences as opposites (in some sense of this term) should be singled out and considered separately. This has not been done in the Zaslavski analysis as it is described above, but it was omitted for expository, not methodological, reasons.

A more complete description of an occurrence analysis of «democracy» would include subordinate occurrence analyses of all key terms in key occurrence sentences. Thus, we should list and investigate terms such as «people», «rule», «fascist», «aristocracy», and others.[26]

VI.19. Concluding Remarks on the Connotational Occurrence Analysis

By means of occurrence analysis we have been able to correct the impression that one is likely to form of Zaslavski's usage if one limits the inquiry to his «definitions» or, more generally, to his definitoid statements. Those statements suggest a much narrower concept than do the rest of the occurrences.

We have also been able to suggest several possibilities of meaning of the term «authentic democracy», that are compatible with all occurrences but for which there is little differential evidence (evidence favoring one particular hypothesis over others in a group of hypotheses). The definiens expressions have a level of preciseness that we deem more satisfactory than that of Zaslavski's «power of the people, by the people, for the people», for example, but they are still too vague and ambiguous for serious purposes of classification of items into authentic and nonauthentic democracies.

Given the results of the analysis, which I personally regret are not more definite and far-reaching, the question is likely to be asked, Could not much more of importance be said about Zaslavski's usage on the basis of his text?

Certainly. We have concentrated on possible connotations of a single word. We do not doubt that to find such connotations is of great importance in any attempt at clarification and, more generally, in any attempt to raise the level of efficiency of communication for cognitive purposes, but this does not lessen the importance of other types of inquiries. It is highly desirable that painstaking inquiries of other kinds be undertaken in conjunction with the connotational occurrence analysis. The description of them does not belong to this chapter, however, so we shall limit ourselves to offering an outline of the kinds of inquiries we have in mind.

VI.20. Occurrence Analysis of Other Varieties

What are (the) conditions that Zaslavski would consider *necessary* to call something a «democracy»?

From sentences such as «--- is incompatible with democracy» and «There is no democracy if ---», one can infer that certain conditions are considered necessary. Some of the inferences mentioned above (i_{42}, i_{43}, inf_3, inf_4, inf_{30}, inf_{31}, inf_{32}) provide evidence of conditions sine qua non.

Likewise, it is fruitful to ask, What are (the) conditions that Zaslavski would consider *sufficient* for calling something a democracy?

We write «the» in parentheses to suggest that there may be an indefinite number of sets of sufficient conditions, and that there may be complete sets of necessary conditions corresponding to each set of sufficient conditions. (However, the sets of necessary conditions may have conditions in common.)

Some would maintain that if we know a complete set of necessary conditions, then the set expresses a connotation. If by a «*complete* set of necessary conditions» is meant a set the conjunction of which would give a connotation (interpretation) rather than any other kind of sufficient conditions, we must expect to find it difficult to pick out a complete set from a list of necessary conditions. If a set is meant the conjunction of which is *at least* a sufficient condition, but which might be more than sufficient, we shall have difficulties in picking out which sets correspond to just sufficient conditions.

These difficulties are just the kinds of difficulties we have encountered in the foregoing sections. The quest for connotations by means of lists of necessary and sufficient conditions therefore does not open up new fields of evidence.

Nevertheless, such a quest is well motivated because its by-product, the lists of conditions, is itself of value for its descriptions of «usage» in a broader meaning. Such lists indicate characterizations of democracy, basic evaluations and descriptions; and the necessary conditions listed are common characteristics of any democracy. Incidentally they may give suggestions for condensed characterizations in the sense of R-definitions (see chapter 4, section 11, page 195).

If, in addition to such descriptions, we can derive some information on the connotations of the word, the value of the lists is increased, but even without the addition, such lists may be useful.

If the lists are worked out in close connection with occurrences of the term«democracy», for example, one may call the inquiry an «occurrence analysis», but not a «connotational» one.

For the sociology and social psychology of controversy, for ideology research, and for a myriad of related kinds of investigations, it is important to find out whether a given occurrence sentence of the term «democracy» correlates with appreciation or depreciation of «democracy» (whatever the term may connote). For each occurrence one may ask for symptoms of appreciation, first, in the view of the sender (Zaslavski), and second, in the view of various categories of receivers, for example, French Communists, French de Gaullists, French undecided voters.

Here there is no room for appreciative occurrence analysis, but some hypotheses concerning the results of such an analysis may be stated:

1. There is no single instance of «authentic democracy» (or any synonym) being used depreciatorily in the sense of «used in a sentence expressing something unfavorable about authentic democracy». This holds true if the (hypothetically) inferred evaluations of Zaslavski are used to delimit favorableness from unfavorableness. But it holds also for most of the groups that are prospective readers of the text.
2. There are a great number of instances of «authentic democracy» being used appreciatorily by Zaslavski.
3. The term «democracy», when used without qualifying attributes such as «authentic» or «bourgeois», is never used depreciatorily, but very often appreciatorily. It seems to differ from «authentic democracy» (cf. items 1 and 2) in degree and frequency of appreciations.
4. The terms «bourgeois democracy», «partial democracy», and so forth, marking democracies other than «authentic democracies», are almost never used appreciatorily. The exceptions are occs. 114 and 115 (see pages 341–42), where the bourgeois democracies are said to have been necessary for the development of authentic democracy.

These and other regularities in appreciation relations justify an inference from appreciation to connotation: if Zaslavski were to say something unfavorable about «democracy», it is likely that he would take «democracy» in wide connotations that included the bourgeois democracies. Care must be taken, however, to avoid first counting an occurrence as evidence of a wide connotation *because of* depreciatory contents, and then later justifying the inference on the basis that the occurrence shows the correlation of a wide connotation with unfavorable content.

Terms such as «appreciation» need clarification. There is also an urgent need for criteria that make it fairly precise to say that a certain occurrence is an instance of depreciatory use. The foregoing are only casual remarks.

As a last form of analysis that we should like to call «occurrence analysis», we mention «occurrence analysis for prediction and explanation of usage», especially analysis that tries to establish short hypotheses on regularities of use that can be relied on to hold in the future.[27] To be more explicit:

In all the foregoing kinds of analyses, we have had the intentions or evaluations of the sender in mind, when talking about connotation, meaning, appreciation, and so on. We may, however, ask the following kinds of questions: From what rules will it, for me, be most expedient and secure to predict whether Zaslavski would call something a «democracy» or an «authentic democracy»? Which are the most easily recognizable, common, and specific characteristics of denotata of «authentic democracy», as this term is used by Zaslavski?

If I were to answer such questions without further inquiry, I would first of all use the following rule: if something is recognized as a specific trait of the state of society in the Soviet Union, it will be, by Zaslavski, appreciated and will, according to him, belong to the characteristics of authentic democracy in general or to a subclass of authentic democracies. That is, it may be predicted that Zaslavski would be willing to use the term «authentic democracy» or «being characteristic of a true democracy» about the trait in question. When Beard (1934) analyzed occurrences of «national interest» and found the expression to stand for «banking interest», and so on, he made, in our terminology, a predictional analysis. That is, he found rules by which to predict and explain a usage on the basis of regularities of the denotata.

If an author has the intention of following his definition, his subsequent acts of subsumption may be very difficult to predict on the basis of that definition because of its lack of precision, lack of definiteness of intention, and so on. It may be practicable to predict his use by means of certain psychological and sociological characteristics, such as his membership in certain groups, a dominant evaluation he has in common with others, or some propaganda purpose one can be fairly sure he is pursuing. If the definition he intends to follow is fairly precise and if it belongs to a field of discussion such as hydrodynamics, his explicitly formed intentions may be much more trustworthy and fruitful evidence of future use—even if the terms are apparently emotionally and ideologically loaded (for example, «cold front» and other terms of meteorology). If, however, the psychological and sociological classifications of today are uncritically adopted, one may expect very deplorable results from the standpoint of the theory of interpretation and preciseness: we obtain counterpropaganda and propaganda against propaganda instead of cool, painstaking scientific analyses of communication. Thus, we get the kind of counterpropaganda consisting in utter neglect of the sender's intentions, and then claiming that what he means by a eulogistic term is synonymous with what the analyst thinks is specific of the denotata that the sender mentions. For example, «authentic democracy» might in a piece of propaganda against the Soviet Union be said to *mean for Zaslavski* «dictatorship of the Communist party sustained by secret police and concentration camps».

This is not the place to discuss problems of this kind. Suffice it to say that the importance of occurrence analysis in the search for connotations may be overestimated, and that anybody writing extensively about the subject may be suspected of having such an overestimation. The search for intended meanings may, however, also be underrated, and anybody making content analysis and other semantical and related inquiries without going into the question of connotations may be suspected of underrating its importance.

Finally, we have devoted so much space to connotational occurrence analysis because other kinds of analysis can make use of the procedures of connotational analysis and do not, on the whole, present so many difficulties.

VII

Introduction of a Group of Concepts or Tests of Synonymity

A. Concepts of Intrapersonal Synonymity

VII.1. Introduction

By a «concept of synonymity» we shall mean a concept with «synonymity», «synonymous», «sameness of meaning», «likeness of meaning», or closely related terms as concept designations.[1] This normative definition of «concept of synonymity» is such that no concept can *per definitionem* be ruled out as a synonymity concept on the basis of its conceptual characteristics (content). As long as the designation is «synonymity» or certain related expressions, it is, according to the above convention, a concept of synonymity. Thus, if someone were to introduce the term «sameness of meaning» by stipulating the conceptual characteristic 'sameness of length', we should have to include the latter concept in our family of synonymity concepts.

On the one hand, the proposed use of the term «concept of synonymity» is such that it makes a sentence of the kind «This is a concept of synonymity» rather trivial. Such a sentence says two things: that «this» is a concept and that it is expressed by a member of a small class of words—«synonymity» and others.

On the other hand, one may expect that many concepts of synonymity show common features—if they do not, one may ask, why should the designations be the same or closely similar? The history of designations suggests that such expectations are often frustrated. The amount of similarity may not be great, being merely the result of human caprice.

The terms «synonymity», «synonymous», and so forth, have had a long history, and there is no evidence that they have been used in the same way by all users. On the contrary, there are conflicting normative and descriptive definitions and, probably, conflicting usages. At the time of Aristotle, e.g., «synonymous» seems to have had a meaning closely related to what now is often called «unequivocal».[2]

Some authors speak about «the» concept of synonymity as if there were one concept that is the real concept of synonymity, whereas other concepts, whatever their concept designations or conceptual characteristics, cannot possibly be the real one. We have no good reason, so far I can judge, to single out any definite concept in this way. This holds also in relation to «the» concept of cognitive or logical synonymity. Other authors have pointed out weaknesses inherent in some proposed synonymity concepts.

In this chapter we shall introduce a series of families of concepts. They happen to have certain features in common that make it convenient to use «synonymity» or closely related terms as concept designations. Not much emphasis is placed upon the tenability of this view concerning convenience, however. It may well be that, in the long run, it turns out not to be convenient to call them by the proposed name. Our contention is that each of the entities introduced is, at the time this work is being written, fruitful. They are at the moment useful in certain kinds of investigations. The question of naming the concepts is considered a minor issue.

The entities to be introduced are called «concepts». Perhaps «tests» (or «test-batteries») would be a better term, but it is not used, because it might lead to the assumption that something definite is tested by all the synonymity tests, namely synonymity. The history of misconceptions about intelligence tests has been a warning for us (see, e.g., Goodenough 1949: 97ff.).

There is no reason to expect a future state of affairs such that «synonymity» or «sameness of meaning» will express only a single concept.

«Synonymity» and the other, closely related terms are currently used in very different fields of investigation, for example, in lexicography and in the field of semantic systems in the sense of Carnap. At present, little evidence exists that a concept designated «synonymity» will be adopted in all fields and that no other fruitful concepts will be designated by that term. Perhaps such a state of affairs eventually will be reached, but there is currently no methodological advantage in trying to reach it.

In this respect, the search for one concept of sameness of meaning is on the level of the search for one concept of intelligence, learning, suggestibility, memory, attention, social norm or ideology. Such vague and ambiguous key terms are important in research, but attempts to find, for example, a concept of intelligence that might once and for all give to that term a rather definite meaning have been unfruitful. The concepts of synonymity to be introduced here have certain features in common with so-called «intelligence tests». One may among psychologists speak of such tests without being accused of believing that those tests measure something definite, 'intelligence', which can be tested in various ways and is independent of any special procedure of testing.

In this chapter a number of concepts will be introduced which are, as far as we can judge, fruitful concepts in *present-day research*. Whether they will be fruitful in twenty years we do not wish to predict. Probably some will be discarded and new ones adopted.

VII.2. The N-Concepts of Synonymity: Synonymity Identified with Presence of a Rule Proclaiming Sameness of Sense

In this section we shall consider a direction of precization of ««a» means (not) the same as «b»».[3] The direction can be roughly indicated by the formulations (1) and (1A):

> (1) That an expression means the same as another means that there is a rule which says or implies that the two expressions are to mean the same.
> (1A) That an expression does not mean the same as another means that there is a rule according to which the two expressions do not mean the same.

For example, «prime number» and «*Primzahl*» mean the same because according to mathematical terminological rules, both shall designate numbers that are not divisible except by the number 1 and themselves.

Precizations and Elaborations

> (1.1) ««a» means the same as «b»» shall mean the same as «there is somewhere a completely and explicitly formulated rule that states (or implies) that «a» and «b» shall mean the same».

The parenthetical «or implies» suggests an alternative; let us call it (1.2).

Assertions that «a» means the same as «b» would, if (1.1) is adopted, not state anything more than that there exists somewhere a rule of a certain kind. If the distinction between rule formulation and rule expressed by the rule formulation is adopted, the existence of a rule somewhere would be the same as the existence of at least one (rule) formulation somewhere that expresses the rule. Geographical indications have a fairly clear meaning in relation to formulations (expressions), not to rules.

> (1.3) «a_i means the same as «b»» shall mean the same as «there is a synonymic normative definition which stipulates that «a» shall mean the same as «b» within a field of application M_1, and a_i belongs to that field».[4]

The formulation (1.3) concerns definite instances of an expression «a», namely, instance number i, defined by its place in a text or by other space-interval references.

Common to all three definiens formulations of (1.1), (1.2), and (1.3) is the use of a «that» phrase: «*that* «a» and «b» *shall* mean the same». To ensure subsumability, we must obtain information about how this phrase is to be interpreted. An obvious, but for most purposes valueless, way of getting rid of the subsumability difficulties is to declare that the definiens requirement is satisfied if, and only if, there is an announcement *sentence* of the form ««a» and «b» shall mean the same». Only if we had constructed a language and introduced a set of «semantic rules» in the sense of Carnap would such a declaration give useful concepts of sameness of meaning. In relation to natural languages one has to take up the question, How do we find and formulate fruitful criteria of the presence of a rule announcing *that* «a» and «b» shall mean the same?

Let us proceed to the discussion of certain possibilities of contradictions if one attempts to use the above normative definitions in practice.

Let us accept as a postulate, that if «a» means the same as «b», «a» cannot *not* mean the same as «b», and vice versa. If two rules are found, one saying that «a» means the same as «b», and one that «a» does not mean the same as «b», both (1) and (1A) are satisfied. That is, our postulate is violated.

Such cases of violation are easily constructed. There are incompatible terminological rules for numerous expressions in scientific literature. To avoid these violations, we suggest the following reformulation:

> (1.11) ««a» means the same as «b» within the field of application M» means the same as «there is a rule that announces explicitly that «a» shall mean the same as «b» within the field of application M».

If there are two authors, one announcing that «a» shall mean «b» within his works, and the other announcing that «a» shall not mean the same as «b» in his, there will be no simultaneous confirmation of (1) and (1A).

If, however, the fields of application M_1 and M_2 partly overlap, the announcements are in conflict, and (1) and (1A), even if formulated in the light of (1.11), may be confirmed simultaneously.

To avoid this result, one might reformulate the definiens of (1.11) as follows:

> (T 1.12) «There is a rule that announces explicitly that «a» shall mean the same as «b» within the field of application M, and there is no rule announcing or implying the contrary.»

A corresponding concept of synonymity applied to single occurrences may be introduced as follows:

> (1.21) «a_i means the same as «b»» means the same as «there is a rule that announces explicitly that «a» shall mean the same as «b» within the field of application M, and a_i belongs to that field».

Using previously introduced terms, we can reformulate and elaborate the definiens expression of (1.3) and (1.21) thusly:

> T 1.31 «There is a synonymic or interpretative normative definition, 'N', that stipulates or implies that «a» shall mean the same as «b» within a field of application M, and a_i belongs to the field M, and there is no synonymic or interpretative normative definition announcing something that, *per definitionem*, cannot be realized without violating the normative definition 'N'.»

The most frequent cases in which the first and second, but not the third, conceptual characteristics are satisfied are perhaps those in which different authors propose different and incompatible N-definitions with the same intended field of application. If a modified definiendum is introduced, «a_i means for P the same as «b»», and «a» in requirement 1 of the definiens is replaced by ««a» for P», such cases are subsumable (but of course under a new concept). There is no incompatibility between the announcement of one author that «a» shall mean b, for him, and that of another who announces that for him «a» shall mean non-b.

The normative definition of «a_i means the same as «b»» having (T 1.31) as definiens expression will be said to introduce «the concept of synonymity as presence of synonymity norm», or, in short, «*the N-concept (norm concept) of synonymity*» or 'N-synonymity'.[5]

By means of previously introduced symbols and a new prefix, assertions that an instance a_i of an expression «a» is N-synonymous with an expression «b» may be thus symbolized as N-Syn(a_i M_1b M_2).

VII.3. Limited Fruitfulness of 'N-Synonymity'

The norm concept of synonymity is of very limited fruitfulness.[6] We shall not use the concept in any other way than in formulating hypotheses that state that others use or do not use a concept similar to the norm concept of synonymity. The concept has the same kind of fruitfulness as that of 'real definition': for classification of concepts used by others. In a sense it may be said to be fruitful within the historiography of concept formation. Often, authors write as if in their synonymity sentences they try to express concepts of synonymity closely related to the norm concept of synonymity. The definiens (T 1.31) may sometimes be an interesting precization or transintentional precization of expressions such as «--- means the same as ---».

Lexicographers seem often to work as if they used a concept similar to our 'N-synonymity'. Thus, in dictionary articles dealing with technical terminology, their definiens expressions come from textbooks or technical papers in which the definiendum expression is introduced by means of normative definitions. Should a lexicographer be asked how he knows that his dictionary articles are correct, it is likely that he would merely cite his source for the definiens expression and add that the author quoted is considered competent. That is, the argumentation sometimes proceeds as if sameness of meaning as far as it is involved in lexicography concerns identity of the definiens expression in the dictionary with the definiens expression in a normative definition announced within a competency group. The concept of N-synonymity is therefore considered fruitful in attempts to describe what lexicographers are doing when writing dictionary articles about technical matters.

The strongest argument against any other than the historiographical use of the norm concept of synonymity may roughly be indicated by saying that it slurs over the fruitful distinction between presence of a rule and conformity with a rule. It is convenient to be able to say, «People announce rules, but the rules are not always followed in practice»—or in terms of definitions, «People announce their definitions, but one should bear in mind that they do not always follow them».

Suppose we adopt the norm concept of synonymity and find a sentence of the form «a is not always a b». If there is a normative definition covering the sentence that announces that «a» shall mean the same as «b», we should conclude that «a is not always a b» means the same as «b is not always a b». We would be unable to say, «If the normative definition has been followed, it is here stated that b is not always a b». Since this is nonsense, it is likely that «a» does not mean the same as «b» in this instance, in spite of the presence of the normative definition.

An example will make this point clear. Some authors use a normative definition of «prime number» or «*Primzahl*» such that, for plausible interpretations by ordinary readers, the number 1 would be subsumable. But from the occurrences of the term, it is more or less obvious that 1 is not taken as a prime number. Such a normative definition is, for example, the following: «eine natürliche Zahl, die ausser sich selbst und der Einheit keinen Teiler hat, soll eine Primzahl heissen».[7]

Only one part of the strongest argument against the norm concept of synonymity has so far been mentioned. The other part may roughly be expressed thusly: it is more convenient to use the following expressions as definiendum expressions if (T 1.31) is taken as definiens:

(2.1) «a_i means the same as «b» according to N» or
(2.2) «a_i means the same as «b» if N is followed» or
(2.3) «There is a synonymic or interpretative normative definition such that a_i is covered by its field of application and such that, if that definition is followed, a_i means the same as «b»».

With this definiendum already established, useful verbal habits will be retained intact, and we get a fruitful concept. It will not, however, be called a «synonymity concept». The concept obtained by using (2.2) as definiendum and (T. 131) as definiens will be useful as a precization of sentences stating that something means something else *per definitionem*.

Instead of the definiendum expression «a_i means the same as «b»», one may use «According to an N-definition, a_i means the same as «b»». Retaining (T 1.21), one gets a fruitful concept. It is important for many purposes to know whether an instance of an expression is covered by the intended field of a normative definition. The positive information that the instance is covered, and that the normative definition is such that, if followed, «a» means the same as «b», is of importance, first of all, in attempts to interpret «a». Provided we find it justifiable on psychological or other grounds to assume that the N-definition has been followed, interpretation of «a» is made easier provided «b» is fairly easy to interpret.

VII.4. N-Synonymity Hypotheses: How to Test Them

Roughly, one may say that N-synonymity hypotheses assert the presence of regulated usage of expressions and offer a key to understanding the rule governing the usage—or, more exactly, a rule that, if followed, would regulate the usage.

To establish an N-synonymity hypothesis, one has to point out a sentence, or certain sentences, and show that it expresses a synonymic or interpretative normative definition. *This involves interpretation hypotheses and elementary analysis, namely, a description of definitoid statements.*

If marginal references are vague or implicit, their interpretation offers many difficulties and uncertainties. Once we have established—with a greater or smaller degree of certainty—the presence of a synonymic or interpretative normative definition with marginal reference such that it covers the instance a_i that is under consideration, the next step is to establish by appropriate subsumption hypotheses that a_i belongs to the intended field of application of the rule. *This involves the kind of elementary analysis called «subsumption analysis».*

If positive results are obtained, the first two requirements of (T 1.31) (page 393) are fulfilled. The third requirement offers peculiar difficulties because its satisfaction requires disconfirmation of an existence sentence: one has to establish that there *does not exist* a second rule covering a_i such that, if that rule were followed, a_i could not also follow the first rule.

If one tries to find out whether the third requirement is fulfilled, important ambiguities of its formulation are revealed. Let us consider an instance of the term «probable». Because there is an intense interest in probability calculi and their application, philosophers, logicians, and mathematicians have produced a great many sentences that may be plausibly interpreted as synonymic or interpretative normative definitions covering *all* instances of «probable» produced after the production of the rule. That is, the theorists propose regulations for the use of the term «probable» without making any exceptions: the term shall mean this or that, whether produced by the framer of the regulations or not.

Consider this example of an argumentation pattern suggesting use of a concept 'normative synonymity': «--- another term which also antedates Lankester's paper of 1870 is *heterology*, proposed by E. D. Cope (1868) to designate «what Swainson and others called 'analogy' as distinguished from affinity». This very definition proves Cope's term to be synonymous with homoplasy, as here understood» (Haas and Simpson 1946: 281, 329).

It appears that Haas and Simpson consider Lankester to have proposed (something closely similar to)[8] a normative definition of «heterology». They seem to quote the definiens expression of that normative definition, and seem to think that the content of the quotation is sufficient evidence for the reader of their paper to accept their hypothesis that «heterology» is synonymous with «homoplasy».

In the paper, Haas and Simpson do not formulate a normative definition of «homoplasy» with a definiens expression identical to the quotation from Lankester's paper. They do, however, use several slightly different expressions, and these expressions occur in their argumentation for or against preferences concerning the interpretation of «homoplasy». Therefore, one may consider that Haas and Simpson compare Lankester's definiens expression with a definiens expression they do not formulate explicitly but consider indicated sufficiently accurately in various sentences preceding the quotation from Lankester.

Haas and Simpson's text permits (of course) precizations in various directions. It is here only contended that one of these directions leads to the hypothesis of N-synonymity between «heterology» and «homoplasy».

VII.5. The Ds-Concepts of Synonymity: Synonymity Identified with Reported Sameness of Meaning

This section will be devoted to the exposition of certain N-definition possibilities, some of which furnish fruitful concepts at the present stage of research.

Let us consider the following rather than obscure formulations:

> (1) That an expression means the same as another means that they are by competent people said to mean the same in use.
> (1A) That an expression does not meant the same as another means that they are by competent people said not to mean the same in use.

Rough example: «*Primzahl*» and «prime number» mean the same. That is, some or all mathematicians say that usage is such that they mean the same.

By means of precizations and elaborations of the definiens expressions in (1) and (1A), concepts can be constructed that are fruitful within rather limited inquiries and expositions. Consider the following examples:

> (1.1) ««a» means the same as «b» for P» shall mean the same as «there is an assertion by the competent person P to the effect that, as used by him, «a» means the same as «b»».

This stipulation gives us an intrapersonal synonymity concept. Corresponding interpersonal concepts are of doubtful use.

> (1.2) «$\mathrm{Syn}(aP_1S_1bP_2S_2)$» shall mean the same as «there is an assertion $\mathrm{Syn}(aP_1S_1bP_2S_2)$ by the competent person P_1».

The term «competent», here left unprecized, is, of course, in need of clarification, preferably in the form of tests. In the following, we presume that no conventions are adopted that assert that a certain person is competent, thereby *implying* that his hypothesis $\mathrm{Syn}(aP_1S_1bP_2S_2)$ is true or tenable. The conventions would normally refer to competency in using a language and in talking about it. Formulation (1.2) might therefore be reformulated as follows:

> (1.21) «Synonymity sentences» shall be used synonymously with «sentences saying that there is an assertion expressed by the synonymity sentences uttered by a competent person».

To adopt (1.2) or (1.21) as an expression of normative definition and to decide to use either would be highly inconvenient. We need distinctions of the kind now expressed by saying, for example, «The hypotheses that the English expression «a» means the same as the English expression «b» is highly misleading or even untenable, in spite of the fact that the hypothesis is asserted by all specialists in English usage». We need the distinction between the hypothesis that some or all competent people assert or are willing to assert a certain synonymity hypothesis, and the synonymity hypothesis itself.

For purely expositional purposes, the expression ««a» is for P_1 in S_1 synonymous with «b»» may sometimes be used instead of «P_1 has [under certain standardized conditions] affirmed that he, in the situation S_1, interprets «a» to mean the same as «b»».

In the next section certain questionnaires about usage are considered. In protocols describing the results of these questionnaires, expressions of the above kind occur so often that abbreviations are desirable. It has proved convenient, and not liable to misunderstanding, in the exposition of such questionnaire results to use an abbreviation that, under other circumstances than those of its application, would slur over the highly important distinction between hypotheses of usage and hypotheses stating that certain such hypotheses are made by competent people.

VII.6. Ds-Concepts of Synonymity Introduced by Reference to Questionnaire Procedures

Questionnaires of Type Qs1

By the term «Qs1 questionnaires» we refer to questionnaires that, roughly speaking, invite a person to read a text. In the text there is an expression T. After having read the text, the respondent is asked to imagine that the expression T does not occur there, and that an expression U occurs in its place. He is then asked whether he would have interpreted U to mean something different from what T meant to him when he read T.

Questionnaires of this kind, Qs1, are obtained by selecting definite texts and a definite ordered pair of expressions, T and U. These expressions are called the «crucial» expressions.

A group of Qs1 questionnaires, which I and others have used, are translated from their Norwegian formulation as follows:

> *QS1, No. ---.*
>
> The analyst (carrying out the test) invites a respondent to read carefully a text presented to him.
>
> After the respondent has read the text, the analyst says: This text was offered you as an example of a text that contains the expression «---». Let us call the expression T. What I should like to know is the following:
>
> Imagine that the expression «. . .»—let us call it U—had occurred at the place that T occupies in the text and instead of it. Would U have expressed the same assertion to you as did T when you read T?

The last question is called «the synonymity question» of the questionnaire. Sometimes the questionnaire is given in written form. In that case, the respondent is asked to read the questionnaire line by line, not skipping ahead to read formulation U before T.

Qs1 is so worded that the respondent is talked about as a different person from the analyst. In analytic philosophy and lexicography, processes are sometimes performed by which the analyst asks himself the synonymity question or closely related questions. A slight modification will make Qs1 adapted to those cases.

Qs1 and all the other questionnaires of this section are adapted to intrapersonal relations. Respondents are asked about their own usage. Sometimes the additional instruction is given that we as analysts are only interested in what we ask about, not in how respondents believe that other people interpret the crucial expressions T and U.

The questionnaire described above is adapted to cases in which T and U may be expected to express assertions. That is, T and U are usually declarative sentences. An important modification has been made for cases in which T and U are designations. This subclass of Qs1 questionnaires we call Qsd1 questionnaires, where «d» stands for «designation». All of them have the same form:

> *Qsd1. No.* ---.
> *Text*: ---.
> *Instruction:* This text was presented to you as an example of a text containing the expression «---» [for example, «true»]. Let us call the expression T. What I should like to know is the following: Imagine that the expression «. . .» [for example, «quite sure»]—let us call it U—had occurred at the place of T in the text. Would the sentence containing U have expressed the same assertion to you as the sentence containing T did when you read T?

If we presume the respondents to be honest, a positive answer to a Qs1 questionnaire registers what certain persons believe about their usage. More precisely, a positive answer—if it is an answer to the question as intended by the analyst—registers that a person believes that if the questionnaire had contained an expression U instead of an expression T, this would not have made any difference to his interpretation.

Just what the respondent believes is uncertain, and his definiteness of intention may sometimes be extremely low. There are, however, important regularities in respondents' answers, and we feel fully justified in using the answers in studies of communication. The regularities are such that we may conveniently introduce some concepts of synonymity by means of the questionnaires.

'Qs1A-synonymity' is N-defined as follows:

> (1) By «T and U are Qs1A-synonymous for P in relation to S» we shall mean the same as «Confronted with a Qs1 questionnaire with T and U as crucial expressions and the text N, P answers positively».

Analogously, Qs1A-heteronymity is N-defined by negative answers.

The symbol S is that of situation, which here is delimited to the test situation in which P is confronted with a definite text and a synonymity question.

The concept is introduced in relation to a definite text. One might consider, as an interesting generalization, whether P would answer positively no matter what text T and U were put into. In general, one may expect that certain texts S might be found that would reverse P's answer.

We have not found it convenient to introduce a concept of such a kind that an assertion «T and U are for P in S Qs1-synonymous» means the same as «P answered positively when confronted at time t_0 with Qs1, ---». That is, we do not by the subsumption intend to limit our assertion to what happened at a definite instant, the moment t_0 when P answered positively, for example, by saying the one word «Yes». On the other hand, it is unlikely that any person would answer the same every year until his death. In the wording «P answers positively» of the definiens formulation in (1), the indefiniteness of the present tense leaves the door open for precizations in various directions, several of which may be of interest. In any case, a positive answer to a Qs1 question at a given moment shall, by definition, be taken as a (direct) confirmatory instance in relation to the hypotheses «T and U are in relation to S Qs1A-synonymous». If the test is repeated later, a second positive answer will be taken as another confirmatory instance.

Would it be adequate to say that by means of the questionnaire Qs1 and the concept 'Qs1A-synonymity', the term «synonymity» is operationally defined? It would not, in our opinion.

We do not intend, by the introduction of 'Qs1A-synonymity', to furnish one definite concept that in the future should be intended when we use the term «synonymity». We do not try to define synonymity operationally, if this expression is taken to imply that we look for a single concept by which the term is introduced in relation to a definite set of operations. We do not introduce, by (1), any concept 'synonymity', but a concept 'Qs1A-synonymity'. The word «synonymity» makes up the second half of our conceptual designation, not the whole of it. We only contend that some of the hypotheses that so far have included the term «synonymity» concern subject matters that make it fruitful to leave out the term «synonymity» as a complete designation and talk about Qs1A-synonymity instead. Thus, the relation between «synonymity» as used so far—for example, in «synonymity sentences»—and «Qs1A-synonymity» is much less intimate than in operationism.

When we try to use the material obtained by means of Qs1, the question immediately arises, Does the respondent understand the questionnaire approximately in the sense that the analyst intends it to be understood? Or are there indications that the answer is an answer to a rather different question from the one the analyst tried to communicate? We may affirm that T and U are Qs1A-synonymous without worrying about this point. There is need for a second concept, one much more difficult to handle than 'Qs1A-synonymity'.

> (2) By «T and U are Qs1B-synonymous for P in relation to S» we shall mean the same as «Confronted with a Qs1 questionnaire with T and U as crucial expressions and the text N, P answers positively.

In addition, the answer is an answer to the synonymity question interpreted as intended by the analyst».

An answer that directly confirms a case of Qs1A-synonymity does not necessarily confirm a case of Qs1B-synonymity. One must somehow obtain information about how the respondent has interpreted the questionnaire. The problem may be reduced to one of finding out whether certain interpersonal synonymity relations hold true. In part B of this chapter, some procedures are outlined by means of which one may acquire information of this kind. As long as no such procedures are outlined and connected with the intended meaning of (2), we do not regard «Qs1B-synonymity» as a designation of a workable concept in a theory of communication.

If fairly simple procedures were available for establishing interpersonal synonymity relations, we would not have bothered to introduce a concept like 'Qs1A-synonymity'. However, interpersonal synonymity hypotheses are problematic to such a degree that 'Qs1B-synonymity' is highly difficult to test. The test involves many doubtful auxiliary hypotheses. Because of these difficulties, 'Qs1A-synonymity' will be extensively used.

Questionnaires of Type Qs2

As questionnaires of kind Qs2, we class, roughly, those that invite the respondent to place an expression, T, in various imagined situations, and to consider for each situation whether he would have interpreted another expression, U, to express the same assertion that he considered T to express in those situations, provided U had occurred instead of T.

Qs2 has been used by myself and others as a supplement to a single Qs1 questionnaire or to a series of Qs1 questionnaires in which T and U have been held constant and the text has been changed. By using Qs2, the analyst asks much more of the respondent than he does by using Qs1. The answers should be taken with correspondingly more reserve. The material we have so far gathered by means of Qs2 questionnaires has, perhaps, been more useful for analyzing the limitations of questionnaire methods than for mapping out beliefs concerning the expressions T and U.

The first subtype of Qs2 questionnaires reads as follows:

> *Qs2. No.* ---.
> Let us consider the two sentences T and U.

T: ---.
U: ---.

Suppose you heard T uttered by a person who clearly put forth T as an assertion. Do you think you would interpret T in such a way that it expresses the same assertion as U, if U had occurred in the same context in which you in fact heard T uttered?

Suppose you hear T uttered under different circumstances, but always in such a way that it is considered to be uttered by a person who clearly puts forth T as an assertion. Underline that answer of the following three that you eventually believe is the right one:

Yes. In all situations of the kind mentioned.

Yes, in some, not all, such situations.

No. Not in any such situations.

The respondents answering Qs1 and Qs2 were encouraged to write comments, and from them the analyst could infer that, frequently, a kind of misunderstanding existed that reduced the value of the answers. Roughly, the respondents may be said first, to consider T in a definite context and then to consider how they would feel and think if somebody substituted U for T in that context. They immediately pose the question, Why should U be preferred to T? and they find that if T and U meant the same, T would not have been replaced by U. In other words, the respondents imagine the whole time that both T and U are already present within a situation prior to their being placed together in the questionnaire.

To avoid the confusion resulting from misinterpretation of the questionnaire, the analyst added the following instruction to Qs2:

Consider that you hear T uttered by a person who clearly puts forth T as an assertion. Consider, further, that he then utters U, either directly after T, or in a later part of a conversation or discussion.

The questions of Qs2 *are not concerned with such situations* in which you, within a certain context, hear T and, after that, U. The questions refer to definite contexts in which *only one of the formulations*, T, occurs. We ask you to imagine that U had occurred in the place of T, and ask you whether you would interpret T in such a way that it to you would express the same as U would have expressed to you if U had occurred in the place of T.

Referring to a particular set of questionnaires, Qs2 No. 1 and Qs2 No. 2 (quoted in chapter 8), in which T and U differed from each other only insofar as the one contained the expression «all numbers» and the other «all whole numbers», the additional instruction ended up with a related example:

> The following note in an answer is attributable to the misconception that we are concerned with a context in which a person exchanges T for U: «The person who puts forth T must have had a motive to precize «all numbers» by means of «all whole numbers». Therefore, I would not conceive T to express the same as U in any situations.»

Even with these additions, there were still persons who misconceived the intention of the analyst, and a new version of Qs2 was made. This version is identical to the original version except for the second sentence of the second paragraph. It reads in the new version:

> Suppose you in that context had heard U uttered instead of T. You *onl*y hear *the one* formulation *not* first T and then U.

To what extent these reformulations helped convey the analyst's intention to respondents is discussed in chapter 8. The misconception considered above may be said to owe to the respondent's tendency to mix together his job as analyst with his job as an average member of a language community. As an analyst, his attention is focused on two expressions, T and U, within a particular kind of situation, but his job in this situation is to imagine situations in which T and U occur separately. The associations T and U released in the metalanguage of the questionnaire are taken to be associations that would also have been elicited if either T or U had occurred in the object language.

Just as two concepts, 'Qs1A-synonymity' and 'Qs1B-synonymity', were introduced in relation to the Qs1-questionnaires, we may introduce two analogous concepts 'Qs2A-' and 'Qs2B-synonymity' in relation to Qs2. Differences in results from different modifications of Qs2 may justify introducing the concepts by one definite version, for example, the third, which seems to cause the least amount of misunderstanding.

Questionnaires of Type Qs3

The questionnaire Qs2 does not ask respondents to imagine any kind of situation in which the crucial expression T might occur, but rather to limit their attention to cases in which T is used to express an assertion. Qs3 is simply Qs2 without that restriction. Qs3 was used mainly because we needed to use imperatives as crucial expressions.

Because Qs3 differs slightly from Qs2 in other ways, we shall quote the first version of Qs3 in toto:

Qs3. No. ---.

Let us consider the two sentences T and U:

T: ---.

U: ---.

Imagine that you utter, read, or hear T in some connection or other. Do you believe you would interpret T in such a direction that by T was meant the same as you would have understood by [Norwegian, «*lagt i*»] U, if that sentence had occurred where you in reality read or heard T?

To arrive at a reliable answer, imagine that you find or use T under different conditions.

Underline the answer you think is adequate (if any of them is adequate):

Yes. In all situations.

Yes. In some situations, but not in all.

No. Not in any situation.

To prevent the misconception arising from the respondent's imagining situations in which someone substitutes T by U, the analyst inserted a warning in the questionnaire, as was done in the third version of Qs2.

VII.7. Truth-Condition Concepts of Synonymity

In this section we shall consider some concepts with close relations to criteria of meaningfulness proposed by Pierce, James, Wittgenstein, Schlick, Carnap, and others.

Our preliminary formulations are:

> (1) Two sentences shall be said to mean the same if, and only if, the conditions under which the one is true are identical with the conditions under which the other is true.

An analogous formulation may be introduced for «not mean the same». The term «identical with» is replaced with «different from».

The extensive literature on criteria of meaningfulness and related issues contains material for precization and elaboration of (1) in several directions. The literature also offers valuable material for estimation of difficulties, theoretical and practical, that confront those who accept concepts related to (1) as a basis for normative or descriptive definitions of sameness of meaning. This is not the place to discuss that literature.

Let us consider the following possibility of a normative definition:

> (2) «The sentence «a» for P_1 in S_1 means the same as the sentence «b» for P_1 in S_1» means the same as «There is no set of conditions under which P_1 in S_1 would hold «a» to be true and not «b», or hold «b» to be true and not «a»».

Heteronymity might be introduced by a formulation like (2), except that instead of «there is no set» one would write «there is at least one set».

In philosophic and other debates in which (1), modified in the direction of (2) or in other directions, has been used to clarify meanings, it has been customary to ask people (believed somehow to be competent, for example, members of the Vienna Circle) whether expressions «a» and «b» fulfill the definiens requirement. In the case of a positive answer, one has considered it established that for the persons asked, «a» and «b», as occurring in S_1 (or in general), mean the same.

Accordingly, the following reformulation of the definiens of (2) might furnish the basis for a synonymity concept:

«Confronted with the question «Is there a set of conditions under which you, P, in S_1 would hold «a» to be true and not «b», or hold «b» to be true and not «a»?», P answers negatively.»

In relation to some important classes of sentences, such as predictions and complicated theories in the physical sciences, many people have difficulty applying the term «true». They seem to have no settled habits covering the use or interpretation of the term «true» outside certain subject matters, let us call them «matters of fact». Even in relation to such matters, there are difficulties of interpretation. To accommodate people having these difficulties, we have used the term «accept as tenable» or the shorter «accept». It is our feeling that thus modified the question furnishes a fruitful concept in many discussions concerning meaning. It seems at least to have considerable pedagogical value.

In practice—for example, in the philosophical seminar of Moritz Schlick in Vienna—truth-condition concepts were used as if based on a questionnaire. As an important step in the logical clarification of sentences used in a discussion, the users were asked to compare truth conditions of two sentences. If the users answered by reporting the same conditions for the two sentences, this was taken to mean that the sentences for those users meant the same. Let us by the term «truth-condition questionnaires» refer roughly to such procedures of questioning.

Many versions of such questionnaires have been tried out. Here is one of them:

> *Qs5. No.* ---.
> *Texts:*
> (1) ---.
> (2) ---.
> From these texts it is seen that they are different only insofar as one sentence in (1), let us call it T, is replaced by another one in (2), let us call it U_1.
> *Question 1:*
> Can you imagine circumstances (conditions, situations) in or by which you would accept T and reject U_1, or vice versa? Or, would you either accept both or reject both under every conceivable situation?

In the questionnaires of type Qs5 that so far have been used, further questions were added. They differed from question 1 only in that new formulations, U_2, U_3, . . . , were introduced, one in each new question.

Taking the answer that either both or neither of the formulations T and U_1 must be accepted as direct instances of confirmation of synonymity, we arrive at a concept, let us call it «Qs5A-synonymity». If the requirement is added that the respondents should have interpreted the questions as intended by the analyst, a concept 'Qs5B-synonymity' is introduced, corresponding to the concepts 'Qs1B-synonymity', 'Qs2B-synonymity', and so forth.

Another version of truth-condition questionnaires makes use of the expression «accept as true» instead of simply «accept».

A set of versions rather different from Qs5 has the name «Qs4 questionnaires». Here is one that has been used, with results reported in the next chapter:

> *Qs4. No.* ---.
> *Text*: ---.
> *Instruction*: This text was presented to you as an example of a text containing the formulation «---» (T).
> What I should like to know is the following:
> 1a. Do you consider it a necessary criterion of the truth of T, that «---» is true?

1b. Do you consider it a sufficient criterion?
2a. ---.

Questions 2 and 3 only introduce new comparisons, corresponding to U_1, U_2, . . . , in Qs5.

Some respondents were unfamiliar with the expressions «necessary» and «sufficient» criterion, and an explanatory note was added. While this note settled certain uncertainties, it also created fresh ones.

In questionnaire Qs5 the respondent is invited to use his imagination. It happens that the imagination is not used in such a way as would seem fruitful for the clarification of verbal habits. After studying controversies in which certain formulations, T and U, play an important role, the analyst may be in the position to help the respondent in the use of his imagination. He may present the respondent with a list of formulations representing conditions likely to be conceived to be relevant to T and U, and ask the respondent, for each condition, whether he, assuming the condition to be realized, would accept both T and U as true or reject them as false, or make a distinction between them. Such a questionnaire (Qs6) is of value before Qs5 is applied.

Here is a version of Qs6.

Qs6. No. ---.
[identical to Qs5 up to question 1; then:]
Consider the list, L, of formulations. Please answer, in relation to each member of the list, the following questions.

1a. Assuming this sentence, as interpreted by you, to be true, would you accept T as true?
1b. Or, as false?
1c. Assuming the sentence, as interpreted by you, to be true, «accept as true» is substituted by «reject as false».
2b. . . .

Questions 3a, 3b, 4a, and 4b are worded correspondingly, except that «accept as true» is replaced with «reject as false».

A concept 'Qs6LA-synonymity' may be introduced by taking identical answers to questions 1a, 2a, 3a, 4a and questions 1b, 2b, 3b, 4b as direct confirmation of synonymity of T and U for P in relation to the particular list L.

A more interesting concept may be introduced, which requires that T and U are synonymous, provided that no matter what list is presented to P, the answers would be as indicated above.

VII.8. Truth-Condition Concepts, Verification, and Certainty

When respondents read questionnaires Qs1, Qs2, and Qs3, the phrase «express the same assertion» absorbed much of their attention. They often felt justified in asking for explanations or precizations. In this situation it was tempting to resort to an explanatory note introducing the truth-condition criteria, but in the long run it was preferred to let Qs1, Qs2, and Qs3 function as independent questionnaires.

In the preceding section we gave some suggestions about the difficulties of application that make themselves felt when truth-condition criteria are adopted. Here we shall mention a difficulty of some philosophical interest.

It seems that many people, when invited to imagine circumstances under which they would consider T to be true, try to imagine circumstances under which they would consider T ultimately or definitively verified—in some senses of these difficult terms. Among such persons there are differences of opinion as to the existence of circumstances under which it would be justified to consider T ultimately verified. These differences of opinion, which play such a prominent role in philosophical debate, make themselves felt even among high school students.

These interpretations and opinions introduce difficulties for analysts in understanding and comparing the answers to truth-condition questionnaires.

Some respondents who try to imagine circumstances of ultimate verification of T seem to ask themselves whether these conditions are such that they represent ultimate falsification of U. The answer is naturally negative for nearly any pair of sentences, T and U, likely to be compared. Or, the circumstances of ultimate verification of T are compared with circumstances of not ultimate verification of U. This makes a negative answer less likely. The difference in tendency to answer negatively in the two cases affects the results of the truth-condition questionnaires.

Those who look for conditions of ultimate verification in some senses of that expression also seem to look for conditions of absolute or perfect certainty—in some senses of those terms. Thus, the highly important phrase «identity of conditions of truth» may be said to be sometimes interpreted in directions indicated by the expressions «identity of conditions of ultimate verification» and «identity of conditions of absolute certainty».

It may be asked, Do not the respondents interpret «T is true» in such a way that it means the same as «T»?[9] To this, one might answer, Means the same as what? Somehow, the respondents would not tend to identify «T is true» with «T» without the explicit or implicit assumption that T when it occurs alone is asserted in some sense of this highly important word.

One might accordingly adopt the following version of the truth-condition questionnaire: «Can you imagine conditions under which you would assert T and not U, or vice versa?»

Such a wording works well to a degree, but the attention is focused on what might be meant by «assert». That term admits various interpretations, and respondents are led into the difficult question of differences between justifiable and nonjustifiable assertions. From there, the questions of verification and certainty are reached. Thus, the version using the term «assert» does not solve many of the difficulties of the other versions.

Several difficulties center on the expression «conceivable» or «imaginable» conditions.

If two sentences are declared synonymous for a person provided he cannot imagine this or that, one may ask how we can separate tests of imagination from tests of sameness of meaning. It might turn out that we find a high positive correlation between resources of imagination and a tendency to find heteronymities. If we, on the other hand, declare two sentences to be synonymous for a person provided there are («in reality») no noncontradictory conditions under which that person would accept the one as true and the other as false, there is need for an additional declaration in order to make a concept applicable: What is meant by «there are no conditions such that ---»? Who is going to judge? What do we know about another person's reactions under any conceivable conditions?

One may give good answers to these questions, but they are likely to involve complexities that we find justifiable not to enter into here.

The synonymity questions of Qs1, Qs2, and Qs3 are open to even more ambiguities than the truth-condition questions. The latter represent an important step in the direction of definite concepts.

VII.9. Cognitive-Weight-Condition Concepts of Synonymity

Instead of asking a person to imagine conditions under which he would accept a sentence, T, as true, one may write a list of attributes and ask the same question in relation to each item of the list. One may, for example, include the expressions «true», «highly probable», «strongly confirmed», «proved», «perfectly certain», «false», «highly improbable», «strongly disconfirmed», «disproved», and «perfectly uncertain».

Because the items on such lists, as we have used them so far, have certain vague characteristics in common, we have labeled the items «cognitive-weight expressions». We shall not here try to justify such a name. What seems important is that respondents who answer questions about truth or certainty tend to use those expressions in their arguments for or against an opinion and in reformulations of the questions about truth or certainty. By asking them to respond to cognitive-weight-list questionnaires, we obtain important information about attitudes toward the crucial sentences T and U. The truth-condition questionnaires can be conceived as cognitive-weight-condition questionnaires with only one item on the cognitive-weight list.

Just as in the case of the truth-condition questionnaires, a terminology may be introduced, according to which there is synonymity if the cognitive weight of the one sentence is always the same as that of the other, whatever the conditions imagined. Thus, we may form normative definitions of the following kind:

«T and U mean the same for P in S» shall mean the same as «P in S cannot imagine any conditions under which, for the list L, he would attribute a cognitive weight, W_i, to one of the formulations, but not to the other, and at least one of the weights is attributed to one of the formulations».

VII.10. Argumentational Synonymity

The comparison of truth conditions in relation to two sentences may be regarded as part of a much broader comparison, that of argumentational status. Two sentences will be said to have the same «argumentational status» in reference to a group of sentences if it holds good, for each member T_i of that group, that each member is a pro-argument, or a contra-argument, or irrelevant in relation to T_i. «Sameness of cognitive meaning» might then be introduced as another name for sameness of argumentational status. Questionnaires based on this vaguely formulated idea are impossible to answer without previous training in *pro et contra dicere*. Even when such training has been given, the questionnaires are difficult to answer. Here is one version:

> *Qs7. No.* ---.
> Imagine that you have found two texts, and that you know the author of the one has had no knowledge of the other author or of his text.
> Text 1: --- T ---.
> Text 2: --- U ---.
> We are interested in just how you interpret T and U.
> Questions:
> Do you interpret T and U in such a way that
> 1. any argument you would consider to be a pro-argument in relation to T, you would also consider to be a pro-argument in relation to U?
> 2. If your answer to question 1 is positive, would you consider the strength of each pro-argument in relation to T equal to the strength of that argument in relation to U?
> 3. [similar to question 1 but concerning contra-arguments]
> 4. [similar to question 2 but concerning contra-arguments]

Just as in Qs4, we here resort to the respondent's imagination in a rather sweeping way: he is required to imagine arguments for or against T and U. The imagination may be helped by previous answers to Qs8, in which a list of possible arguments, prepared by the analyst, is handed over to the respondent. The list corresponds to the reference lists introduced in investigations of preciseness relations.

> *Qs8. No.* ---.
> [identical to Qs7 up to *Questions*, then:]
> (A list, L, is handed to the respondent.)
> Consider the list, L, containing formulations that possibly would, to you, express arguments for or against T, or for or against U, as you have interpreted T and U. For each item on the list L, we ask you to answer the following questions:
> 1a. Do you consider it, if established, as an argument pro T?
> 1b. Do you consider it, if established, as an argument pro U?
> 2. If you have answered positively to questions 1a and 1b, would you consider the strength of the pro-argument in relation to T equal to the strength of that argument in relation to U?

Questions 3a, 3b, and 4 correspond to questions 1a, 1b, and 2, except that they concern contra-arguments.

If answers to 1a, 2a, 3a, and 4a are the same as answers to 1b, 2b, 3b, and 4b, we shall say that for P in S (delimited in relation to the texts), relative to the argumentational reference list L, T and U «have the same argumentational status», or «are Qs8A-synonymous».

VII.11. Løvestad's Questionnaire

Ludvig Løvestad (1945) attempted to construct a strong precization of the expression «the physical law L_1 at the time t_1 was (or is) more testable (or: had a greater or more perfect testability) than the physical law L_2 at time t_2». On the basis of the strong precization, he constructed a quantitative measure of testability. This may be viewed as an explication of the expression «more testable than».

To find out to what extent the use of «more testable than» among physicists would correspond to the use of that expression in conformity with his strong precization and his explication, Løvestad constructed a questionnaire of the argumentational kind. He grouped a series of sentences into three classes: first, sentences that, as interpreted by him and if considered to be tenable, would constitute pro-arguments in relation to the sentence «The law of Boyle-Mariotte is more testable now than at the time it was first formulated», this sentence being interpreted in conformity with the precization constructed; second, sentences that would constitute contra-arguments; and third, sentences considered by Løvestad to be irrelevant.

A questionnaire was constructed in which twelve sentences belonging to these classes were listed. Here are the first three:

> 1. At that time, as well as now, k is conceived as a constant and p and v as the only variables in the law $pv = k$.[10]
> 2. One can today produce greater pressure and volume than at the time of Mariotte, and therefore one can test them over a greater field.
> 3. Although one could not at the time of Mariotte produce pressures and volumes as great as now, one could at that time, as now, suppose the numerical value of pressure and volume to vary from zero to a value of unlimited greatness, and thus one could at that time suppose the same field of application as now ---.[11] (Løvestad 1945: 66ff.; my translation)

Undergraduate, graduate, and postgraduate students were presented with these sentences and invited to answer the following question:

> You are going to compare the testability (possibilities of testing) of the law of Boyle-Mariotte, pv = k, at the time it was formulated, and the testability today. You are requested to answer in relation to every assertion below, whether you think it can be taken as an argument for or an argument against regarding the law as more testable now than then. (Ibid.)

The interesting results of Løvestad's inquiry cannot be reviewed here. His questionnaire belongs to a kind that has been used for many purposes. It might be conceived as an example of the following skeletal form:

> *Qs9. No.* ---.
> *Text 1*: --- T ---.
> *Text 2*: --- U ---.
>
> The sole difference between these texts consists in the fact that in the second text, U is found at the place in which T is found in the first text.
>
> In the following there is a list of sentences. For each sentence V_1 on this list we ask:
>
> a1. Does it, as interpreted by you, express an assertion that, if it were tenable, would constitute a pro-argument in relation to T, as you interpret T?
> a2. Does it, as interpreted by you, express an assertion that, if it were tenable, would constitute a pro-argument in relation to U, as you interpret U?
> b1. [like question a1, but substituting «contra-argument» for «pro-argument»]
> b2. [like question a2, with same substitution]
> c1. [like question a1, but substituting «an irrelevant assertion» for pro-argument»]
> c2. [like question a2, with same substitution]

Løvestad's questionnaire does not correspond exactly to this questionnaire because he considered his own precization of «more testable than» in the sentence about the Boyle-Mariotte law to be too complicated to be understood by respondents not proficient in methodology and symbolic logic. Consequently, he had to compare his own answers to a questionnaire of the kind Qs9 with the other respondent's answer to a questionnaire in which only one text was offered, containing only the simple expression «more testable than» in the crucial sentence T.

The codification of the results of a questionnaire such as Qs9 is rather complicated. Among other things, one has to consider the following factors:

1. Differences in interpretation of the argument formulations among respondents, and between respondents and the analyst.
2. Differences in the auxiliary hypotheses needed to construct inference links between an argument and the crucial sentences. (Even if the crucial sentences T and U and an argument formulation V_1 are interpreted in the same way by two persons, there are plenty of reasons that their assessment of the argumentational relation between V_1 and T and U might differ.)
3. Differences in results based on one class of argument formulations and results based on a second reference class, the crucial formulations being the same. (Such differences justify a rather skeptical attitude toward attempts to generalize about the relation between T and U on the basis of a single questionnaire.)

VII.12. Recapitulation

In the foregoing sections, a number of ways of asking people about the relations between interpretations of expressions have been described. They have, in part, emerged as a product of discussions that have taken a similar course: they have developed into discussions about cognitive meanings of certain phrases, and it having been found unnecessary for the purposes of discussion to speak about cognitive meanings in general, the discussions have revolved around classifications of sameness of meaning. The participants in these discussions have been scientists, logicians, and philosophers.

Efforts to standardize certain important features of such discussions have led to the construction of questionnaires, samples of which have been introduced in a systematic way in the foregoing. Some are extremely simple and, for the purposes of studying usage, extremely naive. Nevertheless, at least among certain persons considered highly competent, the direct question

«Does «a» in your terminology mean the same as «b»?» is useful, and answers may continue to be relied on as symptomatic of existing usages. One may in discussions with those persons interchange occurrences of «a» with occurrences of «b» without disturbance in the argumentational system.

Other questionnaires are more sophisticated and more adapted to concepts of synonymity likely to be proposed by students of language. They are, on the other hand, extremely complicated to administer. The complexity will, in practice, have the effect that even if the information they yield is considered important, they will rarely be carried out as proposed in this chapter.

This does not mean, however, that they are unfruitful as a basis for the introduction of concepts or tests of synonymity. A highly technical, laborious spectrographical method of testing the assertion «In this container there is iron and only iron» may be used for the introduction of a fruitful concept of iron, even if those using the concept very seldom resort to the laborious techniques of subsumption. The standard techniques delimit the *claims* of those who speak about iron and use the concept. Only now and then, but in highly important situations from the point of view of research, is the laborious, complete test performed. Nevertheless, the whole conceptual structure of the sciences in question is dependent on the existence of such tests as a kind of supreme court in matters of terminology.

Thus, in cases of major disagreement among those who make hypotheses about sameness of meaning, the more complicated concepts proposed in the foregoing furnish tests that the analysts who disagree can accept as a basis of decision.

By interpreting synonymity sentences—in the terminology of chapter 1—in terms of the questionnaire concept 'Qsxy-synonymity', we relate a set of assertions to each sentence. On the basis of knowledge about the authors of such sentences, we venture to assert that their intended meanings are quite similar to those created by using certain Qsxy-concepts. The vast majority of synonymity sentences are, however, produced by authors who have hardly intended anything very similar to the questionnaire concepts. Such concepts may not be reached even by transintentional precization of the synonymity sentences. The Qsxy-synonymity concepts are, rather, explications (in the terminology of chapter 2).

If existing synonymity sentences are interpreted *as if* they were meant to express assertions about Qsxy-synonymity of some kind, hypotheses are framed that are of interest and are testable.

Of greater import, however, is the aim of creating a suitable terminology for *future* use. The synonymity concepts introduced are thought to be of use in such future investigations. They are considered to represent fruitful classifications of phenomena. If a synonymity relation in the sense of one of the concepts is found, this should be a fairly reliable symptom of many other relations that contribute to our understanding of terminological and, indirectly, nonterminological phenomena. One field of phenomena is that of controversies in general and various specific kinds of disagreements (cf. chapter 3). In a discussion—learned or popular—knowledge about how the participants would answer the questionnaires greatly increases our information relevant to hypotheses about the extent and kinds of disagreement. Such knowledge renders it possible to make better predictions about the future course of the discussion and to explain better the development of the discussion in the past.

There are many obvious limitations to the applicability of the questionnaires. The questionnaire respondents must be willing to answer, and to answer honestly. Even if willing to do so, they may be more or less incapable of carrying out the task. Further, it seems rather difficult to formulate synonymity questions that are understandable and precise.

The questionnaires have not, however, been introduced in anticipation of unlimited applicability. They have been introduced because they are considered sufficiently useful at the present stage of research to be tried out.

B. Concepts of Interpersonal Synonymity

VII.13. Interpersonal Synonymity Hypotheses Based on Information About Intrapersonal Synonymity

All the introduced synonymity tests or concepts refer to usage by a single person. The standard sentence used in the reports based on the questionnaires is ««a» and «b» are Qsx-synonymous for *P* in S».

If we try to use the reports as evidence of opinions held by the respondent concerning the questions intended by the analyst, interpersonal synonymity is involved. Thus, the statement that for P «a» and «b» are QsxB-synonymous involves hypotheses that the respondent interprets (or does not interpret) the synonymity question as the analyst wishes it to be interpreted. In practice, such hypotheses have been submitted to testing by extensive interviewing of the respondents. In certain cases it is thought that one can, with a high degree of certainty, establish that the respondents did not interpret the questionnaire as did the analyst. On the other hand, it is difficult to establish with a high degree of certainty that a respondent did interpret it as intended by the analyst. There is need for systematic procedures by which assertions about interpersonal synonymity can be connected with research, and not merely with guesses and intuitions.

Let us consider the formulation ««a» for p in s is synonymous with «a» for q in s». Small letters, p, q, for persons are used because of the formulas and the number of repetitions required in this and the following sections.

In symbols:

Syn(a p s, a q s) or -Het(a p s, a q s)

As regards s, we postulate that a text is present to p and q, and that «a» is a part of the text.

If we can construct a satisfactory concept, or a class of such concepts, adapted to the above symbolized assertion, it is relatively easy to proceed to the more complex general case:

Syn $(a_1\ P_1\ s_1, a_2\ P_2\ s_2)$

In this chapter we can only introduce certain concepts and show their close relation to previously introduced ones. We shall add some words of motivation; but we cannot here confirm the fruitfulness of the introduced concepts. That would require description of applications to concrete cases, a task demanding considerable space. In dealing with applications, we shall come back to the question of fruitfulness.

Roughly speaking, the concepts of interpersonal synonymity to be introduced will be closely adapted to one of the usual ways in which we, in scientific discourse, try to make others understand what we mean by a sentence. Probably we find out what we ourselves mean by a sentence in a similar way, only we condense our questions to ourselves in such a way that they are scarcely, if at all, articulated. The answers are likewise in a contracted form, as when people speak to themselves.

There is, as previously mentioned, no reason to believe that we have any methods for discovering our own usage other than those we use when investigating usage by others. We have, however, a much more extended and reliable knowledge of our own speech habits than we do of other people's habits—at least we are apt to believe so.

To find out one's own usage, it is convenient to treat oneself as another person. This has been done in psychology, for example, by Ebbinghaus. It is possible to extend the following account of interpersonal synonymity to intrapersonal synonymity, taking intrapersonal relations as a unique special case of interpersonal relations.

Suppose the text is the introductory treatise on theoretical mechanics by A. E. H. Love (1897), and that the formulation, «a», to be discussed is «Every body, and every individual part of a body, has a constant mass, and the mass of the body is the sum of the masses of its parts». Let us suppose that two readers, p and q, are physicists, and that they, upon reading the formulation «a» within the time interval t, agree to make an attempt to find out whether, or to what degree, they understood «a» in the same way within the time interval t. We suppose that during t they established a hypothesis of interpretation. Explicitly or implicitly, we suppose that they thought they understood what Love intended by the formulation «a».[12]

One of the ways in which p and q tend to explore each other's interpretations consists in their expressing what they understood by «a» in other words. They reformulate «a» and say, «I understood b by «a». Did you do that, or did you interpret «a» otherwise?» In «b», they have, for example, replaced the word «mass» with some definiens of «mass» (or more correctly formulated, «with a definiens expression in some normative definition of «mass»»). Then, they might replace the definiens of the definition of «mass» with an expression in which some terms of the definiens are replaced with some definientia of definitions of those terms. Thus, they might discuss how they interpret Love's introduction of 'mass': If we associate the number 1 with any particular material body A, then we can associate a definite positive number m with any other material body B, this number is the mass-ratio of the two bodies A and B. We call it «the mass of B»

(Love 1897: 87). When they use this text to construct a definiens formulation of «mass», their interpretation of the formulation will depend very much on their interpretation of the expressions «mass-ratio» and «material body». Both are explicitly defined by Love, and the investigation of interpretations of «a» naturally leads to the definiens formulations of those expressions, and so forth.

Maybe p would have understood by «b» the same as he understood by «a», within t, if the text had contained a strong popularization of «a». If p says to q that he by «a» understands the same as by «b», and q answers that he does not, this difference may more naturally be attributed to ambiguities of the popularization than to different interpretations of «a». Thus, in replacing «a» with other formulations, p and q ought not to replace it with just any synonymous formulations, arbitrarily selected—but which synonymities should be selected is the great question. In general, we may say that p and q should try to substitute for «a» sentences that there is no reason to believe are understood by p and q in still more different ways than is «a» itself. Further, the substituted formulations ought to be apt to disclose possible differences of interpretation of «a». In other words, a partial synonym «b» ought to be more (interpersonally) precise than «a» within the group of persons p and q and in the situation at hand. Let us suppose that p reflects, «How can «a» be interpreted otherwise than I did? I now see that there is a difference that might be relevant, but how shall I be able to tell q about this difference of interpretation I now conceive as possible? Perhaps I can do so by formulating «a» in the following way: I will ask if q by «a» means b and not c, or c and not b. This might prove helpful because «b» and «c» are very explicit in turning the attention to the difference d, and I have no particular reason to suspect that «b» and «c» are interpreted by q in such a way as to extinguish the difference d from his view». This last reflection is of great importance to the transition from intrapersonal to interpersonal preciseness.

Briefly, p ought to select precizations of «a» that are apt to disclose possible differences in interpretation of «a», in that they permit only some of the interpretations that «a» permits. Asking q whether he thinks «a» is synonymous with these formulations, p may hope that in the case of q's answering positively in relation to a formulation «b» and negatively to a formulation «c», *the difference in meaning between these two formulations will be* *approximately the same for q as for p*. He cannot be sure of this approximate identity, but he may from general considerations of the similarity of their education and training, or other similarities, have reason to suppose that «b» and «c» are able to disclose the difference intended by p, or one closely similar.

This procedure of reformulation does not lead to anything else than the establishment of *two maps of synonymity and heteronymity relations*, one map showing relations within the usage of p, and the other showing relations within the usage of q.

> ((31)) If there is a one-to-one correspondence of points on two intrapersonal synonymity maps, and the points are selected with due consideration of relations of preciseness and ambiguity *within each map*, we shall say that there is *maximum confirmation of interpersonal synonymit*y of «a» in relation to p and q in s, and in relation to the reference class of formulations defined by the maps, that is, by the reformulations used.

When we compare two maximum confirmations, the one in relation to a reference class that is part of the other class, that confirmation will by definition be called the stronger that is maximal in relation to the most comprehensive reference class most comprehensively tested.

Strictly speaking, we ought not to say that by the foregoing definition, the formulation «Syn(a p s, a q s) holds good in relation to R, where R is the total reference class used» is operationally defined. We ought primarily to announce the operational character of the formulation «Syn(a p s, a q s) is maximally confirmed in relation to R».

The difference is of considerable interest, being associated with the general problem of semantical relations between «/-a» and «/-a has the positive cognitive weight of the class W», where «/-» is a sign of asserting, and W is a class of weight expressions obtained by studying use of the term «assert».

We do think it justifiable to use the first formulation as synonymous with the latter, but we acknowledge that in other fields of discussion, it is fruitful to make a distinction between them.

The introduced concept of interpersonal synonymity may be said to be equivalent to a concept of identical structure of intrapersonal synonymity and heteronymity relations within a system of formulations making up highly qualified reference classes of the formulation investigated. This is, vaguely speaking, in agreement with tendencies to define intersubjective characteristics of scientific knowledge by means of identity of structure of systems.

VII.14. Systematic Exposition of a Procedure

The procedure to be described may be subjected to variation and may be carried out with various degrees of elaborateness. Some of the variations owing to differences of order and elaborateness are important enough to justify talking about different concepts. We shall here describe only one possibility without claiming that the details may not with profit be modified extensively.

The successive steps in the procedure are labeled A, B, C, etc., to make a survey easier.

A. Preliminary Lists of Interpretations

The person p makes a preliminary list of interpretations of «a». The list consists of statements, about each of which he guesses or infers from previous investigations that it expresses an assertion q could possibly find expressed by «a» in s.

The list, let us call it the «preliminary list of interpretations according to p», must be a heteronymous class according to p's usage; no member must be such that any other member is a synonymic alternative of it for p in s (see chapter 1, section 10).

An analogous list is made by q.

B. Ordinary, First-Order Reference Class

If «b» is a member of the preliminary p-list, this means that in *the way p interprets* «b», «b» expresses an assertion that p guesses q might find expressed by «a». Even if this should be the case, however, it is not certain that «b», as interpreted by q, expresses that assertion. That is, nothing guarantees that «b» for p in s is interpersonally synonymous with «b» for q in s.

If p has reason to believe, or guesses, that «c» would express to q what «b» expresses to p, he should substitute «c» for «b» in the p-list.

Similar changes ought to be made in q's preliminary list.

The resulting lists are then adapted to the other person in two ways:

1. Only such formulations are included that one of the persons guesses the other person might find to be synonymous with «a».
2. The formulations selected are reformulated if one of the persons has gathered evidence showing that what is to him expressed by the formulation adopted in the list is less likely to be thus interpreted than a certain other formulation. The latter is in that case included in the list, and the former is dropped.

Let us call the corrected lists (or the preliminary lists if it is found that no formulation ought to be changed on the basis of existing evidence) «the ordinary (first-order) p-class and q-class of reference».

C. Hypotheses of Interpersonal Synonymity, Defined on the Basis of Synonymity Agreements in Relation to the Ordinary, First-Order Reference Class

In relation to each member of the first-order p-class, q is presented with a synonymity questionnaire or a battery of such questionnaires. It is immaterial here which Qsx-concepts are used. For the sake of simplicity, let us suppose that Qs1 is used. Accordingly, q is simply asked whether «a» in s is for him (intrapersonally) synonymous with the list member at issue.

If the members of the reference class consisting of the p- and the q-class are called $a, \ldots, a_1, \ldots, a_n$, it is, by use of Qs1, established which of the following four relations hold good.

(1) Syn(a a_i p s) & Syn(a a_i q s)
(2) -Syn(a a_i p s) & -Syn(a a_i q s)

«Syn» is in the formulas an abbreviation for «SynQs1A».

A case of (1) or (2) is called a synonymity agreement between p and q and is counted as a confirmatory instance of Syn(a p s, a q s).

Each case of synonymity disagreement

(3) Syn(a a_i p s) & -Syn(a a_i q s)
(4)-Syn(a a_i p s) & Syn(a a_i q s)

is counted as a disconfirmatory instance of Syn(a p s, a q s).

Suppose there are N agreements and M disagreements. The fraction

$$\frac{N}{N + M} \tag{(32)}$$

will be taken as a measure of the degree to which Syn(a p s, a q s) is confirmed in relation to the reference class R. If the respondents p and q give unqualified positive or negative answers to the Qs1 questionnaire, we shall have $N + M = n$.

If there is no synonymity disagreement between p and q in s as regards «a» in relation to R, we shall say that the hypothesis of interpersonal synonymity of «a» for p in s and «a» for q in s is confirmed with maximal strength in relation to the first-order reference class R. In that case we have

$$\frac{N}{N + M} = 1$$

Note 1: for the sake of simplicity we shall in the following assume that respondents always give unqualified answers. As a matter of fact, there tend to be a significant number of nonstraight answers, which complicates quantitative treatment.

Note 2: We do not do so here, but it might be fruitful to make an additional reference class of formulations not fulfilling the definitional characteristics of the p- and q-lists. The formulations in that list would, in other words, be such that each person thinks it not practically possible that the other person would interpret «a» as synonymous with it. However, p and q may «think» erroneously.

The value of the p- and q-lists as reference classes depends on whether the list members have small internal distances of meaning. If they are not synonymous for p or q in s, they should not be very far from each other in meaning. These assumptions are made on the basis of similarities among the semantical systems of people within the same language community, and similarity (however slight) between the use of one and the same formulation in different situations.

The advantage of relatively close relations of meaning within the reference class may also be based on the fact that comparatively small differences between what p intends and what q intends by «a» in s would be more easily discovered, if they exist.

There might, however, be formulations outside any p- or q-list that would give us valuable hints; therefore, a broader list should occasionally be used as a check.

VII.15. Interlude

I can now imagine an impatient reader saying:

> I recognize the value of schematical descriptions of concrete procedures. They connect the beautiful but airy castles of free thought with the dirt and sweat of earth. Do you really think, though, that you correctly grasped the nature of interpersonal synonymity in the last section?
>
> Let us suppose you used the procedure described in the last section and that you got nonmaximal confirmation. It is not possible that you would nevertheless exclaim: This is just a matter of intricate terminology. I am sure the other person interpreted «a» just as I did. Or, after a maximal confirmation: This is very misleading. I am sure that he did not interpret «a» just as I did, despite these results!
>
> We have a kind of intuitive knowledge of what is meant by saying that two persons mean the same by a sentence. «Synonymity» has an intuitive sense, just as «simultaneity» has. When you select your technical concepts, you use intuition as a guide. However, they are apt to make inessentials appear essential. External and arbitrary matters dominate the description of procedure.
>
> Why not simply say that the procedures described, if certain results are obtained, strengthen the reasons for believing that interpersonal synonymity really exists between p and q as regards «a»? By defining synonymity by means of exhaustive procedures, you miss the thing itself, at least its most important aspects, namely, the properties intuitively known but not formulated.

I can only answer my impatient reader as follows: You do not seem to have had the depressing experience of obtaining pseudoagreements and pseudodisagreements caused by misleading intuitive hunches regarding distinctions of meaning. If you are not seriously convinced of the basic shortcomings of our intuitive use of language, for at least some purposes that you are deeply interested in, there can be no motive for you to continue reading this work. Intuitively, we may associate very many things of interest with terms such as «simultaneity», «intelligence», and «synonymity», but even if we associated the same things, so that an interpersonal relation was established, it cannot be the aim of concept formation somehow to cover all those associations in one concept.

The feeling that we, as we say, «know what we mean» and what others mean does not rule out the possibility that two minutes later we shall have to confess ourselves unable to find out even intuitively what we «knew» two minutes ago. It does not rule out grave deficiency of depth of intention. Let us take a famous example, that of the word «simultaneous». I have a very convincing feeling of what it means that two events are simultaneous: it means they happen at the same time. Moreover, I have the feeling I can «see» what is meant by that. Nevertheless, there are fields of discussion of considerable interest to some people in which «simultaneous» is defined by intricate procedures involving velocities of bodies and many other properties. These are inessential or even irrelevant to my intuition of the meaning of «simultaneity». The procedures leave out what may seem to be the very simple thing itself, the being at the same time. As a matter of fact, though, in every science, in every description that aims at a certain degree of accuracy and intersubjectivity, there goes on a continual process of emancipation from intuitive hunches insofar—*but only insofar*—as they have proved to be misleading. Complete emancipation would lead to nonsense. Probably no one acquainted with discussions on «the» meaning of «meaning», on the meaning of certain texts, and on a host of other questions involving communication, would deny that *conflicting* intuitions are appealed to by different persons, and that the intuitive answers often are answers based on no reflection, no critical scrutiny of the issues involved.

If I felt certain that somebody used «a» in the same sense as myself in spite of a strong disconfirmation arrived at by the procedures described, I would not trust the feeling without certain reservations. Its appearance would be a symptom that there are ways of using the expression «interpersonal synonymity» that would, if they were made precise, lead to other concepts than the one introduced here. Maybe some of them would be rather fruitful concepts. The feeling would constitute a valuable motive for improving the introduced concepts, or at least for changing the names of the concepts so that they would not give misleading associations.

If the procedures were not used to define concepts but to establish symptoms that certain relations fall under a concept intuitively known, this would lead to perplexities as soon as somebody said, « Your operation gives less reliable symptoms than mine» or «Your operations do not really furnish symptoms of interpersonal synonymity, but only of something similar». Who is to determine just what *is* interpersonal synonymity as intuitively known? There is nothing *definite* to be found. Compare the discussions about whether this or that concept of intelligence measures so-called «real intelligence» or only furnishes symptoms of it, or even symptoms of something alien to real intelligence.

The discussion might be fruitful if the word «intelligence» as used in everyday life were precized in different directions so that one could say, for example, «The concept P45 of some psychologists is very similar to the concept Q48 arrived by the precizing «intelligence» in direction number 7, whereas the concept P49 is not. There is a very high correlation between people subsumable under concept Q53 and those falling under P59». On the basis of such findings, some concepts would probably no longer be named «intelligence», because this would be misleading for people who are not apt to use definitions but prefer to rely on associations connected with the conceptual designation, however misleading.

What is more embarrassing than lack of correspondence with previous vague and ambiguous usage is the vast number of different concepts, all of which seem to be nearly equal as regards fruitfulness for the same purposes. How are we to decide which ones to use as a conceptual basis? In physics it has been possible to work out a very small number of concepts that suffice to formulate in a few words a great many laws and correlations. As we approach the more complex finds of investigation—for example, economics, social psychology, language behavior—there seems to be no hope of systematizing large masses of knowledge on the basis of a few simple concepts. This may lead us to give up attempting to work with relatively precise linguistic tools—we shall then continue to rely on words with such a vast and vague multitude of meanings that they give a superficial impression of being able to bring together very different phenomena into useful classifications (consider «group», «propaganda», «learning», «demand», etc.). The alternative is to try to work with a large number of more or less complex concepts, hoping that someday it will be possible to undertake a reduction in their number and complexity.

I look forward—and not without impatience—to an account of empirical work, which will make it possible to evaluate the fruitfulness of the concepts introduced in this work. Until that happens, there is not much to say for or against the concepts.

With this digression over, we may return to our topic.

VII.16. Systematic Exposition Continued

In the definition of section 14, each intrapersonal synonymity agreement

$$\text{Syn}(a\ a_i\ p\ s)\ \&\ \text{Syn}(a\ a_i\ q\ s)\ \text{or}\ \text{-Syn}(a\ a_i\ p\ s)\ \&\ \text{-Syn}(a\ a_i\ q\ s)$$

and each synonymity disagreement count equally. They are simply added up as of equal importance.

In our search for more refined procedures, we may begin with certain modifications of the reference class R.

Suppose we find that

$$\text{-Syn}(a\ a_i\ p\ s)\ \&;\ \text{Syn}(a\ a_i\ q\ s)$$

and suppose that p makes a list of heteronymous interpretations a_{11}, a_{12}, . . . , a_{1j}, . . . of a_1. Maybe a response by means of the questionnaire Qs1 shows that

$$(j)\text{: Syn}(a_1\ a_{1j}\ p\ s) \supset \text{-Syn}(a_1\ a_{1j}\ q\ s)\ .\&.\ \text{-Syn}(a_1\ a_{1j}\ p\ s) \supset \text{Syn}(a_1\ a_{1j}\ q\ s)$$

This means that there is maximal disagreement regarding what is meant by the formulation a_1 of R. In scientific debate this probably would disqualify a_1 as a tool for elucidation of possible differences in p's and q's usage of «a».

Suppose that p, on the basis of the discouraging results reported above, eliminates a_1 and takes up a_{11}, a_{12}, . . . , a_{1j}, . . . instead. Maybe he finds:

$$(j)\text{: Syn}(a_1\ a_{1j}\ p\ s) \supset \text{-Syn}(a_1\ a_{1j}\ q\ s)\ .\&.\ \text{-Syn}(a_1\ a_{1j}\ p\ s) \supset \text{Syn}(a_1\ a_{1j}\ q\ s)$$

for example, maximal synonymity agreement in relation to the additional reference class.

In scientific discussion this result would probably be regarded as a much stronger confirmation of interpersonal synonymity than the strength of disconfirmation attributed to the initial result

-Syn(a a_1 p s) & Syn(a a_1 p s)

We propose to construct concepts in accordance with this evaluation, which is implicit in scientific procedures.

Let us call R a «reference class of the first order», that is, a reference class whose members are not themselves made subject of controls involving reference classes.

((33)) The argumentative power of a member a_i of R in a discussion of the strength of confirmation attributable to a synonymity agreement

Syn(a a_i p s) & Syn(a a_i q s) or -Syn(a a_i p s) & -Syn(a a_i q s)

or the strength of disconfirmation attributable to a synonymity disagreement

Syn(a a_i p s) & -Syn(a a_i q s)

or

-Syn(a a_i p s) & Syn(a a_i q s)

depends on the strength of confirmation obtainable as regards the interpersonal synonymity hypothesis

Syn(a_i p s, a_i q s)

((34)) Therefore, we propose that the initial hypothesis

Syn(a p s, a q s)

is by definition to be regarded as more strongly confirmed than the maximal confirmation obtained by a relation to R if the interpersonal synonymity of at least one member, a_i (of R), is maximally confirmed in relation to a reference class R_i, which is constructed in the same way as R.

((35)) If maximal confirmation of interpersonal synonymity is obtained in relation to all second-order reference classes, we shall

> say that the conclusion as regards degree of confirmation of interpersonal synonymity in relation to R is maximally confirmed in relation to a complete system of second-order reference classes.
>
> If, however, the use of second-order reference classes leads to cases of synonymity disagreement, this should be made the basis for changing R.

If the supposed interpersonal synonymity of a member a_i of the first-order reference class is strongly disconfirmed in relation to a second-order reference class R_i, it should be eliminated from R.[13] Any deviation from

$$\frac{N}{N + M} = 1$$

is a serious matter, but does not necessarily destroy the value of a_i as an indicator.

If every instance of disconfirmation were to result in elimination, we should have to investigate the members of R_i in turn. Any confirmation of interpersonal synonymity of a member a_{ij} of R_i in relation to a third-order reference class ought in that case to be regarded as a justification for eliminating a_{ij} from R_i, which in turn would reestablish R as a workable reference class. Thus, the rigorous rule of eliminating any member of a reference class, provided at least one instance of synonymity disagreement appears, would result in a laborious chain of investigations of higher-order reference classes—a chain so long, perhaps, as to make it practically impossible, and quite unfruitful, to use the procedure described.

If a member a_{ij} of R is eliminated on the basis of strong disconfirmation of its interpersonal synonymity for p and q, the question arises of whether any, or perhaps all, of the corresponding members, a_{ij} , of the second-order reference class R_i should be included in R. If they should, this requires construction of a new reference class R´.

If evidence is available as to why such a member should not be included, it ought not to be included. The formulations a_{ij} are apt to be precizations or near-precizations in relation to a_i, and should therefore furnish valuable reference material.

The numerical value $\frac{N}{N + M}$ found in relation to R´ may be very different from that found in relation to R. Theoretically, it is possible that it could change from 1 to 0 or from 0 to 1.

The greater the difference, the more reason there is to continue the process of testing Syn(a p s, a q s), either by constructing higher-order reference classes or by simply adding members to the already constructed classes on the basis of guesswork or inferences of some sort.

> ((36)) In comparisons of the different numerical values $\frac{N}{N + M}$ obtained, that one is to be regarded as the most reliable indicator of which value, if any, would be found if the process of testing continued indefinitely, which is based on the most comprehensive classes, and where the test is continued to the highest order of reference classes.

The rule does not apply to the cases most frequently encountered in practice, namely that one test is superior in some respects—for example, in having some very comprehensive reference classes—whereas another test is superior with respect to higher-order classes.

It would be theoretically interesting, but scarcely useful in practice, to define «Syn(a p s, a q s)» as the relation between a p q and s holding good in the case that $\frac{N}{N + M}$ tends toward 1 with increase in comprehensiveness of reference classes of any order and with increase in the ordinal number of the highest-order class.

Let us use the symbol /r/ to represent the number of members of a reference class r, and by /v/ symbolize the ordinal number of the order of the higher-order r. We may introduce a concept 'degree of interpersonal synonymity', DS, in the following way:

((37))
$$DS = \lim \frac{N}{N + M} \qquad \begin{matrix} /r/ \to \infty \\ /v/ \to \infty \end{matrix}$$

It is not our purpose to maintain that this quantitative concept is fruitful, and we shall therefore leave undiscussed the many practical and theoretical difficulties we should meet if we tried to apply it. We mention the context because fruitful quantitative concepts can be worked out with ((37)) as a convenient starting point.

> ((38)) In the following, sentences of the kind «If Syn(a p s, a q s) ---, then ---» may be conceived as shorthand for «If Syn(a p s, a q s) is

confirmed with maximum strength in relation to a reference class R, then ---».

Very often, we shall deal with relations in which this usage is convenient. In other cases, we shall write in full, for example, «If Syn(a p s, a q s) is confirmed by means of the following tests --- and to the following degree ---, then ---».

In section 14 we described under the headings A, B, and C three steps in the procedure of establishing hypotheses of interpersonal synonymity. We shall now continue the condensed description, which at the same time is part of the definition of «interpersonal synonymity» as the term is used in this work.

D. Preliminary Second-Order Lists of Interpretation

For each member of the ordinary, first-order reference class, p and q construct lists of interpretation of the same kind as described under heading VII.14, A.

E. Ordinary, Second-Order Reference Classes

For each member of the first-order reference class, an ordinary reference class is constructed in accordance with the rules laid down under heading B.

F. Hypotheses of Interpersonal Synonymity of Each Member of the Ordinary, First-Order Reference Class

Hypotheses of interpersonal synonymity are established in accordance with the procedure indicated under heading C.

G. New, First-Order Reference Class Checked by the Second-Order Reference Classes Described Under D–E

Members of the ordinary, first-order reference class that are disqualified by occurrence of synonymity disagreements listed under F, are dropped. The rest of the members of the ordinary, first-order reference class are replaced by their corresponding second-order reference classes.

The resultant total reference class will be called «a first-order reference class tested by second-order reference classes».

H. Hypothesis of Interpersonal Synonymity, Defined on the Basis of Synonymity Agreements in Relation to the First-Order Reference Class Tested by Second-Order Classes

Step H and the following steps correspond to step D and onward.

From step 1 on, there will be no step that involves new procedures. In principle, the process can be continued indefinitely. At each step corresponding to H, a new hypotheses is constructed, which is based on more comprehensive material than the foregoing hypothesis. Each hypothesis is operationally defined by the steps leading up to it.

The most general case of interpersonal synonymity

(1) $\mathrm{Syn}(a_1\ p_1\ s_1,\ a_2\ p_2\ s_2)$

where

$-\mathrm{Id}(a_1\ a_2)\ \&\ -\mathrm{Id}(p_1\ p_2)\ \&\ -\mathrm{Id}(s_1\ s_2)$

may be defined by means of the procedures described above. It is, however, convenient to try to reduce the general case to the special case already discussed.

If

(2) $\mathrm{Syn}(a_1\ p_1\ s_1,\ a_2\ p_1\ s_2)$ or $\mathrm{Syn}(a_2\ p_2\ s_2,\ a_1\ p_2\ s_1)$

then (1) may be reduced to the special case:

$\mathrm{Syn}(a_2\ p_1\ s_2,\ a_2\ p_2\ s_2)$ or $\mathrm{Syn}(a_1\ p_1\ s_1,\ a_1\ p_2\ s_1)$

If (2) does not hold, but

$\mathrm{Syn}(a_1\ p_1\ s_1,\ a_1\ p_1\ s_2)$ or $\mathrm{Syn}(a_2\ p_2\ s_2\ a_2\ p_2\ s_1)$

then we may change (1) into an interpersonal synonymity relation

(3) $\mathrm{Syn}(a_1\ p_1\ s_1,\ a_2\ p_2\ s_1)$ or $\mathrm{Syn}(a_1\ p_1\ s_2,\ a_2\ p_2\ s_2)$

If (2) does not hold, but

Syn(a_1 a_2 p_1 s_1) or Syn(a_1 a_2 p_2 s_2)

then we may instead of (1) use an ambiguity hypothesis

(4) Syn (a_1 p_1 s_1, a_1 p_2 s_2) or Syn(a_2 p_1 s_1, a_2 p_2 s_2)

for example,

Het(a_1 p_1 s_1, a_1 p_2 s_2) or Het(a_2 p_1 s_1, a_2 p_2 s_2)

The foregoing reductions are convenient, but they do not make any difference as regards procedures for testing the hypotheses.

VII.17. Interpersonal Relations of Interpretation and Preciseness

Because interpretation and preciseness are defined here by synonymity, the definitions of interpersonal relations follow from the definitions in sections 14 and 16 together with those regarding interpretation and preciseness in chapter 1.

An established case of interpersonal synonymity between «a» for p in s and «a» for q in s implies an interpersonal relation of interpretation, but the converse does not hold. This is so because the interpretational relation does not say more than that *within* the type of situation s, a synonymity relation holds. If it holds in a definite subclass of situations, and not in every subclass of s, the general relation Syn(y a p s, a q s) cannot be maintained.

As regards relations of preciseness, we have:

(5) Pr(a p s, a q s) = ⊃		(Ex). Synalt (a x q s) & -Synalt(a x p s)
	&	(Ey). Synalt(a y p s) & -Synalt(a y q s)
	&	(Ez). Synalt(a z p s)

This means that to establish interpersonal relations of preciseness, we shall have to work not just with one formulation, but with any formulation that possibly could be shown to be an x, y, or z of the kind satisfying (5).

The difficulties connected with a survey of that kind lead to the use of the reference-class method of chapter 2, section 4. If the reference class has n members, there will be separate problems of interpersonal synonymity as regards each of the members.

Although testing interpersonal relations of preciseness requires much work, this does not limit use of the concept to those, perhaps very few, cases in which the operations are performed in all their details. We must distinguish between maintaining a synonymity hypothesis as a fruitful working hypothesis, and testing such a hypothesis with the rigor demanded by the procedural definition. The definition delimits our claims, not necessarily our knowledge, and not at all our guesses.

C. Synonymity of Occurrence Analysis

VII.18. «Synonymity» Defined in the Terms of Occurrence Analysis

In the description of connotational occurrence analysis, we left undecided the question of how to interpret the concluding sentences, the hypotheses in the form of (complete) descriptive definitions of expressions subjected to analysis. One of the concluding hypotheses of the Zaslavski analysis is formulated (roughly) as follows: «total democracy» means to Zaslavski the same as «a kind of organization of society by which the possibilities of each member of the community to influence decisions and policies affecting it are maximized». According to the terminological stipulations of occurrence analysis, this Ds-formulation is meant to express an interpersonal synonymity hypothesis. On the one hand, we have Zaslavski represented by his text *La démocratie soviétique*. Taking as our point of departure the extremely complicated texture of usages of the term «democracy» since Aristotle, we are interested in localizing Zaslavski's usage within that texture. To avoid imposing on him a ready-made classificatory system of usages (for example, classification into Eastern and Western usage), we have tried to stick as closely as possible to the only direct source acknowledged in the analysis: the text itself, with its 192 *use* occurrences.

On the other hand, in an interpersonal synonymity investigation, we have the analyst and his intended public. The analyst tries to convey the intended cognitive meaning of «democracy» (supposing as a tentative hypothesis that there is one) in a terminology suitable to himself and his intended public. That is to say, the analyst's interpretation of the definiens expression of the quoted Ds-formulation should, if this formulation is a communicational success, be identical or closely similar to the interpretation that Zaslavski tries to convey to his readers.

This version of the problem situation in occurrence analysis suggests a need to delimit what is claimed when an identity or close similarity of interpretation is asserted. Proposals for such claims are described in this chapter. One may introduce concepts of interpersonal synonymity in connection with standardized questionnaire and interview techniques. By this connection, the large number of intrapersonal synonymity hypotheses (implied in our implicate formulations in the Zaslavski analysis) and the large number of interpersonal synonymity hypotheses (implied or directly formulated in our inferences and concluding descriptive definitions) acquire a status of testable hypotheses.

The case of Zaslavski is a good example of the practical difficulties encountered when we try a direct test in the way suggested by our Qs questionnaires: it is difficult, if not impossible, to get answers from Zaslavski himself.

Such difficulties, coupled with more fundamental considerations, lead us to attempt to delimit tests or concepts that are closely linked with the steps of occurrence analysis itself.

The concepts to be introduced below seem at first to be based on procedures that differ radically from the questionnaire techniques. There is, however, a close connection. If an author is alive, and one is interested in his terminology, questionnaires and interviews can augment the number of use occurrences of the terms at issue. By means of Qs1, the number of metaoccurrences are augmented, but other questionnaires are also adapted to the creation of new use occurrences. Thus, the questionnaire methods are, so to speak, tools by which synthetical or artificial texts—of special interest to occurrence analysis—may be created. As will be seen later, there are also some relations of interest between the occurrence concepts of synonymity and the already introduced concepts or tests.

VII.19. Introduction of a Concept of 'Occurrence Synonymity'

Let us consider the following text:

> (1) «Wenn ein Arodukt zweier Aahlen a.b durch eine Logare p teilbar ist, so muss wenigstens der eine der Faktoren, a,b durch p teilbar sein.»

Suppose there is no other text from the hand of this text's author, and that the quoted sentence is the only occurrence sentence containing the term «*Logare*».

Suppose under analogous circumstances we find a second text by a second author:

> (2) «Wenn ein Brodukt zweier Bahlen a.b durch eine Mogare p teilbar ist, so muss wenigstens der eine der Faktoren a,b durch p teilbar sein.»

Let us further suppose that we wish to give answers to the following questions:

What is the intended cognitive meaning of «*Logare*» (if there is any)?

What is the intended cognitive meaning of «*Mogare*» (if there is any)?

Do «*Logare*» and «*Mogare*» mean the same?

After we have made two lists of implicates, let us suppose that we make the following hypotheses of translations and inferences:

1. «*Arodukt*» and «*Brodukt*» mean the same as «product» in the terminology of the analyst. «*Aahlen*» and «*Bahlen*» mean the same as «natural number» in the terminology of the analyst.
2. *Eine Logare* is a member of a certain class of numbers (which class it is remains to be found).
3. *Eine Mogare* is a member of a certain class of numbers.

If these three hypotheses are assumed to be tenable, and no other inferences are made, there is no argument for or against «*Logare*» having a meaning, M_1, that does not apply to «*Mogare*» having that meaning. That is, there is, on the assumed basis, no reason for attributing different meanings to them. There is, however, an argument for regarding them as synonymous, namely the similarity of inferences 2 and 3. By saying that it is a pro-argument, we do not say anything about the strength of the argument. The strength (power of confirmation) may be taken to be very small, but significantly greater than zero.

With the foregoing as an anticipatory illustration, we now introduce the following concept:

> (3) ««a» is occurrence-synonymous with «b» within the occurrence classes S_a and S_b in relation to the two sets of occurrence inferences $F_1(a), \ldots$ and $G_1(b), \ldots$» shall mean the same as «What is said about 'a' or a's according to the set of occurrence inferences $F_1(a), \ldots$, is the same (within the terminology of the analyst) as what is said about 'b' or b's according to the set of occurrence inferences $G_1(b), \ldots$».

By 'a' and 'b' we refer to concepts that might be mentioned in the inferences, and by a's and b's we refer to denotata.

The occurrence classes S_1 and S_2 are supposed to have at least one member each. They may be delimited as in the above illustration by quoting two texts, or by some other technique.

The occurrence inferences concerning «a» or a's, that is, inferences about the designation investigated or about the things subsumable under a concept 'a' expressed by «a», are labeled $F_1(a), F_2(a), \ldots$. It is presumed that they (in conformity with the requirement of step 3 of the occurrence analysis) have been made consistent.[14] The same is presumed of the analogous set $G_1(b), \ldots$.

If $a_1, a_2, \ldots, a_i, \ldots$ and $b_1, b_2, \ldots, b_j, \ldots$ are the members of the occurrence classes S_a and S_b mentioned in (3), $F_1(a), \ldots, a_i$ will be said to be occurrence-synonymous with b_j in relation to the sets of inferences $F_1(a), \ldots$ and $G_1(b), \ldots$.

If the occurrence inferences from two occurrence classes—for example, from two texts written by different authors—are to be compared, it is convenient to formulate the inferences in such a way that similarities and differences, consistencies and inconsistencies, are brought to attention.

Many additional inferences may be included in the classes as a result of such a comparison, because attention is focused on new aspects of usage and opinions.

Suppose we find as continuations of the texts (1) and (2): «5 *ist eine Logare*» and «7 *ist eine Mogare*». We may view the new findings as confirmation of our previous translations and inferences. Let us include in the two sets of inferences the following ones: In the a-set: «The class of numbers '*Logaren*', intended by «*Logaren*», includes the number 5». In the b-set: «The class of numbers '*Mogaren*', intended by «*Mogaren*», includes the number 7».

In relating to the new sets of inferences, it is tempting to define «occurrence-heteronymous» in such a way that «a» and «b» in the above case have that property. We shall not do that, however, if we think it at all likely that what is said about the a's might also hold good for the b's. In the present case, I see no reason why 7 should not turn out to be a *Logare* and 5 a *Mogare*. There is no positive evidence in the occurrence sentences by which to decide the question. If the new inferences were such that what was said about the *Mogare* scarcely could hold about the *Logare*, or vice versa, this incompatibility should be expressed in the formulations of the new inferences. In using the following concepts, we have presupposed such a technique of formulation.

> (4) ««a» is occurrence-heteronymous with «b» within the occurrence classes S_a and S_b in relation to the two sets of occurrence inferences $F_1(a)$, . . . and $G_1(b)$, . . .» shall mean the same as «What is said about 'a' or a's according to the set of occurrence inferences $F_1(a)$, . . . is inconsistent with what is said about 'b' or b's according to the set of occurrence influences $G_1(b)$, . . .».

Consider the example of an occurrence inference from one text unit that reads, «No plutocracies can be democracies in the sense of the author», and an occurrence inference from a second text until that reads, «Some plutocracies can be bourgeois democracies in the sense of the author». Let «democracies» and «bourgeois democracies» be the expressions that we wish to investigate.

If we disregard the reference to authors in the occurrence inferences, and construct two new sentences by substituting one expression for the other, the following four sentences are formed:

«No plutocracies can be democracies.»

«Some plutocracies can be democracies.»

«No plutocracies can be bourgeois democracies.»

«Some plutocracies can be bourgeois democracies.»

The first and second sentences are consistent, as are the third and fourth. If we disregard the difference between the two expressions investigated, and interpret the text as if only one expression had been found at the occurrence places of the two expressions, then inconsistencies are made possible (provided the occurrence inferences are accepted as tenable).

The term «inconsistent» in definition (4) must be interpreted in connection with a procedure of substitution as outlined in this example. Heteronymity is asserted if there is inconsistency in the sense of inconsistencies within the class of sentences constructed by substituting the crucial expressions «a» and «b» for each other in the inference formulations and by eliminating the references to authors.

> (5) ««a» is incomparable to «b» in respect to occurrence synonymity within the occurrence classes S_a and S_b in relation to the two sets of occurrence inferences $F_1(a), \ldots$ and $G_1(b), \ldots$» shall mean the same as «What is said about 'a' or a's according to the set of occurrence inferences $F_1(a), \ldots$ is different from, but not inconsistent with, what is said about 'b' or b's according to the set of occurrence inferences $G_1(b), \ldots$».

In the survey of complex relationships, we may find the following symbol helpful as a condensed expression of the definiendum of (3):

$$\mathrm{Synocc}(aS_aF(a),\ bS_bG(b))$$

Since the reference to authors and their intention is basic, in the occurrence inferences one may include the reference in the symbol:

$$\mathrm{Synocc}(aP_1S_aF(a),bP_2S_bG(b))$$

In our general symbol for synonymity sentences with indications of reference classes, S_a and S_b correspond to the delimitation of situations and F(a) and G(b) to reference classes of the kind introduced in earlier chapters.

Corresponding to the special cases of synonymity sentence is the case of one expression being investigated, but different classes of occurrences:

$$\mathrm{Synocc}(aP_1S_aF(a),aP_2S'_aF'(a))$$

Other cases of interest are those of $P_1 = P_2$, and of P_1 being an author analyzed and P_2 being the analyst. In the latter case, the analyst asserting the occurrence synonymity is the one who has made the text containing the occurrences of «b». He is usually considered to know how he has used his term «b», and occurrence analysis with implicates and inferences might therefore be considered superfluous. In principle, there is no difference, however, between an investigation of past happenings produced by oneself and an investigation of happenings produced by others.

From the manner of arriving at the conclusion that two expressions are occurrence-synonymous, it follows that that relation must be reflexive, symmetrical, and transitive, provided the marginal references (the P's, S's, and F's) are held constant.

VII.20. Occurrence Synonymity and Connotational Occurrence Analysis

The Zaslavski analysis (pages 332–33) proceeds from an investigation of a text containing 192 use occurrences of an expression.[15] In the symbols of the preceding section, P_1 is Zaslavski; text number 1 is *La démocratie soviétique*; and the crucial expression, «a», is «*démocratie*». The class S_a contains the occurrences $a_1, a_2, \ldots, a_{192}$, that is, all use occurrences in the text.

The connotational occurrence analysis of the Zaslavski text may, if the concepts of section 18 are adopted, be said to culminate in the evaluation of tentatively asserted interpersonal occurrence synonymities, namely, synonymities between «a» in Zaslavski's text and rather complex expressions in the analyst's text. How the latter are interpreted the analyst may feel certain about and find unnecessary to investigate by studying his own terminology.

With regard to his intended public, however, the question is not as simple; but it is part of the analyst's job to make use of expressions (such as «b» terms of the synonymity relations) that the members of his intended public do not need to subject to occurrence analysis. It should be enough for them to read the metaoccurrence b_0 in the tentatively asserted occurrence synonymity. That it is enough is the analyst's claim if he, as we have done in the concluding sections of our Zaslavski analysis, formulates tentative Ds-formulations as conclusions without adding something like the following explanatory note: «as to the meaning of the terms used in my definientia, they are intended to be used as you will find them used in the following text: ---». Notes of this kind are not rare in the literature of philosophic analysis, but the more frequent case is that in which the analyst merely puts forth his definientia as self-explanatory.

The lack of discussion regarding the formulations used as definientia of the descriptive definitions does not owe to a belief that they are unambiguous. If they were made more precise, however, their number would have to be much greater, and the nuances made explicit by the precizations would mostly be such that the analyst could not find any evidence favoring one rather than another. By keeping the descriptive definitions vague and ambiguous—within certain limits—he avoids complicated surveys of possibilities that lead nowhere. By leaving the ambiguity unmentioned, on the other hand, he creates possibilities of misunderstanding owing to differences between himself and his intended public regarding how the scope and limits of the ambiguities are conceived.

Interpreting the conclusions of connotational occurrence analysis in terms of occurrence synonymity, we encounter the question, What is the set of inferences $G_1(b)$ . . . ?

The analyst tries to pick out Ds-definitions that are consistent with all occurrence inferences, $F_1(a)$. . . . That is, if «b»—the definiens formulation of the Ds-definition—is adopted and «b» is substituted for «a» in the text analyzed, it is the analyst's contention that if the author of the text had interpreted «b» as does the analyst, he would have accepted the occurrence sentences. From the new text, with «b» instead of «a», the analyst would make exactly the same inferences that he made from set $F_1(a)$. . . . That is, the two sets of inferences $F_1(a)$ . . . and $G_1(b)$ . . . would be identical.

In this way the concepts of occurrence synonymity can be applied to the conclusions of connotational occurrence analysis—the descriptive definitions of usage.

Let us apply those views to the simple illustration of section 19. Suppose the analyst interested in connotations tentatively asserts this hypothesis: «*eine Logare*» in text (1) (with supplements) means the same as «a prime number». Provided that previously accepted translations are also used, we get the following form for text (1): «*Wenn ein* product *zweier* natural numbers *a.b durch eine* prime number *p teilbar ist, so muss wenigstens der eine der Faktoren a,b durch p teilbar sein; 5 ist eine* prime number».

The English words «product» and «natural numbers» mark out places in the text at which the analyst, by using auxiliary hypotheses, has translated parts of the original text into his own language. All English words in the text are supposed to be interpreted as intended by the analyst. If the author of the text were to use that interpretation, the analyst contends, he would accept the new text as intrapersonally synonymous with is original text. The analyst would make inferences from the new text that result in a set of inferences $G_1(b)$ . . . , which assert (in the terminology of the analyst) the same about the b's as the inference class $F_1(a)$ . . . said about the a's.

Innumerable descriptive definitions are such that if the definiens «b» is inserted for «a», text (1) is made to assert things that are acceptable in ordinary arithmetic. Instead of «prime number» one might insert «natural number», or «number divisible by 3 and 5», or «5, 6, and 7», or «perfect number», or designations expressing any other finite or transfinite class of natural numbers that has 5 as a member. (In the esoteric terminology of Cantor, the cardinal number of descriptive definitions satisfying the conditions is a transfinite number, namely alef-one. All subclasses of a definite class [cardinal number alef-one] of prime numbers give descriptive definitions and satisfy the requirements of the occurrence inferences, together with those of arithmetic. The cardinal number of that class of subclasses is alef-one.)

Actually, text (1) is a transcription of a theorem stated in the *Encyklopädie der Elementar-Mathematik* (1906/07: 2:48): «[w]enn ein Produkt zweier Zahlen a.b durch eine Primzahl p teilbar ist, so muss wenigstens der eine der Faktoren a,b durch p teilbar sein».

It is instructive to see how many kinds of descriptive definitions of the term «*Primzahl*» result, if the definitions are used to reformulate the account of such numbers in the *Encyklopädie*, in theorems or arguments that are acceptable in arithmetic. This holds good, of course, only if metaoccurrences are ignored. (There are good reasons to ignore them in proofs: it cannot be proved mathematically that any normative definition ever has been followed.)

VII.21. Occurrence Preciseness

With 'occurrence synonymity' as a basic concept, concepts of 'occurrence synonymic alternative', 'occurrence interpretation', and 'occurrence preciseness' can be introduced. We shall not here make any systematic exposition but will follow closely the lines of chapter 1.

The term «synonymic alternative» was introduced in chapter 1 so that we would have a short name for all expressions that sometimes by someone are interpreted to mean the same as a given expression. A concept of 'occurrence synonymic alternative' can be constructed by letting the marginal references, including or not including the reference to inference classes, undergo variation. The former alternative will be preferred here.

Suppose we have found:

$$\mathrm{Synocc}(aP_1S_aF(a),bP_2S_bF(b))$$

We then ask, Are there other expressions, «c», «d», . . . , that to the same or other persons, relative to the same or other occurrence classes and inference classes, are occurrence-synonymous with «a»?

Let us suppose we find other expressions by variation of marginal references:

$$\mathrm{Synocc}(aP_1S_aF(a),BP_2S_bF(b))\ \&\ \mathrm{Synocc}(aP_1S_aG(a),cP_2S_cG(c))$$
$$\mathrm{Synocc}(aP_1S'_aF'(a),P_2S_dF'(d))\ \&\ \mathrm{Synocc}(aP_1S_aF(a),eP_3S_eF(e))$$

'Occurrence synonymic alternative' may now be introduced as follows:

> (1) ««b» is an occurrence synonymic alternative of «a»» shall mean the same as «There is at least one pair of persons, one pair of occurrence classes of «a» and «b», one pair of inference classes F(a) and F(b) such that in relation to a set of such pairs, «a» is occurrence-synonymous with «b»».

In symbols:

Synoccalt(b,a) $=_D$

(Ex) (Ey) (Ez) (Et) (Eu) (Ev). Synocc(axyz,btuv) & Pers(x) & Pers(t) & Occl(y) & Occl(u) & Infcl(z) & Infel(v)

We may introduce, as analogous to the term «preciseness» of chapter 1, a concept of 'occurrence preciseness':

> (2) ««b» is more occurrence-precise than «a»» shall mean the same as «The class of occurrence synonymic alternatives of «b» is a genuine subclass of the occurrence synonymic alternatives of «a», and that subclass is not the zero class».

In the illustration on pages 386–87, there might be a relation of preciseness between «a» and «b», if, for example, «b» permits «c» and «d», but not «e», as occurrence synonymic alternatives.

In practice, it is unlikely that expressions in the vernacular will be found to stand in relations of occurrence preciseness to each other, because of the complexity of usage. Only if we severely limited the occurrence classes and inference classes, might the requirement of the definition of occurrence preciseness be fulfilled. Seldom, however, is there use for investigations on such a narrow basis.

The importance of the occurrence preciseness must be judged from its use in simplifications or models of usage within technical terminologies, and from its use as the simple limiting case of relations by which one expression, «b», permits rather numerous or important synonymic alternatives, and another, «a», permits very few or unimportant ones that are common to both; or, as simple limiting cases of relations by which the classes of occurrence inferences are nearly the same, the differences consisting in inferences that are of little importance.

The practical fruitfulness of the concepts introduced in this section is not yet established, because few attempts have so far been made to use them; this creates a situation that is rather common at the first stages of empirical investigations.

VII.22. Occurrence Analysis Disregarding Authors and Intended Meanings: Authoritative Systems as Guides for Interpretation

The connotational occurrence analysis described in chapter 6 and the occurrence synonymity concept of this chapter refer to intended meanings and opinions of an author and the intended meanings of the analyst. This does not imply that private states of consciousness are somehow the basic events related in the interpersonal synonymity hypotheses. It is not presumed in the analysis that intentions have an introspective nature and cannot be defined behaviorally or by a combination of behavioral and introspective entities. Nevertheless, the reference to intention makes the introduced concept of occurrence synonymity rather special.

In this section we shall introduce a concept that does not refer to intentions or opinions of persons using expressions in communication.

In theories of interpretation adapted to interpretation of laws in democracies, it is usual to talk of «the meaning» of a formulation as something independent of any intention expressed or implied by lawgivers. In mathematics, the formulations of proofs have an interest independent of what the authors mean to prove. In general, we are interested in a text more or less independently of exactly what its author or authors may have intended to express and also more or less independently of specific opinions they have held about subjects directly or indirectly determining the wording of the text.

In connection with precizations and explanations of «meaning», as used to refer to intended meanings, there is a place for a concept of nonintentional occurrence synonymity.[16]

Suppose someone makes the following proclamation:

«This text, T, shall guide us; it shall be valid for us. In interpreting the text, however, we shall not try to fathom the exact meaning that its words had for its authors. We shall take the usage within our community (or: our competency group) as the basis for our interpretation of the words of each sentence or paragraph. Further, if usage is ambiguous, and the interpretations result in assertions that are more or less consistent with the opinions of our community, the interpretation to be considered the valid one will be the one that is most in harmony with those opinions».

If the text T is interpreted along the lines suggested by this proclamation, there will be a clash between the assertions of T and the opinions of the competency group only if all interpretations of a sentence that are consistent with the usages of the competency group result in assertions that are incompatible with the opinions of the competency group. The suggested manner of treating T makes it predictable that interpretations change with time, because of changes in usage and opinions within the competency group. One may, however, accept as a postulate the existence of a definite, consistent system of usage and opinions within the competency group at a definite time. In practice, one may accept a system of rules for guiding opinion surveys such that it is possible to identify and ascertain the opinion of the competency group on any question likely to emerge.

The quoted proclamation illustrates only one kind of background for the establishment of criteria of interpretation that lack reference to an author's intended meanings and opinions other than those that can be construed on the basis of his text. The so-called nonintentional occurrence analysis differs from that described in chapter 6 in the following particulars:

Step. 1. Occurrences are always delimited by reference to texts, not by reference to persons.

Step 2. The implicates are constructed as illustrated by the following reformulations of the implicates quoted on pages 307–08.

The first implicate of occurrence sentence 21 might be thus formulated: «as used at occ. 21, the term «democratic» expresses—interpreted consistently with the system $\sum$ of rules of usage—something that makes it meaningful to say about a state order that it is truly democratic, or that it is not truly democratic, or that it is democratic, or that it is not democratic».

The second implicate of occurrence sentence 21 might be thus formulated (cf. pages 307–08): «as used at occ. 21, the expression «state order» denotes—interpreted consistently with the system $\sum$ of rules of usage—things that, with the exception of one, are subsumable under a class 'not truly democratic state order'».

It is here presumed that a system $\sum$, consisting of subsystem $\sum'$ of rules of usage and a subsystem $\sum''$ of opinions, is given somehow. As it cannot be given explicitly and completely in the form of a system of sentences, it must in part be hypothetically structured. It must be presupposed, however, that there are rules such that for every occurrence, the system can be consulted. This means that every implicate must, in principle, be derived by rules, usage, and syntax ascertained not to be inconsistent with those that the competency group would seem to use. That is, the analyst must, by fresh investigations of the verbal behavior of the competency group or by use of generalizations already obtained and explicitly referred to as part of the system Σ, ascertain that his construction of implicates is not inconsistent with the system.

The standard form of implicates (page 310) may be reformulated thus: «at occurrence number x of the term «a» it expresses—if interpreted in accordance with the system of rules of usage—something that makes --- subsumable under 'a'».

It was said in the exposition of ordinary occurrence analysis that, when one analyzes the use of the term «state order» in Vyshinsky's text, all his opinions about state orders are relevant. Any limitation of the investigations to a narrower field can be justified only by limitations in research facilities. In the system-centered occurrence analysis, all that Vyshinsky says about state orders, except what he says in the chosen text, is in principle irrelevant. Moreover, what he says in the text is to be interpreted consistently with the rules of usage of the system and, as far as possible, in such a way that no opinions can be said to be expressed in the text that are in conflict with the opinions included in the system.

Step 3. A decisive step in the intention-oriented occurrence analysis is made when the analyst tries to translate the implicates and occurrence sentences (minus the «term «a»» under investigation) into his own language and that of the prospective readers of the amount of his analysis. No such step is made in the nonintentional analysis, since no author is recognized. The text has already, in the process of constructing the implicates, been interpreted in accordance with the authoritative canon of usage.

In the intention-oriented analysis, the interpretations leading to occurrence inferences (cf. 3, page 312) should not transgress the definiteness of intention of the author—a most difficult thing about which to have a well-founded opinion. In the nonintentional analysis, this is not a problem; the definiteness of intention of the competency group is here relevant, not that of the author or authors. It is, as a basic premise, taken for granted that the analyst can, by proper procedures, ascertain the usage and opinions of this group, and therefore also make investigation of the definiteness of intention with in the group.

Just as in the case of intentional analysis, questions of consistency among inferences play an important role in shaping a definitive set of inferences on the basis of which descriptive definitions of usage are tested.

Step 4. This step is taken only if one wishes to conclude with tentative descriptive definitions of usage. In the nonintentional analysis, such definitions will not have the form adapted to the intention-oriented analysis (cf. pages 319–20). That form should be reformulated in the following direction: «the designation T_0 expresses the same as T_1 at occurrence numbers --- of the text, the same as T_2 at occurrences numbers . . . of the text, ---». T_1, T_2, . . . are here definiens formulations within the terminology of the system Σ. If we assume that the competency group in practice operates as one person, the descriptive definitions of the nonintentional analysis are intrapersonal synonymity hypotheses. The analyst must (of course) use his own terminology and try to understand both the text and the utterances of the competency group in his own terms, but the translations into the language of the analyst may be considered only as an episode: the conclusions are intended to be interpreted within the range of the authoritative system Σ.

Now that we have outlined a nonintentional occurrence analysis, we are prepared to compare an occurrence synonymity concept adapted to such an analysis with the already introduced concept.

In formulation (3) we need only change «within the terminology of the analyst» to «within the terminology of the accepted system» to make it adapted to the system-oriented analysis. The inconsiderableness of the change owes to the reliance of (3) on a concept of 'sets of inference classes' presumed to have been introduced in connection with step 3 of the ordinary occurrence analysis. An introduction of a concept adapted to the nonintentional analysis must, if made complete, refer to a concept of 'sets of inference classes' connected with step 3 of the system-oriented analysis.

VIII

Synonymity Questionnaires in Use

VIII.1. Scope of the Empirical Studies Reported in This Chapter

By Qsxy concepts or tests of the kinds introduced in chapter 7, synonymity sentences can be transformed into hypotheses that are, in principle, testable by relatively simple procedures. In practice, the questionnaire procedures schematically outlined in chapter 7 are not always applicable, and even in cases in which they might seem well adapted to the questions posed, they need careful discussion. In contemporary social science, the methodology of questionnaire methods has contributed much to the refinement of the rather crude techniques in use two or three decades ago, and it has also shown, by empirical investigations, how imperfections in the wording of the questionnaires and in other stages of the procedure influence results.

In this chapter it is impossible to report on more than a handful of the empirical studies that have made use of Qsxy questionnaires or related kinds. Each study that has been undertaken with the aim of contributing to discussions on usage would require extensive space to be reported reliably. Some of the studies whose authors have used questionnaires identical or similar to the Qsxy questionnaires are listed in the references starting on page 505.

This chapter will be devoted to the exposition of a series of studies illustrating the kinds of difficulties that immediately turn up, even when the simplest questionnaires, especially Qs1, are applied to concrete problems of usage and communication. The studies are selected not only because of the simplicity of the procedures employed, but also because of the interest in the results for assessing the prospect of a general hypothetico-deductive system concerning use regularities.

Among the theorems in such a system, tentatively outlined, some concern basic regularities of answers to different questionnaires. A group of the theorems affirms the existence of a high positive correlation between answers to pairs of questionnaires of the kind Qs1, in which the crucial expressions T and U are substituted for each other. Roughly speaking, these theorems concern the empirical symmetry of Qs1A-synonymity—the tendency to interpret T to mean the same as U, if U is interpreted to mean the same as T. Other theorems concern corresponding properties of transitivity.

VIII.2. Empirical Symmetry of the Relations of Qsxy-Synonymity

The expression «Osxy-synonymity» is used as a collective name for the synonymity relations defined by the concepts or tests of chapter 7. Only Qs1A, Qs1B, Qs2A, Qs2B, . . . , Qs5B are referred to in the following.

In formal logic a relation R is called «symmetrical in the class K» if, for any two elements x and y of the class K, the formula xRy («x has the relation R to y») always implies the formula yRx. If xRy always implies -(yRx), the relation is called «symmetrical in the class K». (For elaborations, see Tarski 1946: 93ff.; Cooley 1942: 108.)

In this work we need a pair of closely related, but somewhat broader concepts. If yRx does not hold good for any two elements x and y of the class K, but for most, provided xRy holds for any two elements, we shall still be able to speak of the relation R as being symmetrical. To avoid misinterpretation of the term, we shall use the designation «empirical symmetry» or «synthetical symmetry».

If there is a sufficiently high positive correlation between xRy and yRx to warrant the assertion of an empirical theorem, R will be said to be «symmetrical». By this normative definition the possibility is not *per definitionem* excluded that xRy implies yRx. In that case the correlation must be expected always to be equal to 1. On the other hand, if correlations less than 1 are found, we may rule out the possibility of implication. «Symmetry» may accordingly be translated in the following by the designation «logical or empirical symmetry» or «analytical or synthetical symmetry».

For each of the synonymity concepts or tests introduced in relation to the questionnaires of chapter 7, there may be asked a question of the following kind:

If an expression «a» is Qsxy-synonymous with an expression «b», what is the chance that «b» is Qsxy-synonymous with «a»?

In other words, the question of symmetry can be raised in relation to each concept or test introduced by the questionnaires.

In chapter 2, section 6, a term «synonymous» was introduced in such a way that if x is synonymous with y, y is *per definitionem*, and therefore by implication, synonymous with x. When the term is thus introduced, there is no need for investigations of empirical kinds to establish the symmetry of the relation synonymity. Such investigations would in any case be difficult to procure because of the imperfections of the normative definition of «synonymity»; see (1) in chapter 2, section 6. The definiens expressions contain as a central term the vague word «meaning». From the point of view of empirical research, the normative definition (1) is an *obscurum per obscurius*.[1]

Introduced as in chapter 7, the relations of synonymity are not *per definitionem* symmetrical. It remains to be shown whether they are or are not symmetrical in an empirical or synthetical fashion.

One of the main contentions of this chapter may be thus roughly formulated:

On the basis of available evidence, Qsxy-synonymity relations are symmetrical. The symmetry does not, however, hold without exceptions.

As a matter of fact, many series of answers reported below contain a percentage of disconfirming instances of symmetry too high to be considered a normal percentage of exceptions to an empirical theorem. These series, however, are not considered a fair sample, for reasons that will be explained later. Other series show a satisfactory correlation between xRy and yRx for purposes of theorem construction.

In chapter 2, section 6, it was proved that if «synonymity» is defined in such a way that it is a symmetrical relation, and if «synonymic alternative» is defined as in chapter 1, section 10, then the relation of synonymic alternative will be analytically symmetrical.

From this it follows that if it is (empirically) found that a synonymity relation holds between certain expressions and that the relation is symmetrical, then the relation of synonymic alternative between those expressions will also hold good. Thus, confirmatory instances of an empirical theorem about symmetry of synonymity will also constitute confirmatory instances of an analogous theorem concerning synonymic alternatives. Because of this, we shall not mention anything about the relation of synonymic alternatives in the account about symmetry.

Some might object, against the program of testing symmetry theorems, that considering the triviality and obviousness of the symmetry of fruitful concepts of synonymity relations, the program is not worth carrying out. Such an objection seems to stem from a neglect of the requirements necessary to arrive at reliable knowledge expressed in systems of theorems. Whatever is not analytical should be tested. How many tests should be performed is another question. At least some testing must be done to show that the procedures involved are practicable. As for the question of fruitful concepts of symmetry, any fruitful concept that does not make the theorems about symmetry analytical will make them vulnerable to all kinds of complications inherent in empirical procedures. There will be exceptions, or at least doubtful cases.

VIII.3. Empirical Evidence of Symmetry of Synonymity Relations as Defined by Questionnaires

Questionnaires of Type Qs1

The general form of Qs1 questionnaires is given in chapter 7, page 399ff.

Text Used
All Qs1 questionnaires to be discussed in the following have a common text:

«There has been some discussion about the question of whether a greater number[2] than usual failed in logic at the preliminary examinations. [It is true that] a greater number than usual failed, but a greater number failed in psychology and history of philosophy than in logic».

The expression in square brackets (inserted here by the author) underwent variations; the rest of the text was kept constant.

Three types of Qs1 questionnaires, all using this text, were employed.

1. Qs1d Nos. 0.1–0.6 asked for synonymity between *designations*.
2. Qs1 Nos. 1.1–1.6 were the analogous questionnaires asking for *sentences containing designations*.
3. Qs1 Nos. 2.1–2.6 concerned *sentences*.

Crucial Sentences, T and U

The sentences T and U used in QsI Nos. 2.1–2.6 were the following pairs:

QsI No. 2.1	It is true that a greater number than usual failed.
	It is perfectly certain that a greater number than usual failed.
QsI No. 2.2	It is perfectly certain that, etc.
	It is true that, etc.
QsI No. 2.3	It is the case that, etc.
	It is perfectly certain that, etc.
QsI No. 2.4	It is the case that, etc.
	It is true that, etc.
QsI No. 2.5	It is perfectly certain that, etc.
	It is the case that, etc.
QsI No. 2.6	It is true that, etc.
	It is the case that, etc.

Instructions

The instructions were slightly different for each of the three kinds of questionnaires. The instructions for QsI No. 2.1 are stated fully in chapter 7, page 400. Those for QsI No. 1.1 read:

> This text was offered you as an example of a text containing the expression [«it is true that»]. Let us call this expression T. What I should like to know is the following:
>
> Suppose the expression [«it is perfectly certain that»] (let us call it U) had occurred in the place of T in the text. Would the sentence containing U have expressed to you the same assertion as the sentence containing T did when you read T?

In QsI No. 0.1 the last sentence reads, «Would U have expressed to you the same as T did when you read T?»

Order of Presentation of Questionnaires

The respondents were given QsI Nos. 0.1–0.6, Nos.1.1–1.6, Nos.2.1–2.6, or a mixture. The order of presentation varied. In some series, a questionnaire in which an expression «b» was substituted for «a» was not immediately followed by a questionnaire in which «a» was substituted for «b». Instead, a questionnaire containing a third expression, «c», was introduced.

Subjects Tested

The subjects tested were students. Most of them were sophomores, ranging in age from about eighteen to twenty. They were taking or had already taken an introductory course in logic with some excursions into semantics. This is a required course for all students at the University of Oslo.

The subjects were not told about the aim of the questionnaires.

Main Results

Table 3 shows the results obtained from some of the Qs1 questionnaires (see table 4 for additional results).

In columns 2–5, four categories of answers are distinguished:

Syn(ab) & Syn(ba)	Affirmation of both synonymities. Classed as full confirmatory instance of the theorem asserting Qs1A-synonymity.
Syn(ab) & -Syn(ba)	Affirmation of the first, negation of the second. Classed as full disconfirmatory instance.
-Syn(ab) & Syn(ba)	Negation of the first and affirmation of the second. Same classification.
-Syn(ab) & -Syn(ba)	Negation of both synonymities. Classed as weak confirmation.

Column 6 subsumes all the answers that were difficult to classify. Column 8 gives the total number of cases of confirmations, full or weak; and column 9 gives the number of full cases of disconfirmation.

Preliminary Discussion of Results

Of 436 pairs of answer, only 9 are clear disconfirmatory instances of symmetry. This we take as a very satisfactory main result. More cannot be said until we discuss the nature of the disconfirmatory instances (section 7), below.

The unclassifiables—roughly 12 percent—are cases in which the answers to the synonymity questions were more or less obscure, ambiguous, or indirect. Much effort has been made to reduce such unsatisfactory answers, but with little success. The marked variation in number of «unclassifiables» from test to test owes partly to the use of different criteria of classifiability.

The figures indicating synonymities are rather small to warrant statistical discussion. It seems, however, that «true» and «perfectly certain» are not as often conceived as synonymous as are «is the case» and «perfectly certain», and «is the case» and «true». This is in agreement with results obtained by a considerable number of other questionnaires, most of which must be left unmentioned in this work.

No marked differences seem to be attributable to a shift from question-

Table 3. Symmetry of Qs1A-Synonymity Relations

(1) Qs1 Nos.	(2) Syn(ab) & Syn(ba)	(3) Syn(ab) & -Syn(ab)	(4) -Syn(ab) & Syn(ba)	(5) -Syn(ab) & -Syn(ba)	(6) Unclassifiable	(7) Total	(8) Confirmatory Instance	(9) Disconfirmatory Instance
1.1 & 1.2	34	0	2	7	5	48	41	2
2.1 & 2.2	104	1	2	19	15	141	123	3
1.3 & 1.5	27	0	0	2	0	29	29	0
2.3 & 2.5	60	0	0	4	2	66	64	0
0.4 & 0.6	55	1	2	5	32	95	60	3
2.4 & 2.6	53	1	0	3	0	57	56	1
Total	333	3	6	40	54	436	373	9

naires on designations to those concerning sentences. This justifies our tentative parallel treatment of designations and sentences.

Further Qs1 Questionnaires

The foregoing questionnaires all used declarative sentences as T and U. Pairs of questionnaires were also constructed to test symmetry relations between imperatives and between question sentences. The general schema of the questionnaires is the same as before; therefore, they are all classed as Qs1.

The text presented to the respondents in Qs1 No. 2.7 was «In the textbook of logic for the preliminary examination, some of the technical terms are defined. [In the lectures, those definitions are followed.]»

The instructions were the same as for Qs1 Nos. 2.1–2.6. The sentence in square brackets functioned as T, and for U we selected «In the lectures those technical terms are used in accordance with the definition».

In Qs1 No. 2.8, U was found in the text and T was introduced in the instructions.

The results of this pair of questionnaires, Qs1 Nos. 2.7 and 2.8, were then compared with the results of a pair containing imperatives, Qsi1 Nos. 1 and 2. The text of No. 1 was «In the textbook in logic for the preliminary examination, some of the technical terms are defined. [Follow those definitions!]» In the instructions, the respondents were asked to substitute «Use those technical terms in accordance with the definitions!» for the bracketed sentence. The synonymity question asked, «Would U! have expressed the same imperative to you as T! expressed when you read T!?»

Qsi1 No. 2 was exactly like No. 1, except that U! was substituted for T! and vice versa.

The text of Qsq1 No. 1, with question sentences, read: «After the preliminary examination, autumn 1949, A. N. said to some of the candidates, «In the textbook some technical terms are defined. [Did you follow those definitions?]» The question called T? was then placed in relation to U?, «Did you use those technical terms in accordance with the definitions?»

In the second questionnaire, Qsq1 No. 2, T? was replaced with U? and vice versa.

Main results
Table 4 displays the main results of the six questionnaires tabulated.

Table 4. Symmetry of Qs1A-Synonymity Relations (continued)

(1) Qs1 Nos.	(2) Syn(ab) & Syn(ba)	(3) Syn(ab) & -Syn(ab)	(4) -Syn(ab) & Syn(ba)	(5) -Syn(ab) & -Syn(ba)	(6) Unclassifiable	(7) Total	(8) Confirmatory Instance	(9) Disconfirmatory Instance
Qs1 Nos. 2.7 & 2.8	29	3	1	9	3	45	38	4
Qsi1 Nos. 1 & 2	25	8	2	9	2	46	34	10
Qsq1 Nos. 1 & 2	26	3	0	15	4	48	41	3
Total	80	14	3	33	9	139	113	17

Preliminary Discussion of Results

The frequency of disconfirmatory instances, 17 out of 139, is much greater than in the first series of experiments (9 out of 436). It is not clear why this is so. It may owe in part to the manner in which the questionnaires were presented: they were shuffled together with numerous other questionnaires of other types in such a way that the respondent, when answering Qs1 No. 2.7, for example, could not easily know that there was any connection between that questionnaire and Qs1 No. 2.8, even though he had already answered Qs1 No. 2.8. Thus, if he had been very uncertain whether to answer yes or no to No. 2.8, and finally answered yes, this decision may not have influenced him in the direction of a positive answer to Qs1 No. 2.7. The respondents were prevented from looking at questionnaires previously given and answered.

The large number of disconfirming instances might also be explained by the special text used in these questionnaires. The discussion of these possibilities is taken up in section 9.

During interviews with the seventeen people who gave disconfirming answers, sixteen of them modified their answers so that only one disconfirming instance remained. This kind of interview is discussed below (page 470).

In table 5, I have detailed the degree to which answers to synonymity questions of declarative sentences correspond to answers related to analogous imperatives and questions. In the first column, the questionnaires used are indicated. The rest of the columns are divided into two parts, according to a classification of all respondents into those who gave at least one pair of answers that yielded a disconfirmatory instance of symmetry, and those who did not give any such answer.

As might be expected from the results reported in table 4, the answers of persons confirming the symmetry theorem show a higher correlation with changes in questionnaires than do the answers of the other respondents. As many as eleven out of twenty answers by members of the latter category are different, whereas only ten out of seventy-five answers by persons confirming the symmetry theorem differ according to kind of questionnaire.

Let us call the following theorem a «correspondence theorem of Qs1A-synonymity»:

> «If a person declares T and U in a text to be synonymous, he will tend to declare T´ and U´ in the same text synonymous, if T´ is an

Table 5. Comparison of Answers to Qs1 No. 2.7,Qsi1 No. 1, and Qsq1 No. 1

	Respondents Not Giving Disconfirmatory Instance of Symmetry			Respondents Giving Disconfirmatory Instance of Symmetry		
	Same	*Diff.*	*Unclas.*	*Same*	*Diff.*	*Unclas.*
Qs1 & Qsi1	26	2	4	8	3	1
Qs1 & Qsq1	23	5	4	5	5	2
Qsi1 & Qsq1	26	3	3	7	3	2
Total	75	10	11	20	11	5

imperative or question corresponding to T, and U´ is an imperative or question corresponding to U.»

Here criteria of correspondence must be defined before the theorem acquires any moderately definite meaning. If criteria are such that the texts in questionnaires Qs1 No. 2.7, Qsi1 No. 1, and Qsq1 No. 1 are a set fulfilling the criteria of correspondence, the theorem is confirmed by table 5, provided the claim to validity is only a claim of rough regularity, let us say, «more than 80 percent regularity».

Questionnaires of Type Qs2

Questionnaires

Three pairs of Qs2 questionnaires were used. In each pair the crucial sentences T and U were substituted for each other. The two sentences used were:

«Not all numbers below 10 are divisible by 2 and 3.»

«Not all whole numbers below 10 are divisible by 2 and 3.»

Many respondents did not discover the difference in formulation at once but had to reread the sentences.

The three alternative answers—with abbreviations—were:

«Yes, in *all* situations.» Abbr.: a.

«In *some* situations, not in all.» Abbr.: s.

«No, *not* in any situations.» Abbr.: n.

Qs2 Nos. 1 and 2 were formulated in accordance with the standard quoted in chapter 7 (see page 403 ff.). Confusion about these formulations among the respondents led us to prepare an additional instruction given as an appendix to the questionnaires. The questionnaires that included this instruction are called Qs2 Nos. 3 and 4. In the appendix it was stated at length that the questions did not relate to any situation or text in which *both* T and U occurred, but to a situation in which *either* T *or* U occurred.

Even with this additional instruction, some respondents seemed to misunderstand the question. The instruction was therefore again reformulated, the resulting questionnaires being called Qs2 Nos. 5 and 6.

In Nos. 1, 3, and 5, the expression «whole numbers» was used in U; in Nos. 2, 4, and 6, it was used in T.

Main Results

In table 6, which displays the results, the abbreviation «a» stands for a combination of two answers: the answer «all» to the first questionnaire presented, and the answer «all» to the second questionnaire. Abbreviations in the other column headings are analogous.

The answer «all» to both questionnaires is taken as an instance of full confirmation of symmetry of Qs2A-synonymity. The answer «some» to both questionnaires is taken as an instance of weak confirmation of the same. If, for example, a person distinguishes between two kinds of situations, the answer «some» to the first questionnaire might reflect his opinion that synonymity holds good in the first, but not in the second kind. The answer «some» to the second questionnaire might reflect his opinion that synonymity holds good in the second, but not in the first kind. Excluded by the answer «some» to both questionnaires are the disconfirmatory opinions «all» in relation to the first, and «none» or «some» in relation to the second, or vice versa. The uncertainty left in cases of «some» answers to both questionnaires justifies our taking the answers as confirmatory, but less strongly confirmatory than the straight answers «all». This also holds for «none» answers to both questionnaires. A theorem asserting asymmetry rules out such a combination. A theorem asserting symmetry does not exclude the combination. It is taken as weak confirmation.

Table 6. Symmetry of Qs2A-Synonymity Relations

Qs2 Nos.	aa	ss	nn	as	an	sa	sn	na	ns	Total	Confirmatory Instance	Dis-confirmatory Instance
1 & 2	2	11	7	0	0	4	3	0	1	28	20	8
3 & 4	6	6	1	1	0	1	0	1	0	16	13	3
5 & 6	6	22	11	2	0	1	1	0	2	45	39	6
Total	14	39	19	3	0	6	4	1	3	89	72	17

Table 6 shows a very high number of disconfirmations (8 out of 28) at the beginning of the investigations, then successive improvement with changes in the questionnaires (6 out of 45 at the end). However, even after two changes, disconfirmations make up more than 10 percent of the cases.

Questionnaires of Type Qsi3

Two pairs of questionnaires of the kind described on page 406, and called Qsi3 Nos. 1–4, were used. The «i» in «Qsi3» refers to the fact that T and U were imperatives:

«You shall not kill!»

«You shall under no circumstances kill!»

The first imperative was used as T in Qsi3 Nos. 1 and 3; the second, in Nos. 2 and 4.

The three alternative answers offered in Nos. 1 and 2 were listed as quoted on pages 461–62; in Nos. 3 and 4, the order of presentation was reversed:

«No, not in any situations.

In some situations, not in all.

Yes, in all situations.»

This variation in the order of presentation of alternatives was the only difference between the two pairs of questionnaires. The reasons for adopting such a modification are given in section 10, page 489.

Table 7. Symmetry of Qsi3A-Synonymity Relations

Qsi3 Nos.	aa	ss	nn	as	an	sa	sn	na	ns	Total	Confirmatory Instance	Dis-confirmatory Instance
1 & 2	8	41	2	0	0	3	3	0	0	57	51	6
3 & 4	11	24	9	0	0	0	2	1	0	47	44	3
Total	19	65	11	0	0	3	5	1	0	104	95	9

Main Results

The results are presented in table 7. Just as occurred in relation to Qs2, there is one case of «na» or «an», that is, of extreme asymmetry. In all, disconfirmatory cases make up somewhat less than 10 percent of the total.

Questionnaires of Type Qs4

Two pairs of questionnaires on indicative sentences were used, and a single questionnaire containing an imperative. One of them, Qs4 No. 1, is quoted here in full:

Text

> Not all states are democracies. It is true that Norway is a democracy. It is not true that Spain is.

Instructions

> This text was presented to you as an example of a text that contains the formulation «It is true that Norway is a democracy» (T).
>
> What I should like to know is:
>
> 1a. Do you consider it a necessary condition for the truth of T that the following formulation is true: «It is perfectly certain that Norway is a democracy»?
>
> 1b. Do you consider it a sufficient condition?
>
> 2a. Do you consider it a necessary condition for the truth of T that the following formulation is true: «It is the case that Norway is a democracy»?
>
> 2b. Do you consider it a sufficient condition?

Qs4 No. 2 was made by substituting «It is perfectly certain» for «It is true» in T. In question 1 the expression «It is true» was used, and in question 2 «It is the case».

Questionnaires Qs4 Nos. 3 and 4 were strictly analogous to Nos. 1 and 2, but the texts were different. They were the same texts used for Qs1 Nos. 1 and 2.

The sentences T and U of Qsi4 No. 1 were the same as those of Qsi1 No. 1: «Follow those definitions!» and «Use those technical terms in accordance with the definitions!»

Because it was expected that the expressions «necessary condition» and «sufficient condition» would cause confusion, an appendix with definitions and examples was given to the respondents. Even with this precaution, many respondents with the ordinary qualifications complained about «difficulties», and «lack of clearness», and so on, and one-third of the answers were unclassifiable. The questionnaire was then mailed to a group of about sixty people known for their ability to answer difficult questionnaires or for having earned high marks in the preliminary examination in philosophy, logic, and psychology. Half of the members of what we shall call our «semantic panel» answered, and for the first time we got no unclassifiable answers.

Main Results

Table 8 shows the results obtained from the «semantic panel». Qs4-synonymity is defined in such a way that positive answers to parts a and b of a question in a pair of corresponding questionnaires can be classed as instances of full confirmation. As instances of disconfirmation we have taken the combination of positive answers to parts a and b in one questionnaire and a negative answer to one or both parts of the question in the other questionnaire. The distinction between weak confirmation and irrelevancy is somewhat complicated to trace in the case of Qs4. We have, therefore, in table 8 classed the weak confirmations as irrelevant.

The results of the two pairs of Qs4 questionnaires were highly satisfactory insofar as no cases of unclassifiable answers were obtained, and disconfirmations of symmetry accounted for less than 10 percent of the total.

The results of Qsi4 No. 1 were less favorable, perhaps in part because of the wording of the text sentences T and U. It was clear from interviews

Table 8. Symmetry of Qs4A-Synonymity Relations

	Full Confirmation	Disconfirmation	Irrelevant	Unclassifiable	Total
Qs4 Nos. 1 & 2	22	1	8	0	31
Qs4 Nos. 3 & 4	24	2	5	0	31
Qsi4 Nos. 1.1 & 1.2	15	3	11	2	31
Total	61	6	24	2	93

with respondents that they found the application of the expressions «necessary» and «sufficient condition» doubtful or difficult.

VIII.4. Summary of Results

To test theorems of symmetry of synonymity relations as defined by questionnaire answers, we made use of thirty-three different questionnaires of types Qs1–Qs4. A total of 861 cases were obtained, of which 89 were unclassifiable or irrelevant. Of the remaining 772 cases, 714 (or 92 percent) gave confirmatory instances, and 58 (8 percent) gave disconfirmatory instances. The results are such that they warrant continued tentative use of a theorem that roughly may be stated as follows: QsxA-synonymity relations are empirically symmetrical.[3]

The figures mentioned above all relate to «synonymity» in terms of direct answers to the standard questionnaires; that is, they relate to QsxA-synonymity. If discussions and interviews are taken into consideration in order to fulfill the requirement of the QsxB-synonymity definitions, other figures are obtained. They are more favorable in relation to symmetry theorems.

VIII.5. Transitivity of Synonymity Relations: Questionnaire Concepts

In formal logic, a relation R is called «transitive» if xRz is implied by the conjunction of xRy and yRz. We need in this work a broader concept 'analytic or synthetic transitivity' or 'logical or empirical transitivity' that does not require that xRz follow with logical necessity from xRy and yRz. By asserting a theorem that a relation of synonymity is transitive, we shall in the following not express anything more than that if Syn(xy) and Syn(yz), then Syn(xz). The «if-then» connection—in this work left unprecized—may be empirical. It asserts something for all members of certain classes of individuals, but the question of whether the assertion holds good is an empirical, not a logical, question. As a matter of fact, we shall expect a certain number of disconfirmatory cases.

Similarly, «intransitivity» stands in what follows for a concept 'analytic or synthetic intransitivity'. A Qsxy-synonymity relation is intransitive in this terminology if the following combination is found: Syn(xy) and Syn(yz) and -Syn(xz).

Introduced in the manner of chapter 2, section 6, a relation of synonymity must *per definitionem* be transitive. On the other hand, the introduction of synonymity concepts on the basis of the questionnaires described in chapter 7 does not make synonymity relations transitive by logical necessity. It is a question of empirical investigation to find out to what extent, if any, there are regularities such that one may from Syn(xy) and Syn(zy) expect Syn(xz).

Tentatively, we adopt a series of theorems to the effect that synonymity relations as defined by the previously introduced questionnaires and interviews are transitive. For each questionnaire there will be two separate theorems of transitivity: one uses criterion A for assigning confirmation or disconfirmation values to answers, and the other uses criterion B. The conjunction of these theorems may be stated roughly as: QsxA-synonymity relations are empirically transitive.

No transitivity theorems are asserted concerning the relation of synonymic alternatives. Only occasionally will it turn out that Synalt (xz) holds good when one has found Synalt (xy) and Synalt (yz) to hold good. The reason for the lack of transitivity of this relation is easily seen from the definition of it by means of the synonymity relation (cf. also chapter 2, section 6).

VIII.6. Empirical Evidence of Transitivity of Synonymity Relations Defined by Questionnaires

In all, six trios of Qs1 questionnaires were used to test transitivity of synonymity relations. They are all questionnaires described in previous sections:

Nos. 0.2, 0.3, 0.6	Nos. 1.1, 1.4, 1.5
Nos. 1.2, 1.3, 1.6	Nos. 2.1, 2.4, 2.5
Nos. 2.2, 2.3, 2.6	Nos. 2.1, 2.3, 2.4

Each trio of questionnaires contains three pairs of crucial expressions, (x,y), (y,z), and (x,z). The expressions used, it will be remembered, are «it is true», «it is perfectly certain», and «it is the case». For each questionnaire and each person who answers, an instance of Qs1A-synonymity or lack of synonymity is recorded.

As full-weight confirmatory instances of a theorem of transitivity, we class the following kinds of results (for the sake of brevity, we have left out the symbols for person and situation):

Syn(ab) & Syn(bc) & Syn(ac)

Syn(ba) & Syn(bc) & Syn(ac)

Syn(ab) & Syn(cb) & Syn(ac)

Syn(ab) & Syn(bc) & Syn(ca)

Syn(ba) & Syn(cb) & Syn(ac)

Syn(ba) & Syn(bc) & Syn(ca)

Syn(ab) & Syn(cb) & Syn(ca)

Syn(ba) & Syn(cb) & Syn(ca)

As disconfirmations with full weight, we class results that can be formulated as above except for a negation of either the third or the second or the first relation:

-Syn(ab) & Syn(bc) & Syn(ac)

Syn(ab) & -Syn(bc) & Syn(ac)

— — —

Syn(ba) & Syn(cb) & -Syn(ca)

As confirmations with less than full weight, we class the following kinds of answers, which are characterized by two negations and one affirmation of synonymity:

Table 9. Transitivity of Qs1- and Qs4-Synonymity Relations

	Full Confirmation	Partial Confirmation	Dis-confirmation	Irrelevant	Unclassifiable	Total
Qs1	243	37	11	8	64	363
Qs4	44	7*	3*	8*	0	62
Total	287	44	14	16	64	425

Syn(ab) & -Syn(bc) & -Syn(ac)

-Syn(ab) & Syn(bc) & -Syn(ac)

etc.

As irrelevant reports, we class answers characterized by three negations of synonymity:

Syn(ab) & -Syn(bc) & -Syn(ac)

-Syn(ba) & -Syn(bc) & -Syn(ac)

etc.

In addition to the Qs1 questionnaires, two pairs of questionnaires of type Qs4 were used, Nos. 1 and 2, and Nos. 3 and 4, each with two synonymity questions. They are described in section 3, on page 454ff. The expressions that were varied are the same as in Qs1, and the combinations of answers are as described above for that questionnaire.

The results from Qs1 and Qs4 are tabulated in table 9.

Cases of asymmetry of synonymity produce a complication in the transitivity material. For example, if a person declares (indirectly) that «true» and «perfectly certain» are synonymous, but not «perfectly certain» and «true», transitivity can be tested on the basis of the first *or* the second report. Occasionally, the difference will have an effect on whether confirmation or disconfirmation of transitivity is found.

The three figures marked with an asterisk in table 9 (7, 3, and 8) represent transitivity calculated with the Qs4 questionnaire when we used the expression «true» in its text and «perfectly certain» in its substitution question. When we used the questionnaire with «perfectly certain» in the text and «true» in the question (which gives the trios Qs4 Nos. 1.2, 2.1, 2.2 and Nos. 3.2, 4.1, 4.2), the corresponding figures were 8, 4, and 6.

This kind of complication also exists in the material obtained with the use of Qs1. There are possible combinations other than the six trios listed at the beginning of this section. Because the results would not have been significantly different from those presented in table 9, these complications have not been alluded to in that table.

In all, 425 cases were considered, of which 80 were unclassifiable or irrelevant. Out of the remaining 345, there were 331 confirmatory and 14 disconfirmatory instances.

The percentage of confirmations out of the total number of confirmations and disconfirmations is 96. This high percentage justifies the continued tentative use of the transitivity theorems of Qsxy-synonymity.

VIII.7. Interviews Used to Study Previously Given Answers

It takes from a few minutes to several hours for a respondent to answer a set of questionnaires. The question arises, If respondents take more time, does this lead them to modify their answers? Which modifications are likely?

The interviews to be described were motivated by a desire to make the respondents reconsider their answers in order to find out whether the answers adequately expressed their opinions, provided the persons can be said to have had opinions.

Because of limitations of time and resources, not all respondents were asked to review their answers. If some questions were left unanswered or if answers were detected at once as unclassifiables, an appeal to look once more was made. In some groups of respondents, all who gave disconfirmatory answers were asked to reconsider.

The methodological dangers of such checks are obvious: there is always the risk that respondents will be led by suggestibility or social pressure to modify answers in the direction they suspect is desired by the test leader. This they may do, not only to conform to what they think is expected from them, but also because they may escape further work by answering in such a manner. Interview techniques in general are beset by difficulties caused by irrelevant influences radiating from the test leaders, and it is scarcely practicable to avoid such influences in our tests. What can be done is to test and map out the influences and correct results of questionnaire methods on the basis of our knowledge about those influences.

In the present case, our main, rather limited, objective was to find out what kinds of considerations, if any, were made by respondents who gave answers of the patterns classed as disconfirmations.

The approach of the test leader was as follows:

The respondent would first be assured that there was no mistake in his work, there being no reason to speak of errors, insofar as what was asked for was only how he interpreted certain words or sentences. We had no interest in finding out which were the so-called «correct» interpretations or answers.

The analyst would then go on to explain that answers of various kinds are more or less frequent, and that the respondent's answers fell into those that are infrequent. He would then ask, «Could you please reconsider them, just to be sure that what you have written expresses your opinion?»

Some respondents received the Qs4 and Qsi4 questionnaires by mail. Those whose answers gave negative symmetry or transitivity received a follow-up letter that read:

> In the spring of 1951 you were kind enough to answer a questionnaire concerning your use of certain expressions. Questions of this kind are in principle not capable of being answered «right» or «wrong», and there will always be large variations among different people. Certain answers, or rather certain combinations of answers, were, however, so infrequent that in order to be quite sure, I wish to ask you if you would have given the same answer if you were asked today.
>
> I enclose parts of your answers to the questionnaire and hope you have time and patience enough to look it through once more.

In reconsidering his answers, the respondent often asks questions about how the questionnaires are to be understood, what they ask for, and so on. The test leader answers, and may thus bring the interpretation of the respondent nearer to that of the analyst—a process that well might be effectively done by reformulation of the questionnaires.

Generally, the respondent will suddenly say that he has made a blunder: he was not careful enough; or he did not interpret the questionnaire as did the test leader, and thought that T was occurring and then U, and both on the same occasion; and so on. The disconfirmatory pattern is changed into a confirmatory (or irrelevant) one without further intervention by the test leader.

In some cases, a respondent discovers that he wrote something he did not mean, or that his formulations are obscure or misleading at certain points and require changes. In the case of Qs4, the expressions «necessary» and «sufficient» condition sometimes gave rise to discussions with the test leader.

In only one case did a respondent feel no need to change anything, exclaiming that «there *must* be a difference» such that Syn(T,U) but -Syn(U,T). He was disinclined to indulge in time-consuming reconsiderations.

The «reconsideration interviews» resulted in all disconfirmatory cases being eliminated from answers to the (indirect) symmetry questions of the following pairs of questionnaires:

Qsi1	Nos. 1 and 2	10 cases
Qsq1	Nos. 1 and 2	3 cases
Qs2	Nos. 3 and 4	6 cases
Qs3	Nos. 1 and 2	9 cases
Qs4	Nos. 3 and 4	1 case
Qsi4	Nos. 1 and 2	3 cases

In Qs1 Nos. 2.7 and 2.8, one person (mentioned above) did not change his formulations, with the result that of four cases of disconfirmation, only three were eliminated.

In Qs4 Nos. 3 and 4, one person to whom the questionnaire was mailed for reconsideration lost the questionnaire. He filled out another copy. This time the answers were different, but still disconfirmatory, and he refused to spend any more time on it.

Disconfirmatory cases of transitivity, four in all, were eliminated from answers to Qs1 Nos. 2.1, 2.4, and 2.5; Qs4 Nos. 1 and 2; and Qs4 Nos. 3 and 4. No cases of persistence were found. Of the disconfirmatory cases of subsumption theorems (nine cases) related to Qs4, only seven were eliminated; the two remaining cases belong to the above-mentioned respondent who lost the questionnaire.

The same follow-up letter was sent to the persons giving disconfirmatory answers to Qs4 and Qsi4. They all changed their answers, giving now the answer «Yes» to all questions, and therefore there were no disconfirmations.

Nothing prevents the interview technique just described from being codified and added to the Qs questionnaires. Fairly large and complicated questionnaires would be the result of such an integration. By means of such questionnaires, concepts of synonymity could be introduced that could be defined by reference only to direct answers and that would yield very few disconfirmations to the symmetry and transitivity theorems.

It is in no way suggested, however, that it is practicable to avoid all misunderstandings and blunders; and in the last resort, the analyst's conviction that all cases of disconfirmatory answers are based on misunderstanding or inconsistency or blunders of formulation, may be false. So far, however, no disconfirmatory answers have been found to contain reference to arguments that we deem convincing. That is, the answers do not seem to yield adequate information about usage and interpretation patterns of designations, declarative sentences, questions, or imperatives that are inconsistent with symmetry theorems asserting symmetry of occurrence synonymity.

VIII.8. Empirical Evidence from Metaquestionnaires

If a set of expressions from a Qsxy questionnaire other than its crucial ones are used as crucial expressions in a second Qsxy questionnaire, the latter is called a Qsxy metaquestionnaire in relation to the former.

Questionnaire MetaQs1I

The first metaquestionnaire, here called MetaQs1I or MetaI, answered by only a small number of people, has a rather complicated text that makes it understandable only to people already familiar with semantical questionnaires. It consists of three parts.

Part one is identical with Qs1 No. 2.1, concerning synonymity of «true» and «perfectly certain», except that the sign «U_1» is used instead of «U», and the answers offered to respondents are indicated thus:

«Answer 1: Yes. No. Don't know. (Erase what does not suit you.)»

Part two is closely related to Qs1 No. 2.6, concerning «is true» and «is the case», except that the sign «U_2» is used instead of «U», and the alternative answers are indicated as above stated.

Thus, the first two parts of MetaQs1I are merely a combination of two ordinary Qs1 questionnaires. (These parts were referred to collectively as Qs1, I, No. 1 in the material given to respondents.)

Part three reads as follows:

You have now answered the questionnaire QsI, I, No. I. We wish to find out whether it has been formulated adequately. Our doubt regarding adequacy concerns in the first place our formulation of the questions, for example, the question:

«Would U_1 (or U_2) have expressed the same assertion to you as did T when you read T?»

On page 4 you will find a series of interpretations of the question formulation (let us call it S_0). For the sake of easy survey, we suppose the interpretations to have emerged by interpreting four parts of S_0, namely a_0, b_0, c_0, and d_0:

a_0	—	would U have expressed --- assertion
b_0	—	the same
c_0	—	to you
d_0	—	as did T when you read T

Suppose that in the questionnaire QsI, I, No. I instead of S_0, you had found a question formulation in which each of the parts [of S_0] were replaced with various interpretations mentioned on page 4 (a_1–a_4, b_1–b_3, c_1–c_5, d_1).

Imagine that only one of the parts of the sentence was exchanged with another, or also two, three, or four, in such a way that all combinations of interpretations of the parts occurred. We are, however, interested only in combinations that make good sense. For example, it scarcely makes good sense to place together a_3,b_0, c_4, and d_0. In that case, this sentence emerges: «Does U according to customary usage mean the same as T did when you read T?» On the other hand, it makes good sense to combine a_3, b_0, c_4, and d_1: «Does U according to customary usage mean the same as T?»

Then three questions are put:

Question a: For which combinations of interpretations (if for any) would you have given a different answer than you actually gave under «Answer I»?

Question b: For which combinations (if for any) would you have given a different answer from that you actually gave under «Answer 2»?

Question c: Which combinations, if any, would not have expressed the same question to you as did S_0 when you read S_0?

Question a refers to answers to QsI No. 2.I in part one of MetaQsII, and question b refers to QsI No. 2.6 in part two of MetaQsII. At the end of MetaQsII («page 4») is found the list of interpretations.

a_0	would U have expressed --- assertion
a_1	would U have expressed the
a_2	would U have meant the
a_3	does U mean the
a_4	could U have expressed --- assertion
b_0	same
b_1	absolutely the same
b_2	roughly the same
b_3	fairly accurately the same
c_0	to you
c_1	(nothing)
c_2	as you understood U
c_3	as you understood U when abstracting from things you possibly have figured out after having looked into this scheme
c_4	according to customary usage
c_5	according to philosophic usage
d_0	as did T when you read T
d_1	as T

This list of combination units was followed by a list of examples. Some of the examples are here quoted because our statistics relate to the individual items of the list.

$a_0b_0c_3d_0$: Would U, as you understood U when abstracting from things you possibly have figured out after having looked into this scheme, have expressed the same assertion as did T when you read T?

$a_3b_0c_1d_1$: Does U mean the same as T?

$a_0b_0c_4d_1$: Would U, according to customary usage, have expressed the same assertion as T?

In the list of examples, seven more combinations were given:

$a_0b_3c_0d_0$	$a_3b_0c_5d_0$	$a_4b_0c_0d_0$	$a_0b_0c_1d_1$
$a_0b_2c_0d_0$	$a_2b_0c_0d_0$	$a_3b_0c_4d_1$	

It was, of course, not expected that the respondents would report in detail on all 240 combination possibilities. On the basis of previous experience, it was expected that most respondents would at once discard a number of possibilities because they would not lead to a difference in the cognitive contents of the synonymity question, or at least would not lead to different answers.

Main Results

Thirty people gave complete answers. Of these thirty respondents, twenty-nine agreed that if the synonymity question «Would U_1 have expressed the same assertion to you as did T when you read T?» had been replaced by $a_0b_0c_1d_1$, that is, by «Would U have expressed the same assertion as T?» this would not have made them answer differently than they did. In relation to $a_3b_0c_4d_1$, «Does U mean the same as T according to customary usage?», only two changes in answers were recorded. This supports the hypothesis that it makes little difference to respondents whether one asks them about ordinary usage or their own usage.

Also, for $a_0b_0c_3d_0$, only one instance of difference in answer was recorded, but in this case in relation both to the substitution «is true»—«is perfectly certain» and the substitution «is true»—«is the case». The other exemplified combinations were reported by more than one person to cause changes in their answers.

On average, 4.6 persons reported an inclination to change answers if the synonymity question in part one (concerning «true»—«perfectly certain») was changed in the eleven directions exemplified at the end of MetaQs1I. The analogous average with regard to part two (concerning «true»—«is the case») was 3.8 persons. Thus, the percentage change in answers attributed to the eleven reformulations was found to be 14.0. The change in formulation that would cause the greatest number of changes in answers by far—according to the respondents—was $a_3b_0c_5d_0$, which included the term «philosophic usage». If that example of change had been left out, the percentage change in answers would have been reduced to 10.8.

Inspection of the kinds of reformulations exemplified at the end of MetaQs1I suggests that synonymity question formulations may be modified within wide limits without appreciable changes in answers. *Answers are largely invariant to a great number of modifications.*

The importance of this conclusion lies partly therein, that it warns against using answers as if they were highly specific to a particular interpretation of the question posed, for example, in relation to interpretations that the analyst from general considerations expects to indicate «how the respondents interpret the question».

On the other hand, an assertion that one would answer affirmatively (or negatively) to two question formulations does not furnish much evidence that the formulations were interpreted to have exactly the same meaning. The long series of modifications of question formulations without corresponding changes in answer may be taken to furnish *some* evidence supporting the hypothesis that the formulations were interpreted as questions with only slight differences in meaning.

Questionnaire MetaQs1II

MetaQs1I asked respondents to consider vast numbers of sets of modifications of the synonymity question—a procedure that invites serious objections on humanitarian grounds. It may also be objected that perhaps some of the respondents did not understand the technique of substitution or that their answers were not based on close inspection of more than a portion of the combinations. It is difficult to check whether respondents have taken their job sufficiently seriously. (The questionnaire MetaQs1I was given only to students who were judged to be both conscientious and gifted.)

A new questionnaire, MetaQs1II, was designed to make the procedure easier for respondents. Rather than ask them to consider the eleven examples of modifications of the original synonymity question, we used twelve independent questionnaires, in each of which one modification of the original version was formulated in detail. The whole series of twelve—very similar—questionnaires was called MetaQs1II. The complicated list of combination possibilities of MetaQs1I was left out.

Thirty people went through this set of questionnaires.

Main Results

To what extent do the respondents' answers vary with modification in the formulation of the synonymity question?

The number of respondents who changed their answers when the synonymity question changed was greater than in the case of MetaI. On average, 10.7 persons changed their answers when the synonymity question in part one (concerning «true»—«perfectly certain») was changed in the eleven directions. The corresponding number for part two (concerning «true»—«is the case») was 8.3. The percentage change in answers was 31.7. If the synonymity question including the term «philosophic usage» had been left out, the percentage would have been 26.7.

A Differential Procedure

The technique of asking people how they would react under certain nonexisting conditions has obvious weaknesses from a methodological point of view. To find out a little about the influence of these weaknesses, we constructed a test in which each modification of a questionnaire was handed over to separate groups of people.

Ten of the twelve questionnaires of MetaQs1II were distributed, each to 30 people. No person received two or more questionnaires. Thus, 300 people were involved.

All questionnaires of the group of ten were exactly alike except for the variation in synonymity question. We used the same synonymity questions that were used in the MetaQs1II questionnaires, except for the question containing the term «philosophic usage» and one of the questions containing the term «common usage».

Our main interest in what may be called «the differential procedure» is in comparing the results with the results of MetaI and MetaII. We shall, therefore, abstain from discussing the results of this procedure in isolation and proceed to a general comparison.

Comparison of Results of MetaI, MetaII, and the Differential Procedure

This comparison is not without complications, and a fairly complete table is therefore needed. In the second column of table 10, we have given abbreviated versions of the synonymity questions. They can be assembled in their complete form from the combinations indicated on page 473ff. Synonymity question No. 1 is the «standard» used in Qs1 and in the first two parts of MetaQsI.

From the third column onward, the table is divided into two main parts, the first related to synonymity questions concerning the pair of expressions «true»—«perfectly certain» and the other to the corresponding pair «true»—«is the case».

The division of each of these main parts into three subparts corresponds to the three procedures. The columns report numbers of changes of answer—with the answers to No. 1, the standard form of synonymity questions, being taken as the point of departure.

Two quantities are calculated to give a picture of changes: one is recorded under «≠» with a «d» added and gives simply the difference between the number of «Yes» answers to synonymity question No. i and the number of «Yes» answers to No. 1, plus the difference between the corresponding numbers of «No» answers, plus the corresponding numbers of «I do not know» answers. These sums are not directly comparable to the numbers found as results of the MetaI questionnaire. If, for example, twenty-two people answer «Yes» and eleven answer «No» to both synonymity question No. 1 and synonymity question No. 2, this does not imply that every person has answered the same to those questions. Maybe those eleven who answered «No» to No. 2 answered «Yes» to No. 1, but at the same time eleven of those who answered «Yes» to No. 1 answered «No» to No. 2. This means that twenty-two persons have changed their answers, but without effect on the sums reported under «d». On the other hand, if only one person changes an answer from «Yes» to «No», this results in a difference of two in the sum of differences (≠d column), there being one less «Yes» answer, and one more «No» answer. The number of persons making changes is therefore reported under «≠p» and separated from the number of changes reported under «≠d». (The material obtained with the use of MetaI does not permit us to determine the quantity «≠d»; and from the material obtained by the differential procedure, we cannot determine «≠P».)

One of the easiest things to account for is the smaller number of respondents changing answers and the smaller number of changes in relation to the expression pair «true»—«is the case». All questionnaires used have consistently pointed to a closer similarity of meaning between «true» and «is the case», and more people taking them as synonymous, than that between «true» and «perfectly certain». The higher and more strongly held «Yes» scores of «true»—«is the case» account for many differences be-

Table 10. Comparison of Meta-results

		«true»—«perfectly certain»				«true»—«is the case»			
		MetaI	*MetaII*		*Diff. Set*	*MetaI*	*MetaII*		*Diff. Set*
No.	Synonymity Question	≠ P	≠ P	≠ d	≠ d	≠ P	≠ P	≠ d	≠ d
1	—have expressed the same assertion to you—	—	—	—	—	—	—	—	—
2	—as you interpreted U, if we neglect —	1	7	7	12	1	4	5	4
3	Does U mean the same as T?	5	13	16	6	4	9	14	8
4	—expressed according to customary usage—	3	7	11	2	2	4	4	2
5	—expressed fairly accurately the same—	5	8	2	6	2	7	4	8
6	Could U have expressed the same assertion to you—	4	8	12	4	2	3	5	8
7	Would U have expressed absolutely the same—	7	11	14	12	8	13	23	2
8	Would U have expressed the same assertion as T?	1	13	12	4	2	7	12	6
9	—approximately the same assertion to you—	6	11	9	8	2	7	2	4
10	—meant the same to you	3	5	0	6	3	4	4	6
	Total	35	83	83	60	26	58	73	48

tween results relating to «true»—«is the case» and «true»—«perfectly certain».[4]

The main and most important result is that fewer people say they would change answers than actually change answers: more than twice as many respondents answer otherwise than they actually do to synonymity question No. 1 than declare that they *would* if certain changes were made.

If, now, this comparison between MetaI and MetaII is related to the results of the differential procedure, it is found that the last-mentioned results lie somewhere in the middle between MetaI and MetaII.

Taken at face value, the comparison shows, roughly, that people asked whether they would have given other answers *if* a certain nonexisting condition were realized, *underestimate* the extent to which their answers actually would have changed. Further, people placed in a situation somehow approximating that nonexisting condition and involving answering a number of questionnaires with very small differences in text, tend to react with different answers to these differences more often than under the condition in which they cannot compare closely similar texts.

An «oversensitiveness» to differences presented as they were by MetaII seems simple to explain: each of the small differences in synonymity questions stood out in relief against the backdrop of identical contexts. In MetaI, however, the identity of context was carefully explained to the respondents, yet there was a comparative «insensitiveness» to the differences. It is not so easy to account for the great difference in answers to MetaI and MetaII. If MetaII led to oversensitiveness, why did not MetaI do the same?

One factor that may have played a considerable role was the impressiveness of the effort made in the MetaII procedure to fix the respondent's attention on every single variety of synonymity question. Each variety had its own slip of paper, its own questionnaire. Maybe the respondents were induced to think, «If it is worthwhile to print questionnaires that are identical except for a very small number of words, these must have rather different meanings!» Of course, nothing like this was suggested by the test leader, but nevertheless respondents may have felt an urge to differentiate clearly in their reactions to the different sheets of paper. The questionnaire MetaI consisted of much less paper and was more condensed. This may have given the respondents less motivation to proceed carefully and to react differently to different questions.

Whatever reasons are considered plausible, the result remains that differences in procedure—exemplified by MetaI and MetaII, and the differential procedure—may yield considerably different answers.

VIII.9. Difficulties of Questionnaire Procedures

In this section, we discuss some of the obstacles that endanger the fruitfulness of the «method of synonymities» (chapter 1, page 14ff.). They are so grave that it is quite natural to think that further use of the method must be viewed as unwarranted from the point of view of scientific method. Our conclusion will be, however, that continued use is warranted, partly because the method has yielded some results of interest and can be perfected, and partly because experience with other methods has convinced us of the very considerable difficulties encountered, whatever avenue of attack is chosen.

General Considerations

The first problem to be considered may be stated as follows: The persons used as test subjects presumably have greater than average intelligence, but they nevertheless succumb to *inconsistencies* in their answers. This may lead to replies being classed as disconfirmations of theorems of QsxA-symmetry or -transitivity.

An interesting example of such a case is the reply of respondent 5 to Qs11 and Qs12. He there entertains the opinion that «it is true» is a statement the validity of which depends on the kind of information available to those who use the expression. Thus, at the time of Holberg (an eighteenth-century Danish-Norwegian author), it was in many cases true that the earth was flat, since the information those persons had, who might have said «it is true that the earth is flat», was of a kind making it justifiable to assert the flatness. Many philosophers and logicians would at once object to the possibility or probability that the respondent «really» uses the expression «true» in this way. I think such an objection a priori is unwarranted, but let us see how this opinion on the part of the respondent influences his further reply.

He says that he uses «it is perfectly certain» independently of the kind of information. Then he infers that from the perfect certainty of something, the truth can be inferred, but not vice versa. This, he thinks, is the reason that he would interpret the sentence in the text Qs1 No. 2.1 («It is true that ---») to express a different assertion from «It is perfectly certain that ---». He answers «No» to both Qs1 No. 1.1 and Qs1 No. 1.2, but to Qs1 Nos. 1.2 and 2.2 he answers «Yes» (thus creating an instance of disconfirmation of Qs1.9-symmetry). He explains that he so does because *if* something is perfectly certain, *then* it is true.

It was assumed that respondent 5 had (vague) ideas of identity of assertions with which the last-mentioned inference could not possibly be consistent, and subsequent interviews confirmed this. His total reply was therefore not taken as a disconfirmation of Qs1B-symmetry theorems.

The kind of inconsistency to which respondent 5 succumbed may be roughly formulated thus: sometimes it is taken as a sufficient criterion of x being synonymous with y, that if y is true then also x is true; sometimes the same relation is only taken as a necessary condition.

The case of respondent 5 has been reported to stress that respondents certainly are sometimes inconsistent, but that the analyst cannot without very close analysis hope to be able in all cases to distinguish peculiar but consistent replies from inconsistent ones. Analysts tend to overestimate the frequency of inconsistencies. There are more usages under the sun than is suspected by learned men.

The case of respondent 5 also reveals how inferences of a general and highly speculative nature enter into the seemingly easy question about how a person interprets a text he has read, let us say, at most, thirty seconds earlier. Some respondents may be expected to try to arrive at the exact interpretation by taking up the much more general question of how they interpret a certain expression no matter what text it occurs in. In this respect, some of the respondents resemble logicians and philosophers when they answer questions about how they interpret and use the word «true».

Not only factors such as «insufficient» intelligence or general education, limited time and energy, and lack of special knowledge about the theory of knowledge, logic, linguistics, and semantics are to be held responsible for unclear and doubtful answers, but also the nature of the questions asked: nobody today seems to have a theory of interpretation and tools for finding interpretations that would make their answers to Qs1 acquire the status of fairly precise, reliable knowledge. This holds good even more convincingly as regards Qs2 and Qs3. There is, of course, some difference of degree, but basically the students and the specialists in logic and related fields are on the same level.

Difficulties of Qs1

A second problem is that the choice of variable expressions in Qs1—«true», «perfectly certain», «the case»—makes that questionnaire somewhat difficult to answer. Even well-educated generalists have rather vague ideas about the relation «T and U express the same relation». This makes many uncertain as to what to answer; they may find «Yes» and «No» equally justifiable answers. To this are added the particular difficulties, already mentioned, of complex differences in the usage of «true» and «perfectly certain». Out of sheer uncertainty, a respondent may answer «Yes» and «No» in such a way that transitivity of synonymity is denied. The respondents are «inconsistent» in their choice of «Yes» and «No» answers because both answers seem equally justified.

Instead of speaking about inconsistencies, one might in this situation just as well speak of absence of opinions, and define in such a way that a certain degree of stability is required. If the marginal reference, «s», of synonymity relations Syn(abps) is a reference to a small time interval, let us say, one minute, there would be no inconsistencies because Syn(abp_1s_1) would not contradict -Syn(abp_1s_2). Answers given several minutes apart would be referred to synonymity hypotheses with different marginal references.

If the respondents are led to adopt definite criteria of synonymity, some of the difficulties vanish, of course, but in the case of Qs1, this would defeat one of the purposes of the questionnaire: to explore how the term «express the same assertion» is used.

Even in the case of no concept of synonymity being forced on the respondent, the symmetry and transitivity relations of their answers are confirmed, as we have seen (tables 3–7).

Let us glance at the details of a group of twenty-eight replies to the sequence of questionnaires Qs1 Nos. 1.1, 1.2, 2.1, 2.3, 1.4, 1.5, 2.4, 2.5. They all concern Qs1A-synonymity relations between «true», «perfectly certain», and «the case», as described on page 455ff.

Sixteen replies contain only «Yes» as answers to the eight questions.

There is, of course, not much to be learned from such short replies, but we take them as a symptom of symmetry and transitivity of those respondents' (perhaps very vaguely conceived) concept of identity of meaning. We also take the answers as symptoms of how, in a particular situation, those respondents would interpret the expressions and sentences referred to in the synonymity questions.

Six replies contain «Yes» and some comments. Some of the comments belong to kinds that are of general interest. Thus, in the answer «Yes, but ---», is «but» meant to indicate a modified, conditioned answer, an answer with a reservation that makes the reply *strictly to the question asked* a different one from plain «yes»? Or is «but» here only meant to indicate some kind of phenomenon that makes a sort of contrast to the state of affairs affirmed unconditionally by «yes»? Interviews revealed that the second alternative usually holds good, but in some cases, the «Yes, but ---» is meant as a reply different from «Yes. But ---». Some cases are borderline cases.

Three of the respondents with «Yes, but ---» answers said that «perfectly certain» is stronger than «true». Asked to make more precise what kind of strength is referred to, they adopted various directions of precization, some leading to the conclusion that «perfectly certain» and «true» express different assertions, some leading to the conclusion that they express the same assertions.

Two of the respondents with «Yes, but ---» answers stressed that the use of «it is true that ---» is dependent on previously expressed doubt. It is a sort of reaffirmation or affirmation in the face of denials. Interviews showed that the «Yes, but ---» was to be interpreted as «Yes. But ---», not as «Yes, but ---». The answers were taken as a symptom that if those respondents had been invited to use proposed criteria, their answer would have been «Yes. But ---». It is of interest to note, however, that the possibility of «Yes, but ---» is not to be excluded a priori: to some people «it is true that ---» as occurring in the questionnaire might mean «it is doubted, yet true that ---».

The other (qualified) positive answer contains only «without doubt» as a comment.

The «Yes, but ---» difficulty can largely be avoided by supplying detailed instructions about how to separate «Yes, but» from «Yes. But». Such instructions cannot but be complicated, however, and may annoy some respondents. The possibility of suggestion must also be taken seriously into account.

Let us leave the «Yes, but ---» complication and inspect the comments made in replies, whether positive or negative.

Of the four persons saying that «perfectly certain» is *stronger* than «true», two gave the already mentioned «Yes, but ---» kind of answer, whereas two answered «No». By subsequent interviews it was established that «stronger than» to some means «having stronger power of persuasion», and this makes the «stronger than» seem irrelevant if our criteria are adopted. In relation to other criteria of identity of meaning of assertions, the persuasive power may of course be relevant. To others, «it is perfectly certain» implies that it is «shown» («proved») to be so, something not implied by «it is true that». This interpretation of «stronger than» seems in at least one case to explain the answer «*No*, «perfectly certain» is stronger ---».

The most important thing to note in connection with the distinction between 'stronger than' interpreted in such a way that it is relevant to our criteria and interpreted so as to make it irrelevant, is, I think, the complexity of unsolved and even unaddressed questions raised by the respondent when struggling with borderline cases. Of these there are so many that the replies in terms of the distinction «express same assertion versus express different assertions» lose much of their value. There is nothing that suggests that the replies of specialists in semantics (including lexicographers and semanticians in the sense of Carnap-Morris) would be much easier to evaluate.

A third group of difficult comments are those in which it is asserted that one of the three expressions (roughly: true, certain, the case) is *more precise than* the others. Different concepts of «preciseness» are involved, some making the assertions of relations of more or less preciseness relevant to our criteria of identity of meaning, others making them irrelevant.

Concluding, we may say that there are three main special difficulties confronting those who try to classify replies to the synonymity questionnaires Qs1 Nos. 1.1–1.6, and Nos. 2.1–2.6 into positive and negative:

1. the «Yes, but ---» answers,
2. the «x is a stronger expression than y» answers, and
3. the «x is more precise than y» answers.

By means of extra instructions, subsequent interviews, and «metaquestionnaires», the special difficulties have been overcome in most cases, leaving from 3 percent to 6 percent of cases in which classification into positive or negative has been persistently uncertain.

Not all those uncertain cases affect classification of replies into confirming and disconfirming ones of the A-variety. If it is doubtful whether the reply to a pair of questions «Syn(ab)?» and «Syn(ba)?» is positive or negative, we can in most cases say, «If the reply to the first question is interpreted to be positive (or negative), the hypotheses of interpretation used lead to the same conclusion with respect to the second question». Thus, the uncertainty does not lead necessarily to doubtful classification of symmetry confirmations.

Difficulties of Qs2

A third problem affecting the fruitfulness of the «method of synonymities» is that the replies to Qs2 clearly show a source of misunderstanding of synonymity questions that not only seriously lowers the value of the replies to Qs2, but may be reckoned as one of the chief sources of superficial answers to questions of interpretation, whether in the form of questionnaires or otherwise.

Just as in the case of Qs1, the respondent to Qs2 is invited to interpret a text containing T, then to imagine that he has *not* read that text, but one in which U occurs instead of T. The question posed concerns the relation of the interpretation of T and U under the assumption, of course, that there is not one text containing both T and U. It is essential that the respondent not interpret U in the light of T, and vice versa, but independently of each other. Alas, that is exceedingly difficult to explain to most people.

Unhappily, Qs2 opens with T and U appearing close to each other in print. It is inevitable that respondents concentrate their attention on the difference between them, and it turns out that after having seen the sentences close together, many respondents can no longer think about them separated from each other. Additional instructions (see page 404) that explicitly mentioned the source of confusion and warned against it in strong terms, did not always succeed in making respondents avoid the pitfall.

The effect of this confusion concerning contexts, the «natural context» and the «analyst's context», is dramatically illustrated by the following example.

Suppose we ask some students about the meaning of «year 1949 B.C.» and «year A.D. 1949». Most will answer that the first expression connotes a definite year before Christ and the second a definite year after Christ. If it is then asked what the expression «year 1949» connotes, the previous questions will make some of them answer that it has no definite meaning, because of the scale before or after Christ; the Jewish or Mohammedan scale might even be meant. Some might say that it has a definite meaning, namely «year 1949 after some year or other conceived as year 1». Thus, it might be a class name.

Now, after all this discussion of calenders, we introduce T and U:

T: There was at least one eclipse of the moon in 1949.
U: There was at least one eclipse of the moon in A.D. 1949.

If we ask the students how they would have interpreted these sentences if they had read them in different contexts, and whether they would have interpreted them to express the same or different assertions, they tend to give the answer «*different*». It is plausible for us to suppose that the answers are *misleading*: if the respondents had not had their attention fixed on certain *possibilities* of differences in interpretation, their answers would have been more correct. That is, if the experiment were carried out, and the respondents made to read either T or U in some contexts, let us say once a month, and to list their interpretation without having an opportunity to compare T and U, the result would probably show an overwhelming majority of interpretations of T and U to mean the same assertion.

In the case of Qs2 No. 1 and No. 2, T and U were:

T: Not all numbers below 10 are divisible by 2 and 3.
U: Not all whole numbers below 10 are divisible by 2 and 3.

Many persons must (characteristically enough!) read the sentences twice before they detect the difference in wording. Once they have discovered the difference, the possibility of interpreting T as referring *not just to whole numbers* stands out clearly, and affects their answers to the synonymity question.

That this really happens was clear from subsequent interviewing. Some of the respondents changed their answer after having conceived clearly the idea of thinking of the texts as separate texts that are not comparable in the natural context, but only in the subsequent context of the analyst.

Because of the difficulty of abstracting from the analyst's context, Qs2 was changed.

The importance of the confusion lies in the circumstance that whenever a person is asked how he would interpret two sentences, the proximity of the two sentences in the experimental situation will affect the reply: the respondent's attention is at once concentrated on the difference in wording and he is led to imagine that this difference will result in different interpretations of the sentences, even in natural contexts in which the sentences do not occur near each other.

The result of the confusion is a vast overestimation of the definiteness of intention: respondents are led to believe that because there is a difference in wording, the sentences will be interpreted differently and in such a way that interpretations correlate highly with each difference in wording.

Another result is to lead respondents to deny that vast numbers of differently worded sentences may be interpreted the same way without there being reason to accuse the interpreters of superficiality in attention to what «really» is said.

Still, another result is a strengthening of belief that there is a literal sense of words and sentences, which is the real and exact sense, the sense in which linguistically careful and conscious people understand the words and sentences.

VIII.10. Effect of Reversal of Order of Sentences in Qs3

The extensive experimentation with modifying the wording of questionnaires has had but one aim: to make the respondent understand what the analyst tries to communicate to him in the questionnaires. Because of the formidable difficulties met with, it has been considered premature to take up systematically another aspect of importance to the questionnaire technique: that of suggestion, of leading questions, and so on.

Dr. Leo Apostel submitted to us a series of notes concerning possible weaknesses of the questionnaires with regard to suggestibility. At least one

Table 11. Effects of Reversal of Order of Response Choices, Qs3

	Response			
Order	*«All»*	*«Some»*	*«None»*	*Total*
a, s, n	25	89	9	123
n, s, a	23	50	21	94
Total	48	139	30	217

of his points was considered important enough even at the present preliminary stage of research to warrant a reformulation of the questionnaires Qs2 and Qs3. In those questionnaires, two positive answers («Yes, in all situations»; «Yes, in some but not in all») are listed before the negative answer is put forth. New versions of Qs3 (called Qs3 No. 3b and Qs3 No. 4b) were used in which the order of possible answers was reversed. As is shown in table 11, the change is correlated with a statistically significant difference in the answers given by respondents.

Although one might have expected the order reversal to cause the number of «Yes. In all situations» responses to drop considerably, such was not the case. If the change in answers is attributable to the change in order, the latter has made the respondents less prone to answer «Yes, in some but not in all», rather than less inclined to answer «Yes, In all situations». The change in frequency is highly significant from a statistical point of view, with $\chi^2 = 11.37$.

VIII.11. Effect of Training on Classifiability of Answers, Qs5

A slight modification of Qs5 was used with «Norway is a democracy» as crucial sentence T, and three different formulations representing U: «Norway has government by the people» (*«folke-styre»*); «Norway has a form of government by which the total adult Norwegian population is assured an influence on decisions of significance to the society»; and «In Norway, all who are equally gifted have an equal chance to obtain a higher education».

Two groups were tested. One consisted of fifty-five students at the sophomore level; the other, of thirty-one students who had obtained high marks in courses in logic and history of philosophy or were otherwise known to be well versed in these disciplines. The results of the test are shown in table 12.

Table 12. Classifiability and Training, Qs5

	Less Trained				More Trained			
Qs5	*Syn.*	*Not Syn.*	*Unclas.*	*Total*	*Syn.*	*Not Syn.*	*Unclas.*	*Total*
T/U_1	7	19	29	55	6	23	2	31
T/U_2	8	20	29	57	3	26	2	31
T/U_3	1	25	29	55	0	29	2	31

The relations of synonymity answers are about the same in the two groups, but there is a tremendous drop in the number of unclassifiable answers in the better-trained group. The questionnaire Qs5, or at least the version used in the experiment under consideration, must be considered inapplicable to the students with the ordinary sophomore training.

Experience with postgraduate students of logic, philosophy, and linguistics indicates that fresh difficulties arise with «overtraining»: answers tend to consist of lengthy comments concerning the questionnaires or of assurances that the respondent cannot answer because he lacks insight into his own usage, or because of related factors. Thus, the percentage of unclassifiable answers tends to decrease with training up to a certain point, and then increase again.

Twenty-nine answers out of fifty-five were unclassifiable in the less trained group (table 12). One might suspect that the classifiable answers, for example, the straight positive or negative ones, were based on a rather superficial understanding of the questionnaire and that the proportions of such answers largely owe to chance factors. There is an interesting argument against this. It is a rather weak argument, but not too weak to be taken into consideration. A comparison of the twelve quantities under the headings «Syn.» and «Not Syn.» reveals a close agreement in percentages of answers between the less trained and the more trained. This is a symptom of resemblance in interpretation, and if the more trained have been penetrating in their interpretations, the classifiable answers of the less trained might be considered to be representative of a satisfactory degree of understanding.

When we do not take up a number of considerations that already have been shown to be important to the questionnaire technique, it is only because of the necessity to work with a priority list. Our first grave question has been, Can synonymity questions be formulated in such a way that they are *understandable* to at least some sectors of a language community, for example, undergraduate or graduate students of certain branches of knowledge? Can the intention of the analyst be roughly conveyed to these persons? How about the small sector of the community consisting of professional students (including professors) of language, logic, and philosophy?

Negative answers to these questions are particularly grave because, so far as I can see, logical analysis and semantics are largely carried on by a kind of embryonic questionnaire method, the analyst asking himself about how words are used. His intended public is mostly made up of students, if not himself alone. Occasionally other analysts read his papers, and this normally leads to controversy in which charges of misinterpretation play an important role.

VIII.12. Concluding Remarks

It is tempting to adapt a questionnaire to the specific task it serves and to ignore the question of how to find standard forms such that what can be found out about the efficiency of one questionnaire can be expected to hold with respect to others. When concepts of a rather sweeping character, such as those of synonymity, are introduced in terms of questionnaire techniques, the search for general forms of questionnaires develops into a major concern. The questionnaires used to obtain the material discussed in this chapter are examples of very simple questionnaire forms. The simplicity and the generality have been obtained partly by deliberate neglect of many methodological requirements that at a later stage of research must be considered to be of high priority.

The primary objective of this chapter has been to offer a sample of material collected by use of the simplest questionnaires, and thereby to furnish a basis for an opinion about what can and cannot be performed by means of such questionnaires.

Secondarily, our objective has been to stress, by means of detailed reports about procedures and findings, that if statements of sameness of meanings are considered to be synthetical, one shall, sooner or later, have to connect synonymity concepts with procedures of some kind, and from that time on, it will be necessary to carry out time-consuming work of a rather unphilosophic kind. If someone should be induced, by imperfections in the works reported on, to make improvements, much will be gained. The important point here is to get out of the deadlock created by too much sophisticated theoretical discussion about subject matters with empirical aspects.

Notes

Foreword

1. A concept of Qs1A-synonymity is introduced in the first part of this earlier work. The concept is also introduced in the present study (chapter 7). Let it suffice for now to say that two terms are Qs1A-synonymous for a definite person and with respect to a definite text if that person answers affirmatively to a question of the following form: If one term were to be exchanged for the other in this text, would the meaning of the text be the same?

   Unfortunately, my use of the word «synonymity» as an element in the definiendum has suggested that I believe that the answers to certain crude questionnaires will solve *the* problem of synonymity, or that the concept of Qs1A-synonymity is proposed as the operational meaning of the term «synonymity». Perhaps the best way to explain my purpose is to say that, just as one may apply different tests to an ability or a disposition, so one may apply different tests to something traditionally called «synonymity», and the concept of Qs1A-synonymity is merely one test among others.

Chapter I: Basic Terms

1. The term «marginal reference» has in this work a meaning not far from that of «qualifying phrase» in everyday English.
2. It is tempting to interpret sentences of the form ««a» is synonymous with «b»» as expressions of universal indiscriminate synonymity, since no exceptions are mentioned and no qualifications are made. Such an interpretation is, however, usually implausible and transintentional (cf. chapter 2, section 2).
3. The use of «a» for «either-or» in formulas is distinguished from the use of «a» for sentences by its placement outside parentheses.
4. For details about axioms adopted for 'synonymity', see chapter 2, section 6.

5. In a formulation ««a» means b», we call «a» the interpretandum expression and «b» the interpretans expression.
6. We use, in this classification of interpretations, words that are too vague to be admitted in theorems concerning the determination of the choice of interpretations.
7. In Norwegian, «*mannlige*»; «male» in English.
8. The phrase «*that* food ---» in Skinner's item 2) seems to refer to something definite as the cause of a process, whereas «I am hungry» is more likely to refer to a state of affairs, one of the symptoms of which might be indicated by a saying such as his item 2).
9. «Incomparability» is introduced as a term in chapter 2, section 7.
10. The introduction of concepts of synonymity has been postponed to chapter 7. The above assertions about the existence of synonymic alternatives common to «a» and «b» are anticipatory.
11. That is, stuff capable of being adequately learned by using one's memory.
12. Further precizations of «reading» would probably show that a usage common among students is here presupposed known: «studying for examinations by reading».
13. The two last sentences are good examples of sentences sufficiently precise for certain, rather limited purposes, but too ambiguous to contribute, for example, to a statistical description of denotata fluctuations. What are the criteria of «being on the way from Oslo to Bergen»? Have they to do with plans for future movement along tracks, or is the mere location on the tracks leading to Bergen a sufficient criterion? Is «train» to be interpreted so as to include motor buses on tracks? The list could go on. To make the sentences useful for a statistical survey, we would have to introduce detailed criteria by suitable conventions of terminology.

Chapter II: Basic Terms Continued

1. The simpler designation «receiver-ambiguous» is not used because it is needed to designate the ambiguity of an expression within the class or a class of receivers, if at least one receiver sometimes interprets the expression differently from at least one other receiver.
2. The question of comparison of terminologies is taken up in work that is in progress.
3. The terms are translations of the Norwegian legal terms «*generalpreventiv*» and «*spesialpreventiv*». The latter has to do with measures preventing an individual (the criminal offender) from repeating his crime.

Chapter III: Misinterpretation and Pseudoagreement

1. In the Syn($T_1PS_1T_2QS_2$) symbols in the following, «(1)» or any other symbol for a step in a discussion or for a sequence of steps, is put into the place of S_1 and S_2. The symbols express in such cases, not a specific step or succession of steps in a specific discussion, but kinds of situations characterized by steps of certain kinds.
2. By «pseudoagreement, etc.» we mean «pseudoagreement or pseudodisagreement».
3. The Norwegian word for «thin», namely «*tynn*», permits this interpretation. In English the interpretation may be less plausible.

Chapter IV: Definitoid Statements

1. By «definitoid statement» is meant a sentence that for at least one plausible interpretation is intended to express an N-, Ds-, or R-definition (normative, descriptive, or real definition), or that at least shows symptoms of expressing such kinds of assertions or announcements.
2. «*Per definitionem*» is used as a synonym for «by normative definition».
3. We add the phrase about similarity because it would be unfruitful to limit our description to persons using *just* the concept 'normative definition' that has been introduced here.
4. This has the consequence that there can be no real definition of classes with no member—for example, *perpetuum mobile*. Maybe real definitions might just as well be defined in relation to connotation.
5. If something, a, is explained by something else, b, «a» is called the explanandum expression, and «b» the explanans expression.

Chapter V: Elementary Analysis

1. The reader may even be rather sure that Buckman did not use the abovementioned expression, since it is in the third-person singular of the present tense.
2. If we ask, Does Russell intend to give an interpretative or a synonymic normative definition, our answer is likely to be more uncertain. Does Russell use sentences of the forms «--- means . . .» and «--- means the same as . . .» without distinction? Or does he distinguish, and use quotation marks for interpretans expressions?
3. «N-formulation» is an abbreviation for «formulation of a normative definition». «Ds-formulation» stands for «formulation of a descriptive definition».

4. If a definiens expression can be brought into the form «x is a K_1 and x is a K_2 and . . . , and x is a K_n», then the definitoid statement of which the definiens expression is a part is called a «complex definitoid statement».
5. The following sentences contain one of them. «As I would not be a *slave*, so I would not be a *master*. This expresses my idea of democracy. Whatever differs from this, to the extent of differences, is not democracy» (Lincoln 1905: 7: 389). In a message to Congress (1861), he also used the term once (cf. *Proceedings of the American Philosophical Society* 88: 366).
6. For a comparison of hypotheses about the Lincoln formula, see, e.g., the collection reproduced in McKeon (1951: 29, 30, 71, 124, 132, etc.).
7. If something is considered to be subsumable under a characterization defined as the conceptual characteristics of a concept, that something will be said to be a denotatum of that concept.
8. The case of T^2 being a designation is more complicated because, in that case, we have the sentence in which it occurs as a peculiar minimal context requiring special treatment.
9. The word «satisfy» is used in relation to definitoid formulations when we speak in general and do not distinguish normative from descriptive definitions or related synonymity hypotheses or announcements.
10. This sentence is added because, otherwise, the theorem would not assert any definite synonymities at all, all instances being of concepts 6, 7, etc.
11. We might call it a «multiple usage hypothesis with undifferentiated total field indication». In spite of the importance of such hypotheses and their close similarity to descriptive definitions, it is scarcely fruitful to widen the scope of descriptive definitions in order to include them.
12. This observation suggests that not every occurrence is of interest for the problem «Is occurrence no. x subsumable under the concept 'occurrence in conformity with the synonymity hypothesis no. y'?». That subclass of the total class of occurrences should be selected which is of special interest for solving this problem.
13. The authors of the SSRC bulletin include some remarks about the expression «as in», as it appears in their introductory note; see *SSRC Bulletin* 1946: 252.
14. The argument might be made more precise by stating explicitly which hypotheses the authors would have to accept as tenable if the definiens expression were assumed to be synonymous with the definiendum expression.
15. The quoted five-sense theorem is on the level of preciseness and specification found in dictionaries such as *Webster's New International Dictionary*. It is curious that *The Shorter Oxford English Dictionary* leaves out «history» in the

senses suggested by the expression «past events as an aggregate» as used in the *Webster's* article.

16. The examples are taken at random from an unpublished list of about 700 definitoid statements about «truth» and related words compiled by the author.

Chapter VI: Occurrence Analysis

1. The uncritical belief that meanings are easily found by just asking people what they mean or by merely reporting their learned definitions seems to us sufficiently undermined. It is time to take up another set of assumptions, namely that one can infer meanings by observation of use of terms without grave difficulties demanding patient research.
2. The term «excerpt analysis» would perhaps evoke more appropriate associations for lexicographers than the term «occurrence analysis».
3. In our discussions of definitoid statements, when no field of application is mentioned, then the present work is meant.
4. This is a rough way of introducing a technical term, but attempts to delimit more precisely a concept of 'occurrence implicate'—for example, in terms of syntax—have so far been without convincing results.
5. We do not exclude the possibility that the latter sentence is a contradiction in Vyshinsky's terminology. Whether it is or is not can only be decided on the basis of wider material, not on the basis of these implicates. Because of this uncertainty and dependence on further context, the inference should perhaps not be classed as an implicate and not be included in the occurrence implicate list.
6. A subsumption may be divided into the major premise of the subsumption, in which certain properties of certain things are described; the minor premise, in which the conceptual characteristics of the concepts are listed; and the conclusion, by which the things are judged either subsumable or nonsubsumable under the concept. The concluding statement may be untenable because of untenable premises, because of untenable inference from premises to conclusion, or because of both kinds of mistakes. By the term «subsumption inference» we refer to the inference alone. We are not concerned with the tenability of the author's views about things he subsumes under his concept of 'democracy'. The tenability of the major premise is not asserted in our occurrence implicates. The minor premise is the x we should like to discover or invent (in the sense that intervening variables [constructs] are invented).
7. It should be noted that as interpretation proceeds through the list of implicates, the premises of already performed interpretations may change, which

may make reconsideration urgent. We get «interpretational vibrations» (see chapter 2, section 13).

8. If the particular government in power in the USSR at the time of Zaslavski's edition of this book is identified (conceptually) with '*le régime soviétique*', opposition to that particular government is opposition to the most perfect democracy, that is, the most perfect government. If, on the other hand, the particular government at the time of Zaslavski is considered but one instance of a kind of government, '*le régime soviétique*', then opposition to a particular government is not by definition opposition to 'the regime'. The delimitation of concepts of 'regime' is important to the whole discussion of concepts of democracy.
9. In principle, there is a chance that the analyst and the author use different systems of logic in the sense of incompatible rules of inference, or sets of axioms. In most fields of discussion, this possibility is far-fetched.
10. The sentence can also plausibly be interpreted as a descriptive definition, or as a combination of N- and Ds-definitions.
11. Even if this question of intention is considered of no importance or of subordinate importance, there is still room for questions: Which of the descriptive definitions are most satisfactory as the basis for normative definitions? Which is the most precise, the simplest to use?
12. How this should be possible, I do not know. I would tend to regard the sentence as incapable of being given a precise meaning different from a sentence speaking about nondefinitive knowledge.
13. We shall write in the following as if we thought the translation perfect and as if our translations from French to English were undoubtful. This is done in order to concentrate on more central problems.
14. «*par les conservateurs* [?] *les plus réactionnaires*».
15. We do not consider «feelings may be classed as democratic» to be an implicate, because we consider «democratic feelings» to be synonymous with «feelings in favor of democracy». I mention this because in many cases a grammatical structure with adjective and substantive is misleadingly taken as indicating a classification in which the adjective refers to a subclass of a class expressed by the substantive.
16. Evidence from occurrences in other texts is, in principle, not taken into account. Lenin's terminology may suggest that he would favor T_2, and this together with the status of Zaslavski as an adherent of Marxism-Leninism may suggest that Zaslavski also uses T_2 rather than T_1. An example of an occurrence supporting T_2 is «The Soviet order . . . signifies . . . the rise of a new type of democracy in world history, that is to say proletarian democracy, . . .» (Lenin 1927: 26).

17. This would not imply that Zaslavski would not also hold that the press considers the Soviet Union not to be a democracy in other senses, possibly current in that press.
18. This expression cannot be used without qualification; see chapter 2, section 9.
19. In this book, «or» is always used for the inclusive *or*, symbolized by «v». The exclusive *or* is indicated by «either-or» and symbolized by «a» (for the Latin «*aut*»).
20. The broad concept of «people», which is explicitly advocated by Zaslavski, is not generally adopted by Marxist ideologists. Clear instances of a narrower concept are found, for example, in Mao Tse-tung's writings: «Our government is benevolent to the people only, and not towards the reactionary acts of the reactionaries and reactionary classes divorced from the people»; «The right to vote is given to the people only, not to the reactionaries» (Guillain 1950).
21. This assumption belongs to the many hypotheses that could possibly be ruled out as based on assumptions of too great definiteness of intention on the part of Zaslavski.
22. This word is added because, when the power is in this group's hands, it cannot be said to be underprivileged any longer.
23. A methodological argument against hypotheses with small fields of intended application is discussed in section 8. The amount of evidence with specific relevance to each hypothesis decreases with increased partition of the intended field of application.
24. There are 192 occurrences of «democracy» in Zaslavski's text. The negation of our synonymity hypothesis implies, therefore, that it is more likely that 96 or more senses of «democracy» are used by Zaslavski in his text than that fewer than 96 are used.
25. One may talk of occurrence analysis of implicates, evaluative occurrences, etc.
26. For more detailed argumentation concerning subordinate analyses, see p. 312.
27. See discussion of the predictional theory of usage in chapter 4, section 15.

Chapter VII: Introduction of a Group of Concepts or Tests of Synonymity

1. As closely related terms we take the conventional translations of the English terms into French, German, and the Scandinavian languages.
2. Compare the synonymity hypothesis of Davidson (1885: 89): «When --- Aristotle, in his Categories, refers to synonymous words, he means by «syn-

onymous» what Boëthius afterwards translated by the Latin *univocal*, i.e., the generic name which is equally applicable to each and all of the species contained under it».

3. This expression is taken from the class of synonymity sentences introduced in chapter 1. Others could just as well have been used.
4. We write b, but not a_i in *guillemets* because a_i is considered to be an abbreviation for «the occurrence no. i of the expression «a»».
5. «N-concept» may be read «norm concept», but «normative concept» would be misleading. The definiens expression (T 1.31) is not an announcement. It is a conjunction of three hypotheses.
6. In the following it is presumed that the fruitfulness of a concept introduced by means of definite definiendum expressions is also judged by the convenience of using the definiendum expressions to express the concept. Thus, the verdict «unfruitful» may not imply a criticism of having a concept expressed by the definiens. The verdict may sometimes only be based on criticism of the use of the definiendum to express the concept. This is the case in our example.
7. Compare the opening sentence of section 17, *Encyklopädie der Elementar-Mathematik* (1906/07: 1:2). Auflage. If we do not take into account the first three occurrences of «*Primzahl(en)*» in section 17, which are metaoccurrences or interpretable as metaoccurrences, the exclusion of 1 as a *Primzahl* is obvious, at least after the first thirty-four use occurrences. The «obviousness» is one of psychology and sociology, not of mathematics, however. From the thirty-four use occurrences it cannot be proved mathematically or logically that 1 is not a *Primzahl*.
8. There is in the following a constant need for use of the expression «something closely similar to, or identical with». To avoid a cumbersome exposition, I have left it out in several places.
9. «T is true» is written, not ««T» is true». One reason for this is the convenient rule of abstaining from *guillemets* when using the letters T, U, V, because they always stand for sentences.
10. It is explicitly mentioned in the questionnaire that it is not concerned with the tenability of the assertions, but with their power as arguments, if they are tenable.
11. A precization of «physical law» is summarily described in Løvestad 1945.
12. We need not here discuss the possibility of other concepts of «understanding a text written by an author x». There are important distinctions to be made, particularly in connection with the theories of subjective and objective interpretation of laws and other legal documents.

13. At several places in this work, precizations of «strong confirmation», «strong disconfirmation», and a number of related terms have been needed. We have found it justifiable to abstain from discussing these terms in order not to take up more controversial issues than strictly necessary.
14. In cases of inconsistency, one may divide the occurrence class into as many classes as are required to make the inferences concerning the members within each class consistent with each other. In the final conclusions, the different classes can be made the subject of ambiguity hypotheses. Or one may conclude that there are internal contradictions in the views of the author of the text. There is no way of separating ambiguities from contradictions that does not have its foundation in uncertain auxiliary hypotheses.
15. Strictly speaking, several expressions are considered: «*démocratie*», «*démocratique*», and others.
16. The term «a-intentional» would be better suited as concept designation, but it is awkward to pronounce.

Chapter VIII: Synonymity Questionnaires in Use

1. In the first two chapters a number of designations were introduced, but not given any definite cognitive meaning. Something, however, was said about how they were to be used in the present work. For example, certain relations between the designations, and concerned with their cognitive meaning, were announced (stipulated, postulated). In other words, parts of their cognitive meaning were introduced. To remind ourselves of this incomplete determination of meaning, we have called the designations «terms» (or «technical terms») but not talked about concepts being introduced.
2. The Norwegian expression «*flere*» actually involved 'more (as regards number)'.
3. «A theorem of QsxA-synonymity» is an abbreviation for «a theorem of Qs1A-, Qs2A-, . . . , Qs8A-synonymity». The distinction between A- and B-synonymity is made on page 400ff. In the present chapter, tests of, for example, Qs6-synonymity, are not reported. On the basis of auxiliary hypotheses about similarity among the various Qsx questionnaires, a confirmation of a correspondence hypothesis covering Qs5A is taken as a confirmation of the more general hypothesis covering QsxA-synonymity. The latter confirmation is (of course) taken to be of a weaker degree.
4. Compare the discussion of relation between numbers of positive answers and possibilities of disconfirmation of symmetry and transitivity (page 469ff.).

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Index

Arne Naess was born in Slemdal, Norway, in 1912. One of Norway's foremost philosophers, known especially for his innovative eco-philosophy, Naess began his work with peace studies, global justice, and human rights, and continued with environmental matters. The subjects of his scholarly work and interests include empirical semantics, logic and foundations of science, communication theory and practice, Spinoza, scepticism, gestalt ontology, and normative systems theory. Naess's contributions have been honored by many awards, including Norway's Peer Gynt Award, Denmark's Sonning Prize, the Nordic Council Award for Nature and Environment, the Uggla Prize for Humanistic Studies from Stockholm University, and the Mahatma Gandhi Prize for Non-violent Peace.

Naess graduated from the University of Oslo in 1933, studied in Paris and Vienna, and became the youngest person appointed to a full professorship of philosophy at the University of Oslo, where he worked from 1939 to 1969. Since 1970, he has continued his work as a philosopher, naturalist, and environmental activist. He has been involved with the University of Oslo's Center for Development and the Environment since 1991. The Arne Naess Chair in Global Justice and the Environment is being established at the university to encourage scholars to engage creatively with Naess's work and ideas, in particular to promote new insights into environmental issues and the challenges posed by globalization, and to develop ideas that will help to humanize the difficult and conflict-laden transition to sustainability. Naess holds honorary doctorates from Stockholm University and The Norwegian National University of Sports and Physical Education. He is also an honorary member of The Norwegian Alpine Club and The Norwegian Tourist Association.

In addition to writing countless articles and essays that have been translated into several languages and have appeared in anthologies and journals throughout the world, Naess is the author of numerous books, including *Life's Philosophy: Reason and Feeling in a Deeper World* and *Ecology, Community and Lifestyle*. He was founder and editor of the journal *Inquiry*, and has lectured in many countries. As a mountaineer, Naess was the first to climb Tirich Mir in Pakistan. In the 1930s, he built a hut on Hallingskarvet Mountain in Norway, where he spent much time reflecting upon and relating to the surroundings and native plants of his retreat. His respect and appreciation for diversity, wonderment, and our relationship to the natural world has continued throughout his life and is reflected in the spirit of his work.

Naess currently lives in Oslo with his wife, Kit-Fai.

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I
Interpretation and Preciseness
A Contribution to the Theory of Communication

II
Scepticism
Wonder and Joy of a Wandering Seeker

III
Which World Is the Real One?
Inquiry into Comprehensive Systems, Cultures, and Philosophies

IV
The Pluralist and Possibilist Aspect of the Scientific Enterprise
Rich Descriptions, Abundant Choices, and Open Futures

V
Gandhi and Group Conflict
Explorations of Nonviolent Resistance, *Satyāgraha*

VI
Freedom, Emotion, and Self-Subsistence
The Structure of a Central Part of Spinoza's *Ethics*

VII
Communication and Argument
Elements of Applied Semantics

VIII
Common Sense, Knowledge, and Truth
Open Inquiry in a Pluralistic World
Selected Papers

IX
Reason, Democracy, and Science
Understanding Among Conflicting Worldviews
Selected Papers

X
Deep Ecology of Wisdom
Explorations in Unities of Nature and Cultures
Selected Papers

The Selected Works of Arne Naess

Scepticism

Wonder and Joy of a Wandering Seeker

VOLUME II

Contents

Author's Introduction to the Series

At ninety-two it is a great honor to be still alive and to witness the publication of my selected works in English. Few philosophers have their work published in a series, fewer still receive this honor before they die. When I was originally approached with the idea of publishing my complete works, I was overwhelmed and overjoyed, but added that not all my books and articles were important enough to merit such an honor. Selected works? Yes, and I am extremely grateful for this initiative and the final result, which presents a representative selection of my work from the earliest to the most recent. [*The Selected Works of Arne Naess* are hereafter referred to as SWAN.]

My interest in philosophy began with Spinoza's *Ethics*, which as a seventeen-year-old I was fortunate to read in Latin. I appreciated Spinoza's grand vision and trusted him implicitly as a person. I accepted that human beings could, and should, have a general outlook with the grandeur of Spinoza's, but I recognized that our individual views on this grand scale will not be identical. Through the years I have realized that there is a splendid variety of interpretations of Spinoza (SWAN VI and IX). His texts are exceptionally rich. As the years have gone on, I have focused on how he leads us to realize we can increase our freedom and sense of connection with the world through strengthening and intensifying our *positive* emotions. For example, loving and caring for our place and others leads to an expansive sense of being part of a much larger world. Emphasizing hatred and anger, on the other hand, makes us feel smaller and isolated from the world. Spinoza, as I interpret him, would express this by saying that "We are as large as our love." Increasing our freedom as human beings leads us toward life in communities colored by friendship, sharing joy and sorrow.

Before I left gymnasium [the end of secondary education] the headmaster asked me, "What do you intend to be?" My immediate answer was "A philosopher." In fact, I had already conceived of myself as one. I viewed the writings of many contemporary philosophers that I was familiar with, however, as vague and airy and certainly not as inspiring as Spinoza.

My doctoral thesis in philosophy of science was an effort to remind us that in science the content of a theory is not independent of research behavior—the activities of observing, confirming, disconfirming, and so on, and that these are set within a deep context of place, history, and culture. Later, as a postdoctoral researcher at the University of California at Berkeley, I studied the behavior of experimental psychologists doing animal research.

In 1934 and 1935 I studied in Vienna and while there became a member of the famous Schlick seminar, the main discussion group of the Vienna Circle. Their quest for clarity and cordial cooperation in pursuit of knowledge led me to appreciate that "What do I mean?" is an open question. I concluded that we never intend to express anything extremely definite, even in mathematics or symbolic logic. I saw the importance of using empirical methods to find out how we actually use certain expressions and sentences. I developed and applied a wide variety of such methods, which became part of the core for the empirical semantics that runs through my work. I continued to do this type of research into the 1990s, my last project being one in which I questioned experts and policy makers about their ideas of values intrinsic to the natural world (in SWAN X).

In one of my earlier studies, I reviewed about 700 articles from philosophers concerning their use of the word *truth*. For the most part, I found these unconvincing and soon started on empirical studies of the use of *truth* among ordinary nonprofessional people and schoolchildren (in SWAN VIII). Many philosophers seemed to assume that ordinary people hold very naive views about these deep matters. I found through research that, on the contrary, the views articulated by these "ordinary" people were every bit as sophisticated as those held by professional philosophers. This reinforced my conviction that, generally, we greatly underestimate ourselves. Much academic philosophy was narrowly focused and abstract. Philosophers who elicited interest in wide-ranging issues of practical and global importance, such as nonviolence and social justice, have in my lifetime said things that were considered creative, but often too far out. In spite of consistent proclamations that science neither would nor could take over all the problems discussed by philosophers, I tried to argue in ways that reminded readers of science done as open inquiry, and I tried to emphasize that it is occasionally necessary to perform empirical research to illuminate or support a philosophical viewpoint.

My empirical and historical research led me to realize that there are no certainties and that there is a great diversity in our spontaneous experience as well as endless ways to describe and appreciate the complexities and values of the world. Thus, I realized that I am one of those lifetime seekers that the ancient Greeks called a *zetetic* (see SWAN II and VIII). From my research on scepticism and the foundations of science and logic, it became clear to me that pluralism (every event has many descriptions and possible outcomes), possibilism (anything can happen), and a healthy scepticism (always seeking the truth but never claiming it) make up the most consistent approach to respecting the perspectives and experiences of others, human and nonhuman.

From my empirical studies of semantics, and from my knowledge of several languages, I came to appreciate the complexity of communication. Being committed to Gandhian nonviolent communication, I saw the importance of avoiding dogmatism and fanaticism. One of the most important discoveries coming from this research, leading to the publication of my major book, *Interpretation and Preciseness* (SWAN I), was the insight that we cannot avoid values in any field of endeavor or research. There are no value-free inquiries or theories. Even if we refuse to express our values, this is itself an expression and choice of values. We must, therefore, be clear about our value choices and try to make them explicit. The choices we make, as Spinoza pointed out, shape the quality of our lives, and values emphasizing positive emotions or feelings are expansive and lead to our growth. We must become ever more aware of our choices and the values involved. Even pure logic assumes certain norms. Empirical research can shed light on these matters. My colleagues in philosophy often found my empirical work perplexing. I, in turn, grew to underrate the necessity of visiting great centers of philosophy, as I preferred to be close to or in the mountains.

When I visited the United States, it was mostly to climb in the mountains or walk and camp in the desert. On one fortunate visit, I dropped in at the graduate students' discussion room at Harvard. Speaking with students who were writing their doctoral theses in philosophy, I understood that my knowledge of contemporary philosophy, and of recent important contributions in its various fields, was narrowly limited to special themes of lively personal interest. Even in later years, the tendency to take personal inclination very seriously colored my contribution to the philosophical literature. As can be seen, though, from the titles in these *Selected Works*, my strongly felt interests span a rich variety of fields, philosophical traditions, and movements.

Since childhood I have experienced an intense joy in being together with animals and plants and in contemplating the immense evolutionary development of life on earth over millions of years. From an early age I also developed an intense love for mountains and for being in them. Much of my creative philosophical work was done at Tvergastein, my mountain hut in Norway (see SWAN X). My devotion to outdoor life is in the Norwegian tradition called *friluftsliv* (literally, free-air-life). In many respects, I approached philosophical and cross-cultural studies as if I were a field ecologist or naturalist. It was against this background that my work from the 1960s onward focused with close attention on cultural diversity, biodiversity, sustainability, and the deep ecology movement.

My work since the Second World War has been increasingly within movements such as those furthering social justice, peace, and ecological responsibility. During the war, I engaged in anti-Nazi activism, and from that time also in promilitant Gandhianism, a nonviolence that is not pacifist in the usual sense but insists that if it is a bloody fight for justice against injustice, we seek "the center of the conflict" and, if necessary, cooperate with people who use arms. During the Cold War, I participated in the "third side," against both communism and extreme anticommunism, for example, as the scientific leader of a UNESCO project bringing Marxist and anti-Marxist politicians and political science researchers together in an unbiased discussion of the essence of democracy and freedom. Some of the relevant publications are included in SWAN IX.

The broad spectrum of books and articles included in the *Selected Works* represents, in many ways, a chronicle of my passions and influences. The *Selected Works* record, albeit in an inevitably fragmentary way, one possible expression of these. My dream and hope is that some readers will be inspired by their sheer variety, and that young philosophers will be encouraged to let strong personal motivations steer their studies.

Working habits vary. Some people write an article and go on to the next without looking back on the old one; others come back from time to time, radically revising and changing the old one. The latter is my way of working. Lecturing in many places about these subjects, I have found it natural to revise the old manuscripts until sometimes very little is left of the original. Therefore, I have always viewed my writing as preliminary; a year, five years, ten years after publication of the first editions I have itched to revise, *thoroughly* revise them. When my first book was printed in 1936, I went to watch the hulking presses printing out one page at a time. I was terrified, thinking of mistakes or some awkward sentences being duplicated again and again.

When I was offered the opportunity to have a selected-works series published, I immediately thought I would like to review all my work and ask how, from today's perspective, I might answer the difficult questions I had earlier attempted to probe. Such a task would have been a particularly difficult proposition, because although many of my books and articles contain new ideas, the ideas are often not developed as well as I might have hoped. But alas, I am saved—at my age there is not time for me to accomplish such a comprehensive reevaluation of my work; I do not even have the capacity to do it now in any case.

Who could contemplate undertaking a publishing project of such ambitious proportions? Douglas Tompkins, mountaineer, entrepreneur, protector of wilderness in Chile and Argentina, and creator of the Foundation for Deep Ecology, is such a person. "Miracle Doug," as I call him, likes the idea that the deep ecology slogans and the deep ecology approach were introduced by a philosopher. I am grateful to him for his firm conviction, inspiration, and great generosity. My gratitude, however, extends well beyond my thanks to Doug, to others who have supported and championed this project.

Quincey Imhoff, when executive director of the Foundation for Deep Ecology, supported SWAN with generous grants and other contributions. SWAN has also benefited from faithful assistance and cooperation in the preparation and editing of the manuscripts. The late Professor Ingemund Gullvåg prepared the initial translation of *Which World Is the Real One?* (SWAN III). Professor Alastair Hannay translated the first edition of *Communication and Argument* (SWAN VII) and offered invaluable suggestions for improving the readability of the first editions of *Scepticism* (SWAN II), *The Pluralist and Possibilist Aspect of the Scientific Enterprise* (SWAN IV), and *Gandhi and Group Conflict* (SWAN V).

Most of all, however, I am grateful to Harold Glasser, the series editor, and his assistant, Kim Zetter, who oversaw all aspects of the project from design to production. Glasser's unique combination of intellectual tenacity, attention to detail, mastery of my work, and cooperative spirit made him a natural to take on the monumental task of selecting and editing my works. Glasser not only labored to improve the English and clarity of each manuscript, but his keen ability to ferret out countless technical and pedagogical errors has resulted in substantial new editions of volumes II–VII that are both far more comprehensible and accessible than the originals. I thank him for his valiant work on this project, both during his stay in Norway as a visiting Fulbright professor, where we collaborated on a strategy for revising the previously existing material, and in the subsequent years it has taken to complete the project.

From the beginning of the SWAN Project in 1994, Alan Drengson has encouraged and helped to move this work forward in numerous ways. Especially in the last crucial stages of completing volumes I, VIII, IX, and X, his help and editorial oversight have been invaluable. Thanks for his devotion, good humor, and positive enthusiasm. Thanks to both Drengson and Tim Quick for their extensive bibliographic research. Thanks to Bill Devall for his support and encouragement and especially his help on the completion of volume X, *Deep Ecology of Wisdom*. Thanks to Anne Collins for her outstanding work as the copyeditor of the SWAN volumes. Thanks to George Sessions for his support and encouragement.

Last, but certainly not least, immeasurable thanks go to my wife, Kit-Fai Naess, who has worked beside me throughout the years to provide invaluable assistance, encouragement, and inspiration.

Arne Naess
2004

Author's Preface to This Edition

We sometimes say "She has an open mind" or "His mind is closed." Doors or windows may be more or less open or closed, and they may be completely open or shut. What would correspond to this when we speak of being open to the possibility that an assertion is not true? What about full openness to this possibility, whatever the assertion imagined so far? Would one's capacity to make a decision completely disappear? Is it deadly to have a completely open mind as to truth and falsity?

In relation to knowledge and truth Sextus Empiricus divides philosophers into three categories: (1) those who believe they have found at least one truth, (2) those who deny the possibility of establishing any truth, and (3) those who neither think they have found a truth nor believe it is impossible to establish any; they have not given up on finding one, a search they tentatively suppose is not of great importance to their happiness. It is not deadly at all. Sextus called them sceptics, Pyrrhonic sceptics, or just seekers (*zetetics*).

I find it strange that the term *scepticism* has been used mostly to refer to those who dogmatically reject the possibility of knowledge in the sense of establishing truths. Philosophers have published a series of good arguments against this view. Very few take up the third view for serious discussion. It is an approach with a kind of complete openness in principle. Because I feel that wonder is not only the beginning but also the likely end of any philosophical inquiry, the third approach has always been of central interest to me. In this SWAN II volume, I show why I feel at home with the kind of openness favored by Sextus. One who has this kind of openness and seeks I call a zetetic. (SWAN VIII contains papers on zeteticism.)

To me every clearly stated question, if taken seriously, leads to other questions, and sooner or later we arrive in the realm of philosophy. From there I see no *theoretical* escape. In practice, of course, I get tired and certain tentative solutions remain on my list. Philosophy starts and ends for me with wonder—or does it? I have not yet thought my last thought—or perhaps I have?

To wonder is not the same as to be in a state of doubt. Pyrrhonic sceptics and zetetics tend not to doubt but to trust. A zetetic is always learning and changing and has a flexible attitude toward language and life.

Arne Naess
2004

Author's Foreword to the First Edition

In the present work I attempt to give a concise account of sceptical philosophy in its most radical and important form and try to remedy certain weaknesses in the traditional ways of describing this philosophy as well as respond to certain arguments that have been brought against it.

I believe there are many good reasons for investigating various forms of thinking traditionally referred to as scepticism. First, as with many other viewpoints, the force of sceptical attitudes makes itself felt acutely, making one at least temporarily a sceptic. Second, when we feel far from scepticism, it is often because we have accepted or postulated certain fundamental positions or principles, but only for the time being. From time to time these fundamentals appear arbitrary or at least less evident, obvious, or even useful, and then the attitude of sceptical "looking around" reasserts itself. Thus, many of us are nomads in philosophy, and sceptical attitudes or doctrines are our recurring pastures. Third, sceptical philosophies, and especially Pyrrhonism as pictured by Sextus Empiricus, are mostly misunderstood and apt to be described in ways that make them appear unnecessarily crude or absurd. There is room for a more sympathetic study of the ancient texts. The reader will find that my references to contemporary philosophers who discuss scepticism are mostly critical. This must not be taken to imply a general disagreement with them, let alone a negative assessment of their contributions. It is simply that discursive economy requires that I concentrate on those points on which I disagree, or agree only with qualifications. I should like to say that I find many contemporary discussions admirably clear and pertinent, perhaps especially those that I find reason to dispute on certain points.

I am grateful to the Norwegian Research Council for Science and the Humanities for a grant making it possible to carry through the historical research needed in this project, and to Mr. Alastair Hannay for valuable assistance in revising the manuscript.

I

Pyrrho's Scepticism According to Sextus Empiricus

Introduction

In this chapter I offer an account of only one special form of scepticism, the philosophical activity and view known as Pyrrhonism. Moreover, the account I give is of Pyrrhonism as represented by Sextus Empiricus in his work *Outlines of Pyrrhonism* (1933). Thus, my treatment of scepticism might seem to be doubly narrow. However, there are some reasons for not attempting a more inclusive picture. One is that such presentations can already be found in textbooks on Greek philosophy, in philosophical and other reference books, and in a number of monographs devoted solely to scepticism. But there is a more compelling reason as well.

Apart from a few monographs from between about 1860 to 1920, there are no accounts of Greek scepticism that seriously undertake the task of seeing the sceptics as they saw themselves. It is, of course, a very common experience that if one studies a philosophy closely, one becomes dissatisfied with existing accounts of it. This case, however, is a special one: the distance between what Sextus Empiricus seems to convey to his reader and the usual account we are given of what he says is altogether too great to let go unnoticed.

There is also a special reason for concentrating on Sextus's account of Pyrrhonism. As he portrays it, Pyrrho's scepticism is, so far as I can judge, superior to any other variant in its consistency, its radicalness, and also in its *practical* importance for intellectually gifted persons with high ideals of sincerity and honesty. Thus, Sextus's Pyrrhonism provides us with a yardstick and a fundamental framework by means of which all forms of less radical, less consistent scepticism may be measured and mapped out. I therefore invite the reader to try to understand this radical scepticism and to be patient with what at first sight can hardly fail to seem absurd or far-fetched.

This, then, is the motivation for our short and general account of but one of the varieties of scepticism: Pyrrhonism as depicted by Sextus Empiricus. The sources, as with all philosophical classics, lend themselves to different interpretations, and I do not wish to try to convince the reader that my own interpretation is the only one that can be constructed on a historical basis. But I think that many will agree that the interpretation I give presents the sceptic (here in the sense of the Pyrrhonist as pictured by Sextus) as less inconsistent or preposterous in his claims than he is made to appear in some of the most widely read accounts.

A Short Account of Sextus's Pyrrhonism

Much learned historical work has been undertaken to find out which sceptics taught what. I shall try neither to add to nor subtract from the conclusions of historians of philosophy on this point. The decisive thing to note is that the only extant work by a Greek sceptic is that of Sextus Empiricus. The study of Greek scepticism must therefore in the main be a study of his texts.

There are, it is true, reasons to suspect that Sextus is not altogether accurate in what he says about other sceptics and that Pyrrho in particular might not have approved of all of Sextus's references to him. But I shall not be concerned with this question; instead I shall try to give a summary account of Pyrrhonism as depicted by Sextus in *Outlines*. What marginal notes and exclamations Pyrrho himself would have put into a copy of Sextus's *Outlines* is an intriguing topic for speculation. The account I shall give is something that can be assessed and tested by studying the actual texts of Sextus. In what follows, the terms *Pyrrhonism* and *scepticism* will be used as shorthand for "Pyrrhonism as pictured by Sextus." Of course, Sextus does not assert the truth of any of his sentences about Pyrrho as a historical person.

But first, in order to clear up some ambiguities, a few remarks on the use of the term *scepticism*. The term is used in many ways, which can be distinguished by separating four dimensions of variation:

1. *Comprehensiveness*. *Scepticism* is often used as short for "religious scepticism," for "ethical scepticism," or for some other nontotal field of human concern. The most comprehensive kind of *philosophical* scepticism covers all fields of articulated cognition or discursive thinking. Pyrrhonism belongs to that kind.

2. *Intensity*. If a philosopher thinks we are able at least sometimes to distinguish the more probable from the less, but not the true from the probable, or the false from the improbable, he is often called sceptical. But another philosopher is also sometimes said to be sceptical who suggests that the more probable can never be distinguished from the less. The difference may be said to be one of intensity.
3. *Self-reference*. If a thinker states that nothing can be known, the question arises whether he thinks he can know that he cannot know anything. That is, there is an exception: we can know that it is impossible to reach knowledge. If he answers no, we may say the statement is intended to include itself in its reference. Sometimes the former position is called Academic or Dogmatic and distinguished from the latter, the Pyrrhonic. This is the terminology I shall adopt. (It may of course be disputed whether this third dimension, of self-reference, is independent of the first and second. It is, in any case, convenient to treat the question of self-reference as a unique one.)
4. *Articulateness*. As a professional philosopher, the sceptic must articulate his scepticism, preferably in words. The great sceptics of the classical Greek tradition were not only masters of sceptical verbal articulation but also sceptical in their nonverbal attitudes. In the history of ideas and in general cultural history, nonverbal attitudes also count. A person may be termed a sceptic even if he does not express his bent of mind verbally.

For our own introductory purpose, the best way of identifying sceptics is to follow Sextus in his narrative of how (certain) gifted persons develop by stages into mature sceptics. Seven points characterize their development:

1. Faced with "contradictions" in things and with philosophers who contradict one another, gifted people become frustrated and undecided and set out to discover for themselves what is true and what is false. They are led to consider all kinds of doctrines and arguments in the hope of restoring their peace of mind.[1]
2. Those who investigate matters systematically eventually become philosophers. As such, they fall into one of the following three main classes: those who claim that they have found at least one truth, those who claim that truth *cannot* be found in any matter, and those who

neither claim that they have found at least one truth nor claim to *know* that truth cannot be found, but persist in their seeking (*Outlines*, bk. 1: 1–3).

These three groups are called respectively Dogmatists, Academicians, and Pyrrhonic Sceptics. (The first two are also called dogmatic in a wider sense.) It is important to note here that in contemporary Anglo-American professional philosophy, the sceptic is identified with the person who positively denies that one may know anything for certain. That is, the sceptic is identified with what Sextus calls the Academician. The Academician is an active participant in philosophical discussion, maintaining a definite position, a standpoint; the sceptic, in the sense of Sextus, has no position, as we shall see. Although he throws arguments into the discussion, he takes no part in the evaluation of truth-value. Although he confronts the dogmatist with counterarguments, he does so without accepting any of them as true or valid.

3. The personal development of the sceptic is of a peculiar kind: he finds that to any pro-argument for a doctrine or proposition there can be found an at least equally strong contra-argument, or that, summing up pros and cons, the arguments balance one another. Or, to be more accurate, the sceptic finds no better grounds for accepting the arguments in *favor* of the doctrine than for accepting those *against* it (*Outlines*, bk. 1: 8, 10, 12, 26). These statements require careful interpretation.

It would be a mistake, for example, to attribute to the Pyrrhonist a *principle*—a general rule—of opposing all arguments with equally strong arguments. One can hold such a principle only if one is sure, or can take it for granted, that there are always such arguments to be found. But, as will become clear later, whether this is the case is a question the Pyrrhonist leaves open—otherwise he would tend to side with the Academicians.[2]

Thus, the developing sceptic (or the sceptic *in statu nascendi*) has no prejudice in favor of counterarguments. He does not look more intently for contra- than for pro-arguments. It just so happens that he finds that arguments balance one another. Or, to be more exact, it so happens that he does not find a sufficient weight either *pro* or *con-*

tra to justify a decision about what is true, or even about what is more probable. In order to stress his lack of conclusion, he prudently uses the past tense: he has not, up to now, found anything that decisively disturbs the balance between pro and contra, that disturbs his general *isosthenia*, or state of mental suspense (*Outlines*, bk. 1: 190, 200).

4. The corresponding psychological phase in the making of a mature sceptic is the gradual development of a deeply entrenched bent of mind, a state of suspension of judgment, or *epoché*. The mature sceptic decides neither for the positive nor for the negative in relation to any doctrine but allows both possibilities to stand open. The state of suspension is a form of mental rest—quietude, repose, immobility, stability (*stasis dianoiás*). The suspension slowly develops into a firmly based bent of mind (*Outlines*, bk. 1: 8, 10, 196, 205).
5. To his surprise, the sceptic eventually finds that *epoché* leads to, or is accompanied by, that same peace of mind (*ataraxia*) that he set out to achieve by finding truth (*Outlines*, bk. 1: 8, 10, 12, 17, 28–30). But the mature sceptic will not, of course, claim that there is a necessary connection between *epoché* and *ataraxia*.
6. The mature sceptic obeys or follows the ordinary or normal rules of his community. He is guided, but not determined, by nature, traditions, laws, and customs. He may instruct himself in some skill or other and adopt one of them, perhaps medicine, professionally (*Outlines*, bk. 1: 17, 22–50, 226–27, 230–31, 237–38).
7. The mature sceptic is still a seeker. He does not claim to *know* that truth cannot be found in any matter. Thus, he is prepared to investigate and evaluate any new argument in relation to any conclusion. He leaves all questions open, but without leaving the question. He has, however, given up his original, ultimate aim of gaining peace of mind by finding truth, because, as it so happened, he came by peace of mind in another way.

To sum up, then, scepticism as outlined by Sextus is neither a doctrine nor a system of rules of life positively claimed to bring peace of mind. The mature sceptic is a philosopher who, like the early Socrates and some influential philosophers of our own time, makes no philosophical assertions.

The most concise exposition of the philosophy of the mature sceptic is to give an account or narrative of his life in the way Sextus does. However, since Sextus the metasceptic is the same person as Sextus the sceptic, he explicitly denies that he claims the (objective) truth of any of the statements of the narrative. Not that the sceptic cannot allow himself to *say* anything or must inhibit any tendency to do so. If he feels like it, he may express what is on his mind, and sometimes this will result in long narratives: his ways of verbal announcement are many, but they do not include assertions of truth.

Having attained peace of mind (*ataraxia*) by suspending judgment (*epoché*), and having reached general suspension of judgment by *isosthenia*, the sceptic is inclined to try to preserve *isosthenia*, that is, to look for counterarguments and counter-counterarguments. A natural expectation will build up that he will in this way retain his general suspension of mind, and he will be inclined to try to help others who are not yet, but seem to be on the way to becoming, mature sceptics.

In certain kinds of situations, those individuals following the sceptical way adopt a set of maxims or sayings—often called sceptical—such as "Arguments and counterarguments balance each other." But here the claim ordinarily intended when someone asserts something is not made; rather, such maxims are to be taken as symptomatic of the state of the sceptical mind. Thus the maxim "No statement is true" is, according to Sextus, self-defeating as an assertion: if it is true, then it is false. The sceptic, therefore, does not feel inclined to *assert* that knowledge cannot be reached, or to venture any of the other sayings frequently taken to be expressions of a doctrine of scepticism. Although the sceptic articulates his philosophy in a most careful way, there is one manner of using language that he most carefully avoids: the assertion.

In what follows, we shall adopt the above seven-point definition of scepticism. Thus, it will be a matter of definition that the mature sceptic has peace of mind. Indeed, all traits mentioned in the seven points will belong to the sceptic by definition.[3] What can fruitfully be discussed, therefore, is, among other things, the conditions and likelihood of the seven-point development and the stability of scepticism as a bent of mind and way of life. This, as we shall see later, is the same as to discuss the possibility of a radical scepticism.

The Sceptical Ways of Announcement

Sextus, then, is not a philosopher with doctrines. He will not admit to having any definite opinion as to the truth or falsity of a proposition. But in this case, how are his utterances (*fonai*) to be interpreted? What uses of language do they represent? What ways does he have of *announcing* his bent of mind?

Sextus makes use of a great variety of terms to contrast his own ways of announcing with those of the dogmatists. I shall first mention some of those used in the opening chapters of *Outlines of Pyrrhonism*.

1. *To report as a chronicler*. At the end of the first chapter, Sextus says that in what follows he does not affirm the truth of what he says, but only *reports as a chronicler* how things appear to him at the moment of writing. The crucial expression here is *historikós apangellomen*.[4]

   Even someone who is, in the usual sense of the word, merely a reporter of what appears to him at the moment to be the case would claim truth for his account of the *appearances*. He would affirm that this and not something else is how it *really* "strikes him" at the moment. Later we shall see how Sextus meets this complication. In fact, he virtually retracts the view that the sceptic uses language in the same way as a chronicler or reporter. In other words, the first special characterization of the sceptical way of announcement is not a very happy one.
2. *To utter*. In chapter 2, Sextus declares that later on in the book he will give an account of how or in what sense the sceptic adopts what he, the sceptic, "shows forth" or "displays in words." These somewhat peculiar expressions I use only provisionally. In fact, the term Sextus adopts is one that he often uses in connection with statements of doctrine—*apofasis*. One important complex expression is *skeptikai apofaseis*. Robert G. Bury translates this as "sceptic formulae," Eugen Pappenheim as "*skeptische Aussagen*." However, when Sextus comes to the passages in question, he does not use the dangerous word *apofasis*; instead he consistently uses *foné* (utterance). This term appears in logical and other Stoic texts in contradistinction to *lekton* (that which is, or might be, signified by the utterance);[5] its most elementary meaning is "sound," and by using this term, Sextus avoids

contamination with doctrinal ways of announcement. He leaves it open as to what use of language is realized: *foné* is a highly noncommittal word.

3. *To acquiesce in and accept* (*in words*) *what appears*. The sceptic does not oppose what appears to him, but acquiesces (*eudokeo*) in it. The term *eudokeo* contains *dokeo* (I opine), but apart from meaning "think well of," it can also mean "accept," or "say yes to," in a noncognitive way. He accepts (*synkatatithémi*—assent to) what, involuntarily or by necessity, appears to him (*Outlines*, bk. 1: 13). Thus, when feeling hot or cold, he will not say that it does *not* seem hot or cold to him.

   From these formulations one can gather that Sextus looks on some or all of the sceptic's utterances as more or less *caused* by states of perception[6] that are forced on him. When saying "I feel cold," the sceptic does not make an assertion *about* something; rather, he assents *to* something. Although what he says can be construed as an assertion, it is not an assertion in the sense that he positively takes a stand for rather than against something. He is not asserting *rather than* denying; nor does he *oppose* an impulse toward not saying it. He will neither affirm nor deny "It now seems hot (cold) to me" as a proposition.

4. *The sceptical formulas or phrases*. Sextus divides what the sceptic talks about into two classes, the evident (*délon*) and the nonevident (*adélon*). The "immediate" and the "mediate" may be better translations. What is said in number 3 above (*Outlines*, bk. 1: 13) holds for the evident ("I feel cold," etc.). But the sceptic also utters his famous "sceptical phrases." These make up either a subclass or a total class of his own sayings about nonevident things, such as arguments.

   That the sceptic does not intend to assert something or state that something is the case when uttering his sceptical phrases, is clearly, explicitly, and repeatedly stated by Sextus himself. It would be of no avail to assert them, says Sextus, because each one "cancels itself," "strikes itself out" (*perigrafo*). Thus, even "Not more this than that," which is said when comparing the force of argument with that of counterargument, is meant to apply universally; it, too, cancels itself out, just like the (nonsceptical) phrase "Nothing is true." The same applies to "I do not decide (determine the truth-value of) anything." According to this, I do not even decide that I decide nothing.

Incidentally, neither "Nothing is true" nor "All is false" mentioned here (*Outlines*, bk. 1: 14), is included among the sceptical phrases.

5. *To put forward*. Of the sceptical formulas, Sextus says that they are *put forward* (*profero*).[7] They are put before the dogmatist and used for didactic purposes among sceptics during their training, not to teach sceptical theorems (they do not exist), but to suggest the state of mind of the sceptic when approached by dogmatists. Their function would resemble that of certain standard exclamations such as "Well, I never!," "Take your time!," and "Be careful!"
6. Sextus uses such words as *perhaps*, *presumably*, and *it seems* out of standard context. That is, where he puts them they would be badly placed if they were not used to remind the reader that "this is not to be taken as an assertion." The book's opening sentence has an unnatural "it seems": "Those who seek, it seems, either find what they are looking for, or reject the (possibility of) finding it, and deny that it can be grasped, or go on searching." Most likely this is meant to be an exhaustive classification: at least Sextus suggests nothing that could be argued against it. The "it seems" serves to indicate that the main sentence is intended to function not as an assertion of a true proposition but as an utterance of some other kind. On the other hand, Sextus intends that the dogmatist should be able to evaluate the proposition that the sentence *can* be intended to express, even though it did not happen to be thus intended by the sceptic.
7. *To say something indicative of our state of mind* (how we feel about things) (*Outlines*, bk. 1: 197). Sextus says about one of the sceptical phrases, namely "I determine nothing," that it is not meant as an affirmation; rather it is a sound (*foné*—utterance) indicative of the sceptic's state (of mind).[8] There are two interpretations of *indicative* that can be applied in this context: "deliberately intended to be indicative" and "indicative as a matter of fact." The latter, perhaps, fits in best with the general attitude of the sceptic.
8. *Talking loosely*. One may talk without presupposing any definite conceptual frame of reference, taking "conceptual" here in a rather narrow sense—not in the broad way in which children conceptualize as soon as they learn to use everyday abstract terms, but as explicit definitions or closed systems of propositions. We may think of

a conceptual framework or frame of reference, therefore, as a system of definitions providing clear-cut rules of interpretation, at least for certain basic terms. Obvious examples of such terms would be *true*, *truth*, *fact*, and *proposition*. Philosophers who define these terms become involved in the choice or development of complicated conceptual structures, just as do biologists in defining *life*, and anthropologists in defining *man*. Where, as in most cases, the terms in these structures are taken from everyday language, they are given clearly delimited meanings that contrast with their more loose employment in ordinary contexts. In their explicitly delimited use, terms are applied and propositions expressed by means of them being accepted or rejected according to the explicit commitments of the system. In their "ordinary" use, no such commitments are intended, and no choice among the alternative structures is made. Thus, if I say "I see a man coming," I may do so without having any definition of *man* (for example, Plato's) in mind; in speaking loosely, no such definition need be presupposed. Consequently, if I am asked to state exactly what my proposition is, I may answer, "Honestly, as far as I can judge, I did not have anything definite in mind. In regards to *man*, I never saw a definition I felt was a good one; on the other hand, I never really felt the need for a definition."

The "loose talk" Sextus engages in is in this way philosophically uncommitted talk, talk with rather little definiteness of intention relative to questions that are not of an everyday nature or that presuppose explicit conceptual frameworks. Its low degree of definiteness in fact renders "loose talk" incapable of location with respect to a conceptual system or frame that presupposes higher definiteness. An utterance such as '"I see a man coming" may be perfectly appropriate even if it lacks a definiteness of intention such as would render it classifiable in relation to theological, existential, biological, or anthropological definitions of *man*. [The notion of the degree of a term's definiteness of intention will be elaborated later (see chapter 4, pp. 96–102).] But provisionally, we can identify what we mean by this phrase by noting that in talking about interpreting a statement not only do we use words that are inherently indeterminate or ambiguous—in that they can be used on different occasions to say different things—but also on any particular occasion we may or may not have considered a variety of nonsynonymous interpretations of the words we use. Roughly, one utterance has less definiteness of intention than another if among a set of possible, nonsynonymous interpretations common to both utterances, it makes fewer discriminations than the other utterance. A "loose" expression is one that makes no discriminations in terms of explicit conceptual frameworks.

The Greek adverbs *adiaforos* and *adoxastos* are the main terms used by Sextus to suggest the peculiar looseness with which the sceptic puts forth the sentences by means of which he expresses his mind.[9]

Some of the apparently most absurd utterances thrown into dogmatic debate by sceptics acquire sense if interpreted in relation to definite conceptual frameworks. Consider, for instance, phrases relating to nonexistence, such as "Man does not exist," "There is no such thing as position in space," "No teacher exists," and the like. We may assume the sceptic to intend expressions like these in relation to particular frameworks (those of the discussions he is witness to).

9. *Giving a message*. There are other forms of giving a message than reporting "as a chronicler." Sextus uses a word (*apangellomai*) that leaves the question of technique of mediation open. The word may even cover utterances that the sceptic makes involuntarily—when he "accepts" appearances.
10. *Saying things*. Sextus lets the sceptic "say" (*fémi*) this or that in contexts where dogmatists would usually "state" or "assert" (using *lego*).
11. *Inclination to believe*. Sextus rejects probabilism, but sometimes uses terms to designate the inclination to believe one proposition rather than another (*pithanos* and *peitho*; see, for example, *Against the Logicians*, bk. 2: 473, 475). In mature sceptics, he takes these "natural" inclinations to be transitory states of mind.

The Dogmatic Ways of Announcement

1. *To opine*. Academic philosophers, says Sextus in the opening section of *Outlines*, have the opinion (*dokeo*—opine) that truth *cannot* be grasped, that it is inapprehensible (*akataléptos*). In general, to put forth as an

opinion, "to opine," is treated by Sextus as a nonsceptical way of announcement. It suggests that what one says is at least nearer the truth than the negation of what one says.[10]

2. *To grasp* (*as true*). To say "I found that *p*," "I grasped that *p*," "I discovered that *p*," and the like, is even stronger than "I opine that *p*." It is to use a truly dogmatic way of announcement (*Outlines*, bk. 1, chap. 1). Sextus says that the Academician holds the opinion that he has *grasped* at least one truth, one true proposition, namely that there is not a single proposition (except this) that the truth of which can be grasped. As to this grasping, the basic metaphor seems to be that of obtaining a firm hold on something and keeping it securely in one's grasp.
3. *To affirm the certainty of what one says* (e.g., *Outlines*, bk. 1: 4). The Greek term here, *diabebaioumai*, is frequently used by Sextus (on behalf of the dogmatists). In denying that what it expresses has ever found a place in his own life, he may be said to be rejecting all claims of certainty, all guaranteeing (that it is so), giving assurance, or vouching—at least as far as *he* is concerned—relative to the truth of propositions. He does not predict that it will always be so, or that it must be so (as does the Academician). Even less does he claim that one can never, or should never, be certain, feel certain, have confidence.

   If one explicitly says "It is certain that *p*," the prefix indicates the kind of claim made about "*p*"—it is one that includes the truth claim. Sextus means his comments to cover also cases in which the speaker manages to convey by other means that he holds *p* to be certain. Indeed, this applies to all the instances mentioned here: they cover not only the uses of *certain phrases* to express certain claims but also *the claims themselves*, however expressed.
4. *To posit as true*, *real*, *or really existent*. In opposing dogmatic opinions to one another, and saying that none is more credible than any other, Sextus says that the sceptic takes nothing for granted as true or real. The expression he uses here (*tithémi hós hyparchon*) probably implies truth or at least probability, whereas to pose or posit (*tithémi*) does not.
5. *To affirm one*'s *conviction that what one says is true* (e.g., *Outlines*, bk. 1: 18). Sextus explains that the sceptic deals with questions concerning nature and essence in order to oppose (fight) dogmatic positions, not in order to say things with firm (certain) belief (*meta bebaiou peismatos*).

6. To say *what a thing is by nature*, *in itself* or *in its essence* (*Outlines*, bk. 1: 20). Honey, says Sextus, seems sweet to us; we grant this, but whether honey *is* sweet—that is, sweet by nature, in its essence—is a subject for investigation. The honey's sweetness is not appearance but something postulated on the basis of appearance.
7. *To settle* (*Outlines*, bk. 1: 197). Sextus defines "to settle" (*horizo*) in the relevant contexts not simply as to say something, but to put forward something nonevident with affirmation (*synkatathésis*). Bury translates the Greek word as "to determine." In Latin translations we usually find *determinare*. "To settle" is a common meaning of *horizo*, however, and it suits the text where "determine" does not, either in the sense of "causally determine" or that of "define."
8. *More worthy of belief*. Among conflicting judgments, no one is more worthy of belief (*pistoteros*) than any other. Although, as we have noted, Sextus does not adhere to any probabilism, some of the terms he uses may be translated by "probable," but it is better to refer generally to inclination toward belief.

In conclusion, then, one may say that some phrases are taken to be exclusively sceptical, others to be exclusively dogmatic, and a third group comprises phrases belonging to both groups, but with different shades of meaning. It is important to point out, however, that the mere isolated use of a phrase with either sceptical or dogmatic intent does not in itself mean that the user is a sceptic or a dogmatist. There is also a time factor to take into account. Psychologically, scepticism must be considered a stable disposition, even if a momentary state of mind may hide it and even be inconsistent with it. Thus, a phlegmatic man may become momentarily agitated, and a mild man succumb to anger. Dispositions, however strong, are in this respect different from certain other states. The mentally blind, for example, may, under special circumstances, come to "see the light" in a way that has no parallel with the physically blind. Similarly, the sceptic may, under special circumstances, find something to be undeniably true, indubitable, absolutely certain. He does not then *suddenly* cease to be a mature, consistent sceptic. Only if the convictions persist does he leave the brotherhood of sceptics.

These reflections call to mind a passage in David Hume's *Treatise* in which he apologizes for his very frequent lapses into a highly dogmatic style:

> It is easier to forbear all examination and inquiry, than to check ourselves in so natural a propensity, and guard against that assurance, which always arises from an exact and full survey of an object. On such an occasion we are apt not only to forget our scepticism, but even our modesty too; and make use of such terms as these, *it is evident*, *it is certain*, *it is undeniable*; which a due deference to the public ought, perhaps, to prevent. I may have fallen into this fault after the example of others; but I here enter a *caveat* against any objections, which may be offered on that head; and declare that such expressions were extorted from me by the present view of the object, and imply no dogmatical spirit, nor conceited idea of my own judgment, which are sentiments that I am sensible can become nobody, and a sceptic still less than any other.
>
> (Hume 1911, vol. 1: bk. 1, pt. 4, p. 258)

In assessing the extent of Hume's scepticism we should perhaps keep his caveat in mind, though one does so with certain reservations after reading Sextus Empiricus, who himself very rarely succumbs to dogmatic expressions. Certainly the style of "the greatest sceptic of modern time" is highly dogmatic in its use of extreme terms and its tendency to bring readers precipitately to far-reaching conclusions. One might have expected a publishing sceptic to tone down his antisceptical expressions when revising his manuscript or proofing it, but Hume gives little evidence of that. How, for example, could a sceptic conclude his ethical speculations with the sentence (Hume 1911, vol. 2: bk. 3, pt. 3, p. 310): "Thus, upon the whole, I am hopeful that nothing is wanting to an accurate proof of this system of ethics"?[11]

There is, of course, nothing inconsistent in entertaining or expressing such a hope, but at the same time it is a hope to be rid of scepticism. Indeed, even the hope that one's system is more probable than just one other system envisages an end to one's Pyrrhonian or, for that matter, one's Academic scepticism. In order to understand the dogmatic style it is perhaps important to stress the least radical versions of the dogmatist's epistemological "scepticism," his probabilism, which permits very high, objective probabilities to be reached.

Neutrality Toward Subjectivist Phenomenalism

From a close inspection of the way of the sceptic, it is clear that he tends to avoid commitment to conceptualizations or conceptual frameworks; he will therefore tend to avoid any intellectualization of trust, confidence, and belief in terms of the truth of propositions within such frameworks. Pyrrho's philosophy might therefore be called "anticonceptual" because his doubt concerning intellectual abstractions is so profound that he ends up without an explicit conceptual framework of his own. Pyrrho limits himself to undermining the conceptual frameworks of the dogmatists, without erecting any new one.

Many of the sentences and phrases used by Sextus, however, suggest adherence to a kind of phenomenalist and subjectivist position that we associate with the name of Descartes. If this were so, scepticism would be a kind of doctrinal philosophy; it would contain as an integral part a specific ontology, and it would adhere to a conceptual framework that allowed it to provide answers to questions with a high degree of definiteness of intention. It must therefore be an important part of the exegesis of our texts to see whether such a classification can be avoided without strain.

Occurrences of *fainomai* in forms other than the famous participle *fainomenon* are plentiful. In most cases, they have a rather general meaning, for example, "it seems," "it seems to me," "so it appears," "apparently," and "so it appears to us." What it is that appears, or seems, may be of very different kinds. In its first occurrence, that which is said "to appear to us" is that "Pyrrho applied himself to scepticism more thoroughly and conspicuously than his predecessors."[12] At another place, Sextus says that the sceptic uses the phrase "I suspend judgment" to indicate that things *appear* equal as regards to credibility and incredibility. In other connections, these "things" are defined as arguments; thus certain properties of arguments or of attitudes toward arguments are said to appear in certain ways. Quite often *fainetai* occurs where one would normally expect *esti* (etc.), that is, instead of "is." Something is said to appear, or appear such and such, in contrast to saying that it *is* such and such. Used in this way, it is clear that, conceptually, *fainetai* (it seems) does not imply that what seems must be sense data, sense impressions, subjective states, or the like. There are no definite limits to what can be said to appear and to appear so-and-so.

Subjectivity enters only in the sense that the sceptic does not claim truth, certainty, objective validity, or existence, but stresses that what he says is what *he* says, and that it bears witness to *his* state of mind *at that moment*. That is, he might say something different later or may have said something different in the past. It is what *appears* to him that guides him in his daily life, not hypotheses or convictions about what is true. Accordingly, when the sceptic says "sweet," "this is sweet," or "honey, sweet," he does not intend to assert that honey as such—as the object perceived by him and others—is sweet in the sense of having that property by nature, nor does he intend to stress that what he speaks about is a sense impression of sweetness as opposed to an object causing or conditioning the sense impression.

The best interpretation seems to me to represent the sceptic as having a definiteness of intention no greater than that which we have in daily life when saying, for example, "honey, mm, yes, sweet"; that is, a definiteness not great enough to say that we intend to talk about a subjective impression rather than an intersubjective object, or vice versa. Confronted, therefore, with the philosopher's question "Is the sweetness in you or in the honey?" the sceptic can already apply his suspension of judgment. He does not side with the phenomenalist or subjectivist, who answer that sweetness is in the mind or consciousness or is only a phenomenon without its counterpart in the object, and so forth.

There are, admittedly, certain terms used by Sextus that are often translated in such a way that seemingly allow charges of phenomenalism and subjectivism to stick.[13] But if one takes these terms one by one, it is plain, I think, that no such translations are strictly needed, and that even if certain terms are used that generally express subjectivism in *philosophy*, they need not do so in everyday vocabulary. Thus, *feel* in "This is how I feel about it" need be no more subjectivist than "So it seems to me."

A further complication arises, however, from the use of expressions that do seem to suggest that the sceptic accepts the philosophical dualism between an external world or reality and internal states of consciousness and consciously limits himself to introspection. But the term translated by "external" (*exóthen*) (*Outlines*, bk. 1: 15) occurs in a context that does not imply that philosophical distinction. Two things are contrasted: giving a message concerning one's state of mind (Pappenheim's *sein eigener Zustand*) and affirming with certainty something about its grounds (i.e., something outside the state of mind and therefore not identical with it). In this terminology, anything beyond a present state of mind would count as "external" to this state, even if it were another state of mind—for instance, a belief one had as a child. There is no implication of externality in the sense of an external versus an introspected world.

In regard to "state of mind," the everyday use of this expression does not imply any philosophical concept of states of consciousness. Sextus uses the term *pathos* for all that seems, including how one feels about certain arguments.

How the ideals of historians of philosophy change! To Robert D. Hicks (1910), the existence of a real world behind consciousness seemed to be a fundamental problem and neglect of it a tremendous handicap.

> The scepticism of antiquity busied itself with the problem of knowledge. But when compared with cognate inquiries in modern philosophy, it appears in its scope and range almost ludicrously tentative, jejune, and superficial. That the object of cognition was external reality, nay more that it was material reality, was not in that age seriously questioned. No one ever challenged the existence of a real world of things lying behind the phenomena of which we are conscious.
> (Hicks 1910: 312–13)

The implied criticism is that although Berkeleyan idealism (as traditionally conceived) had not yet been developed, a contemporary of Sextus should nonetheless have taken account of it. But there is no reason why sceptics should proffer arguments against distinctions and positions not yet developed by any dogmatists. And in any case, in suspending judgment about propositions concerning things (e.g., honey) that are said to have certain qualities (e.g., colors, tastes), the Pyrrhonist has made it sufficiently clear just how he would react both to an assertion and to a denial of an external world.[14]

The scope of Karl Jaspers's penetrating *Psychologie der Weltanschauungen* (1954) leads one to expect a broad treatment of a variety of sceptical attitudes. But although there is some variety, it is unfortunately all mixed up with forms of nihilism. Friedrich Nietzsche and reactions to Nietzsche dominate Jaspers's approach. Pyrrho's answer to the question "How is the world?"—his worldview (*Weltbild*)—is itemized in seven dogmatic and sweeping statements (Jaspers 1954: 297). One of these is that we do not know and cannot know how the world is. Others represent Pyrrho as a phenomenalist and subjectivist in the modern philosophical sense. All in all, the sceptic, according to Jaspers, is a rather pitiable creature to be characterized mainly by what he lacks.

In the first book of *Against the Logicians*, sections 190–99, Sextus gives a detailed and very clear account of the Cyrenaic position. It is a marked subjectivism, according to which one may infallibly make judgments about feelings (in the old sense of affective states). We can state with infallible certainty that we sense whiteness or sweetness, but we cannot grasp the objects producing these feelings or tell whether they are white or sweet. Feeling is the criterion: truths can be grasped, but only insofar as they describe feelings. Significantly, however, Sextus takes this doctrine to be an example of a dogmatic solution to the problem of a criterion of knowledge. That is, Sextus himself does not adhere to any of these solutions; he uses them as counterarguments. And he also brings arguments against the position that there can be a criterion.

It is therefore safe to conclude that scepticism, according to Sextus, does not embrace the subjectivism of the Cyrenaics or any other sect. Feelings, appearances, and sensations are not capable of furnishing a criterion of truth and validity, not even for a proposition that itself only describes an affection, appearance, or sensation.

So much is clear from the lengthy discussion by Sextus of criteria of truth and validity. Nevertheless there are passages in *Outlines* that are liable to be misunderstood. Thus, in one place Sextus seems to confirm that only one's own states of mind can be "grasped" (*Outlines*, bk. 1: 215). What one should do in such cases, however, is to give the passage an interpretation consistent with the rejection of any criterion, not to take it as proof of his belief in introspective certainty and knowledge.

Our conclusion, then, is this: Scepticism, if characterized by the seven-point account of its genesis, far from implying modern philosophical subjectivism, introspectivism, or phenomenalism, is at once more general, formal, and dialectical. In fact, the sceptic preserves his neutrality by not transcending certain everyday distinctions that may, but need not, lead to just such systems if worked out in relation to precise conceptual frameworks.

Indeed, it might be said that Sextus Empiricus's great contribution to thought was his indication of scepticism as a way of life, a way in which the embrace of doctrine is systematically avoided. If it is easy, as it has been customary, to praise him simply as an early expounder of more recent doctrines, or to see him simply as a useful source of philosophical theories, it is because one forgets or fails to see that these views were simply meant to be thrown into counterdoctrines likely to be held by his contemporaries. Consider, for example, Roderick M. Chisholm's (1941) evaluation of Sextus Empiricus:

> His most significant contributions are: first, the positivistic and behavioristic theory of signs which he opposed to the metaphysical theory of the Stoics; secondly, his discussion of phenomenalism and its relation to common sense claims to knowledge; and, thirdly, his account of the controversy over the principle of extensionality in logic where the anticipation of contemporary doctrines is perhaps most remarkable. (Chisolm 1941: 371)

However, we have Sextus's own word that as a sceptic, whatever his own interest in the theories and doctrines current in his time, he himself subscribed to none of them. According to Chisholm's assessment, therefore, modern philosophers should be indebted to Sextus not for his careful statement of his own sceptical view, but for the detailed account he gives of the philosophical doctrines scepticism was exposed to at that time and of the arguments the sceptic used to combat them. Chisholm, however, sees Sextus not only as an expounder of doctrines, but also as a subscriber to them. Thus he attributes to Sextus the thesis that metaphysical objects (God, among others) do not exist "since we are unable to conceive anything which is non-empirical," and the doctrine that "indicative signs have no reference" (Chisholm 1941: 371), as well as claiming that Sextus opposed metaphysical statements on pragmatic grounds—that is, on the grounds that they were apt to engender futile controversy and would interfere with sceptical quietude.[15]

The close connection between twentieth-century empiricism and Sextus's Pyrrhonism is obvious. But it is unfair to portray Sextus as a supporter of any kind of doctrine stating that we have knowledge only of appearances or only of what is immediately given in experience. Phenomena in Sextus's terminology are indeed self-evident, but not in the sense of self-known. For we do not know anything simply insofar as something appears.

Chisholm remarks: "Although the sceptic does not deny appearances, he does deny the possibility of knowledge which refers beyond them" (1941: 377). It is a main point of Sextus's account, however, to make us understand that he neither denies nor affirms the possibility of knowledge, but lets the question remain open. It is true that Sextus does not deny appearances, in the sense of refusing to accept them; but he neither asserts nor denies *statements* such as "It is hot" or "I feel hot" or any other statement said to express what appears to him. Appearances are "beyond question" (ibid.), but not in the sense of furnishing or expressing knowledge. If they are beyond question, they are also beyond answer.

The Sceptic's Reference to the Existence of Opposite Views

Another misconception is that the sceptic's constant references to disagreements are a kind of argument, by appeal to particular cases, for a general conclusion that truth is beyond our grasp. Here we have both a misinterpretation of the sceptic's references to particular arguments and a miscalculation of his philosophical acumen.

The sceptic does not *expect* to sustain his *isosthenia*, he does not anticipate the outcome of an evaluation for and against, and his appeal to counterarguments is entirely ad hoc. Faced with a dogmatist who claims proposition *p* to be true, the sceptic's move would very often be to throw in the proposition "Not-*p* is true," and to suggest that the dogmatist defend *p* and attack not-*p*. But if the dogmatist now produces an argument, a pro-argument in relation to *p* or a counterargument in relation to not-*p*, it is natural for the sceptic to throw in what dogmatists with views different from the one he is facing have argued against. The enterprise is always experimental, to set one argument against another, and the origin of the arguments is itself of little importance. To find new, good arguments is no easy matter, and the sceptic cannot be blamed for making a start with those already available to him. It is therefore natural that in his works Sextus should constantly refer to disagreements between philosophers, listing different, more or less contrasting views on a great variety of subjects. But often he announces when he is leaving arguments found among dogmatists to offer arguments that have been invented by sceptics themselves.

Even painstaking students of Greek scepticism misjudge Sextus on this extensive listing of disagreement. Thus Victor Brochard (1887: 395) writes:

> It is in its reasoning that scepticism fully reveals its weakness. It is clear, indeed, that there is only one condition on which the impossibility of the human mind's attaining truth could be legitimately inferred from the disagreement of opinions and of systems, namely that this disagreement could only be explained by the fact that there is no truth or that truth is inaccessible to us.[16]

But there is no inference of the kind "There is extreme disagreement between holders of opinions and systems, therefore it is impossible for the human mind to reach truth" to be found in Sextus's works. In the first place, the sceptic would not claim truth for either premise or conclusion separately, and second, he would not claim validity for the inference from premise to conclusion. Suspension of judgment (cf. stage 4 in the sceptic's genesis) applies here too. If we found evidence of Sextus making the three claims, there would, of course, be reason to invoke the view so popular in accounts of Sextus that he was not very bright and most likely misrepresented greater sceptics.

Brochard's implicit view regarding the purpose of the selection of material referred to or quoted in the works of Sextus is a misrepresentation. The sceptic quite simply does not use disagreement as an argument for scepticism. He is much more tentative and judicious. He amasses arguments in the course of his perilous career. Although his counterarguments naturally tend to consist of already existing arguments—and in this sense he makes use of disagreements—he does not appeal to disagreement as such. He tries out counterarguments in concrete cases: a dogmatist asserts *p*, and the sceptic throws in, "How about so-and-so's counterargument *q*, against *p*?" This is very different from inferring the impossibility of finding truth from the existence of dogmatists holding that *p*, not-*p*, *q*, not-*q*, and so on.

Incidentally, it is also this failure to grasp the ad hoc nature of radical scepticism that underlies criticism that Sextus was a bad stylist and expositor. The translator of the Loeb Classical Library edition of Sextus's works, Robert Bury (1933, 1935, and 1936), remarks in his introduction that Sextus "wearies the reader by his way of piling argument upon argument for the mere sake of multiplying words—bad argument and good heaped together indiscriminately." However, it must be the uninformed reader Bury refers to, since he himself gives an excellent account of the character of Sextus's texts, indicating that they are not intended to be read word for word:

> Obviously his books are not intended to be works of art, but rather immense arsenals stored with all the weapons of offence and defence of every conceivable pattern, old and new, that ever were forged on the anvil of Scepticism by the hammer blows of Eristic dialecticians. From these storehouses the Sceptic engaged in polemics may choose his weapon to suit his need; for (as Sextus naïvely observes) the Sceptic is a "philanthropic" person who spares his adversary by using against him only the minimum of force necessary to bowl him over, so that the weakest and most flimsy arguments have their uses as well as the weightiest. (Bury 1933 : xlii)

This corresponds exactly with the interpretation I am proposing, except that it is difficult to see why Sextus should be considered naive in his account of the sceptic's manner of arguing. Not only does it fit in very well with other things he says, but even today meeting arguments with sufficiently strong, but not more than sufficiently strong, counterarguments is a sophisticated procedure. The kinds of arguments used depend on the status of discussion at the time at which the sceptic throws the argument into the debate (without participating in it). Therefore, a sceptical manual would need constant revision, new editions coming out from time to time. But no "bad" or weak argument should be left out if it is adequate in a given situation. Accordingly, Sextus's manual should not be read as a Platonic dialogue but as a reference work to be consulted at appropriate moments. As such, it is well compiled and efficiently enough organized.

Of course the procedure of considering every argument on its own merits is characteristic of all critical philosophy. It is in his continuing and pervasive suspension of judgment that the Pyrrhonist differs from the ordinary critical philosopher. And it is in this apparently willful refusal to believe or accept anything that those otherwise sympathetic with the Pyrrhonist's procedure have found the absurdity or impossibility of his brand of scepticism. If only this perverse element were removed, the critical philosopher would find in the Pyrrhonist a brother in arms. Thus Hume (1951), who denied that there could be "any such absurd creature . . . who had no opinion or principle concerning any subject," allowed that a moderate scepticism "may be understood in a very reasonable sense, and is a necessary preparative to the study of philosophy."

Bertrand Russell (1967), too, has favored a criticism of knowledge that is not "the attitude of the complete sceptic." Absolute scepticism is unreasonable; rather it is "Descartes' 'methodical doubt,' with which modern philosophy began . . . [that is] the kind of criticism which we are asserting to be the essence of philosophy. His 'methodical doubt' consisted in doubting whatever seemed doubtful; in pausing, with each apparent piece of knowledge, to ask himself whether, on reflection, he would feel certain that he really knew it." Such criticism, thinks Russell, constitutes philosophy. But there is some knowledge, for example, of the existence of our sense data, which to him appears "quite indubitable, however calmly and thoroughly we reflect upon it. In regard to such knowledge, philosophical criticism does not require that we should abstain from belief" (ibid., p. 87). We should not reject "the beliefs which do not appear open to any objections, however closely we examine them" (ibid., p. 88).

Russell's exposition is convincing only so long as he refrains from giving examples of the kind of conclusive knowledge he means, that is, so long as he abstains from applying his principle concretely. However, the various concepts of sense data are of course highly controversial, and calm and thorough reflection is apt to disclose that any highly conceptualized belief in sense data is indeed open to objection, especially when made precise in its relation to conceptual frameworks of psychology and epistemology. What Russell seems to imply is that beliefs that are not open to any existing objections are not open to any objections.

Of course, the complete sceptic in Russell's terms cannot be the Pyrrhonist according to Sextus; the Pyrrhonist would not require us to abstain from a belief to which we could find no objection, however calmly and thoroughly we reflected. He would simply contend that he had not, as yet, come across a belief based on an established truth. Should he find such a true belief, of course, his suspension of judgment could no longer be sustained by a balance of arguments, and he could then no longer be a sceptic of the kind described. Being a sceptic of that kind, he could *not* have found a belief immune to objection.

The continuation of Russell's account, on the other hand, could be safely acquiesced to by the Pyrrhonist.

> The criticism aimed at, in a word, is not that which, without reason, determines to reject, but that which considers each piece of apparent knowledge on its merits, and retains whatever still appears to be knowledge when this consideration is completed. (Ibid., 88)

If there is nothing left over, nothing will be retained.

The Mature Sceptic: A Moderately Keen Seeker and Doubter?

If the sceptic's suspension of judgment regarding the finding of truth must be based on his failure to, as yet, find decisive arguments for or against, the question arises as to how much we should expect of the sceptic in his efforts to overcome this failure. Are there minimum requirements? In cases in which the sceptic takes no steps at all to find arguments, might not his failure to be convinced be a matter for reproach? Should we not regard him as a sceptic only by default?

Here we must first recall that an essential feature of the sceptic we are describing is his openness of mind. According to stage 7, *he is a seeker*, and since this, like the ad hoc nature of his scepticism, is a matter of definition, it is acknowledged that we are in any case concerned with someone who shows a degree of interest in finding truths. Consequently, our sceptic cannot be accused of evading the issues. He is not continually racking his brain for arguments—as indeed is unlikely in the case of one who does not expect to find the truth—but he must at least be open to argument and even to conviction. Arguments always interest him, and if he is someone who does not expect to find the truth, this is only because past disappointment has destroyed his previous optimism about finding it. It is no part of the definition of the sceptic that he is constitutionally either unprepared to face decisive arguments or impervious to their force.

The question remains, though, as to whether openness itself is enough. The normal view is probably that it is not, for the sceptic is normally conceived as a doubter. Indeed, it is thought a valid objection to scepticism that one *cannot* persistently doubt all that the sceptic doubts. To be a sceptic, according to this view, is necessarily to be in a perpetual state of indecision; a moment's confidence or certainty is enough to burst the fragile bubble, to disqualify one as a sceptic.

But there is no reason why we should think of the sceptic in this way, as one who should, ideally, hesitate before every step in order to question whether the assumptions on which it is based are valid. Indeed, before raising such a question, the sceptic would want to know what the assumptions were, or whether there were any, and what was meant by *assumption* in this case; and insofar as answers to such questions involve explicit and more or less complicated conceptualizations, all of this would go beyond what the sceptic felt he had any settled opinion on. Any display of confidence, as far as he is concerned, may or may not be a matter of assumptions. At least it is not obvious that the sceptic must avoid trust and confidence, or that his behavior must be characterized by doubt and indecision. Perhaps, as we shall see in the next chapter, there is no real call to consider the sceptic a doubter at all.

There is nothing particularly vital in our terminology at this point. It could be perfectly reasonable to retain the image of a sceptic as a doubter rather than a truster; this itself will not lead to misconceptions as long as one remembers that in the history of thought, the greatest sceptics were also great champions of trust and confidence and of common sense *in action* — however brutal they were in criticizing ordinary thinking in its use of the notions true or false, valid or invalid.

In answer to the question of what and how much we should expect of the sceptic, I see no grounds for asking more of him than of dogmatists. A man who adheres to the doctrines of Plato, Spinoza, or Kant, or has a more or less individual outlook of his own, and who makes truth claims or claims of objective validity, is open to criticism if he does not from time to time consider and reconsider arguments against his position. But it would be preposterous to ask him to do this daily, especially if he is not a professional philosopher.

Applying the same norms to the sceptic, one must surely allow that the exercise of suspension of judgment as a mental act need not go so far as to completely color the sceptic's private life. There is no need for him to consider judgments involving truth claims every day and come to the result that there is no decisive argument pro or con. Although there will certainly be occasions for suspension of judgment, there will be no constant need for it.

Similar considerations apply to the sceptic as a "seeker." He is counted a seeker because he has not found truth but leaves open the possibility of finding it. Nothing is prejudged in the idea of his openness about how eager he should be to find the truth in any definite matter. Indeed, as we suggested, his main noncognitive motivation for finding truth is no longer there: the peace of mind which he was seeking is already found. There remain cognitive and practical motivations, and the strength of these may vary among different sceptics.

The basic complaint of the Pyrrhonian sceptic against all others (the dogmatists, including the Academicians) is that they are guilty of rashness (haste, recklessness, *propeteia*). They leap precipitately to conclusions about truth, falsity, knowledge, or certainty. As against this, one should *wait* until arguments for are decisively stronger than arguments against, or vice versa. (In order not to be accused of dogmatism, the Pyrrhonist will refrain from claiming the truth or objective validity of any point in the logic of argumentation. He speaks about his own behavior in discussions in terms of propensities, and the like. Among the examples of rashness Sextus mentions is that of deciding on the question whether something can be grasped — with certainty — or not [*Outlines*, bk. 1: 237].)

Since the sceptical phrases we have mentioned are expressive of the sceptic's state of mind when confronted with dogmatists, it is doubly misleading to say without qualification, as Brochard does (1887: 332), that their function is to "express his doubt," and to portray the sceptic as being more in doubt than others. It is important to distinguish doubting from suspension of judgment. Suspension of judgment is the basic trait of the sceptic when confronted with dogmatic assertions. The question of how much, how often, and in what sense doubt must, or is likely to, accompany or precede the suspension of judgment, is an open question. There is no reason at all to postulate a *state of doubting* as characteristic of the mind of one who suspends judgment. Suspension here is not a process; it is an absence of judgment concerning truth. Yet it is just this identification of doubt with suspension of judgment that so often mars references to the Pyrrhonic sceptics. Not that in the genesis of a sceptic, doubt and indecision play no part; indeed, the gifted people in Sextus's narrative were led to scepticism precisely by the disquieting doubt and indecision induced in them by the contradictions in things, and the *ataraxia* that Sextus describes is intended as a means of eliminating just that state of disquiet.

The Sceptic: A Philosopher?

For every hundred references in the literature to Academic scepticism (negative dogmatism), there is scarcely one to Pyrrhonism as described by Sextus. And of the many references to Pyrrho and Sextus, few do not hint at negative dogmatism.

One main reason for this is an apriorism and universalism that has deep roots in nearly all philosophical literature. Because the sceptic does not state a priori that knowledge cannot be reached, that knowledge is impossible, or because he does not adduce arguments against the possibility of knowledge in general—but only throws in particular arguments against particular knowledge claims—he is not counted a real philosopher. Instead, he is summarily referred to psychologists and psychiatrists. Because he does not meet them on their own battlefield—apriorism and universalism—real philosophers are not supposed to worry about him.

To be fair, the philosophers have a stronger point: the sceptic of the pure Pyrrhonist community ventures no proposition whatsoever that includes a truth or probability claim. Surely a person who is propositionally mute places himself outside the philosophical community. Or does he? If a sceptic has developed his suspension of judgment and has thrown in arguments against all the philosophical doctrines of his time, the philosophers may still refuse to take his scepticism seriously simply because the sceptic does not claim that he will continue to retain his attitude. Scepticism seems to be ad hoc, provisional, transient, or even spasmodic.

There are two answers to this. First, adherence to any doctrine is liable to lapse. However certain a Spinozist or Neothomist may be that he will never alter his views, a change is not precluded. The sceptic, of course, declares nothing. But why should this make a change more probable in his case? Why does the ad hoc nature of scepticism need to affect the matter—the mature sceptic says no more than that *up to now* he has not been brought out of his *epoché*, but that this might well occur at some time in the future. The fact that the sceptic is more willing than most to acknowledge the possibility of his own defection does not make this event more likely in his case than in others. Second, scepticism does not really deserve to be called provisional, transient, or spasmodic, because there is nothing in it that conceptually supports these characteristics (and when we come down to considering views in terms of the actual behavior of their exponents and adherents, we find that any bent of mind may spend itself or wither and any doctrine be abandoned or transcended).

There is no argument that is *specifically* antisceptical. When the sceptic throws an argument into a philosophical debate, and a philosopher finds it worth consideration, the sceptic may support it or fight it with a set of arguments. In doing so, however, he argues neither for nor against a general sceptical "position." But if he tends toward *isosthenia*, his development may well continue in the way described by Sextus, and he may end up as a mature sceptic (in our terminology).

As to whether scepticism counts as a philosophy, if we accept as a necessary condition of philosophy that the thing considered must contain at least one proposition or at least one doctrine explicitly claimed to be true or probable, then scepticism is not a philosophy. The question is largely terminological, but even if we adopted this not at all traditional way of speaking, there would still be room for calling scepticism a basic philosophic attitude or an existential-philosophy (with a hyphen!), and the sceptic a (genuine) philosopher.

Philosophical tradition embraces philosophers whose "philosophy" does not contain a single proposition with a truth claim, or at least whose program or intention was of that character. From and including Socrates, there have been propositionally innocent philosophers through all periods up until the logical empiricists and various Anglo-American movements inspired by Wittgenstein. It is a commonplace in various quarters that philosophy is really a kind of activity—for example, that of clarifying meanings. And although logical empiricists mingled with scientists, they insisted that as philosophers it was not up to them to take a stand for or against propositions in the nonformal sciences, whereas the formal sciences, for their part, were so conceived as not to contain any propositions.

But terminology may not, after all, be very important at this point, and so long as we may call scepticism a philosophical attitude or existential-philosophy, and its articulate representatives philosophers, I shall not insist that Pyrrhonic scepticism be called a philosophy. Perhaps "an ingredient of a philosophy" would be an apt description since the genetic characterization may be satisfied by persons showing deep differences in outlook and basic attitudes.

It is pertinent to ask whether the sceptic has ever explicitly questioned his own at least implicit acceptance of the distinction between true and false. The mature sceptic sees how in everyday life people use "I know that *p*," "*p* is perfectly certain," "I cannot be mistaken" in a very loose fashion, with an extremely low standard of evidence compared with that required, for example, in geometry. He himself is also a great exponent of loose talk insofar as he is conceptually unpretentious and without any definite conceptual framework. Why, then, does he apparently not join in the *loose* use of the terms *true*, *certain*, *real*, and *known*? It must be that his development has somehow made these terms stand out separately from the rest. Because of this, he can honestly say that as a mature sceptic he is "still seeking." For he has retained conceptualizations of *true*, *certain*, *real*, and *known* that permit him to suspend judgment in cases in which everyday uses of the terms would force him to exclaim "This is true!," "This is perfectly certain!," "This is how the thing really is!," or "This I know!"

Suppose, however, that a sceptic were to give up these remaining conceptualizations of the seeker, the zetetic; what kind of philosophy would one have then? The sceptic, it seems, would cease to be a sceptic and come close to being a later Wittgensteinian, at least according to one main interpretation of Ludwig Wittgenstein's *Philosophical Investigations* (1958).

According to that interpretation, there already exists a definite "logic" of the terms *true* and *known*, and this logic is such that there are a great many things we know perfectly well; for the language we use does not provide room for meaningful doubt here. Moreover, a science of language, a conceptualized doctrine *about* the logic of these terms, is not needed because the pertinent facts can be shown, pointed to. Because philosophy leaves everything as it is, its conceptualizations, including the distinctions between true and false and between known and unknown, cannot result in any change in the logic of the everyday use of the terms it has borrowed.

In regard to what evidence we require in order to know, there is a term *conclusive evidence* that also has its own logic of use. This can be shown by asking, *When* is it *legitimate* to say "This evidence is conclusive"? The question "Is evidence ever conclusive?" cannot be raised. The distinction between conclusive and nonconclusive is already built into the language, and this implies that there is a proper use of *conclusive* as well as of *inconclusive*. So if someone were to come and say that in every case in which *conclusive* has been used, *inconclusive* was the appropriate term, he would clearly violate the existing logic of the distinction.

Thus, the mature sceptic is only a partial conformist; he inevitably encounters opposition when responding sceptically to requests to subscribe to the absolutes of his community—the proclaimed truths, the propositions everyone *knows* must be true. The Wittgensteinian in the above interpretation, on the other hand, is an enlightened, but total, conformist. Even when it comes to the basic zetetic terms, he asks, What is it *legitimate* to say? What am I *justified* in saying? What are the standards of the community in assessing evidence? What is *socially* acceptable as conclusive evidence?

Although the mature sceptic does not participate in the philosophic debate, we have seen that he nevertheless throws arguments into it. He does not rule out the possibility that he will eventually become a participant—if a dogmatist can convince him of the truth of at least one proposition. In any case, he accepts the concepts and arguments of dogmatists as meaningful and their views as possible views. Although the Wittgensteinian portrayed above resembles the mature sceptic in not participating in the debate, in all other respects the difference is profound: The Wittgensteinian does not throw in arguments, and he definitely rules out the possibility of active participation. He also does not accept the concepts and arguments of dogmatists as meaningful, and he rejects the possibility of their views being true doctrines.

Defining Scepticism

In this chapter we have tried to clarify certain distinctions made by Sextus that are vital to a grasp of the significance of Pyrrhonism as a philosophy or a philosophical attitude. These distinctions, between Academic scepticism and Pyrrhonism, between sceptical and dogmatic ways of announcement, and between suspension of judgment and doubt, all play an important part in the credibility of Sextus's portrayal of the sceptic. From the few but typical references to Sextus in this chapter, it will be seen how far extant accounts and evaluations are from taking what he says seriously. Perhaps it is the prevailing philosophical preoccupations, now and in the past, that have done Sextus the greatest disservice by obscuring the value of the distinctions that he is at pains to stress. Consequently, Pyrrhonism tends to be regarded as an extreme scepticism, at best an impracticable ideal, and to be classified along with other less radical, but supposedly more possible, forms under definitions that take little account of what Sextus actually wrote. This is true even of Richard H. Popkin's formulations of scepticism in his excellent contribution to the *Encyclopedia of Philosophy*. Popkin (1967: 449) opens, as is traditional in encyclopedias, with a vague formulation suggesting some kind of definition: "Skepticism, as a critical philosophical attitude, questions the reliability of the knowledge claims made by philosophers and others." But such a formulation fails to do justice to Pyrrhonism. Pyrrhonism is not just an attitude of epistemological questioning; any adequate conception of the kind of questioning that it is must take account of the distinctions we have mentioned, as well as such aspects as *ataraxia* and trust.

Popkin's next, more precise, formulation, that philosophical sceptics "have questioned whether any necessary or indubitable information can actually be gained about the real nature of things" (ibid.), though applicable to Pyrrhonism and some other forms of scepticism, applies equally to any philosophy that criticizes necessity and indubitability or concepts of real nature. Carneades, on the other hand, was a sceptic who, although he questioned necessity, and perhaps also indubitability, seems to have believed in differences in probability. It is clear—and of course Popkin does not deny this—that the appraisals and arguments appropriate to probabilists differ greatly from those that apply to Pyrrhonian scepticism.

Popkin continues: "Skeptics have organized their questioning into systematic sets of arguments aimed at raising doubts" (ibid.). But for the Pyrrhonian sceptic, as a seeker of truth, it would be inappropriate to mention a specific aim of any kind, except perhaps as just one of a cluster of aims. It is true that the mature sceptic tends to influence the dogmatist in the direction of scepticism, and this may take the form of inducing him to doubt. However, in doing so, he is only following his so-called natural impulses of sympathy, as Sextus would say in his capacity as metasceptic. As for his own future, the mature sceptic is naturally on the lookout for decisive arguments that might bring his scepticism to an end. But here the listing of arguments should, strictly speaking, be regarded as having the heuristic aim—if it can be said to have an aim at all—of eliciting new and better arguments through which to preserve his *ataraxia*.

Finally, in formulating a notion of extreme scepticism, Popkin says: "Extreme skepticism questions all knowledge claims that go beyond immediate experience, except perhaps those of logic and mathematics" (ibid.). Sextus and others, however, have questioned even logic and mathematics. If my previous analyses are adequate, the Pyrrhonian questions all knowledge claims, including those that, in a more recent terminology, may be called "knowledge claims that do *not* go beyond immediate experience." The Pyrrhonist "acquiesces in the appearances" not because of any truth or adequate cognitive status that he attaches to the "angelic" messages that convey the appearances, but because such messages convey no knowledge claim at all. A scepticism that contains knowledge claims of or about immediate experience is not an extreme scepticism, at least along one dimension of comparison. But of course a main difficulty in the way of any attempt to delimit an extreme scepticism is the low degree of comparability of extremes of scepticism along the different dimensions that we referred to at the beginning of the chapter. A scepticism that makes no positive claims at all might, for example, be thought to be less intense than one that denied the possibility of knowledge beyond immediate experience—for at least the former scepticism allows for a possibility that the other rejects. Perhaps the word *extreme* is best avoided; it would certainly be very misleading to describe the Pyrrhonist himself as an extremist of any kind. It might be appropriate, on the other hand, to regard him as a radical, for his scepticism, if not extreme, is extremely thorough and consistent.

II

The Psychological Possibility of Scepticism

Introduction

One of the most common objections leveled against scepticism is that however consistent it is in itself, it cannot be serious. Sceptical doubts are not real doubts but only theoretical. Furthermore, it would be impossible to put sceptical theory into practice, for to be consistently sceptical, so it is held, would be to sentence oneself to a life of inactivity; as soon as one begins to do something, one begins to take certain things for granted, to believe in them and hence not to doubt them.

The assumption that scepticism, though rational, is patently untenable is fairly widespread and sets the pattern for much contemporary discussion. For example, Alfred J. Ayer (1956: 78) in *The Problem of Knowledge* writes: "No doubt we do know what [the sceptic] says we cannot know, we are at least called upon to explain how it is possible that we should." From this perspective, the problem of knowledge has become the problem of explaining—in the face of the so-called sceptic's arguments to the contrary—how knowledge is possible. In other words, scepticism is identified with an argument to be rebutted if we are to justify our claims to know anything at all. The sceptic is a good logician, but somewhere or other there must be a flaw in his argument, either in the process of reasoning or in his premises. For what could be more obvious than that there are at least some statements that we know to be true? And what could be a more obvious demonstration of the sceptic's de facto acceptance of this fact than his actual linguistic and nonlinguistic behavior?

Is Scepticism More Logically Than Psychologically Impeccable?

Some contemporary philosophers advance this objection by saying that (what they call) scepticism, though logically consistent, is psychologically impossible: a person can pretend to be, but cannot really be, a consistent sceptic. The most famous exponent of this view, Bertrand Russell, has himself been intimately and personally engaged in questions of scepticism. He puts the matter thus: "Scepticism, while logically impeccable, is psychologically impossible, and there is an element of frivolous insincerity in any philosophy which pretends to accept it" (1948: 9; cf. p. 196).

However, Russell, in line with most recent discussions of scepticism, is thinking here not of the sceptical way of Pyrrho, as outlined by Sextus, but of a narrow and much less radical trend of sceptical thinking that he terms "sceptical solipsism."[1] Russell finds that it is psychologically impossible in practice to doubt the existence of other minds and of the external world. But in coming to this conclusion, he applies concepts of "other minds" and "external world" that presume a dualism of a particular and not altogether uncontroversial kind.[2] The Pyrrhonist, however, is not bound to join issue on the question of the existence of other minds or of the external world as conceived by Russell, insofar as these concepts presume a dualism that he sceptically declines either to accept or reject. If he says "The stone is hot," he will not, in the normal course of events, implicitly distinguish between an internal and an external world and on the basis of this distinction locate the stone's heat either in the external world, as opposed to, say consciousness, or in an inner mental world. If led into a discussion about whether the heat really resides in the stone or in the mind, he remains unperturbed, declining to offer judgment. It must be remembered that the most important effect of the sceptic's *epoché* is to insulate him from philosophical discussion. Such discussion, to be technically satisfactory, must be relative to certain conceptual frames, that is, to systems of definitions involving clear-cut distinctions and rules for interpreting the key terms, and these must be adopted in order to get a discussion *pro et contra* going. By maintaining an *epoché* in relation to conceptual frameworks, the sceptic simply refuses to get going.

Sextus's picture of the sceptic is thus quite different from Russell's insofar as the Russellian sceptic is apparently unable to let himself trust and have confidence in a crude everyday realism into which such sophisticated problems as these do not intrude. Such trust and confidence at the philosophically uncommitted level is, of course, precisely what we would expect from the Pyrrhonian sceptic, at least if we are to take Sextus seriously when he characterizes the "loose" ways of talking employed by the sceptic in expressing his mind undogmatically (cf. my discussion on pp. 9–11).

The formula "Scepticism is logically impeccable but psychologically impossible" therefore fails to do justice to the strengths and weaknesses of Pyrrhonian scepticism. Indeed, if the foregoing exposition and interpretation are correct, we should be entitled to adopt a very different formula: "Scepticism is psychologically impeccable and logically invulnerable."

The thesis that scepticism is impeccable psychologically—in other words, that it is psychologically possible, perhaps even in some cases desirable, to be a sceptic—may seem harder to defend than the thesis that it is logically invulnerable. To be susceptible to charges of inconsistency, scepticism would have to include at least two contradictory propositions; but, as we have seen, it includes no propositions at all. Scepticism is not inconsistent, but it is not consistent either. The question of inconsistency is not so easily disposed of however. As we shall see, the criticism that scepticism is psychologically impossible in part depends on the supposed objection that whatever the sceptic may or may not say, his actions betray implicit allegiance to beliefs and assumptions. In short, these actions falsify the description of him as a person who suspends judgment on all things.

Do the Sceptic's Actions Betray His Dogmatism?

It is objected that by persistently withholding judgment sceptics fly in the face of their own experience and practice. The basis of the objection is that any display of acquiescence or confidence on the part of the sceptic is tantamount to his acceptance of some proposition.

Thus, for example, the mere fact that I stride confidently into a room might be said to be tantamount to accepting the proposition "This floor will bear my weight"[3]—in the same way that quickly withdrawing my foot after ominous creakings might be regarded as tantamount to my rejection of the proposition, or that setting each foot down tentatively and with great hesitation might be regarded as tantamount to my withholding it.[4]

According to this assumption, the Pyrrhonist's behavior would be the measure of his ability to remain a sceptic. Despite his failure to make positive or negative assertions, there would still be a basis for attributing inconsistency to him; for his actions would imply propositions, and the manner of his actions would determine his epistemic attitude toward the propositions. If not necessarily inconsistent, the sceptic would remain sceptical only so long as he remained hesitant. And the world and human nature being what they are, he would be prone to so many frequent lapses into dogmatism that to describe him as generally sceptical rather than dogmatic would be misleading, to say the least.

This argument might be given stronger forms. To act at all, it might be said, involves some belief or other no matter how diffidently one behaves. One cannot act consciously without implicitly accepting the truth, at least temporarily, of some proposition. For example, whatever one's reservations concerning the strength of the floor, one accepts that one has such reservations. If and when they are borne out, one will tend to move downward rather than upward, and if one intended to achieve something by setting feet on the floor—other than, say, merely testing its strength—then this cannot be achieved exactly in the way one was hoping it might. According to this stronger objection, the consistent Pyrrhonist would be resigned to a life of complete inactivity. There might, however, be an even stronger form of the argument in which it is claimed that the very act of contemplating oneself and one's own inactivity would require implicit acceptance of propositions. If the argument were sustained, the sceptic, so long as he was conscious, could never free himself from a fundamental dogmatism.

What is the relation between acquiescence and confidence, on the one hand, and the acceptance or rejection of propositions on the other? Let us take up this question by considering the relation between action and belief.

If a person claimed to hold certain moral beliefs, for example, and made no move to act in conformity with them in situations in which the beliefs were clearly applicable, his claim would be justifiably disputed. And if a navigator claimed to believe that the earth is flat and continued to employ calculations and instruments whose proper use he acknowledged depended on the assumption that the world is round, he would be justifiably suspected of being less than honest about what he believed. Thus, it does seem that a person's behavior can tend to show whether he indeed has those certain beliefs he professes to have. Moreover, with beliefs implying some fairly specific patterns of behavior, the absence of action falling into such patterns will, saving exceptional circumstances, not only tend to show but also conclusively reveal the absence of the corresponding beliefs.

Some, like Gilbert Ryle, would assert that believing is never merely "propositional," but a matter of being prone to *do* certain things; just as believing that the ice is dangerously thin is not simply a matter of telling oneself and others that it is so, or of acquiescing in the assertions of others to that effect, but also "to be prone to skate warily, to dwell in imagination on possible disasters and to warn other skaters" (1949: 135). If "proneness" is to be understood behaviorally, the matter is settled; but even without that we can say that if to believe something is at least in part to be *disposed* to do this rather than that, then, lacking the relevant dispositions, one would not have the belief.

The question now is whether it also follows that if one does not have the belief, one cannot act in the manner of a person who does. For if it does follow, then the sceptic is debarred from all behavior that can be construed in terms of beliefs and their corresponding dispositions. What William James said of religious belief would apply to all meaningful activity. James stated that "since belief is measured by action, he who forbids us to believe religion to be true, necessarily also forbids us to act as we should if we did believe it to be true" (1957: 108 fn.). If this were to be applied generally, not to believe in the truth of something would be to deny oneself the chance to engage in whatever actions were consequent upon the belief in its truth.

There is a context in which one may be said to act in the manner of someone who holds a certain belief when in fact one is merely pretending to have that belief. Here, acting in the relevant manner is not only allowed but, one would suppose, positively required. However, the sceptic can hardly be let off on the supposition that he is pretending to hold beliefs. Generally speaking, his actions must be seen to arise from genuine dispositions, from proneness, and so on. In pretending to have a belief, on the other hand, it is precisely the *absence* of the relevant dispositions that the behavior is supposed to hide. What we need to ask, therefore, is whether it is possible to have the dispositions to act in certain ways without having the relevant beliefs that generally accompany them.

The notion of experimentation may help us here. Why should one not be able, for example, to try out beliefs much as one tries on clothes? And try them out to the extent of "putting on" the appropriate dispositions? The experimentation, while it lasted, could be indistinguishable, at least externally, from actual commitment to the beliefs, and the experimenter himself might even become, temporarily, another kind of person, finding himself talking and acting in different and not always premeditated ways—ways that, planned or not, he would nevertheless say he was not committed to and did not "own." Thus, however much the experiment might resemble the real thing, the experimenter himself does not lose sight of the experimental nature of the exercise and, most importantly, while experimenting, he is *ex hypothesi*, not yet committed, not yet content.

But how far can the sceptic be understood as an experimenter? If we recall our earlier definitions (see pp. 3–6) of the Pyrrhonist, it may seem that he cannot be regarded in this way at all. We said, for instance, that he found no better grounds for accepting the arguments in favor of a doctrine than for accepting those against it. But the experimenter will surely begin his search by selecting the likeliest candidates among the propositions available to him, at the very least preferring some proposition or other to its negation. Thus, to act experimentally would seem to require a preference for propositions whose grounds for potential acceptance do seem stronger than those for potential rejection. To accord with this account of the Pyrrhonist's suspension of judgment, then, the required analogy would have to lack any purposive and selective component; in terms of the clothes analogy, we would have to compare the Pyrrhonist's assumption of beliefs to a person putting on clothes for amusement and without any serious thought to their style, quality, or general suitability. But this kind of transaction with beliefs could hardly explain the sceptic's continued adaptation to, and confidence in, the world around him.

Sextus, however, defines the sceptic's suspension of judgment as a state of mental rest owing to which he neither denies nor affirms anything (*Outlines*, bk. 1: 10), and we said the sceptic (cf. pp. 4–5) was one who has so far not found sufficient weight of arguments *pro* or *contra* to justify a decision about what is true or even about what is probable. But if he has not yet been able to decide what is probable, surely he must have been equally unable to decide, in the case of any proposition, that it and its negation are *equally* probable? In that case, how can the sceptic find that the arguments for a proposition are no stronger than those against it?

That Sextus is not inconsistent here becomes clear when one realizes that in finding a balance between arguments for and against, the sceptic is not arriving at some calculation of the respective weight of the arguments he has arraigned for and against a proposition and on the basis of this calculation justifying his disinclination to offer judgment. It would be as incorrect to interpret the Pyrrhonist in this way as it would to say that in failing to find any arguments strong enough to convince him, he is measuring them against some standard that they must conform to before he will accept them. His suspension of judgment is not based on some specifiable short-coming in the arguments presented to him; nor is the balance of the arguments something that he works out according to any theory or rule of thumb. The fact that he does not find the arguments for a proposition strong enough to overcome the force of the arguments against it consists in nothing more than the fact that he, personally, is not impelled by them sufficiently to be able to discount the force of the counterarguments. The sceptic refrains from affirming or denying simply because to stand firmly by some proposition or its negation would be to forfeit an option he feels he must retain if he is to preserve his peace of mind. He is the kind of person who if he affirms or denies something opens himself to the very doubts that led him in the first place to favor suspension of judgment. As we remarked earlier, the question of the possibility of scepticism is really no more than the question of the possibility of there being such a person.

Sextus talks of the sceptic as one for whom the balance between *pro* and *contra* is not disturbed (see point 3, p. 4). It would seem quite possible for the more inquisitive and venturesome sceptic who is willing to take a chance with his scepticism to prefer one proposition to another, experimentally, without disturbing the balance. The only relevant measure of whether, and how far, a sceptic can do so is the absence on his part of compulsion toward one side at the expense of the other. The degree to which he can safely experiment with a belief without succumbing to it, and hence forfeiting his option, will be a matter of his personal psychology.

But the main difficulty is that not all a sceptic does can be regarded as experimental. To be able to experiment with a belief, one must first have considered the belief as a possible truth. But what about all those actions that actually cannot correspond to beliefs adopted in practice simply because they are not adopted—because they do not even correspond to envisaged possibilities? The sceptic who walks into a room may or may not be experimenting with the belief that the floor will support him, but when he brushes sweat from his brow, after having crossed safely to the other side of the room, he may very well be expressing relief that undesirable possibilities were not realized. Such actions could not usually be said to correspond to envisaged possibilities, but they would have to be viewed as envisaged possibilities before the sceptic could be accused of being unwilling to stand by the beliefs they imply. Thus, the explanation of the sceptic's actions as experimental does not support a general defense of the possibility that the sceptic is continuing to act as if he believed in certain truths. Whatever the sceptic says, or does not say, his own more or less unconscious acts speak for themselves and proclaim his beliefs. But if his actions say what he himself will not say, his silence is wholly gratuitous.

But why should a person's more or less unconscious acts be described in terms of the adoption of beliefs at all? Why should a person's unquestioning behavior be understood as putting him, so to speak, automatically on one side or the other of a contradiction? Indeed, according to some definitions of "belief," there would be cases in which it was illogical to regard believing as "propositional" at all. Russell, for example, has defined "belief" as denoting "a state of mind or body or both in which an animal acts with reference to something not sensibly present." Explaining further, he says: "When I go to the station in expectation of finding a train, my action expresses belief. So does the action of a dog excited by the smell of a fox" (1948: 129). Assuming the excitement of the dog to be as nonpropositional as any unconscious gesture on the part of the sceptic, why should the sceptic's unconscious actions be considered as tantamount to "propositional" beliefs when the dog's patently should not? Would it not be as incorrect to charge the sceptic with inconsistency here as it would to accuse the dog of dogmatism?

Such broad definitions of belief, however, may raise objections. We might prefer to say that belief is always propositional and that the confident behavior of beings incapable of formulating propositions should never be described as believing. A man can believe, but a dog cannot; moreover, even if a man always, to some extent, behaves confidently without prior formulation of and taking a stand on propositions, he is able, as the dog is not, to draw the correct consequences from his own behavior and to see that it does, if not necessarily amount to belief, at least compel acceptance of certain beliefs once the relevant propositions have been formulated. Thus, on entering a room, a man can reflect on the fact that the floor supports him, and though perhaps still denying that his confident entry into the room amounted in itself to believing anything, he may find himself forced to conclude that the proposition that the floor can support him is true. But why stop here? If the events in one's life compel acceptance of successions of propositions, must not one's unquestioning reliance on innumerable everyday details be itself explained by this continual canceling of licences to hold options on pairs of contradictory statements? Surely, our unconscious confidence and trust are a kind of summing up of our successes and based on acceptance of certain general propositions (for example, the proposition that everyday details can mostly be relied on, or that only in exceptional and usually easily identifiable cases floors are not to be relied on).

If there were no sense in which the sceptic could acknowledge the reliability of things, either to himself or to others, it would indeed be hard to defend him. If he must always find it inappropriate to say things like "It held!," "Of course I didn't think it might give way," then we should want to know why he continued to behave as if he did find things reliable. If his silence is to be more than "official," we should probably regard it as pathological, as a fear of *saying* anything, rather than an expression of anything approximating a genuine sceptical attitude.

However, if Sextus is right, the Pyrrhonist is not at all barred from acknowledging the appearances, either to himself or to others; he, like everyone else, may utter expressions appropriate to the appearances when the situation calls for him to do so. Sextus, we recall, distinguishes between affirming the truth of what one says and merely acquiescing in the appearances. By making provision for the possibility of a kind of verbal assent to appearances, Sextus would allow that the sceptic may convey in words what *appears* to him, but in a way that does not amount to an assertion in the sense in which to assert something is positively to take a stand on one side or the other of a contradiction (cf. p. 8). Thus, if something feels cold to me and I say "It feels cold," I may be doing no more than publicizing the appearance; ideally my words are then simple effects of my states of perception, unprocessed by interpretation and conceptualization (including any conceptualization to the effect that this is all they are). I may say "It seems cold" and yet with perfect consistency neither affirm nor deny the *proposition* "It seems cold." Similarly, with utterances like "I wouldn't walk on the floor unless I thought it would hold me," it may be quite consistent to regard these utterances as appropriate to the occasion and yet deny that the act of walking on the floor either implied or compelled acceptance of the proposition that the floor was able to support one's weight.

A sceptic, according to the kind of distinction Sextus indicates, may acquiesce, at the time or retrospectively, in his normal and unimpeded entry into the room; he might even publicize it in the form of a running commentary, saying things like "Now I'm walking over the floor, a few creaks, but everything seems all right. There, I've made it!" But in using these words, he is only conveying his impression of what happens; he is no more stating that a series of propositions are true than, when he recalls the events later on, he is entertaining propositions to the effect *that* such events occurred. If the context should call for the latter, he might refuse to be drawn to say that as for taking a stand in favor of some proposition to the exclusion of its negation, he feels that in the nature of this special kind of case he would rather not commit himself. To assert that something is true is one thing; to give one's impression is quite another. In the former case, one makes use of clear-cut distinctions and concepts, some of which (as will appear in chapter 4) are awkward, even impossible, to put into practice at all; while the latter case is no more than, as it were, letting the events speak for themselves—a case in which the speaker functions "angelically," as no more than a messenger of the appearances.

The substance of the sympathetic metasceptic's case can be summed up as follows. Confident behavior, including verbal behavior, is one kind of event among others. But just as verbal expressions of confidence are not necessarily expressions of statements to the effect that one is confident, so confident action in the world is not implicitly a matter of affirming that something is the case. Consequently, in refraining from taking a stand retrospectively on his own confident behavior and successes, the sceptic is not prevented from giving retrospective expression to his confidence. Retrospective expressions of confidence are no different from any other expressions of confidence; there is as little basis in them as in the sceptic's confident actions to support the allegation that he is not a sceptic. His confidence neither implies nor compels in him a commitment to the truth or falsity of propositions.

The strength of the metasceptic's case is suggested by the very difference between acting from impulse and habit, on the one hand, and both formulating propositions and accepting or rejecting them, on the other. They are different activities, if not altogether, at least in degree of complexity and extent of commitment. Moreover, it is impossible to infer one's commitment to the truth or falsity of propositions from observation of one's own behavior, even verbal behavior. How would we even go about the task of identifying the supposed propositions on the strength of the behavior, or locate the concepts in terms of which they are formulated? If it is said that you cannot act without a world in which to act, and that therefore any action on one's part involves the assumption that there is a world, it need only be pointed out that not even on their occurrence on this page do the words "There is a world" determine a proposition. There is nothing in these words to suggest the specific rules of definition and the conceptualizations that the sentence they comprise may be used to convey on any particular occasion. As elements in a particular person's behavior, they are as open to interpretation as any other piece of behavior, and as in the case of nonverbal behavior, they may not be intended to convey anything "propositional" at all.

We shall not add more here in support of the metasceptic's case. Later, in chapter 4, we shall have more to say about the complications involved in asserting truth and falsity. But at least it should be apparent that confident action does not, in any straightforward sense, either involve or compel propositional commitment. If, as Sextus, Hume, James, Russell, and others suggest, nature can make us believe things in the absence of what the intellect would consider good reason for belief in their truth or probability, then there would seem to be some initial plausibility in the view that there is no more than a likelihood on any particular occasion that natural confidence and trust in this or that respect implies a disposition to assert the truth of any corresponding propositions.

Can the Sceptic Believe?

If it is possible to believe a proposition in the absence of intellectually adequate reasons for belief in its truth or probability, is it not also possible to believe it without committing oneself to belief in its truth or probability?

The answer to this question is complicated by a variability in the use of the term *belief*. Sometimes to believe means to accept that something is certain: sometimes it means that *one* is certain although the *something* may not be; other times it means that one is not certain, since one does not *know*, but is only inclined to be certain. As we saw in Russell's definition, belief can even be used to cover behavior that involves no verbalizable envisaging of states of affairs at all, but simply an attitude of unquestioning expectation. James (1957: 89) says that "there is some believing tendency wherever there is willingness to act. . . ." And he accepts that there is a sense in which "we find ourselves believing, we hardly know how or why" (ibid., p. 93), as if we could come across our own beliefs by observing our own behavior.

But, then, could not the sceptic also believe what he and others, by noting his actions and words, find him to be believing? Certainly, the definition of the sceptic—as one who fails to find arguments for or against a proposition sufficiently strong to warrant a decision—seems to allow him considerable room for maneuvering. And the question of whether or not he can believe may only turn on what one chooses to mean by "belief." It is clear, for example, that if to believe something he must accept unreservedly some proposition as true or probable, the sceptic cannot believe. If, on the other hand, beliefs are understood more broadly in terms of behavior that may in principle be dissociated from commitment to the truth or probability of propositions, the sceptic can be a believer. In that case, the limits to scepticism may be thought to come when the sceptic's behavior lends itself more properly to the terminology of *conviction* rather than *belief*—in that to be convinced about something suggests a kind of deliberate decision or at least a decisiveness that is quite alien to suspension of judgment. However, even this may give the sceptic less latitude than he is due. Is it possible, for example, to consider an occasion in which we could aptly describe participants in a program of action as having strong convictions about the best way to proceed, and as feeling quite sure that a fair number of envisaged events may be relied on to occur, and yet deny that they were thereby committed to accepting propositions? At least it could be psychologically incorrect to assume that, if asked, they would seriously maintain that they know what is best, that what they say about the future, for example the weather, is true. But on what basis, then, could it be claimed that their actions expose their commitments? Thus we seem to reach a point at which, far from any action at all on the part of the sceptic betraying his innate dogmatism, the problem is rather to find any kind of action that could be considered adequate evidence of the kind of commitment that the sceptic, according to Sextus's definition, avoids.

James, we may recall, says that "since belief is measured by action, he who forbids us to believe religion to be true, necessarily also forbids us to act as we should if we did believe it to be true." But whether we conclude that here is one kind of activity from which the sceptic is debarred depends on the part we ascribe to commitment in religious belief. James (1957: 182) himself argues "in defence of our right to adopt a believing attitude in religious matters, in spite of the fact that our merely logical intellect may not have been coerced." The abstention from religious belief in the absence of sufficient intellectual justification is regarded by James as itself an act of will, inspired by the fear of making mistakes. In enjoining us to believe truth rather than shun error in regard to religion, James presupposes that religious belief "requires, or inspires" certain actions that we would be debarred from if we abstained from such belief. "The religious hypothesis gives to the world an expression which specifically determines our reactions, and makes them in a large part unlike what they might be on a purely naturalistic scheme of beliefs" (ibid., p. 108 fn.).

It is not clear, however, that the sceptic's world cannot be colored by religious beliefs, and that his reactions cannot be determined by them. The crucial question here concerns the part played in these reactions and in the expression that determines them by belief in the truth or probability of religious propositions. We might stretch matters even further and say it concerns the part played in believing in the truth or probability of propositions by *commitment* to their truth or probability.

It is true that in some cases membership of a religious community may depend on acceptance of this special kind. On the other hand, it is hard to see what specific reactions membership in this sense could determine; and in any case, communities like these would be just the ones we should expect the sceptic to avoid. Usually, as in the case of political and social ideologies, little pressure is exerted on people actually to affirm the factual truth of whatever religious propositions they subscribe to; it is enough to exhibit an appropriate positive attitude. If there is anything at all that the sceptic would seem to be unable to derive from religion, it would be a settled conviction, say, in a personal universe. But even if such conviction plays an important part in religion, it is hardly essential. Conviction and faith, after all, are not the same, and in stressing the difference, believers are often insisting on the sufficiency of the latter.

Our defense of the sceptic may tend to be misconstrued at this point. We may seem to be on the verge of picturing him as being able to participate in the beliefs of his nonsceptical fellow citizens because his reservations about them concern merely the philosophical status of the evidence available for these beliefs. This kind of defense has often been made on behalf of the sceptic. Popkin (1967), for example, says that

> [T]he historical skeptics . . . distinguished believing various matters from having sufficient reasons for believing them. Regardless of the legends about Pyrrho, the skeptical authors seem to have followed Huet's view that it is one thing to philosophize and another to live, and that many propositions may be philosophically dubious but acceptable or even indubitable as living options.
> (Popkin 1967: 460)

The reservations of the sceptic thus appear as nothing more than an intellectual appendix attached to everyday beliefs, according to which it is stated that the beliefs in question are philosophically dubious.

However, as we have already pointed out, the Pyrrhonist cannot have *philosophical* reservations, meaning he is in no position to judge whether or not the evidence for believing a proposition is philosophically adequate. As we have stressed, the Pyrrhonist can have no judgment of the inadequacy of evidence other than his own reluctance to abandon the search for counterarguments. This reluctance represents a personal, not a philosophical, reticence to be convinced.

James (1957: 89) defines a living option as one in which both hypotheses make some appeal to one's belief, the extent of this appeal being measured by one's willingness to act. But he distinguishes between the livingness and the genuineness of an option. Although "Choose between going out with your umbrella or without it" may be a living option in his sense, it is not a genuine one, because it is not forced; one can avoid going out at all.[5] According to our account, the sceptic is a person who finds that no options are genuine in this sense. For, as we have indicated, the sceptic's experience does not formulate itself into propositions, nor are the circumstances in which his ordinary everyday expectations are fulfilled or disappointed sufficient in themselves to compel him to take a stand. It is not, as Popkin suggests, that the sceptic relies on a theoretical distinction that makes his reservations about everyday propositions merely formal, but rather that propositions of all kinds involve conceptualizations of experience and that their acceptance or rejection requires acquiescence in much more than the mere course of events in one's experience.

Russell (1945) has an alternative picture of the sceptic acting out a common life with his nonsceptical fellows. He states that "a modern disciple [of Pyrrho] would go to church on Sundays and perform the correct genuflections, but without any of the religious beliefs that are supposed to inspire these actions" (ibid., p. 233). But this ignores the subtle variations of attitude that the term *belief* tends to obscure. The sceptic's trust in his own impulses and in the traditions of his environment need not express itself in a mere formal allegiance to the beliefs that his nonsceptical fellow citizens attach to their actions. The sceptic is not one who, lacking the motivating power of any beliefs of his own, must, if he is to move at all, hitch himself to the habits of his society. If he genuflects on Sundays, this may be due simply to his having been brought up in a religious household and to his having not, as yet, found a compelling reason to stifle the impulses that are bequeathed to him as a result of others' acceptance of these religious propositions. He may still have the appropriate dispositions; being a sceptic, he will simply be one who has failed to come to any final decision about the truth of the beliefs from which his actions spring.

Equally likely, however, the genuflecting sceptic may be a particularly venturesome sceptic who is willing to test the power of religious attitudes to overwhelm his scepticism. He may even go so far as to acknowledge their power, but still not succumb to them to the extent of excluding the possibility of the relevant religious propositions being false. Here there might seem to be little to distinguish the sceptic from the mature religious believer who strives to sustain his religious attitude on something less than absolute conviction. To the religious minds of Kierkegaard and others, of course, the confusion of knowledge with faith is directly irreligious. On the other hand, one would expect important differences in the attitudes of the religious believer and the experimenting sceptic. The faith of the believer in the truth of religious propositions is something that the sceptic can only pretend to himself that he has; if he really had it, he would not be a sceptic. A sceptic's participation in the propositional aspects of religious belief cannot therefore be genuinely religious. But this does not mean that he cannot act and react as he would if he genuinely believed in the truth of the propositions. Moreover, it is debatable how much of the characteristically religious "expression" that James refers to is dependent on a genuine acceptance of the "religious hypothesis."

The difference between impulses and judgment is reflected in our interpersonal relationships. We trust others, some implicitly, others up to a point. To the extent that we trust these individuals, we may be disposed to make assertions about them that claim truth or probability. But I think that nearly everyone has had occasion to feel that this trust or mistrust, even if put into words, does not correspond to a definite opinion, or to any claim to objective validity that we might be called on to make in certain circumstances. Here, too, the sceptic may preserve his naive attitudes of trust and mistrust, his confidence and diffidence, and the feelings of certainty and uncertainty that he has for others. His world remains, in this respect, the same as that of the nonsceptic. The only difference is that for him the act of asserting the truth or falsity of a proposition is part of a special occasion in which something quite different is expected of him. Rather than make judgments, he would tend, as Sextus indicates, to cultivate perceptual and emotional sensitivity, and as this sensitivity increased so would the need for claims of objective truth vanish, or be substantially reduced.

Must the Sceptic Be a Doubter?

There are no grounds in Sextus's description for picturing the mature sceptic as a person who shows indetermination, irresoluteness, indecision, wavering, hesitation, suspense, perplexity, bewilderment, embarrassment, confusion, puzzlement, disbelief, incredulity, mistrust, diffidence, or suspicion, however fittingly these terms may describe his state of mind as he listens to dogmatists. But Sextus does list four names of the adherents of his philosophy—the sceptics, the zetetics, the doubters, and the Pyrrhonists. It might seem that the first two, deriving from Greek terms for looking about in a searching manner, and particularly the third one alluding to doubt, suggest characteristics not at all conducive to a profound peace of mind. However, it is clear that Sextus introduces them simply in order to classify abstract philosophies according to how they stand in a particular discussion, namely on the true knowledge of reality. They need not designate personal traits.

There is nothing here to suggest that the sceptic, as an actual person, should feel obliged to go around doubting or seeking any more than others. Indeed, the urge to doubt and seek should apply more to the dogmatist for, as we have suggested, the more one postulates as true, and the more entangled one gets in the intellectualization of attitudes, the more there is to doubt. By refraining from dogmatizing, one may reduce the occasions for doubt. In any case, the discussion in the two previous sections should have effectively undermined the assumption that the sceptic must be in a perpetual state of doubt and indecision. The sceptic's reservations are simply not of the kind that are directly reflected in his reaction to his surroundings. Insofar as they do affect his attitudes and behavior, these reservations are expressed not in any preoccupation with doubt, but in an avoidance of just those dogmatic forms of confidence that tend to give rise to doubt and mental tension.

The difference between the doubter and the sceptic in Sextus's sense can be illustrated by two kinds of dialogues:

The Doubter

The dogmatist:	*P* is true.
The doubter:	I doubt it; there is the following source of error . . .
The dogmatist:	You mean not-*p* is true?
The doubter:	I doubt whether not-*p* is true; there is the following source of error . . .

The Sceptic

The dogmatist:	*P* is true.
The sceptic:	Why should I accept *p* rather than not-*p* as true?
The dogmatist:	Because argument *A* proves *p*.
The sceptic:	Why should I accept "*A* proves *p*" as true rather than "*B* proves not-*p*"?

Where the doubter is continually disappointed with the candidate convictions that offer themselves for acceptance, the sceptic, resting ("until further notice") in his *epoché*, has no pressing vacancies for them. During his dialogue with the dogmatist, there need be no inkling of doubt in his mind.

Is the Sceptic Unperturbed by Modern Science?

It has been suggested that although scepticism may have been psychologically possible in the Hellenic world, this is only because science at that time played no important role in daily life. Today, however, with scientific knowledge pervading society at all levels and scientific regularities forming the background of our lives every moment of the day, scepticism can no longer be regarded as psychologically possible.

Although there is much to be said for this point, technical development has also introduced considerable complexity, irregularity, and unpredictability. And, of course, even in the time of Sextus, people relied on the regularities of the seasons, the moon, and the uses of words. Furthermore, even if the beneficiary of modern science has a thousand regularities at his beck and call, unquestioning reliance often invites a rude awakening.

In any case, those who are impressed by scientific methodology will find that truth, as a property of scientific results, has been reinterpreted. This is due to intensive indoctrination with a methodology of science that stresses the uncertainty of scientific knowledge, the commitment to hold any question open, and the idea that the main function of scientific propositions is as working hypotheses. Since the dominating philosophies at the time of Sextus—Stoicism, varieties of Platonism, and Epicureanism—were all dogmatic, and the religions of the day claimed to contain true knowledge, our own environment of scientific education and creativity can hardly be considered more hostile to Pyrrhonian scepticism than the environment of Sextus. In the philosophy of the formal sciences, too, an influential movement stresses postulates, conventions, rules at the base of mathematics, rather than truth and objective validity. The violations are thus conceived as forms of bad, unsocial, or incorrect behavior.

Uncertainty in natural science does not exclude probability. There are, however, influential movements in philosophy that deny the probability of scientific knowledge. One of them is closely connected with the Catholic Church, representing a variant of Neothomism. Pierre Duhem is an outstanding representative. Another is represented by Karl R. Popper, a great disbeliever in the capacity of induction to justify scientific propositions and of probability as a property given to scientific propositions by their particular confirming instances.

In short, methodology of the sciences, formal and nonformal, is compatible with the view that anything can happen at any time; it is unscientific to say that some happenings are *objectively* more probable than others. Our life of action, even in a society pervaded by presuppositions of scientific regularity, is not, of course, dependent on the correctness of any definite proposition about a regularity. It is enough that we find ourselves trusting that the future will resemble the past or, to be more exact, that we act in a trusting way that may best be suggested by such exclamations as “Surely the future will resemble the past!” or “You can always rely on the force of gravity!”

So, while many drop from the ranks of potential sceptics because of an unshakable belief in the truth or objective probabilities of scientific knowledge, others are led to scepticism by their very studies of the special character of scientific knowledge.

Is the Sceptic Sensitive to the Difference Between Real and Apparent?

It has also been suggested that by confining himself to reports of his own beliefs and thoughts, the sceptic collapses the distinction between appearance and reality and thus denies himself the use of the category of the real.

The sceptic, however, does not reject the everyday distinction between what seems to him now to be the case and what really is the case. That is, he may retain a kind of image of the distinction between reality and mere appearance without putting a specific interpretation on it. At least this is how we may understand some of his reactions and utterances. He, like anyone else, can be misled by illusions, note his mistakes, and correct them. He simply suspends judgment in relation to any proposition claiming to say something *true* about how things really are.

To understand the sceptic's mind, we must appreciate that reality, in this respect, is utterly in the dark, always eluding him, never grasped in knowledge. But it would be incorrect to picture him as feeling that reality is utterly unintelligible, incomprehensible, and unreachable. (That would be the feeling of the Academicians, not of the sceptics, according to Sextus.) Reality is in darkness, but not *necessarily* in darkness. It might be brought to light. The sceptic, at least, is not convinced that it cannot. In fact, the sceptic himself may, in his own opinion, be the one to bring it to light; he may discover how things really are—in at least one respect. This, of course, would mean the end of his career as a sceptic. But, as was pointed out in chapter 1, it would be wrong to view the sceptic as serving a self-imposed life sentence, or to view him as a person who could not envisage a possible defection to dogmatism.

Tentatively, I conclude that the sceptic contemplating questions such as "How is reality?" and "What is real?" is likely to feel that reality is enigmatic, ambiguous, strange, obscure, veiled, unpredictable, and unmanageable. Compared with the dogmatist, who thinks he knows a large number of important truths and has full access to a reality that is quite intelligible in most respects, the sceptic is likely to feel more or less powerless. Anything may happen at any moment; there is no certain way of stopping any process.

It seems that if a sceptic has a penchant for contemplating reality and for wondering about how things really are, he must become depressed, or at least awed. I suppose one must acknowledge a need in men for unveiling, controlling, and predicting what is real. On the other hand, of course, there are secondary needs of an opposite kind: needs for a universe that is too great and complex to be understood, a reality that possibly has layers we cannot penetrate, with mysterious depths and unfathomable riddles.

So, even if the sceptic is likely to, or will as a rule, feel reality to be enigmatic, ambiguous, and so on, there are, psychologically, different frameworks in which to put these feelings. The resultant complex attitude may quite well not be a negative one of perplexity, fear, and embarrassment.

So much for the likely feelings of the sceptic toward reality as opposed to mere appearance, insofar as the distinction is something he acknowledges. One must, however, keep in mind that the fundamental distinction for the sceptic is not that between real and apparent, but between known to be true (or valid) and not known to be true (or valid). The sceptic may ask himself, Do I really want this gadget? or Do I really trust this friend? An answer may be found through listening to his own impulses and inclinations or through discriminating between levels or depths of motivation. The sceptic might also say "The boss looked angry, but he was not *really* angry" without claiming truth, but only by way of conveying his impressions. For there are impressions both of real anger and of apparent anger. Thus, in matters of interpersonal relations, the sceptic may, more often than even the dogmatist, consciously discriminate between real and apparent. But he does so without touching epistemological distinctions or the professional philosophical debate on reality and appearance.

General Outlooks Generate Scepticism

The sceptics described by Sextus came to doubt and then suspend judgment through their encounters with dogmatic disagreement and controversy. It may be that today, however, the most likely development of a complete sceptic (surrounded by a dogmatic environment) includes a presceptical stage at which the later sceptic has an intellectually well-organized, unified outlook on life and the cosmos.

From experiments in social and physical perception we know that value judgments clearly and significantly influence perception. One may remind oneself, for instance, of how coins worth more look bigger. A unified outlook influences all regions of perception. Or, to be more exact, there will be an interaction between different factors and layers of the mind with a resulting personality structure characteristic of the outlook. The intellectual organization of an outlook inevitably results in a distinction between basic and less basic parts. The mass of judgments of value and of fact will be felt to rest on certain fundamentals, certain basic assumptions, or intuitive insights.

Having reached this stage, the individual is constantly in a danger zone. If the personality is not highly integrated but permits the individual with a certain degree of calmness, detachment, or alienation to inspect his own outlook as such, a major kind of catastrophe or crisis may occur. If, for some motive and reason, inspection is carried out with a touch of basic doubt or feeling of strangeness, the individual comes to look on his own outlook in its very basic features as something profoundly subjective, as the truthful expression of one individual basic way of seeing and feeling things, but without any consequences for any other human being. That is, the holder of an intellectually well-organized, unified outlook creates some of the necessary conditions for a thoroughgoing scepticism. He has the breadth and intensity of vision lacking among people who are only intermittently and tentatively engaged in working out their own outlook on life and the cosmos.

From a philosophic, or let us say epistemological, point of view, fundamental principles must have self-evidence, an internal or immanent obviousness. Being fundamental, they are by definition impossible to defend by anything external to themselves; they express a last stand. If, therefore, an individual comes into an ambiguous relationship to the only foundations he can identify himself with, the whole edifice that rests on the foundations becomes suspect. He doubts its truth and validity, yet there is no objective test available. If his further development goes well, he will acquire the status of a mature sceptic, enjoying peace of mind. But he may not develop in this way—he may instead develop negativism, cynicism, nihilism, and despair.

Can We Assume That Sextus and His Less Articulate Friends Fulfill the Requirements?

We have, in deference to Sextus, defined scepticism genetically, in terms of a characteristic personal development. Those and only those persons who show this development are (by definition) sceptics.

The possibility of becoming a sceptic is then identical with the possibility of undergoing this development. And the possibility of remaining a sceptic is equal to the possibility of continuing to show the characteristics attributed by Sextus to the mature sceptic. Sextus says nothing about persons who do not remain mature sceptics, the "renegades" or "backsliders." These would be sceptics who eventually lose their suspension of judgment in favor of certain propositions—let us say those of Heraclitus or Protagoras.

Although we are not concerned with the question of for how long it is possible or practicable to remain a sceptic, in discussing the psychological possibility of scepticism we nevertheless think of time intervals of some length. A person may scarcely be said to be a Catholic or a conservative or a pessimist for five minutes—that would be too short. On the other hand, a stability lasting twenty years or more is not required in order to qualify. The same considerations apply to scepticism. There is no built-in requirement of lifelong adherence, but there is, of course, a requirement of stability and profound attachment.

Sextus talks about sceptics as if they were persons existing at and before his time. Very often he uses phrases suggesting that he himself is a sceptic. One must nevertheless pose the questions: Was Sextus, or were his friends, *really* sceptics at least during some part of their lives? Were at least some persons *correctly* subsumable under the concept of sceptic as defined genetically? Or does Sextus only describe ideal sceptics, fictitious personalities?

There is nothing in the writings of Sextus or in other Greek works (for example, those of Diogenes Laertius) that directly suggests the fictitiousness of his sceptics. In the literature of his day and earlier, the existence of sceptical "schools" and sceptical philosophers is taken for granted. More exactly, the term *sceptical* and its cognates are used to qualify adherents of certain schools and of single personalities.[6]

From a psychological and social point of view, our ultimate decision will mainly build on our assumption as to what is possible *today*. We can try to envisage what might be the difference between human life here and now and life in the Hellenic world, but ultimately the question of the psychological and social possibility of scepticism has to be attacked from our knowledge of the human beings of today.

Concluding tentatively, we shall form five hypotheses:

1. *Scepticism is psychologically possible*. It is possible in its full development as pictured by Sextus, with the additional features described below.
2. *Approximation to scepticism is psychologically a more likely and durable state*. The same holds for states in which one's attitudes are too vague or ambiguous in outline to decide on their exact relations to sceptical requirements.

3. *People most likely to develop close approximations to scepticism are those who have a marked tendency and ability to form integrated, general attitudes, coloring their whole mental life and outlook.* Such persons will eventually also be able to suspend complex attitudes in the sense of holding them back from full, free operation. The psychological mechanisms behind truth claims and claims of objective validity may thus be suspended.
4. *Experience furnishes some material relevant to the situation of a sceptic in a nonsceptical milieu.* The conservatism and other social traits of the sceptic are understandable interactions within a dominantly nonsceptical milieu. The possibility of a sceptical "epidemic," a flourishing scepticism gradually wiping out dogmatism, has never been discussed seriously. The main questions raised are, Would inquisitiveness, and therefore science, come to a standstill? Will children be left untaught? This latter eventuality would have disastrous effects on any civilization.
5. *As to the possibility of stable sceptical communities, there is no precedent to learn from.* In such a community, if one ever came to exist, there would be little incentive for the individual to form a general outlook, and he would not be helped to form one by learning to know existing philosophies. If—as has been supposed—one is most likely to form scepticism when doubt undermines a general outlook to which one has given all one's mind, the main historical source of scepticism would dry up in a stable sceptical community. Thus, the community will eventually turn antisceptical, restoring the supremacy of dogmatism in some form or another.

III

Scepticism and Positive Mental Health

Introduction

The proposal that scepticism is possible in practice immediately gives rise to a further question: whether, and in what respect, scepticism is at all practically desirable. The host of issues associated with this question cannot be adequately discussed here. Before going on to discuss scepticism in the light of more or less purely epistemological considerations, we can at least pause to consider how scepticism stands with regard to an area in which the practical issues have already been formulated in comparatively precise terms, and the normative issues, as criteria for mental health, have been agreed on more or less, if only implicitly. What I propose to do here, therefore, is subject the radical sceptic to the test of currently accepted criteria of positive mental health.

A practical problem very germane to the issue of scepticism arises here in confronting the Hellenic sceptic with modern teaching on positive mental health. The exponents are many, and seeker though he is, the sceptic can hardly fail to notice with some discouragement that the specialists are not of one mind. Therefore, to protect him from an unnecessarily obvious demonstration of the availability of counterarguments, let us confront him with but one representative, Marie Jahoda. Or, to be more exact, let us confront him with the criteria listed in her book *Current Concepts of Positive Mental Health* (1958).

Confrontation with Six Criteria of Positive Mental Health

The first major category of criteria refers to the attitudes of an individual toward his own self. However, I do not think much can be said about that kind of criterion because it does not connect in an obvious way with what

Sextus is talking about. The second criterion, however, opens up an interesting question: can the sceptic be said to display a satisfactory degree of growth, development, or self-actualization? Gordon Allport explains that growth motives "maintain tension in the interest of distant and often unattainable goals" (Jahoda 1958: 33).[1] By growth motives he refers to "the hold that ideals gain upon the process of development" (ibid.). Now, perhaps it is only possible for unattainable or very distant goals to furnish strong motivation if the individual is convinced that certain propositions are unquestionably true and certain goods absolutely or objectively good. Regarding distant goals in general, verbalization plays a decisive role, but I think one must concede that belief in a definite truth is hardly a necessary requirement of one's being said to have a distant goal. Gardeners may plant trees for the joy of their grandchildren but without making definite predictions. The sceptic may make evaluations concerning distant matters that he envisages, and the verbalizations may be part of what stimulates him to act consistently through long periods, but he need not use any of these verbalizations to express knowledge. I tentatively conclude that scepticism is not a decisive obstacle to self-actualization. On the positive side, the sceptic has at least one distant goal—to find truth—and one ideal: true knowledge. As metasceptics, we shall attribute this to him even if he always suspends judgment when we discuss this point with him.

Abraham H. Maslow, stressing self-actualization as a criterion of mental health, finds that it is accompanied by a "genuine desire to help the human race" (Jahoda 1958: 34). Strong and persistent motivation in helping our race in complete generality—or somewhat less ambitiously, in helping the developing countries or any considerable portion of mankind (without hating the rest)—may well require a heavy reliance on abstract thinking and conclusions derived from such thinking. The sceptic, not being able to concede the truth of even quite simple propositions, may not be able to visualize the problem of helping the human race in its totality. If he meets a hungry child, he meets *that* child, not the fifty million hungry children of the same nationality. He would tend to answer Maslow, "Yes, I think I see the terrible importance of what you are saying, but only in moments in which I succeed in believing in the truth of a long list of propositions. However, I see no grounds for accepting them rather than their negations as true." Any political, social, or ethical creed based on a substructure of articulated unquestioned truths would be without appeal to the mature sceptic. In conclusion, then, we may suggest that the sceptic would receive a low score if positive mental health were judged by desire to help the human race at large. A good lecturer on the subject of helping mankind, however, will illustrate his points by pictures of starving children or desperate mothers. The sceptic might be motivated to help, immediately and vigorously, on seeing the pictures and listening to the case studies, whereas the ordinary listener would curb his feelings for political, financial, and other reasons that are highly dependent on belief in general truths. In short, the sceptic may well be more fitted to offer spontaneous and wholehearted help. But if Maslow insists that he must have a strong desire to help *mankind* in order to satisfy the criterion, the sceptic will fail.

As a third category of criteria, Jahoda mentions integration. At this point, too, Allport seems to be the psychologist who makes the sceptic appear most unhealthy. He speaks about a unifying philosophy of life as a sign of maturity. And although the metasceptic and diligent observer of the sceptic has ample reasons to accord a unifying philosophy to the sceptic, this does not seem to be enough for Allport. The mature person "participates and reflects, lives and laughs, according to some embracing philosophy of life developed to his own satisfaction and representing to himself his place in the scheme of things" (ibid., p. 39).

If we think of a philosophy of life as an outlook on life in general, and if it is to be developed in contrast to other philosophies of life, the sceptic has no philosophy of life. He has no *doctrinal* philosophy of life, being antisceptically free of belief in particular philosophical systematizations. Therefore, he cannot place himself as an outsider looking at himself and his place in the general scheme of things. He does not believe that he knows of any objective scheme of things. So, Allport must conclude, it seems that the sceptic dismally fails, and that he is utterly unhealthy, according to at least one integration criterion.

But there are grounds for the opposite conclusion. About other people we may say they have a definite outlook about life, even life in complete intercultural generality, without their saying anything about it either to themselves or to us. We speak about the old peasant's outlook in spite of the fact that one of the old peasant's traits is extreme muteness. He may even protest, swearing that he would never dream of considering life in general or subject his whole personal life to reflection. Allport might agree to this. A unifying nonprofessional philosophy of life may not be articulated in any form.

If this is granted, however, the sceptic may rise to a pinnacle of healthiness insofar as he has a way of taking things that is both peculiar and unified.

Our conclusion regarding integration will therefore follow a middle course. One may speak of the sceptic's outlook, and the sceptical way marks an important unifying ingredient. Yet in spite of this, he may in many ways show considerable looseness or even disconnectedness. He will conform only roughly to the traditions of his society, according to Sextus. He will perhaps be weak in following principles and norms under stress, not holding them in any absolute manner. He will go along with others, but not all the way when this requires, as it sometimes will, a solid conviction that this or that *is* true. It is tempting to think of times of crisis when some, but not all, friends or fellow citizens stand up to very severe tests. The sceptic's resistance to stress may show weak spots, but not in any glaring fashion. He never makes great claims, his level of aspiration is moderate, and he does not jump up as a lion to fall down as a mouse. These reflections follow closely what Sextus himself says about the social relations of the sceptic. If we allow ourselves to depart from his narrative in secondary matters, a different picture may emerge. Thus, today, we would concede that absence of belief in truth may well combine with strong convictions.

As a fourth major category of criteria, Jahoda lists autonomy, the individual's degree of independence from social influences. Maslow speaks about people who maintain "a relative serenity and happiness in the midst of circumstances that would drive other people to suicide" (Jahoda 1958: 47). David Riesman, also in Jahoda (ibid., pp. 47–48), distinguishes between adjustment to society of the tradition-directed, inner-directed, and other-directed kinds and judges autonomy of the individual with reference to these factors. This is highly relevant for scepticism and justifies a brief digression.

It has often been noted that men of letters with sceptical inclinations tend to support the traditions of their society and are, as a matter of course, never seduced by programs of radical reform. They are conservative. It is the radical who accepts general propositions predicting the future.

Hume, considered the most consistent philosophical sceptic since antiquity, was conservative as a matter of course. But what about his autonomy? Hume's autonomy in relation to the society he supported showed itself in many ways. An example of a rather touching kind is to be found in his relation to Jean Jacques Rousseau. An individual belonging to quite a different society—a society of opposite character in part—Rousseau was, moreover, a person of diametrically opposite character and tastes. Hume nevertheless felt himself capable of sincere friendship with Rousseau to the extent of inviting him to live in England with him. The story presents a convincing picture of a sceptic living at peace with his own society, but without self-surrender.

How would a sceptic behave under a tyrant, subjected to a terror regime? In our time this is a question that will inevitably be raised. Will he not be among the passive, at best? Will he be among those who are unable to fight for a principle, who let themselves be made instruments of criminal deeds?

In *Against the Ethicists* (trans. Bury 1936: 160–67), a fundamental attack on the Wise Man of Greek philosophical traditions, Sextus answers dogmatists who think that a sceptic will either meekly surrender to a tyrant or stand up against him, but then only inconsistently on the basis of a conviction about what is good or evil, or desirable and undesirable, and thus inconsistently. A sceptic must either act dishonorably or be inconsistent. Sextus questions the dogmatic assumption that the capability of desiring some things and avoiding others presumes a doctrine of some kind, a belief in knowing this or that to be the case. Life can be lived without that. If the tyrant tries to compel a sceptic to do a forbidden act, he will refuse on the basis of laws and customs. Today we will perhaps add "and according to conscience" (whether in agreement or in disagreement with the laws and customs of the time and place). Sextus adds that the sceptic will endure hardships more easily because of his lack of beliefs *about* suffering—beliefs that cause additional suffering.

The inadequacy of individual perception is clearly manifested in many neuroses, "the neurotic is not only emotionally sick—he is cognitively *wrong*"—to quote Maslow again (Jahoda 1958: 50). As a fifth proposed category of criteria, this point must be considered for a moment. The sceptic does not deny the distinction between correct and incorrect perception, it is just that he does not find in practice any indisputable criterion of correctness. In this he does not seem to feel very different from Jahoda, who exclaims (ibid.): "Particularly when the object of perception is social in nature—but even when it is physical stimuli—who is to say what is 'correct'?" Further, she intimates that correctness carries the implication that reality is static and limited and that there is only one way of looking at it.

In the face of this unexpected and remarkable support for the healthiness of a sceptical outlook, I find it justifiable to proceed to the last criterion, environmental mastery. There is one proposal here that directly affects the sceptic, that of making the capacity to *solve* problems a criterion. The sceptic admits that as a person he is incapable of finding the solution of any problem whatsoever in terms of true and false. He would fail dismally as a respondent to the innumerable true/false questionnaires of our cognitively atomistic and optimistic age. Jahoda comes to his aid here too, however, suggesting that it is the process of solving rather than the end product that discloses the healthy mind. Success in solving cannot count for such. The process or method itself does not imply any assertion with a truth-claim attached, and I think nothing can be said in general here against the sceptic.

Sextus himself was very probably a physician, one of the long line of Hellenic physicians systematically opposed to all philosophizing in medicine. The so-called empirical school tried to keep as close as possible to empirical methods, suspicious of any generalization or deduction and of any attempt to find causes. As a sceptic, the medical problem-solver would also have to be critical of conceptualizing the relation between patient and doctor, favoring direct interaction at the nonconceptual level.

Our general conclusion from this confrontation of the sceptical philosopher with criteria of positive mental health must, I think, be very tentative, but at the same time positive. It is that there is no good a priori or general reason to suppose that a sceptic cannot stand up to contemporary criteria of positive health.

The sceptic's failure may seem to come more easily from social rather than psychological sources: in a society that puts heavy stress on verbal conformity in the form of unconditional, explicit acceptance of ideological items in terms of true or false, the sceptic is likely to suffer maladjustment and consequent loss of peace of mind. Still, we have learned in our time how people under totalitarian pressure are capable of combining a high degree of external conformity with deep inner reservations. The sceptic may resort, as do many others, to such a form of "double-think."

The Alleged Scepticism of St. Augustine and Others

In his story of how sceptics develop, Sextus tells us how some gifted people fail to find decisive evidence either for or against any philosophical position. Contemporary psychologists will, I imagine, be justified in pronouncing that there must be a strong propensity toward finding counterarguments in order not to become convinced. There must be peculiar personality traits that explain the genesis of a sceptic. It cannot be a matter of pure intellect, or pure chance.

But what traits? If, drawing on philosophy or the history of ideas, one could provide clear information on sceptical personalities of the past,[2] then discussion on scepticism and mental health would be greatly simplified. But such information cannot be given.

Let me take an example of a type of literature containing reports of deep scepticism. It begins with St. Augustine (b. 354–430), who says of himself that at about the age of thirty he had developed a complete scepticism. He doubted everything and gave up looking for any single truth (in the manner of the Academicians). He was profoundly unhappy, he lived in sin, and being torn between contrary impulses, had great difficulty in acting coherently. Unhappiness and scepticism thus went together.

All this he reports in his famous *Confessions* after he had found peace in Christ, that is, after a religious conversion. Now, we know that people after a profound religious or political conversion tend to be very inaccurate in their description of their own life before that happening. There is reason to believe that St. Augustine was no exception, and in particular that he was not as sceptical as he says he was. If this is not the case, we would conclude that marked scepticism of the "Academic" (not Pyrrhonian) kind is at least sometimes empirically connected *not* with peace of mind but with a state of deep frustration, indecisiveness, and with moral confusion.

Since Augustine, a long series of Christian personalities have reported on the scepticism (that is, "scepticism" in their own terminologies) that was theirs before their ultimate conversion. Some have even retained the point of view that they *are* sceptics. But it is clear that their concept of religious belief and of revelation is such that they must be said to claim at least to know the truth of every proposition of the Bible. They accept revelation as a source of knowledge of many kinds and confine their scepticism to propositions arrived at without revelation.

I have mentioned religious conversion as one current or movement in the history of ideas only as an example to illustrate the difficulties in assessing the personality background of a sceptical bent of mind. Even if that background were elucidated, it still remains to assess whether a trait found associated with non-Pyrrhonian scepticism could also be associated with the "suspension of judgment" variety. Conclusions on the psychological and social aspects of scepticism must therefore be taken primarily from the experience of contemporary psychologists and social scientists.

It seems quite likely that converts who have overcome their harrowing doubts tend to regard scepticism in the same light as do many psychotherapists and psychiatrists. For this group, "scepticism" is often made to cover certain defense mechanisms of the unhealthy mind. The patient meets the environment, including the benevolent doctor, with constant irony, sarcasm, and stubborn or blind doubt. He uses a sceptical phraseology to defend himself, to ward off any attempt to influence him in directions in which he does not want to be influenced. From his behavior and utterances, however, it is clear that his sceptical phraseology is not based on a deep and genuine scepticism. The patient accepts many things as true and valid, for instance, as a submissive or loyal member of a gang. Or, he has a tendency to reject many things as false.

The psychiatric patient may even show symptoms of compulsive doubt, *Zweifelsucht*. In psychiatric literature there are examples of psychotic *Zweifelsucht* in which the patient fights between belief and doubt in certain metaphysical positions.[3] There is no development of confidence and trust with such patients, at least not as described by the psychiatrists. Their development, especially in this respect, differs widely from that of the Pyrrhonist.

The psychopathology of doubt, indecision, perplexity, disbelief, suspicion, and mistrust is of interest to any student of sceptical tendencies, especially the sceptical stages before religious conversions. But the pictures drawn by psychiatrists bear very little resemblance to those drawn by Sextus. The Pyrrhonist is certainly very different from the psychopathic nihilist and negativist, and also from the patients who are tortured by rapid wavering or oscillation between belief and disbelief.

The Moderate or Fragmentary Scepticism of the Unphilosophical

In spite of the description of the sceptical way in the first part of this book, it is difficult to get a firm feeling for the sceptic as a person. We are invited to keep only certain rather limited characteristics in mind, the seven points of the genesis, but at the same time we want to supplement this account in such a way that a whole person emerges. I shall therefore devote the remainder of this chapter to clearing up some points regarding the sceptical bent of mind—and independently of whether the sceptic is a philosopher.

Dogmatic philosophers will, of course, confront the sceptic with specimens of knowledge that are generally considered most certain. In order to be able to meet other philosophers on their own battleground, the philosophical sceptic must therefore furnish possible counterarguments against such sentences as "I feel hot now" or "I think, therefore I am," insofar as they are posed as assertions involving the claim that they express certain or probable knowledge.

But the unphilosophical sceptic, of at least one kind, will not bother with these sentences, taking it for granted that mostly they express something that is true, but trivial. Or else, as many nonphilosophers do, he will deny the general applicability of the term *true* to the trivial or "too obvious." His scepticism is complete in its way if it comprises all knowledge *worth knowing*, all that he ever sincerely wished he knew. I think here of religious and moral doctrines and the unphilosophical sceptic's opinions on his own basic relations to his nearest family and friends. If he is rudely disappointed and frustrated because of opposing opinions on such things, his genesis as a sceptic can be the same as that of the philosophical sceptic described by Sextus. And if it is seen from a psychological and social point of view, the unphilosophical brand of scepticism will be complete and meaningful in spite of its fragmentary character from a strict cognitive point of view.

Suppose the complete but unphilosophical sceptic is led into philosophy and that he concedes that we have certain knowledge of a perceptual and of a purely logical kind. This does not require him to change his psychological and social status as a sceptic. If the concessions to the dogmatists are sufficiently remote from questions in which he is seriously and personally engaged, these concessions are without deeper effect. He is now moderately and fragmentarily sceptical as a professional philosopher, but still a complete sceptic in relation to all things worth knowing.

Whereas moderate, loose, or fragmentary scepticisms are scorned by the philosopher-epistemologists, they are central to our theme: the social and psychological aspects of scepticism. If we were to consider today only the radical, neatly, and professionally worked-out brands of scepticism, we would feel rather as if we were discussing the intimate life of an extremely rare, possibly long extinct, species of bird. But now, with this philosophically moderate and fragmentary yet psychosocially total or near-total brand of scepticism in view, I shall proceed to some rather bold speculations.

Encouraging a Sceptical Bent of Mind: Can It Ever Be Right?

In cases of deep and painful doubt and oscillation between opposite views, the therapist should, it seems, represent the dogmatist rather than the sceptic. That is, he or she must help the patient toward a stable view, a valid positive conclusion, whether or not valid in the eyes of the therapist. This may also apply to young people drifting along the stream with little feeling of identity or of anything that is truly expressive of themselves. They may look like potential (Pyrrhonian) sceptics, but they are not likely to become so. They have not gone through the presceptical stage of asking, What is truth? with strength and endurance. Therefore the sceptic's peace of mind cannot be theirs.

Admitting, however, that in many cases a tendency toward scepticism should *not* be encouraged, what are the cases in which it should or at least might? Let us first consider a young man called Max. He is brought up in a highly intellectual atmosphere with stress on articulated opinions justifying attitudes and actions. It is never enough for him to say, "That's the way I feel now," "I cannot help valuing this higher than that," "I just like it," "This, not that, is my duty," and so on; there must be reasons and claims of objective truth and validity. For various reasons Max has developed a keen critical sense, *contra*-argument coming to him more naturally than *pro*-argument. And this criticalness, owing to a not too greatly developed sense of superiority, comes as easily to him in respect of his *own* tentative positions as in respect of those of others.

Without being intellectually inferior, Max is constantly in trouble because he cannot form enduring verbalized convictions and because his father and others who try to press him into certain beliefs are largely immune to counterarguments relating to their own positions. When Max has to make decisions in school, as a student, as a friend, and in relation to the other sex, he insists on making positions conscious and on justifying them intellectually. He demands that his own actions should always be based on considerations of truth, correctness, and worthwhile consequences.

Any effort to change the old trait Max has of coming to see two sides of a thing, and his tendency toward detached objectivity and valid reasoning, is liable to fail just because this feature is so deeply engrained. And, of course, few therapists would have the audacity to interfere with it, since from many points of view such a trait is an asset. However, the case is one in which help toward a more complete scepticism is warranted. What Max lacks may be said to be the courage to oppose those who make him feel that the intellectual articulation and justification of impulses is necessary, and who have implanted in him a distrust of action or attitude formation without an accompaniment of intellectual justification in terms of truth and general validity. The sceptical outlook involves a mistrust in such justifications and a capacity to see their hollowness from the point of view of intellectual detachment and honesty. Instead of feeling that this ability to see counterarguments is shameful and expressive of inferiority, Max will be encouraged to exercise his ability and stick to his resulting intellectual indecision and suspension of judgment.

One will perhaps object that Max's cure is basically not of being led to accept and further develop his sceptical bent of mind but of being led to trust his own impulses. However, the term *scepticism* has been introduced in this text as it was by Sextus, that is, in terms of the genesis of a kind of personality. Essential in Sextus's narrative is his "impression" that indecision, or rather suspension of judgment, as to truth and falsity does not result in inactivity. Natural impulses lead to action. Upbringing, social institutions, and teachers in the arts provide a sufficient basis for adjustment, both for the passive component—the accommodation—and the active, the assimilation, in the terminology of Jean Piaget. Thus, trust in one's own impulses is an integral part of the scepticism expressed by Sextus Empiricus.

An essential kind of question for Max is, How did I come to think that in order to decide whether to go to college or not I would have to solve the question of whether an interesting or lucrative job is the best for me? Or whether there is a duty for intelligent men today to go to college in order that in 1980 the United States may have more able engineers than the Soviet Union and China put together? Max would have to train himself to have a sharp awareness of his own inclinations, develop his sensitivity, get his impulses coordinated, and use his intellectual acumen to reveal for himself the unwarranted jumps from particular, concrete personal questions to more general and abstract ones, and to distinguish innocent verbalizations ("What beautiful places some college campuses are!") from more formidable articulations in terms of truth and validity.

Let us, once more, look for personality traits correlated with a profoundly sceptical bent of mind. Let us consider a middle-aged intellectually gifted person called Adam. Adam has long had a need for a unified outlook on life of the kind that Allport takes to be a sign of health. And as far as we, his psychologist friends, are able to judge, he *had* a highly unified all-pervading outlook when he was twenty-five years old. When he had that outlook, he seemed to thrive. Then he married a headstrong girl, Mary, with a different outlook. Unhappily, there developed much friction, and Adam was gradually led to *carefully articulate his own outlook*. Articulation functioned then mainly as a defense mechanism.

Articulation presupposes a certain degree of alienation from oneself, a dangerous kind of objectivity. Adam was led to look at himself from the outside and to clarify possibilities other than his own outlook. There now developed a profound indecision and general doubt, and Adam proceeded to undergo an analysis of a somewhat orthodox Freudian kind. It was soon clear that the need for a unified outlook developed out of earlier conflicts when he was torn between his father and mother. His outlook represented a victory of the father image, but there must be something left over, something incompletely integrated in his personality. This explains why his infatuation for Mary had the serious consequence of marriage, in spite of the incongruence between the two in the matter of outlooks.

The analysis was highly successful. To put it in terms of symbols, the main result was that he saw that he no longer needed to choose between mother and father. On the contrary, he felt the arbitrariness of any choice of that kind. Transferred to the field of conscious behavior, it meant a rejection of unified outlooks, a natural disinclination to let himself fasten onto any decision in terms of outlooks on life or anything else. Confronted with believers in the truth of any religion, philosophy, or political ideology, he developed counterarguments in a natural way. Having William James as a distant relative, he often justified his renunciation of knowledge in terms of pragmatism, but he did not really believe in pragmatism. He used pragmatic patterns of argumentation because they were the most convenient way of cutting off reflections leading nowhere.

Whatever the genesis of a definite general outlook, it cannot be shed like a coat. It is therefore not surprising to hear from the psychologist friends of Adam that his social and physical perceptions still have a peculiar tone or color consistent with his former highly integrated outlook. The difference is that he will not stand up and defend his impressions and reactions as any more valid or true than any other. He trusts his impulses, but his intellectualizations have disintegrated, leaving only the minimum necessary for adjustment to his social environment.

Today I surmise that there are many psychotherapists who are not far from scepticism in their basic attitudes, however full of certainty they may sometimes be in their speech. This makes it easier to help unburden over-intellectualized minds of unnecessary, unending reflections about truth and falsity and validity and invalidity. I should think therefore that scepticism of the radical kind we are discussing should not be wholly without practical importance for psychotherapy; here at least is one context in which it may be considered practically desirable. The relevance in wider contexts of a conclusion about the practical value of scepticism in this one field must be left to those who would consider in more detail the connection between mental health and community, and the importance of a sceptical attitude among those who would seek to influence the development of society. One might reasonably predict important social implications coming from widespread scepticism, even from the fragmentary, unphilosophical kind. It should effectively undermine closed societies with their demands for explicit adherence to certain doctrines and the systematic rejection of counterargument. And in more or less open societies, scepticism should help both in the reshuffling of political priorities and in the elimination of rigid ideological reasoning that lacks any basis in spontaneous thought and feeling.

IV

Conceptual Complementarity of Evidence and Truth Requirements

Introduction

Knowledge implies truth: what is known cannot be false. This is a matter of definition. There are other requirements, too. In the usual case, knowledge of something is not attributable to someone as knowledge unless that person has reason for his belief. But even this is not quite enough, since a true belief based on reasons might still be rejected as knowledge if the reasons were not considered adequate. That is, for a true belief to be knowledge, the reasons or grounds for holding it must satisfy certain standards. Some people convey this by saying that knowledge is a title that beliefs must earn, and that they earn it not simply by being true but by being well grounded.

In taking up these points, we shall depart from the course generally taken in discussions on scepticism. Usually the epistemologist concerned with scepticism is occupied with general questions of the form "Do our beliefs ever earn the title of knowledge?" Ayer, for example, in *The Problem of Knowledge* (1956: 76), presents the sceptic as one who alleges that our reasons for believing something can never be good enough for the belief in question to count as knowledge, the argument being that a knowledge claim involves an "illegitimate inference" from one level of facts that form the premises of our knowledge claim, to another level of facts that form the conclusion. The problem, as Ayer sees it, is that of establishing our right to make what appears to be a special sort of advance beyond our data (ibid., p. 78). In the case of our belief in the existence of the external world, for example, the sceptic is represented as maintaining "that we have no access to physical objects otherwise than through the contents of our sense-experiences, which themselves are not physical" and that since the relationship between premises and conclusion is neither an inductive nor a deductive one, the inference cannot be justified. If our beliefs about the existence of physical objects can never be justified, the existence of physical objects can never be known.

Here, however, we will consider not the transition from a true belief to a justified true belief but the transition from a belief that is justified to a belief that is both justified and true. That is, we shall consider the interrelationship of the truth and evidence requirements of knowledge, a change of focus that brings to light a "problem of knowledge" rather different from that normally discussed, a problem of adequately conceptualizing expressions of the form "I know that *p*" in terms of truth and evidence. The import of the following discussion will be that there are difficulties in giving any consistent analysis of knowledge expressions when these are used purportedly to convey information that there is evidence for the truth of some assertion and that the assertion is true. These difficulties suggest that certain limits are imposed on the usefulness of knowledge expressions, a conclusion that would provide philosophical support for the radical sceptic's disinclination to affirm the truth of anything.

However, as in all arguments, the limits of our conclusions are as important as the conclusions themselves, and it will be necessary to note the restrictions that are imposed on them by the nature of the problem of knowledge as we conceive it. In particular, we shall have to guard against inferring from the fact that there are difficulties in giving a satisfactory account of knowledge expressions in terms of truth and evidence (or ground), the conclusion that these difficulties are in some sense "inherent in the very notion of knowledge." As we shall see, there is no obvious connection between these difficulties and questions about whether knowledge is possible or not, that is, with the problem of knowledge as ordinarily conceived. On the other hand, they do have a bearing on the acceptability or possibility of radical scepticism, and the following discussion constitutes an attempted justification of radical scepticism. (As such, of course, it is not a justification that the radical sceptic could consistently accept; but if he were favorably impressed by the arguments, he might well employ them as counterarguments against those who dogmatically assert his own intellectual unresponsibility.)

The nature of the "problem of knowledge" as discussed here can be expressed in terms of the awkwardness of applying knowledge expressions when one takes into consideration the combined truth and evidence requirements of such expressions. This awkwardness can be expressed in terms of a secondary thesis that asserts the impossibility of identifying an event that constitutes the transition from reaching toward knowledge to grasping it. In fact, the metaphor of reaching, as also of arriving at, cannot be applied to any use of knowledge expressions that explicitly differentiates the truth requirement from the evidence requirement. To put it summarily, we might say that knowledge cannot be reached in such a sense by any increase of evidence.

Restrictions and Qualifications

Some restrictions and qualifications have to be made to the above theses. First, I provide no arguments to show that concepts of knowledge that definitely imply or definitely do not imply truth and evidence are the only ones possible. For example, I shall not attempt in this inquiry to refute certain versions of pragmatism and subjectivism. There is, however, general agreement that the concepts of knowledge that imply truth and evidence are the important ones in philosophical discourse. This seems to have been acknowledged ever since Plato.[1] Apparently Plato and Aristotle did not doubt that such knowledge could be and had been reached. Indeed, Aristotle is very specific in contending that knowledge of this kind is derived through evidence. Thus, one of his theses might be formulated as follows: in at least one sense of "knowledge" and "reaching," knowledge implying truth and evidence is something that we *can* reach through an increase in evidence.

Second, although our secondary thesis about "reaching" does apply also to "arriving at," it is not intended to cover a thesis about "having." It is at least not clear that the inability to conceptualize arrival at knowledge entails the impossibility of having knowledge. Therefore the possibility that we do in fact know a great deal certainly cannot be excluded. All that is denied is that we can give any consistent account of our arrival at whatever knowledge we may have, and may have obtained.

Further, in many cases, the question of evidence and the description of steps of accumulation of evidence seem out of place. With respect to certain kinds of everyday utterances, we scarcely talk about evidence, collecting more evidence, and the like, at all. For instance, I do not speak about my evidence for believing that this is my finger or that it is not raining on this table. In the case of it being irrelevant to ask about evidence, the question of how to arrive at knowledge by an increase in evidence does not arise. In what follows I intend to talk about utterances in which it *is* relevant to ask such questions as "What about the evidence?," "How do you know?," "What makes you so sure?," "How did you find out?," and so on. Thus, if I say I am in pain, the situation is mostly of a kind that makes the quest for evidence irrelevant or at least very queer. Notice that this restriction limits our discussions appreciably compared with Sextus's and our own treatment of Sextus in chapter 1. Sextus discusses at length such sentences as "I feel hot now" and other utterances that in everyday life are not ever supposed to elicit a "What is your evidence (for such a conclusion)?" The question "What *kinds* of statement or what kinds of circumstances are such that the question of evidence is irrelevant or inappropriate?" is, of course, a formidable one, and cannot be taken up here. Some philosophers, John L. Austin among them, favor broad delimitations of the field of inappropriateness (see, e.g., *Sense and Sensibilia*, pp. 115 ff.).

The Shift from Plain Announcing of Knowledge, to Justifying Claims, to Saying One Knows

To claim that knowledge cannot be reached may seem counterintuitive. Perhaps it will be protested that there are cases in which it seems utterly clear that knowledge is reached, and by an increase in evidence. Until recently, for example, there was only relatively indirect evidence in support of the existence of high mountains on the other side of the moon. But then photographs became available. Surely, then, we can say that it is true that there are mountains, and that we know it, and that truth and knowledge were reached some years ago through a definite increase in evidence. If there is a problem here, it seems only to be that of the paradox of the heap, that is, of determining at which step of accumulating the evidence it became sufficient to establish truth—with which photograph and at what stage in its production did someone grasp the truth and thus acquire the knowledge that "there are high mountains on the other side of the moon"? But if one looks a little closer into the matter, the problem confronting the epistemologist appears more involved.

The way in which people use expressions of the form "N. N. knows that *p*" suggests a model in which certain situations serve as ideal examples.

Such models of "knowing that *p*" assure a special kind of cognitive position or vantage point vis-à-vis the facts. When I say I know that something is the case, it is because I believe I am aware of the facts in some way analogous to direct perception of them; I and the facts are in the same sort of excellent cognitive relation. Just as I have things or events in view, so I have facts in my grasp. And just as I came to see things or events with my eyes, so I came to grasp the facts with my mind. Thus, prior to the photographs of the back of the moon, the facts were not grasped, but now that they are available, the fact that there are mountains there is a piece of knowledge in the hands of at least certain scientists and also perhaps of those who have seen or been told about the pictures.

The plausibility of this way of talking rests on the acceptance of certain situations as instances of the paradigm cognitive relationship. It is assumed that in certain situations we have not merely better evidence, but that the evidence we have is so good as to be tantamount to, or in some sense to guarantee, truth.

But it seems that to treat a situation as one in which truth recognizably accompanies the evidence involves an evasion or a denial of a basic fact: truth and evidence are *complementary* requirements of knowledge. Now, to describe these two requirements as complementary is simply to say that in order for "*p* is known" to be true, there must be acceptable evidence for *p*, and *p* must be true. There is, it seems, nothing inconsistent in the assumption that the two requirements are on any occasion separately satisfied; to assert that *p* may be known is meaningful and consistent. But there is no way in which this can be more than an assumption. It is not possible, so far as I can see, to give an account of some situation in which that situation can be described as furnishing either two sets of denotata answering to the truth and evidence requirements or one set of denotata that truth and evidence share. There is, in fact, no identifiable situation answering to the paradigm cognitive relationship that knowledge claims assume and sharing the assumption that lies at the basis of the utility of knowledge expressions.

These considerations can be seen to emerge when pressure is applied to everyday uses of "I know" and similar expressions. Ordinary run-of-the-mill claims to know that something or other is the case are generally unproblematic. There are fairly clearly defined rules for making such claims, and for accepting or rejecting them. That is, expressions like "I know" function satisfactorily for communication. But it seems that the utility of such expressions depends on the assumption or convention that evidence of a certain kind does constitute or guarantee truth, and hence knowledge. However, when pressure, even if only in the form of attention, comes to bear on this assumption, the complementarity of truth and evidence is exposed and the utility of the expressions rapidly diminishes.

When, for whatever reason, people go into the details of the evidence considering one piece at a time, I think most of them, whether they are philosophically sophisticated or not, tend (1) to stop using the distinctions between known and not-known and between true and untrue or (2) shift toward the question of being *justified in asserting or saying* "Now it is true" or "Now it is known." That is, there is a tendency to estimate what might be, from a social point of view, sufficient to claim this or that. "Nobody" will blame one for *saying*, "It is true that there are mountains on the other side of the moon, and at least some photographers are directly aware of the fact."

If, experimentally, we press people toward retaining the above distinctions, the results indicate a shift toward increasing indefinitely the requirements for grasping knowledge and for guarantees of truth. ("Of course one cannot be absolutely sure," "Naturally, there is always a chance of being mistaken," and so on.) Such increases in the requirements do not necessarily affect the consistency or constancy of the meaning of *truth* and of *knowledge* in everyday talk. The shifts are just part of the way the terms are used; they result in dropping certain terms and using others in their place. A sort of verbal evasion takes place: repeated posings of the question "Do you *know*?" after a while no longer elicit answers in terms of knowledge but in terms of evidence, "untranslatable" into answers in terms of reaching knowledge.

The transition from knowledge expressions to evidence expressions, the substantial increases or decreases of requirements, and concessions such as "Of course, one cannot be absolutely sure" that do *not* imply retraction of a previous "I know it": all these complicated mechanisms affecting daily use are relevant to attempts to delimit a meaning or connotation or a set of meanings and connotations of "knowing." Being conceptually indeterminate, so to speak, these mechanisms are not of a kind easily taken care of in ordinary definitions and explicit conceptual determinations (*Begriffsbestimmungen*) and are not easily adapted to formulation in terms of sets of constant requirements, criteria, or necessary conditions.

The same kind of shifts can be studied in other cases: Something is said to be known *now* but not to have been known at a previous date, and the difference is readily said to be due to an increase of evidence. But if, contrary to custom, detailed information is elicited concerning the way the difference was established, concerning the dates and the documentation and so on, there is a shift in the actual theme of the discussion from *being* true and known to *saying* that something is true and known, or from knowing to having evidence of this or that kind.

The distinction between asking "Is *p* true?" and "Is it justifiable to say (assert) *p*?" is a well-established one both in everyday life and in scientific contexts. You may say you are occupied (or not feeling well, unable to answer, etc.); that is, you may say these things even if you know they are untrue. It is perfectly justifiable to say you have found the solution. To say that you *believe* you have found it will give listeners a wrong impression—they will underestimate the evidence you have or assume you have none.

However, claiming that a difference is well established in everyday life and in scientific contexts does not necessarily imply that the definiteness of intention in communication is always sufficient to allow for the distinction to be intended. In fact, the distinction between "Is *p* true?" and "Is it justifiable to assert *p*?" is often slurred over, and in recent philosophical discussions this practice has received some encouragement, as we shall see. However, although there are well-established precedents both for making the distinction and for ignoring it, in what follows we must rely on making the distinction with great emphasis.

The conclusion drawn from empirical studies of cases in which people actually use the terms *true*, *known*, and *evidence* is, in short, *not* that they tend explicitly to give up or retract their claim to know, or that they soften the truth requirement, but that they continue the discussion as if the claim had not been made. The truth and knowledge claims are left alone: the speakers leave one subject of discussion for another—or so, at least, it appears from the point of view of the epistemologist. But, of course, a shift of ground is always relative to someone's—usually theoretically determined—partitioning of the ground, and it is no doubt possible to redraw the boundaries in such a way that we should say there was no shift of ground.

Let us nonetheless conclude that, at least from the point of view of an epistemologist who cannot imagine a situation in which the known/not-known distinction is inapplicable or can be misplaced, there is indeed a shift of ground, a *metabasis eis allo genos*.

Requirements of "Knowing" Involving Three Questions: Corresponding Questionnaires

There is, in recent philosophical discussions, a flourishing branch of the family of definitions or sets of definitions of knowledge, namely those requiring three things: that one be sure, that one have adequate grounds for being sure, and that what is claimed to be known be true.[2] I shall try in what follows to break through the barriers between epistemological discussion and empirical observation by asking, What would happen if we tried *to use* the three requirements in actual situations, if we asked whether a particular given statement fulfilled them?

Now any practical use of three such complicated decision criteria makes it necessary to apply them one at a time. But then this has a very serious consequence: Instead of a question that is timeless and abstract, we get one in which the order that three separate items are applied matters. There will now be *three* questions of the kind "Does this statement fulfill requirement *x*?" The three items may be interpreted as three necessary conditions. Together they have been considered to make up a complete set of necessary and sufficient conditions. And every time anyone correctly concludes that he or someone else knows something, it is presumed that the three questions have been given adequate answers, one for each necessary condition.

Let us call a standard set of questions asked in a definite, repeatable kind of situation a "questionnaire." The requirements, if used explicitly, will then delimit a family of questionnaires. It seems that such a questionnaire cannot easily be avoided if, contrary to custom, the requirements are to be used or put forward explicitly in concrete cases, one after the other. Persons who want to act responsibly and to make sure that they themselves or others *know* that such-and-such is the case will have to remind themselves of the three questions, listing them in one of six possible orders.

The "Third-Person" and "First-Person" Questionnaires

If I am asked, "Does N. N. *know* that Leif Ericsson discovered America?," I may decide to use the following kind of questionnaire:[3]

Questionnaire 1:

1. Is he sure that *p*?
2. Does he have adequate grounds for being sure?
3. Is *p* true?

In Questionnaire 1, (3) is clearly different from the conjunction of questions (1) and (2), provided *adequate* is defined in terms of certain (social) standards. But now we come to the problem children of our distinguished family, the criteria that I know that *p*:

Questionnaire 2:

I know that *p*—I am sure that *p*, I have adequate grounds for being sure that *p*, and *p* is true.

On questioning myself, or being questioned by others, as to whether I know *p* to be the case, what am I to do when confronted by the third requirement? What is the relation between the first two and the third for me, as I'm on the point of deciding whether I do or do not know that *p* is the case? Is it really a new question? And if so, what can I provide in answer to it except repetitions of what I have already said?

For the sake of an easy survey, both the third-person questionnaire, in which I answer questions about another person and the first-person questionnaire, in which I answer questions about myself, may be formulated thus:

Questionnaire 3:

1. Is he sure that *p*?	Am I sure that *p*?
2. Does he have adequate grounds for being sure that *p*?	Do I have adequate grounds for being sure that *p*?
3. Is *p* true?	Is *p* true?

When deciding whether *he* knows, I answer the question "Is *p* true?" on the authority of my own beliefs and grounds—a basis not referred to previously in the questionnaire. The third-person questionnaire is, so to speak, that of a bystander, an observer, or maybe an editor of an encyclopedia of knowledge, like the one compiled by Otto Neurath (whose views about knowledge were described by Russell as characteristic of an editor, not a contributor).

On the other hand, when faced with the question "Is *p* true?" of the first-person questionnaire, I shall once more ask myself, "Do I have adequate grounds?" or search frantically for something more than evidence, say a guarantee of truth, a direct, transcendental insight into the nature of things. I must look for something that allows me to eliminate the *process* of knowing, of mediation. For I am no longer being asked about grounds; the positive answer to the question of adequacy of grounds remains unchallenged but seems not to be taken as sufficient.

If I have already answered yes to the question about adequate grounds, the question "Is *p* true?" will then tend to be interpreted according to a strong or a weak interpretation of "adequate grounds," either as an awkward repetition of the question concerning adequate grounds or as an undecidable question, such as "Irrespective of my adequate grounds and my personal conviction, *is* there life on other planets?"

All through this discussion I have presumed that we are dealing with questions in relation to which the quest for evidence is relevant. In such cases, I know of no other basis except evidence for establishing truth and (true) knowledge. But, then, the third question, the truth requirement, cannot be taken as an independent requirement when an individual judges his own knowledge claims. And in that case, the third question is a misleading one.

This criticism of the set of three requirements for knowledge does not automatically apply to our consideration of the statements of *other* people. There we are bystanders, judges, sociologists, and editors. But maybe a simple change in the order of the stated requirements may save the three-requirement conceptions. Perhaps we should ask for truth first and evidence afterward. Chisholm, in *Perceiving* (1957), treats the truth requirement just as we have done so far, as the third requirement. But Ayer, in *The Problem of Knowledge* (1956), puts the truth requirement first. He writes:

> I conclude then that the necessary and sufficient conditions for knowing that something is the case are first that what one is said to know be true, secondly that one be sure of it, and thirdly that one should have the right to be sure. (P. 35)

Reformulated, this piece of text may well be taken as a member of the family of definitions under consideration, because Ayer makes the right to be sure depend on the satisfaction of certain standards of evidence.[4] A first-person questionnaire adapted to Ayer's point of view would run as follows:

Questionnaire 4:

1. Is what I say I know true?
2. Am I sure of what I say I know?
3. Do I have the right to be sure of what I say I know?

For the purpose of making comparisons with other questionnaires, let us reformulate these questions as follows:

Questionnaire 5:

1. Is *p* true?
2. Am I sure that *p*?
3. Do I have the right to be sure that *p*?

As in the case of the expression "adequate evidence," the expression "right to be sure" admits of a strong and a weak interpretation, according to whether or not one only has the right to be sure that *p*, if *p* is true. In the former case, truth is, in other words, taken to be a necessary condition for having the right to be sure, whereas in the latter case, it is not. The two interpretations may be formulated thus:

$T_0 \equiv$ adequate grounds
$T_1 \equiv$ grounds that according to prevailing standards are sufficient to justify my being sure
$T_2 \equiv$ grounds that are so good that if they are realized, then *p* is true

In the following I shall be assuming T_1 rather than T_2, that is, I adhere to the "social standard" interpretation. A positive answer to (3) (in Questionnaire 5), using T_1, amounts to a declaration that one acts as a responsible member of society. One can justify having answered positively, even if subsequent events should make it natural to conclude that *p* is false. This interpretation, in other words, provides for the eventuality that one was mistaken. If one was indeed mistaken, one nevertheless had the right to be sure.

The strong interpretation indeed is not the usual one among epistemologists. Thus, according to Ayer (1956: 43), one earns the right independently of the question of what will actually happen later. Later one may earn the right to retract the original claim. The right to be sure that *p* and the right to be sure that not-*p* are earned at definite dates by definite people. Thus, at the same time as person *A* earns the right to be sure that *p*, *B* may earn the right to be sure that not-*p*. Hence, although the strong interpretation of "adequate grounds" and "right to be sure" makes the third question a repetition of the first, the weaker interpretation allows that one may have the right to be sure irrespective of the question of truth. That is, I may, for instance, have information that no one can reasonably expect me to doubt, but which in a particular situation is misleading. Thus, I will not reject the remote possibility that I am now in Africa, but I shall insist that I have the right to be sure I am in Europe. My evidence fulfills, I firmly believe, any reasonable standard of evidence, and I shall turn with indignation toward anyone who questions that I have at least the right *to say* I know I am in Europe. I may concede remote possibilities of *p* being false and at the same time insist on having the right to say I know that *p*.

After this digression on the expressions "right to be sure" and "right to say I know," let us inspect our new formulation (5); let us call it the modified Ayer Questionnaire.

As an oral questionnaire, it is likely to be more successful than the previous first-person questionnaires, because the subject asks himself directly about *p* before he asks about his personal relations to *p*. Ontology precedes epistemology.

Empirical investigations have shown, however, that people, when asked about their relations to *p*, that is, whether they are sure and what evidence they have, tend to give up the simple straightforward expressions "It is true" and "I know" in favor of such expressions as "I am convinced it is true," "I am perfectly sure it is true," or the even more subjective "I am convinced" and "I am perfectly sure." Both logically and psychologically, this shift of ground is significant. Expressions that refer to our own relations to the proposition are used when our attention is focused on that relation. One may conclude, maybe on the next day, "I was convinced it was true, but actually it was false," "I was perfectly sure of it, but it was not so," or "I was sure I knew, but I did not." On the other hand, under these conditions one will not conclude "It was true, but actually it was false" or "I knew it, but it was false." The difference is made even clearer if I say on the next day: "I said yesterday that I was *convinced p* was true. I *was* convinced that what I said was true. But, unfortunately, it turns out that *p* is false."[5]

If, now, evidence increases—even with the force of an avalanche—(perfectly normal) people will still tend to continue to use the evidencecentered expressions; they do not revert to the simple "*p* is true." More than that, explications of truth in terms of maximal evidence seem to be self-defeating, because nobody seems to have described a kind of actual evidence possessed or enjoyed by some actual person such that the mere having or enjoying of it automatically establishes truth. Changing the order of the questions consequently does not solve our problem of how to find a natural first-person questionnaire that combines the impersonal truth requirement and the personal conviction and evidence requirement.

By empirical methods of research, the shift from truth terminology to evidence terminology may be studied in detail. We shall see that it can be explained in terms of the conceptual framework of empirical semantics. However, before embarking we should perhaps accommodate those philosophers who are still reluctant to hand over to science what they can possibly discuss in their own terms and try to put the facts into frameworks that are more familiar to them.

Of these, the game framework is one of the most absorbing at the present time. One may conceive of a mother game (or point-of-departure game), the simply-telling-what-is-the-case game that, when certain constellations are reached, can start off two mutually exclusive subgames, the truth game and the evidence game. One must make a choice at the appropriate point, and then there is no way back. If one chooses the truth game, one must stick to its own bleak and depersonalized terminology using expressions without even an implicit reference to the problems and practices of justification, possibly just repeating the truth-claim. If one chooses the evidence game, one must describe, assess, and weigh evidence, using the complicated, rich vocabulary of the trades and sciences.

In choosing and playing the evidence game, one also starts off on a new round of the mother game: Weighing the evidence, you say that such and such *are* the sources of error, that some piece of evidence is better than another piece, and so on. If your partner introduces a knowledge game ("How do you *know?*") in relation to your statements about the evidence, the crucial-choice situation may turn up once again, and you will have to choose once more between the truth game and the evidence game. But the new, subsidiary play does not ruin the principal one; you may just go ahead, continuing the moves appropriate for the situation.

So much for the applications of game concepts to the problem. But there is another popular framework among philosophers: the transition from truth to evidence or vice versa can also be conceived in terms of rationally reconstructed levels. When my attention is absorbed by the process of amassing evidence, the use of the expression "It is true" refers to second-order statements. Thus, I may say, "The evidence, it is true, has not increased to such an extent that it is simply crushing." Or we may say, "I am now perfectly convinced. That is true." Or we say, "Nobody can blame you, you were sure that the gun was unloaded. That is true. But you blundered when saying you *knew* it was unloaded."

If, being already at the second level, I start to reflect, the terms not referring to evidence and conviction disappear. If I have said "I am perfectly convinced that is true" and I am questioned about the honesty of my conviction, I shall speak of my *evidence* of the sincerity of my conviction, and this makes it difficult to revert to simply saying "It is true that I am convinced." The simple phrasing "It *is* true" may disappear only to reappear at the third level, and so forth.

Thus the shift from truth terminology to evidence terminology induced by applying the corresponding requirements separately can be neatly conceptualized; that is to say, it is possible in these terms, and no doubt in others, to provide a rational explanation of the change of ground. But what such conceptualizations so neatly express is precisely the disparity of the two requirements in their concrete application: the requirements, in short, are not *used* in such a way as to complement one another. One might say that the mistake such conceptualizations point to is that of inferring from the correctness of an analysis of "I know that *p*," in terms of two distinct requirements of truth and evidence, the conclusion that we explicitly require of particular knowledge claims that they presuppose separate answers to questions about truth and evidence.

Now this is of relevance for the analyses provided by Ayer and others who accept the three-requirement concept of knowledge. As concept mapping or rational reconstruction projects, such analyses may be helpful insofar as they abstract the logical implications of common usage. And yet, however faithfully these analyses represent the conceptual implications of "I know that *p*," it is important to see that the details of the analyses do not necessarily reproduce conceptual distinctions actually made in common usage. This can be seen by applying such analyses to concrete cases.

Suppose *A* asserts that he knows that *p*. If "I have adequate grounds for belief in *p*" and "*p* is true" are said to express two conditions for such an assertion, the mere listing of them together by another person, *B*, in the presence of *A*, changes the whole atmosphere for *A*. The requirement expressed by "*p* is true" is such that it cannot be added to "I have adequate grounds for belief in *p*" without a change of attitude; when saying "*p* is true," attention is fixed on what is asserted by *p*. The combination of the two conditions requires of *A* that he maintain a combined externalizing and nonexternalizing attitude or that he oscillate rapidly between the two.

How is *A* to interpret *B*'s interference? In all likelihood *A* will interpret the second condition, the truth requirement, as a more exacting requirement than the first, but of essentially the same kind. Invoking the truth requirement makes *A* reconsider whether the grounds are really adequate. He will reflect, "Remember, it is a question here of what is the case, not merely belief or conviction; therefore be critical in your examination of the evidence!"

In other words, the effect of introducing the analysis to people engaged in assessing *p* is to bring pressure to bear on them to increase the standard of adequacy. And further, if they yield to the pressure, the effect will be to distort usage—in the form of the adoption of a terminology with unusually severe requirements for saying "I know that *p*" and "*p* is true."

Looking closely, then, at the empirical evidence on how we actually tend to behave in situations in which we are confronted with the three requirements, it seems impossible or highly unnatural to conclude anything in terms of conceptual constructions of knowledge. In applying the three requirements, we find no neat concept of knowledge such as an analysis in terms of them suggests. The material evidence, in fact, provides no indication of such a set of mutually complementary conditions in cases of the normal use of "I know that *p*."

Insofar, then, as a three-requirement analysis expresses a model of reaching toward truth and grasping it in a way in which it is guaranteed, it seems that the model does not apply. The model, or frame of reference, or metaphor for gradually reaching knowledge through increases in evidence simply cannot be adapted to summing up or conceptualizing the empirical material.

If I gradually come nearer and nearer to an apple, I can eventually grasp it. This latter event is clearly something very different from merely getting close to the apple. In reaching for something it is possible, for example, to reach too far in our eagerness or drunkenness. Having grasped it, one may lose one's grip. Or one may be forestalled by someone else reaching it first. All this contrasts with our striving or reaching for knowledge. We may in some sense measure an increase in evidence, but we cannot measure the approximations to knowledge where knowledge requires truth. The event of grasping is just not forthcoming, and nothing corresponds to reaching beyond, losing one's grip, or being forestalled.

There are, on the other hand, some similarities between reaching knowledge and reaching apples. We may be mistaken in our belief that we have reached the apple. Darkness may make our judgment unreliable, or somebody may have put a wooden "apple" on the branch in order to teach us philosophy. But the clear and sufficiently relevant difference between reaching an apple and reaching a piece of knowledge lies in the conceptualization of the process. In order to reach the apple, one must not only come sufficiently near to it, something entirely new must happen, namely the actual grasping of the apple. And whether we are mistaken or not in believing it is a genuine apple, the actual grasping is conceivable and is conceived as an independent event providing a new kind of experience.

A Conclusion on "Reaching" Knowledge

If we conclude that knowledge cannot be reached by increasing evidence, it sounds as though we are playing into the hands of those who unduly stress human fallibility. But, of course, the formulation also covers knowledge about failures and errors. No belief can be *known* to be mistaken by increasing the evidence for its negation. So really the formulation indirectly supports infallibility as much as it does fallibility.

The formulation "knowledge cannot be reached by increasing evidence" is nevertheless misleading. What we have done is to consider some kinds of sets of proposed necessary and sufficient conditions for "knowing," especially for the truth of "I know that *p*." We have noted that when (a) "it is the case" requirements, and (b) evidence requirements are made sufficiently precise as separate requirements, there is no process comparable to a reaching and grasping of knowledge by increasing the quality of evidence. But it is just because there is no such process that the negative, sweepingly general conclusion—compared with the narrowness of the kind of requirements we have considered—may be misleading. It might lead one to think that *reaching* is in any case a good conceptual frame of reference in relation to knowledge, whatever the level of preciseness of the discussion. The empirical material, however, suggests otherwise. It might be less misleading, then, to say

"Knowledge defined conceptually in terms of requirements can neither be reached nor not reached by increasing the evidence" or "The metaphor of reaching out for, coming gradually nearer, and then eventually grasping is inadequate as a basis for a conceptualization or explication of 'knowledge.' "

Even this formulation is not an entirely satisfactory one since the inadequacy, as far as we have discussed it above, refers to a process of increasing evidence, which is only one process by which knowledge is obtained. We have not discussed, for example, the possibilities of immediate intuition.

Nevertheless, our conclusion has severe repercussions for the three-requirement conceptions of knowledge. For it undermines the assumption that there is any basis in how we commonly use "I know (that such and such is the case)" for constructing a concept of knowing that contains both a truth requirement and an evidence requirement, *each of which must be separately fulfilled*.

Now this last qualification might be taken to suggest an alternative solution. If our conceptualization of normal uses of "I know (that such and such is the case)" fails just because it demands that the truth and evidence requirements be separately satisfied, why should we not construct a concept in which the requirements do not require separate answers? That is, why not take the problematic truth requirement to be satisfiable in terms of the unproblematic evidence requirement?

Concepts of Knowing Without a Separately Satisfied Truth Requirement

Insofar as claims to know that such and such are typically accepted or rejected on the basis of evidence—either the evidence attributed to the claimant or the evidence the attributer attributes to himself—such a conceptualization might seem to do justice to ordinary usage. But although the proposed conceptualization agrees with ordinary usage in respect to making the evidence requirement the working partner, it departs from ordinary usage in making the truth requirement entirely subordinate to the evidence requirement. What the proposal requires is that we make do with evidence alone, that is, determine knowledge (and thereby truth) exclusively in terms of specified standards of evidence.

Now if the truth requirement and the requirement of adequate evidence are collapsed in this way, it is clear that I can still rationally reconstruct the process of reaching knowledge. For if the evidence according to a social standard is less than adequate, then an increase in evidence will eventually make it adequate. There is no special difficulty involved as long as adequacy is defined in relation to specified standards that have already been satisfied in other cases.[6] Thus, if the presence of an eyewitness is taken as standard for certain kinds of assertions, the event of finding an eyewitness may at the same time be an event of reaching knowledge. Both events are datable, and there is no question of what happens afterwards.

There will even be levels of evidence that more than fulfill the standards, thus making it practicable to localize the lower limit of adequacy between two levels, the level of less than adequate and the level of more than adequate. Then the difficulties of grasping knowledge as a special event as opposed to approximating it naturally disappear.

There are, however, cogent reasons for rejecting definitions in terms of standards of evidence. They lead to paradoxes, or at least to terminological oddities that few would tolerate once they were made aware of them. In other words, this conceptualization of knowledge, just as the previous one, leads to perplexities and to a negative conclusion.

To see how this is so, consider the following tentative equivalences (omitting the "being sure" requirement for the sake of simplicity):[7]

1a. Knows now at time *t* that *p*: *A*'s evidence now at time *t* that *p* satisfies the standard of evidence valid now at time *t* in the field to which *p* belongs.
1b. Knew at time *t* that *p*: *A*'s evidence at some past time *t* that *p* satisfied the standard of evidence valid at time *t* in the field to which *p* belongs.
1c. Was mistaken at time *t* that he knew that *p*: *A*'s evidence at time *t* that *p* did not actually satisfy the standard of evidence valid at time *t* in the field to which *p* belongs.

Now, so long as we retain the conventional idea that standards of evidence are modifiable, the conceptualization of "I know" in terms of specific standards of evidence will clearly lead to paradoxes. Thus, the left-hand proposition (1a) is not contradicted by the following left-hand propositions of (2a) or (2b) in the case in which equivalence (1a) holds:

2a. Knows at time $t + 1$ that not-p: A's evidence now at time $t + 1$ that not-p satisfies the standard of evidence valid now at time $t + 1$ in the field to which p belongs.
2b. Knows now at time t that p: B's evidence now at time t that p satisfies the standard of evidence valid now at time t in the field to which p belongs.

In short, giving up the separate truth requirement results in concepts of knowledge according to which two contradictory propositions may both be known, or in concepts relative to time, situation, person, or materials of evidence.

If, on the other hand, we try to resolve the paradox by avoiding the relativity to person and time, we would have to allow that there could be standards of evidence that rendered mistakes impossible. But this would exclude the modification of the relevant standards of evidence. Yet surely if we ask ourselves in what cases we would accept that evidence implied incorrigibility, we would have to allow that even if there were cases, they would seem to be so rare and uninteresting in practical life that using "know" only in those cases would virtually render the term inapplicable.

It should be noted that even if there are statements known for certain to be true, this does not show that the certainty arises from *evidence* making mistakes impossible. And incorrigible statements may not even be true, let alone known to be true, since statements might be incorrigibly false.

In any case, insofar as the establishment of social standards of evidence is not a mere fiction, these standards are fixed at levels that can be disputed. Indeed, it is the disputable character of evidence that motivates the institution of standards. They also function to avoid too severe as well as too lenient requirements of knowing; they do not function to institute the severest possible requirements. The *possibility* of agreeing to the statement "It was generally accepted that we knew that p, but it was a mistake" is left open.

If we accept:

3. If at least one person knows that p, then p is known.

Then, if (1a) and (2a) are true we accept as possible:

4. Both *p* and not-*p* are known.

In general, the following constellations among others are possible if *A* and *B* are two different persons:

A knows that *p*, *B* knows that not-*p*.
A knew that *p*, *A* knows that not-*p*.
A knew that *p*, *B* knew that not-*p*.

The possibility is not to be qualified as *remote*, for even in scientific textbooks a considerable percentage of statements judged to express knowledge are retracted as time passes. Applying (3) we get a mass of combinations of the following kinds:

Now *p* is known, whereas earlier not-*p* was known.

Now *p* is known in the scientific community *A*, whereas not-*p* is known in *B*.

In a case in which standards in a field are successively increased in severity from level L_1 to L_2, and from L_2 to L_3, and so on, then "known" would have to be indexed:

Now *p* is L_3-known (and therefore also L_2- and L_1-known), whereas earlier not-*p* was L_2-known.

In the backward(?) community *A*, not-*p* is L_1-known in *B*, *p* is L_2-known in *C*, L_3-known.

The contradiction or inconsistency can, of course, be avoided if we drop the notion "known" and adopt evidence-concepts, for instance: "N. N. had at time *t* standard evidence." But although the more complex notion does not lead to contradictions, neither, unfortunately, does it solve the problems connected with "knowing."

Note that the equivalences (1a) through (1c) make it necessary to retract the statement that *p* is known by N. N. only if certain historical investigations concerning *standards* lead to results that differ from previous ones. *New evidence directly concerning* p *is irrelevant.* It cannot change the verdict "N. N. knows that *p*," because it relates to the present and cannot affect "N. N. knew that *p*." Whatever the amount of evidence amassed in the future in support of not-*p*, the proposition "N. N. knew at time *t* that *p*" will be true. However, evidence that N. N. after all did not have the socially required evidence may result in a denial that N. N. knew.

One of the negations of (1a) and (1c) runs as follows:

5a. Does not know now at time *t* that *p*: *A*'s evidence now at time *t* that *p* does not satisfy the standard . . .

5b. Was not mistaken at time *t* that he knew that *p*: *A*'s evidence at time *t* that *p did* satisfy the standard . . .

And more complex statements:

6. *A* knows that *C*'s evidence at time *t* that *p* did satisfy the standards, but *B* knew that it did not.
7. *A* has standard evidence that *C*'s evidence that *p* was up to standard, but *B* had standard evidence that *C*'s evidence that *p* was not up to standard.

Consider guns. There are certain manipulations that once performed justify one in saying, "The gun is unloaded," but, of course, very strange circumstances may occur such that one may later establish adequate evidence that it was, in fact, loaded. If N. N. had adequate evidence at one o'clock that the gun was unloaded but later at two o'clock obtained new evidence that it was loaded at one o'clock, he still *knew* at one o'clock that it was unloaded. In court he may say, "Yes, the gun killed the dog at about one o'clock. From that time I knew it was loaded, but just before that I knew it was not loaded. Because I knew it was unloaded, I have no responsibility for what happened to the dog. I agree the gun *was* loaded all the time, but for part of the time I *knew* it was *not*."

If knowing is defined in terms of satisfaction of definite standards of evidence, however high, and one keeps the definition in mind—eradicating any association of knowing with truth and being-the-case—such pieces of conversation as the following could occur:

> Several people knew he was the murderer, but of course, as you know, he was not. Among those who knew he was the murderer, there are still some who think they know. The rest know he was not, they knew only until last spring.

Or:

> *A* is right in maintaining that the spectrobolometric method as used by astronomer *B* satisfies our standard of evidence, and that the radar method as used by astronomer *C* does so also. *B* found that the distance to the sun is smaller than *k*; *C* found it is greater than *k*. In other words, *B* knew it was smaller, *C* that it was greater. It is therefore correct to claim, as *A* does, that in view of *B*'s and *C*'s results, we know both that the distance is greater and that it is smaller.

Finally, there would be extreme oddity in the account of scientific research. The scientist would continually be finding himself encumbered with truths that his later researches would strongly incline him to renounce. Rather than have so much conflicting, even contradictory, knowledge on his hands, his wisest course might be to consign all rejected theories to a closed file marked "knowledge," and be content to concentrate henceforth on untruths. Or perhaps the natural result, both in scientific and everyday matters, would be a kind of despairing reappraisal of all past efforts and a sceptical pronouncement that none of the evidence obtained so far was correctly taken to guarantee, or to be tantamount to, the truth. The file marked "knowledge" would then have to be emptied.

So much, then, for the bold decision to conceptualize knowledge and truth in terms solely of evidence. If carried out, the use of the term *know* would differ so much from most usages relating to "know that *p*" as to be grossly misleading. If knowing is to be equated with having evidence of some kind, it would be better not to use the term *know* but to speak simply of having evidence of this or that particular kind, or simply of having standard or adequate evidence.

The conceptualizations of "It is probable that *p*" are mainly in terms of evidence. Attempts to conceptualize "I know that *p*" in terms of "It is very probable that *p*" therefore do not avoid the possibilities of both *p* and not-*p* being known. Lack of space forbids our going into detail concerning the complexities of probability constructs.

A Suggestion Not to Use Knowledge Expressions Under Certain Circumstances

In the foregoing I have argued that to require truth and evidence as two clearly separate, precise requirements of knowledge leads to the conclusion that we can never *reach* knowledge by an increase in evidence. If, on the other hand, we leave out truth as a distinct requirement and limit ourselves to requiring standard evidence, we get a strange use of "to know," and we might as well eliminate the truth in favor of the evidence terminology, or, even better, in favor of a combined statement of degree and a kind of conviction or belief and status of evidence (grounds included).[8]

What we can conclude validly at this point must be carefully distinguished. All we have indicated is that it is difficult to make sense of the idea of attaining knowledge solely on the basis of evidence when the transition from not-yet-knowing to knowing is marked by some identifiable event. It is important to note two consequences that do not follow from this conclusion. First, it does not follow that we do not or cannot know anything or even that it is less probable that we know anything. The difficulty we have discussed is that of identifying any event as the transition point at which a mere belief becomes a true belief or at which a true belief becomes a belief known to be true. From this we can conclude at most that we cannot conceptualize our use of expressions of the form "I know that *p*" when we intend them to convey information about such an event. But, of course, it is doubtful whether the impossibility of identifying such an event means that an event of the kind in question cannot occur. At least this would require other, debatable, premises. Therefore not only does the possibility of our having knowledge remain open, in terms of the above discussion, but also the possibility of our arriving at or coming *somehow* to knowledge. What is excluded, however, is the possibility that we can conceptualize and point to an event that we know constitutes our arrival at knowledge.

The second main consequence that does *not* follow from the conclusion of our discussion is that expressions of the form "I know that *p*," and other knowledge expressions, cannot be used in their normal sense for purposes of satisfactory communication.

As I shall try to show, the ordinary and normal use of such expressions does not require that the event of reaching knowledge be clearly distinguished from that of obtaining certain standard or accepted evidence. Nor does it require that it *not* be so distinguished. Such requirements are parts of explicit conceptualizations. It is only when knowledge expressions are used to express these conceptualizations that any difficulties arising out of the requirements affect their utility or smooth functioning. In the great majority of cases, explicit conceptualizations do not enter into, and thus do not determine, our use of such expressions. With regard to "I know that *p*," in cases in which the requirements of evidence and truth are not explicitly made, therefore, I suggest that the use of knowledge expressions is unproblematic. Thus, what I propose is that one may persist in using the terms *know* and *knowledge*, but only in situations in which it is taken for granted by the language community, or at least by the persons I speak to, that I do not make definite *conceptual requirements* concerning what is implied by something being known.

In seeking to justify the decision to persist in using the terms, therefore, I point to the term *know* as a term of everyday use that is applied with a certain lack of definiteness or depth of intention in relation to any conceptual framework. This lack of definiteness of intention, so I shall argue, is such that although in their everyday use of knowledge expressions, people implicitly acknowledge that what is false cannot be known (for example, when they come to believe that not-*p*, they withdraw any previous claim to know that *p*), they do not go so far as to *affirm* that what is known cannot be false or that it can. And it is because they do not think through the implication that they are able to envisage identifiable events that constitute not merely the addition of further evidence but the arrival at the truth of the matter itself. When we talk about the truth requirement, therefore, as far as ordinary use goes, neither the affirmation that what I know *cannot* be false nor the affirmation that it *can* will be to the point. They are both beyond what I can be presumed in everyday life to have thought about and to be able to understand and articulate. Thus, my usage will be a function of the definiteness of intention consistent with the context in which I use the terms *know* and *knowledge*.

It seems that the above considerations impose distinct limitations on the applicability of knowledge expressions, limitations that concern the use we have for the distinction between knowing that such and such and not knowing that such and such. We can put this more explicitly by saying that the considerations limit the range of situations in which an affirmation that we do have knowledge or an affirmation that we do not have it functions informatively. To conclude that in such situations the distinction is reasonably withheld would be to argue for suspension of judgment, and in what follows I shall argue for the decision to abstain from trying to use the distinction between knowing and not-knowing in three—in part overlapping—kinds of situations. This amounts to a rejection of any yes or no answer to the question "Can knowledge be reached?"

First, though we *affirm*, for instance, the principle of contradiction, we nevertheless delimit the scope of the distinction in such a way that it does not make sense to state that the principle furnishes an instance of knowledge or of lack of knowledge.[9]

Aristotle himself argued against the application of the term *knowledge* (*epistémé*) to first principles (*archai*). The principle of contradiction does not rest on evidence, he contends, because to accept a proposition on the basis of evidence already presupposes that the principle of contradiction is true. And since one cannot be said to know something without implying that one can point to evidence, the principle of contradiction is not an instance of knowledge. In saying that one does not and cannot *know* any principle, however, Aristotle did not imply that we are not in possession of its truth. He seems rather to have meant to reject not only the status of knowledge but also the *distinction* between known and unknown with regard to the principles.

Today Aristotle would have some support in contending that we possess certain truths without evidence, but there are also strong movements in favor of looking at such "truths" as presuppositions, postulates, basic assumptions that are neither true nor false. (This would be my position, but it will not be relevant in arguments put forward here.)

Second, there is the situation of scientific research. The rules or principles of research methodology are such that at no point is the evidence for a proposition (if there is evidence for it at all) such that it cannot be increased. The rules themselves point out the ways of increase. The weight of a piece of evidence, for instance, a document containing the report of a set of observations, inevitably decreases with time—after a sufficiently long time it comes into the hands of critical historians who apply their own cold rules for assessing the weight of written sources. As long as this development is kept in mind, there is no occasion, except in popularizations, for using the knowledge and truth terminology.

The basic methodological model in conceptualizing the relation between a proposition of research and its reference is such that there is no necessary connection between evidence and reference: Whatever the evidence, the proposition may or may not be true. The status of evidence is in principle irrelevant because it is constantly shifting, whereas the proposition is either true or false all the time. If there is any kind of implied sceptical bent in this, and I think there is, then it is one that cannot appropriately be formulated in terms of knowing. For reasons already stated, to say that knowledge *cannot* be *reached* would be misleading. The terminology of evidence, confirmation, and corroboration is fitted to the model of unending research.

Although one may speak of a community of researchers, it is not of the kind in which one researcher "*vouches* for the truth" (Ayer 1956: 17)[10] of what he or others say. Vouching, swearing, promising, or pledging one's honor have no place in scientific methodology. The term *scientific knowledge* is widely used among researchers when talking about comprehensive sets of sentences, but in the more professionally serious and heavily conceptualized parts of their articles and books "I know that such and such" and related phrases are rare. There is little importance attached to considerations about which propositions have and which do not have the status of knowledge. Thus, to refrain from using knowledge expressions in scientific texts does not create any problems affecting research communications and is a common practice.

Use of "Know" and Definiteness of Intention

We have mentioned as an explanation of the fact that vernacular distinctions between what is and what is not known and between knowledge reached and knowledge not reached do not always work, a factor that we have termed *definiteness of intention*.[11]

The general idea of degrees of definiteness of intention is as follows. When, under definite circumstances at a definite date, I use a sentence (or, more generally, an expression) to express something, I intend just this something and nothing else. Reflection, perhaps provoked by questions I myself or others pose, may, however, show or suggest indefiniteness in the form of vagueness or otherwise respecting the borders between the intended something and other things.

Certain distinctions may or may not have been present to my mind, or have been present with varying degrees of clearness. Or, although introspection does not reveal any such conscious distinguishing, nevertheless subsequent events both of a verbal and a nonverbal kind may allow us to posit that the distinctions were used. They were available or presentable to my consciousness even if they were not in it (*prebewusst*, or "preconscious," in the terminology of Freud).

Using an expression like "I know that such and such," it may be present to my mind or at least presentable that certain requirements (for instance, honesty and correct grammar) are (or are not) fulfilled. The definiteness of intention *in the direction* of one kind of requirement, for instance, concerning the distinction between true and false, may be sharp, but in other directions, say, concerning the distinction between truth and evidence, it may be small. In that case, although I may be able to report that in saying "I know that such and such" I implied that such and such is *true*, the question of truth may not have been present to my mind as a separate question from that of evidence. Confronted with the question of the quality of my evidence, I may report honestly that in saying I knew, I intended to require good or sufficient evidence and found the requirement satisfied, but I did not make a distinction between that and truth. Or else I find that to some extent I made a distinction and took it for granted that with such good evidence truth was guaranteed, or just there as a corollary. A great variety of other kinds of reports may be had from persons (professors of philosophy and others) trying to find out what they intended when they said they knew such and such.

Measurements of definiteness of intention can be surveyed by maps showing various directions of what I term *precization*. If T_0 is a sentence, say, "I know that Columbus discovered America in 1492," more precise sentences (which are not interpretations of each other), let us call them T_1, T_2, . . . , represent main directions of precization. Sentences still more precise than T_1 may be symbolized by T_{11}, T_{12}. . . . The limit of the definiteness of intention of a person who has uttered T_0 is indicated by reporting which sentence is just within and which sentence is just beyond the discrimination of that person. Thus, one person may have intended something in the direction of T_2 (rather than T_1, T_3, . . .), but did not take into account the differences between T_{21}, T_{22}, and so on. Another may have intended T_{22}, but did not have sufficient definiteness of intention to discriminate between T_{221}, T_{222}, etc. He neither meant to express T_{221} nor *not* to express T_{221}. They are transintentional.

Let us now apply this apparatus:

1. $T_0 \equiv$ I know that p

As first-order precizations, we could take some of the different conceptualizations in terms of three requirements. But we should also take some other formulations, as follows:

$$T_0 \equiv \text{I know that } p \begin{cases} T_1 \equiv \begin{array}{l} \text{I am convinced that } p \\ \text{I have adequate evidence that } p \\ p \text{ is true} \end{array} \\[1em] T_2 \equiv \begin{array}{l} \text{I believe that } p \\ p \text{ is true} \end{array} \\[1em] T_3 \equiv \text{I have adequate evidence that } p \\[1em] T_4 \equiv \text{I have verified that } p \\[1em] T_5 \equiv \text{I am willing to vouch for } p \end{cases}$$

Many people have a definiteness of intention that is insufficient to discriminate even these first-order precizations. (They may show very sensitive discriminations, but not exactly in the directions listed.)

In order to explore the limits of the definiteness of intention among those who intended something like T_1 by T_0 a selection of second-order precizations must be used. They can be constructed on the basis of the following two sets of precizations of certain parts of T_1 and by precizations of a third sentence W_0:

$$U_0 \equiv \begin{array}{l} \text{I have adequate} \\ \text{evidence that } p \end{array} \begin{cases} U_1 \equiv \begin{array}{l} \text{I have evidence satisfying the social} \\ \text{standard valid for the field to which} \\ p \text{ belongs, and justifying my saying} \\ p \text{ is true} \end{array} \\[1em] U_2 \equiv \begin{array}{l} \text{I have such good evidence that it is} \\ \text{unreasonable to doubt that } p \text{ is true} \end{array} \\[1em] U_3 \equiv \text{I have conclusive evidence that } p \end{cases}$$

$$V_0 \equiv p \text{ is true} \begin{cases} V_1 \equiv \text{there is conclusive evidence that } p \\ V_2 \equiv \text{it is the case that } p \\ V_3 \equiv p \text{ belongs to an all-embracing coherent system} \end{cases}$$

One of the precizations of U_0 is in all relevant respects identical with one of the precizations of V_0. For those who by U_0 intend U_3 and by V_0 intend V_1 there is no special difficulty in answering both questions: "Do you have adequate evidence?" and "Is *p* true?" They take the questions to mean the same thing.

The other combinations (U_i, V_j) may be put in two classes: those for whom a positive answer to U_0 *somehow* implies a positive answer to V_0, and those for whom V_0 is an entirely new proposition. For those who allow V_0 somehow to be implied by U_0, a set of precizations of the expression W_0: if U_0, then V_0 is worked out. Its function is to elicit reactions showing exactly how individual persons think U_0 is connected with V_0.

The working hypotheses based on preliminary empirical findings are as follows:

1. Most people have a definiteness of intention using "I know that *p*," and closely related sentences, that falls short of $T_1, T_2, \ldots$
2. Very few people have a definiteness of intention sufficient to discriminate $T_{11}, T_{12}, \ldots$
3. The smooth application of "I know that *p*" is hindered as soon as the precizations $T_1, T_2, \ldots$ are applied, and very strongly inhibited if $T_{11}, T_{12}, \ldots$ are applied.
4. Those who intend something definite in relation to first- or second-order precizations have difficulties in being consistent.

In this last hypothesis I refer to reactions to questions relating to evidence gathered by *A* supporting *p* and by *B* supporting not-*p*. People get into trouble when they are made aware of the possibilities of contradictions.

The general conclusion to be drawn is this: The use of "I know that *p*" has limited applicability. It cannot be mapped out in relation to a set of precise concepts; it works as long as such relations are ignored.

One of the reasons why it is rather difficult to keep variations in definiteness of intention in mind is that these differences are not usually indicated by separate words or phrases. To use such phrases as "loosely speaking," "vaguely suggested," or "with not too great an emphasis on unambiguousness" would help very little and could make texts unreadable, or at least unread.

The statement on page 78 (under the heading "Requirements of 'Knowing' . . .") is a case in point. Three "things" are "required," and the requirement is then formulated in very loose words, considering the complexity of the subject. The first requirement, that one must be sure, is suggested by the vague words "one must be sure." Some people tend to interpret these words in the direction of an actually felt, strong conviction. But in that case, many instances of "know" would be misuses, because claims to know are by no means always accompanied by any such strong feelings. Especially in the case of textbooks, or of a lecturer repeating certain statements for the tenth time, the only feeling to be experienced is likely to be one of boredom.

So there are a *variety of requirements* that might all be loosely expressed by "one must be sure." Indeed, the phrase may not be so bad as an initial formulation, chosen because of, not in spite of, its indefiniteness, as is precisely the case on page 78, where in order not to close the doors to a number of interesting and relevant requirements, the formulations are purposefully kept vague.

But there is something more important to be remembered. Saying, as I have just done, that there are a variety of requirements that might all be loosely expressed by "one must be sure" (T_0), it is suggested that by taking a step toward clarification I could propose at least two formulations (T_1 and T_2) that in a simple, unambiguous way express two definite requirements, R_1 and R_2. Implicit in this suggestion is that I have two such requirements "in mind," that they exist already, and that the only question is how to express them.

The principle of limitation and relativity of definiteness, however, goes against this simplistic view of the situation. In order to bring out the full consequences of this principle, we need to substitute for the concept of precization that of direction of precization.

If T_1 and T_2 are two precizations of T_0, and T_{11} and T_{21} are two precizations of T_1 and T_2, two main directions of precization are indicated: that from T_0 through T_1 and that from T_0 through T_2. There is in theory no halting place or end, but it is convenient to talk *as if* there were. We say that "to be sure" may mean this or that, mentioning two precizations. These are taken as expressive of two concepts of being sure. But it would be better to talk of concepts in the direction of such and such and concepts in other directions, taking precizations as indicators of directions.

Applying this to what we have been calling "requirements," we may now talk of sets of three requirements (each ad hoc), delimited by three expressions, namely those used on page 78. That is, those expressions are used as initial formulations (T_0, U_0, V_0).

The question "Do everyday uses of 'I know that *p*' satisfy the three requirements" may now be restated so as to avoid an important impasse:

> Do everyday uses of "I know that *p*" satisfy the three requirements at least at one level of definiteness of intention and, if so, at what level?

This new way of putting the question does not exclude the possibility that one answers yes in relation to certain levels and no in relation to others.

From this new point of view, it is also clear that to speak straightforwardly about requirements is only justifiable in a very tentative manner: it may be that to people in a particular discussion no definite requirements are intended, in the sense that all the participants may have deliberately limited their definiteness of intention.

What is intended when an expression like "I know that *p*" is used in everyday situations is mostly and on the whole *not definite enough* in relation to questions of evidence and truth to warrant any explication *or* precization in terms of definite sets of precise requirements involving conceptualizations of "evidence" and "truth." All such sets of requirements will therefore represent transintentional entities—entities going beyond, but not necessarily against, the intention of the speaker, writer, or listener. If transintentional precizations of "I know that *p*" pointed in one main direction, furnishing consistent concepts of knowledge, it might not be highly problematic to use "I know that *p*" in situations in which it is necessary to show great care concerning the status of *p*. But epistemological discussion shows that vast difficulties have to be surmounted in order to find even one consistent trans- (but not anti-) intentional concept. The most reasonable policy is therefore to avoid the expression "I know that *p*" in situations in which a considerable definiteness of intention is required concerning that status of *p*.

The third kind of situation in which the use of the terms *know*, *knowing*, *knowledge*, and so on, are not to be recommended can therefore be described as the kind of situation in which a definiteness of intention in epistemic matters is required that goes beyond that of everyday situations. By epistemic matters, I refer to questions concerning certainty, evidence, and probability. Thus formulated, the third kind of situation may include instances of the two foregoing.

Expressions of the form "I know that *p*" lead to satisfactory communication if the required definiteness is low. The expressions "I have adequate evidence that *p*" and "*p* is true" function satisfactorily if used separately. What does not succeed is to explicate the first in terms of the last two. It does not succeed because, as we have seen, conceptual clarification of the terms involved makes it impossible to apply the metaphor of reaching truth when establishing truth is taken as a separate concept from acquiring adequate evidence. And if it is not taken as separate, the consequence will be that contradictory propositions can both be known. (Thus "I know that *p* and he knows that not-*p*.")

Increased definiteness of intention shows itself in the application of a more discriminating set of distinctions. The third kind of situation might therefore also be described as situations in which a set of precise distinctions is presumed to be applied that is foreign to or inconsistent with the vernacular use of *know*, *knowing*, and so on. The notion of definiteness of intention is useful in order to make clear what kind of inconsistency is relevant here.

A Conclusion on the Complementarity of Truth and Evidence

That under certain conditions a set of distinctions implied by knowledge expressions cannot be usefully applied is a sufficient basis for recommending that the corresponding affirmations "I know" and "I do not know" be withheld when these conditions are valid. Under these conditions, then, it is reasonable to withhold judgment. According to the arguments, the only cases in which the conditions preventing applicability do not hold are those in which knowledge expressions are used with limited depth of intention, in fact when they function not to convey clear and precise distinctions, but as more or less conceptually innocent gestures, something approaching the "utterances" or "sounds" (*fonai*) mentioned by Sextus Empiricus (see page 7) in connection with the sceptic's avoidance of doctrinally contaminated ways of expression. Thus the force of our discussion on the complementarity of truth and evidence is such as to bring out the strength of Pyrrhonian scepticism as described by Sextus.

The awkwardness of applying knowledge expressions when they are intended to convey in any precise manner the distinction between truth and evidence makes suspension of judgment at the corresponding depth of intention reasonable. When the depth of intention is such that "I know that *p*" implies complementarily that *p* is true and that I have evidence for *p*, the affirmation expressed by "I know that *p*" no longer has the applicability that the same expression has when the truth and evidence requirements are not intended as complementary. Thus, the applicability of a claim to know that such and such is a function of depth, or definiteness, of intention.

When depth of intention precludes the application of a knowledge expression, it does not, of course, follow that the statement expressed by it would be false. Our conclusion that in certain circumstances the application of knowledge expressions becomes awkward is not to be taken to justify a general negative conclusion about the possibility of knowledge, nor even about the difficulty of acquiring knowledge in these circumstances.

Nor are we to infer that because the application of knowledge expressions depends on certain distinctions not being made precise, these expressions "really" have no application, that their only possible use amounts to misuse. What has been pointed out is only that there are good reasons for not using knowledge expressions in certain circumstances, the circumstances in question being those in which the truth and evidence requirements of knowledge are conceptually distinguished. It is not implied that because in the vernacular use of these expressions there is a failure to think this distinction through, such use is in some sense debased. The inapplicability or awkwardness of a vernacular term in certain kinds of situations should not be taken to indicate an imperfection in the vernacular, but as a warning that the limits of the area of useful application of certain terms are sometimes closer at hand than one might expect.

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