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MEANING AND ARGUMENT

A theory of meaning centred on
immediate argumental role

CESARE COZZO

ALMQVIST & WIKSELL INTERNATIONAL

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A theory of meaning centred on immediate argumental role

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Abstract

This study presents and develops the argumental conception of meaning. The two basic principles of the argumental conception of meaning are: i) To know (implicitly) the sense of a *word* is to know (implicitly) all the argumentation rules concerning that word; ii) To know the sense of a *sentence* is to know the syntactic structure of that sentence and to know the senses of the words occurring in it. The sense of a sentence is called *immediate argumental role* of that sentence. According to the argumental conception of meaning a *theory of meaning* for a particular language yields a systematic specification of the understanding of each sentence of the language which is a specification of the immediate argumental role of that sentence.

The immediate argumental role is a particular aspect of the use of a sentence in arguments. But it is not the whole use in arguments, nor is the whole use of a sentence in arguments reducible to its immediate argumental role. That is why, by accepting the argumental conception of meaning, we can have epistemological holism without linguistic holism.

The argumental conception distinguishes between the *understanding* and the *correctness* of a language. On the basis of such a distinction we can admit that paradoxical languages are understandable.

The redundancy theory of truth or a realistic conception of truth are *compatible* with an argumental conception of sense. But here it is argued that, in order to explain *assertoric force*, an *epistemic* conception of truth is preferable.

Acceptance of the argumental conception of meaning and of an epistemic conception of truth leads to a rejection of the idea of analytic truth. The argumental conception is *pluralistic* with respect to the understandability of different logics, and *neutral* with respect to their correctness.

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Key words: theory of meaning, argumentation, holism, logic, truth.

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De celo quoniam non lapsa est norma loquendi
Lorenzo Valla, *Ars Grammatica*, 181.

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PREFACE

This is my second philosophical dissertation. The first is my Italian *tesi di dottorato* entitled *Teoria del Significato e Filosofia della Logica*, completed in 1992 and now published by the publishing house CLUEB of Bologna. In that book, which deals also with the truth-conditional and verificationist conceptions of meaning, the reader can find a different presentation of the argumental conception of meaning developed here. After the Italian dissertation, however, I soon felt unsatisfied with my first treatment of the argumental conception. I thought that various aspects of it could be significantly improved, and in general I deemed it necessary to articulate my view in more detail. So I conceived the plan of writing my Swedish dissertation entirely about the argumental conception. Gradually, further reflection upon the subject, also prompted by many stimulating discussions during the Thursday seminars at the Department of Philosophy of the University of Stockholm, persuaded me that other substantial revisions of my previous theses were necessary.

Here, I cannot make a list of all the differences between the two versions of the argumental conception respectively presented in the two books: I shall mention only the most important novelties. I owe the most visible and pervasive difference – which I consider an important progress – to my supervisor, Professor Dag Prawitz, whose advice was decisive also in many other respects. During a discussion concerning the evidence for an argumental theory of meaning he made a remark through which I understood that my original choice of the fundamental notions in terms of which the various relevant meaning-theoretical concepts are defined in my previous work was not the best choice. He suggested that my view could be spelled out in another much more natural way, by adopting as a basic notion the relation of "presupposition" between words (which in the previous version was a defined notion). I followed his suggestion. To my disappointment, this involved a lot of work, which I carried out in the summer of 1993. The result is that now, if the definitions of key concepts like 'representation of a meaningful language', 'rule concerning a word', 'rule concerning a sentence', 'immediate

argumental role of a sentence' and of many other subsidiary concepts in this book are compared with their counterparts in the Italian dissertation, one will find them significantly different. Moreover, restructuring the argumental theory led me to a new approach to the problem concerning the nature of the data which are to count as evidence for (or against) an argumental theory of meaning for a particular language.

Another novelty in this book has to do with the relation between the argumental theory of sense and the philosophical analysis of the notion of truth. At first, my being in sympathy with the epistemic conception of truth prevented me from realizing that the theory of sense centred upon immediate argumental role is compatible also with different conceptions of truth and that, therefore, in order to argue for the epistemic conception of truth, one has to add considerations which go beyond the argumental theory of sense.

I presented the argumental conception of meaning in the course of some seminars at the University of Stockholm and thanks to the reactions of the participants I could understand that other aspects of my view had to be developed or modified. In particular, Dr Peter Pagin called my attention to the issue of the similarities and differences between the argumental conception of meaning and conceptual role semantics. Professor Per Martin Löf very helpfully opposed my view on the meaningfulness of paradoxical languages. Moreover, Per Martin Löf, Peter Pagin and Dag Prawitz persuaded me to modify my treatment of synonymy. Dr Fredrik Stjernberg stimulated my reflection on the publicness of meaning. I thank them all, not only for their valuable criticisms and suggestions during seminars or private conversations, but also for the kindness and friendship which they showed during my stays in Stockholm.

So many Italian friends provided encouragement, support and assistance of various kinds at different stages during the writing of this book that I cannot mention all their names. But I must at least acknowledge my debt to Carlo Cellucci for his teaching, and to Gino Roncaglia and Mario De Caro for their tireless willingness to discuss almost every topic with me. Mario, in particular, went through the whole manuscript and brought about a large number of refinements.

But my greatest debt is to Dag Prawitz; without his teaching, interest, and support, this book would have never been written.

INTRODUCTION

1. The aim of this study is to develop an idea on the general form that a theory of meaning has to take. The idea in question is that *the sense of a linguistic expression is given by some rules of its use in arguments*. This is of course a particular interpretation of the Wittgensteinian slogan that *meaning is use*. This particular interpretation is clearly different from the view that meaning is *all* the use: obviously, the use *in arguments* is not all the use. Moreover I shall not identify the sense of a sentence with all its use in arguments, but only with *a part of the global use in arguments*, the part which I shall call *the immediate argumental role of the sentence*. Thus my claim will be that the sense of a sentence is given by *a central feature* of its use in arguments. The thesis that knowledge of the sense of a sentence should be completely manifestable in a central feature of the use of that sentence has been defended by Michael Dummett. Indeed the theory I shall describe, though it is a theory of a new kind, different from the theories that Dummett has envisaged, is a theory which honours four general requirements on theories of meaning which Dummett has advocated. The four requirements, which will be analysed and defended in **chapter 1**, can be thus formulated:

1) *Connection between meaning and understanding.*

A theory of meaning should be a theory of understanding. The meaning of an expression (word or sentence) or of an utterance is what a speaker-hearer must *know* (at least implicitly) about that expression, or that utterance, in order to understand it.

2) *Distinction between sense and force.*

A theory of meaning should distinguish two aspects in the *meaning* of a linguistic act: a) the *force*, a general ingredient which is common to all the linguistic acts belonging to a certain category (e.g. the category of assertions, or questions, or commands etc.); b) the *sense*, which constitutes the particular content of the sentence that is used in that linguistic act.

3) *Compositionality.*

A theory of meaning should contain a theory of sense which specifies what counts as knowledge of the sense of each sentence in terms of what counts as knowledge of the senses of its components, in such a way that knowledge of the sense of a sentential or subsentential expression, according to the theory, should presuppose only knowledge of a fragment of the language, not of the whole language.

4) *Manifestability.*

The knowledge of the sense of a sentential or subsentential expression should be completely manifestable in the exercise of a specific practical ability, so that an understanding of the expression can be publicly testable and any difference in understanding between two speakers can in principle be discovered.

2. The idea that the meaning of an expression is its role in arguments, or in reasoning, has been the starting point for many conceptions of meaning which are different from the one presented in this study. In **chapter 2**, in order to draw the reader's attention to some distinctive characteristics of my view, I shall briefly survey some of the other conceptions of meaning which start from such an idea. I shall examine Wittgenstein's, Dummett's and Prawitz's, Sellars', Harman's and Field's ideas on meaning, inference rules and conceptual role. My main conclusion will be that these conceptions are either too vague and undeveloped, or too restrictive with respect to the form of the meaning-giving rules, or in conflict with at least one of the four requirements.

3. The impatient reader may skip the first two chapters which are only a preparation for the exposition of my view. The exposition of the general form of a theory of meaning centred on immediate argumental role starts in **chapter 3**. For short, I shall sometimes call a theory of this kind "an argumental theory of meaning", and I shall call "the argumental conception of meaning" the view defended in this book according to which what counts as an understanding of a

particular language is correctly described by an argumental theory of meaning for that language. The basic theses of my view are the following.

i To know (implicitly) the sense of a *word* is to know (implicitly) all the argumentation rules concerning that word.

ii To know the sense (i.e. the immediate argumental role) of a *sentence* is to know the syntactic structure of that sentence and to know the senses of the words occurring in it .

Chapter 3 is devoted to making these two principles precise by clarifying the notions of ‘argumentation rule’, ‘concerning’, ‘knowing the sense of a word’, ‘knowing the immediate argumental role of a sentence’. The clarification of these notions is achieved through the definition of various auxiliary notions. The most important supplementary notion is the notion of a reflexive, transitive and non-symmetric *relation of presupposition* between words: a word W^1 presupposes a word W^2 if, and only if, a speaker's understanding of W^1 entails his/her understanding of W^2 . A meaningful language is represented by a triple $\langle L, A, \geq \rangle$, where L is a set of syntactic rules, A a set of argumentation rules, and \geq a relation of presupposition between words. On the basis of the relation of presupposition the notion of ‘language fragment presupposed by a sentence’ is defined. According to the theory of meaning centred on immediate argumental role, in order to know the sense of a sentence in a language $\langle L, A, \geq \rangle$, it is necessary and sufficient to know the syntactic structure of the sentence and the senses of the component words. Such a knowledge requires only a knowledge *of the language fragment presupposed by the sentence*, which is a sublanguage of $\langle L, A, \geq \rangle$. Thus the theory fulfils the requirement of compositionality. A speaker's knowledge of the immediate argumental role of a sentence S is completely manifestable in the exercise of the practical ability to analyse S syntactically and to follow the argumentation rules concerning the words in S . Thus the theory fulfils the requirement of manifestability too.

4. To know the immediate argumental role of a sentence is not to know all its use in arguments. In **chapter 4** I shall give a precise notion of *global* argumental role of a sentence *S* in a language $\langle L, A, \geq \rangle$, which corresponds to the informal notion of ‘all the use of *S* in arguments in the language’. I shall show that the global argumental role of a sentence in $\langle L, A, \geq \rangle$ can transcend its immediate argumental role in $\langle L, A, \geq \rangle$. This is an important characteristic of the theory of understanding that I present in this book, because it shows that the theory is compatible with *epistemological* holism, though it is compositional and thus incompatible with *linguistic* holism. *Linguistic* holism is here meant as the doctrine that in general in order to understand a sentence belonging to a language it is necessary to understand the whole language. *Epistemological* holism is meant as the doctrine according to which what can count as a justification of an assertion, i.e. as an acceptable argument for the asserted sentence, does not depend only on the sentence, on its component words and on the fragment of language that they presuppose, but also on other parts of the language and on other sentences accepted as true. Chapter 4 shows that epistemological holism in this sense does not entail linguistic holism.

5. The first section of **chapter 5** is devoted to considering one of the most striking characteristics of the argumental conception of meaning: since the argumental conception does not place any *a priori* restriction on the argumentation rules that can give meaning to the words of a language, the argumental conception allows that there can be meaningful (i.e. understandable) *paradoxical* languages (or fragments of language). This feature of my view runs counter to a common assumption of many philosophers (e.g. Montague, Prior, Belnap, Dummett, Prawitz), the assumption that a paradoxical language cannot be meaningful and understandable. Against this assumption I shall claim that *if* we think that a theory of meaning *a)* should be a theory of understanding, *b)* should be adequate to explain linguistic practice and *c)* should satisfy the requirement of manifestability, *then* we ought to admit the possibility of meaningful languages that are paradoxical. I shall make out my case by exploiting the fact that we often construct and use (even fruitfully) languages

that are paradoxical (think of set theory, or of the calculus in the seventeenth century) and languages for which we have no guarantee that they are not paradoxical.

According to the argumental conception of meaning it is possible to understand paradoxical languages. But to maintain that we can understand paradoxical languages is not to deny that paradoxical languages are *incorrect*. The supporter of a theory of meaning centred on immediate argumental role *distinguishes between understandability and correctness of a language*. This distinction will be made in the second section of chapter 5. Mere understanding does not guarantee the correctness of the understood language. The notion of correctness *of a language* is of course different from the notion of correctness of an *argument* or an *assertion* which can be put forward *within* a language. The correctness of a language depends on different, contextual, sometimes conflicting, criteria (non-paradoxicality, simplicity, epistemic fruitfulness) which are relative to concrete epistemic situations in which the language is used. Thus, the judgment about the correctness of a language can change when the epistemic situation changes. Scientific change often involves language change, guided by the various aforementioned criteria.

6. Chapter 6 deals with assertion and truth. To know the immediate argumental role (i.e. the sense) of an uttered sentence is not enough in order to understand the utterance. According to the second general requirement on theories of meaning considered in chapter 1, it is also necessary to know the force of the utterance. If the utterance is an *assertion*, in order to understand it, one has to know the *assertoric force*, which is common to all assertions. What is assertoric force? In other words: what does a speaker do, when he or she makes an assertion? In section 1 of chapter 6 I shall maintain that a first step towards an explication of assertoric force is to realize the connection between assertion and truth: *by the act of asserting a sentence we implicitly raise the claim that the uttered sentence is true* (in the circumstances of utterance). However, this view of assertion is open to many different interpretations, because the notion of truth could be interpreted in many different ways. In section 2 I shall consider two ways of interpreting the notion of truth: the redundancy theory of

truth and the realistic transcendent conception of truth. I shall maintain that both views are *compatible* with the theory of sense centred on immediate argumental role described in chapters 3-5, but at the same time I shall advance *independent* considerations to the effect that both conceptions of truth are unsatisfactory. Then, in section 3 of chapter 6, I shall propose an *epistemic conception of truth*, which is not only compatible with an argumental theory of sense, but also shares the general spirit of such a theory, which gives priority to notions related to our epistemic and linguistic practice of giving *arguments* in support of assertions. According to the epistemic conception of truth proposed in section 3, a sentence S (possibly relativized to some circumstances of utterance if it contains indexicals) is *true* if, and only if, S (or an appropriate reformulation of S, if S contains indexicals) is *assertable in an ideal epistemic situation*. A similar idea was proposed by Hilary Putnam in *Reason, Truth and History*, but the idea remains unclear until some explication of the notion of an ideal epistemic situation is given. Following Peirce, I shall describe an ideal epistemic situation for a sentence S as a situation which would be reached in the long run if an inquiry concerning S were to be pursued in the best way, by employing enough time, collecting all relevant information, exerting enough thought, performing enough experiments etc., so that after having reached such a situation no further investigation could bring about a rational change of our attitude towards S. The course of inquiry concerning S and leading to an ideal epistemic situation for S involves also *improvements of the language*. Rational inquiry passes through many modifications of the language in which this investigation is carried on. Such modifications (which are also modifications of the accepted argumentation rules) are guided by the different criteria of correctness of a language mentioned in chapter 5. According to the epistemic conception of truth proposed in section 3 of chapter 6, a sentence S in a language $\langle L, A, \geq \rangle$ is true if, and only if, there is an ideal epistemic situation E^* for S in which an *argument* for S (or for an appropriate reformulation of S in case S contains indexicals) is constructed according to the argumentation rules of a language $\langle L^*, A^*, \geq^* \rangle$ which is *correct* with respect to E^* and which results from rational modifications of $\langle L, A, \geq \rangle$ and preserves the immediate argumental role of S in $\langle L, A, \geq \rangle$. Thus – I shall maintain

in section 4 – when we understand the assertoric force contained in an assertion, we implicitly understand that our language and its present argumentation rules can be rationally changed and enriched so as to comply more and more with the different criteria of correctness of a language, in order to reach an ideal epistemic situation where the truth-claim raised by the act of assertion can be justified. The assertoric force that we attach to the asserted sentences makes our language open and dynamic, it drives us beyond the set of rules that we presently accept, towards possible rational changes of those rules. Our understanding of language does not give us in advance a specific knowledge of what the particular changes will or can be, because they depend on the future epistemic situations in which the language can be used, which cannot be foreseen. But by understanding assertoric force, we understand that the language is open to such changes.

7. Chapter 7 will draw an important consequence from the thesis of chapter 5 that the understandability and the meaningfulness of a language do not guarantee its correctness and from the connection between truth and correctness of the language expounded in chapter 6: there are not sentences that are true only in virtue of meaning, i.e. only in virtue of what constitutes a speaker's understanding. In other words, as Quine concluded already in 1951 in "Two Dogmas of Empiricism", but for somewhat different reasons, *there are not analytic truths*. Differently from Quine, I shall maintain that it is possible to distinguish between *knowledge of language*, which constitutes our understanding of the language, and *the rest of our knowledge*. The rest of our knowledge consists of statements for which we have arguments that are *constructed* in the language, but are not constitutive of linguistic understanding. If a speaker hadn't constructed such arguments, ignorance of the arguments would not affect the speaker's understanding of the language and he or she would not be counted as lacking linguistic competence because of such an ignorance. But, though we can distinguish between knowledge of language and the rest of knowledge, there are not analytic truths. The truth of a statement is its assertability in an ideal epistemic situation. Assertability in an ideal epistemic situation does not depend only on what one has to know in order to understand the

uttered sentence, but also on whether – in the ideal epistemic situation – the language to which the sentence belongs satisfies the many contextual criteria (non-paradoxicality, simplicity, epistemic fruitfulness) considered in chapter 5. Such criteria are ultimately related also with the possibility of dealing with *empirical* evidence by means of the language in question. Therefore a sentence cannot be true only in virtue of its meaning. In particular *logical truths* are not true in virtue of the meanings of logical constants. The understandability of a logic does not guarantee its correctness. The correctness of a logic depends on the correctness of the language in which the logic is framed, which can be evaluated only in concrete epistemic situations. Such an evaluation may change in subsequent epistemic situations until an ideal epistemic situation is reached where the attitude towards that logic becomes stable. A theory of meaning centred on immediate argumental role answers the question about the understandability of a logic. In order to understand a logic we need only to know the argumentation rules concerning the logical constants. In order to give meaning to a logical constant it is sufficient to associate some argumentation rules with it. Thus, the view I expound in this book is *pluralistic with respect to the understandability of different logics*. But the theory of meaning cannot answer the question whether a logic is correct or not, because the latter question must be decided in concrete epistemic situations which the theory of meaning cannot describe in advance. Thus, an argumental theory of meaning is *neutral with respect to the correctness of a logic*. In the last section of chapter 7, on the basis of these ideas, I shall criticize Dummett's argument against classical logic and in favour of intuitionistic logic.

CHAPTER 1

Four requirements on theories of meaning

1. The notion of a theory of meaning for a language.

An important feature of Wittgenstein's approach to the philosophy of language in the *Philosophical Investigations* is that Wittgenstein does not want to develop his ideas into a systematic *theory* of meaning.¹ The present study, on the contrary, agrees with the view described by Dummett in the following passage:

according to one well known view, the best method of formulating the philosophical problems surrounding the concept of meaning and related notions is by asking what form that should be taken by what is called 'a theory of meaning' for any one entire language; that is a detailed specification of the meanings of all the words and sentence-forming operations of the language, yielding a specification of the meaning of every expression and sentence of the language.²

A theory of meaning for a language L should specify in a metalanguage the meaning of every word of L so as to yield a specification of the meaning of every expression of L. The construction of such a theory – Dummett adds – is not viewed as a practical project. The philosopher's task is rather to expound the general principles according to which such a construction could *in principle* be carried out, i.e. the *general form* of a theory of meaning in this sense.³ One of the advantages of this approach is that it makes philosophical discussion on meaning and language much more rigorous and precise. Inchoate and indetermined ideas are developed in detail and their consequences, their merits and demerits become

¹ Cf. Wittgenstein (1953) I. 109: "we may not advance any kind of theory. There must not be anything hypothetical in our considerations. We must do away with all *explanation*, and description alone must take its place".

² Dummett (1975b) p. 97.

³ Cf. also "No-one is actually going to construct a theory of meaning for a natural language; the questions we must ask, as philosophers of language, concern *how* such a theory is to be constructed", Dummett (1987) p. 254.

clear, so that the ideas in question can be better evaluated and criticized, if they are wrong. It seems to me that, if philosophy has to be critical, this is our duty.

Dummett has formulated four requirements on theories of meaning. In this chapter, I shall expound and defend Dummett's four requirements. But my formulation of the requirements (in particular as far as the requirement of manifestability is concerned) partly differs from some of the various formulations which occur in Dummett's writings.

2. First requirement: *the connection between meaning and understanding.*

A theory of meaning should be a theory of understanding. The meaning of an expression (word or sentence) or of an utterance is what a speaker-hearer must *know* (at least implicitly) about that expression, or that utterance, in order to understand it.

The first requirement states the fundamental aim of a theory of meaning. Words would be mere sound waves or ink spots, if we couldn't understand them. A language wouldn't be a language, if it weren't understandable. Therefore the main task for the philosophy of language is to explain what it is to understand a language.⁴ Understanding a language can be considered a very particular kind of knowledge, knowledge of a language.

The most crucial philosophical problem is not what it is to understand a language *by means of another language* which is already understood. The capacity to learn a language on the basis of another language obviously presupposes an understanding of some first language. Thus the primary problem is what it is to understand a *first language*, independently of other languages. If the understanding of a first language is considered a particular kind of knowledge, such a knowledge *must be finite*, because language users are finite beings. Moreover *it cannot be completely explicit*. Explicit knowledge involves 1) the capability to give some linguistic formulation of what is known and 2) an understanding of this formulation. Such an

⁴ Cf. Dummett (1975b) p. 99, p. 101; Dummett (1976) p. 71.

understanding must be *independent* of the possession of the piece of explicit knowledge in question, otherwise explicit knowledge could never be acquired. The reason is that in order to acquire explicit knowledge one should understand its linguistic formulation and in order to understand the latter – if such an understanding weren't independent – one should already possess the piece of explicit knowledge linguistically formulated. If the whole understanding of a *first* language L on the part of a speaker consisted in the completely explicit knowledge of a finite set K of linguistic formulations, it would presuppose an *independent* understanding of such formulations. Thus, at least some more basic linguistic formulations in K must belong to some other language which is independently understood. But this contradicts the assumption that L is a first language (for the language user we are considering). Therefore a knowledge of a first language L cannot be completely explicit; it must be at least in part implicit.

To the latter general argument, which excludes the possibility of a completely explicit knowledge of a first language, we can add the empirical (or quasi-empirical) observation that, as a matter of fact, a speaker's knowledge of his first language is mostly implicit. A speaker understands utterances in the language but usually is not capable of stating explicitly what piece of knowledge constitutes such an understanding.

According to the first requirement, an explanation of the nature of the speaker's implicit knowledge must be given by a theory of meaning. The *meaning* of an utterance is what a speaker has to know in order to understand that utterance. A theory of meaning should make meaning explicit. A theory of meaning for a particular language L should give a systematic representation of the mostly implicit knowledge which constitutes an understanding of that language; it must answer the questions: what must a speaker know in order to understand a sentence of L? what is to be counted as an understanding of such a sentence? The theory of meaning for L is formulated in a metalanguage which may also contain L as a sublanguage. Obviously, the theory is not viewed as something by means of which a being without language could get to know what a language is or could gain an understanding of the particular language L. Rather, a theory of meaning for L is a set of metalinguistic sentences, through which a

being who already understands the metalanguage (and thus L itself, if L is contained in the metalanguage) could get to know explicitly *in what an understanding of L consists*.

Chomsky⁵ introduced a famous distinction between linguistic competence and linguistic performance. The term "*performance*" is used by Chomskian linguists as equivalent to "linguistic behaviour" or "the actual use of language in concrete situations". The expression "*linguistic competence*" is used to indicate the tacit knowledge that a speaker has of the language, a tacit knowledge which provides the basis for linguistic performance, even if, for various non linguistic reasons (for example the efficiency of the speaker's vocal cords), the speaker's performance may not perfectly correspond with the speaker's competence. One's linguistic competence is one's knowledge of a particular language. Thus, if we adopt this terminology, according to the first requirement a theory of meaning must answer the question: what is linguistic competence? what must a speaker know in order to be a competent speaker? However, in section 5, following Dummett, I shall maintain that a theory of meaning ought not to be viewed as a psychological hypothesis. Therefore the conception of linguistic competence that I shall embrace is different from Chomsky's view that linguistic competence is "the mental reality underlying actual [linguistic] behavior"⁶ which is "far beyond the level of actual or even potential consciousness".⁷

3. Second requirement: *the distinction between sense and force.*

A theory of meaning should distinguish two aspects in the meaning of a linguistic act: a) the *force*, a general ingredient which is common to all the linguistic acts belonging to a certain category; b) the *sense*, which constitutes the particular content of the sentence that is used in the linguistic act.

A theory of meaning aims at detecting an order in our overall capacity to use a language. The use of a language is extremely complex and

⁵ Cf. Chomsky (1965) pp. 3-4.

⁶ Chomsky (1965) p. 4.

⁷ Chomsky (1965) p. 8.

diverse. In uttering sentences we can perform many different linguistic acts. We can make assertions, requests, offers, we can give commands, advices, instructions, we can ask questions or express wishes. Wittgenstein wrote that there are countless different kinds of use of words and sentences.⁸ But the fact which demands explanation is that we can recognize these different acts as such. *The ability to recognize different categories of linguistic acts is an important aspect of our linguistic competence.*

For example, we recognize a question as a question. This means that we recognize that it is a question and that we (implicitly) know what in general a question is. Such an understanding is clearly not sufficient for an understanding of the particular intentions of the speaker who puts the question. Martin asks "Isn't it eight o'clock?", because he wants to make me realize that it's time to go to the cinema, since we have previously agreed that we should be there at half past eight. George comes into the room just now and hears Martin's utterance. He understands what Martin has said to me, he understands that Martin has asked a question, he knows what a question is, and he understands also what particular question Martin has asked. George must understand all this, if he is a competent speaker. But he doesn't understand Martin's intention. However, his failure to understand Martin's intention does not show that George is not a competent speaker. It shows only that he doesn't know about the agreement between Martin and me. On the other hand, I understand Martin's intention in virtue of two pieces of knowledge: 1) my knowledge of our previous decision (which George doesn't know about) and 2) an understanding of Martin's utterance (which is essentially the same as George's understanding).

According to the first requirement, the meaning of an utterance is what a *competent speaker* has to know about that utterance. A theory of meaning is concerned only with the understanding a speaker must have in order to be a competent speaker, i.e. a speaker who masters the language. Such an understanding, as the example shows, *does not require a knowledge of all the intentions and the beliefs of other speakers.* What a theory of meaning should explain is the understanding that George and I, as competent speakers, have in

⁸ Cf. Wittgenstein (1953) I.23.

common. Such an understanding has two aspects: first, the understanding of Martin's utterance as a question; second, the understanding of what particular question Martin has asked. The first aspect is a knowledge of the *force* of the utterance. The second is a knowledge of its *sense*. The two aspects together constitute a knowledge of the *meaning* of the utterance.

Despite the variegated diversity of linguistic acts, since every speaker's knowledge is finite, it is a reasonable hypothesis that there be a finite number of categories of utterances which competent speakers are capable of recognizing as such, and a finite number of conventions which competent speakers implicitly accept concerning each category. In brief: we may reasonably assume that there be *a finite number of different forces*.

Frege in "Der Gedanke" (1918)⁹ was probably the first to maintain that different forces can be attached to the same sense. This is plausible because the same words can be employed in linguistic acts of different categories. The word "eight" has obviously the same sense in the question 1) "Is it eight o'clock?", in the assertion 2) "It is eight o'clock" and in the wish 3) "Would that it were eight o'clock!". Moreover – even pretheoretically – if one were to describe these utterances, one would say that the speaker, by uttering 1, *asked whether* it is eight o'clock, that he or she, by uttering 2 *asserted that* it is eight o'clock and that he or she by uttering 3 *wished* the same, i.e. that it were eight o'clock. By describing 1, 2, and 3 in this way, one explicitly separates *a common content* of the three utterances from three different forces attached to it. The existence of such a common content is also shown by systematic relations among 1, 2 and 3, of which every competent speaker is aware: question 1 could be satisfactorily answered by assertion 2, and if assertion 2 were correct, the wish expressed by 3 would be fulfilled. Thus, there must be a common ingredient of the meanings of the three utterances to which three different forces are applied. Since the meanings of the words occurring in the three utterances are not affected by the different forces, we can reasonably conclude that the meanings of the words determine the common content of the utterances. In sum, there must be an ingredient of meaning, determined by the joint contributions of

⁹ Cf. Frege (1918) p. 35.

the words used, which does not depend on the force of a linguistic act, but can enter into linguistic acts of different force. This ingredient is the *sense* of the utterance, which determines what particular question has been asked, what particular assertion has been made, what particular wish has been expressed. On the one hand, different senses distinguish different particular linguistic acts of the same category, while force is what such linguistic acts have in common; on the other hand, linguistic acts of different categories may contain the same sense, while they will always have different forces.

This leads us to the conclusion that there are *two aspects of the understanding which constitutes linguistic competence*: a ‘vertical’ aspect, knowledge of sense, which depends on the construction of compound expressions by combining words; and a ‘horizontal’ aspect, knowledge of the different forces, which is a knowledge of the conventions according to which the same (or almost the same) combinations of words can be employed for linguistic acts of different categories. A theory of meaning, *if it is a theory of understanding*, should deal with both aspects of meaning, since both aspects are constitutive of understanding. It should contain *a theory of sense*, dealing with the senses of the sentences that can be used in linguistic acts of different force and *a theory of force* dealing with the conventions constituting the forces of each category of linguistic acts. Observe that I have argued for the second requirement on the basis of the first requirement, that a theory of meaning should be a theory of understanding: a theory of meaning should distinguish between sense and force because sense and force are two distinct aspects of understanding.

4. Third requirement: *compositionality* (versus linguistic holism).

A theory of meaning should contain a theory of sense which specifies what counts as knowledge of the sense of each sentence in terms of what counts as knowledge of the senses of its components in such a way that knowledge of the sense of a sentential or subsentential expression, according to the theory, should presuppose only knowledge of a fragment of the language.

Also the third requirement, compositionality, depends on the first. It is based on the idea that the understanding of a sentence (and in general of an expression) normally presupposes only an understanding of a proper part of the language and not of the whole language. This idea can be made more precise by distinguishing two notions of 'understanding' and two notions of 'language'.

First, we can distinguish *actual* understanding and *potential* understanding. If the speaker understands a sentence actually, then he/she uses the sentence correctly in most circumstances (when he/she does not make mistakes). But there is also a kind of understanding which is only potential, and which is not sufficient for correct use. If a speaker does not understand the words which constitute a sentence S, then it is clear that the speaker does not understand S in any sense. But if a speaker understands the words constituting S₁, S₂, S₃, and understands disjunction "∨" and negation "¬", then he or she *potentially* understands *all* the sentences that can be formed from S₁, S₂, S₃, disjunction and negation, though such an understanding is mostly *not actual*. The speaker understands a compound sentence like " $\neg(S_1 \vee \neg(S_2 \vee ((S_1 \vee S_3) \vee \neg S_2)))$ " potentially, but often not actually, for example because he or she has never encountered the sentence in question and has never considered its particular syntactic structure. Nevertheless, however complex the compound sentences may be, the speaker in a sense already knows what one has to know in order to understand them. This is an instance of the phenomenon of *linguistic productivity* which impressed very much both Frege and Chomsky: "with a few syllables – Frege¹⁰ wrote – [language] can express an incalculable number of thoughts, so that even a thought grasped by a terrestrial being for the very first time can be put into a form of words which will be understood by someone to whom the thought is entirely new". According to Chomsky,¹¹ linguistic productivity is the central *fact* to which any significant linguistic theory must address itself: a language user who has observed a very limited set of utterances of his language is nevertheless capable of producing an indefinite number of new

¹⁰ Cf. the first paragraph of Frege (1923): "it is astonishing what language can do..." Eng. transl. from Frege (1977) p. 55.

¹¹ Cf. Chomsky (1975) p. 61.

utterances which are immediately acceptable to other members of the linguistic community.

Of course such a fact is not denied by the supporter of compositionality. On the contrary, the potential understanding which characterizes linguistic productivity is precisely what the supporter of compositionality tries to explain: it is on the basis of an *actual* understanding of the component words and of the laws of their combination that a competent speaker potentially understands an indefinite number of sentences which he or she has never used or heard before. But the supporter of compositionality denies that the understanding of all such sentences be *actual*; mostly, it is only potential. So a language user can understand component sentences or component words *actually* without *actually* understanding the more complex sentences which can be constructed from them and which are understood only *potentially*. The potential understanding of a compound sentence S – according to the supporter of compositionality – depends on the actual understanding of its component words and of the laws of their combination. Just because an actual understanding of the components does not require an actual understanding of S, the speaker who does not possess the latter understanding is *capable of obtaining* it on the basis of the former.

Between potential understanding and actual understanding there is a gap. The gap becomes clear if we consider that a compound sentence can be very complex. In general, even if the speaker already has an actual understanding of the component words, in order to grasp the sense of a sentence containing those words it is necessary to detect the syntactic structure of the sentence. The syntactic analysis can be rather complicated if the sentence is complex enough. In addition to the syntactic analysis one has to derive the sense of the sentence from the senses of its component words according to the detected syntactic structure, and if the syntactic structure is complex, also this task can be hard. In some cases the analysis needed can be so complicated that it can be a practically unfeasible task to obtain an actual understanding of a compound sentence, though the speaker possesses a full actual understanding of the component words and thus in principle potentially understands all the sentences that can be built out of those words.

The supporter of compositionality affirms that the actual understanding of a composed sentence implies the actual understanding of the components. Moreover the supporter of compositionality maintains that the actual understanding of the components, together with a syntactic analysis on the part of the speaker and with some reasoning based on both factors, *explains* the speaker's actual understanding of the composed sentence. But, in view of the gap between potential understanding and actual understanding, the supporter of compositionality denies that the actual understanding of the components implies the actual understanding of the composed sentence.

Besides distinguishing between potential and actual understanding, one should distinguish a notion of 'language' as a potentially infinite set of *sentences* (the set of all the *sentences* of the language) from a notion of 'language' as a finite set of *words* (the set of all the words belonging to the language). The supporter of compositionality maintains that an actual understanding of a sentence is possible without an actual understanding of the whole language, in both senses of 'language'. But while the supporter of compositionality denies *in general* that in order to understand a sentence it be necessary to understand the whole language in the *first* sense of 'language', the corresponding denial is not absolutely general regarding the *second* sense of 'language'. In other words, the supporter of compositionality maintains that – since the sentences belonging to a language L characterized by the phenomenon of linguistic productivity are potentially infinite and a speaker's actual knowledge is finite – it is *never* the case that the actual understanding of a particular sentence S belonging to L requires an *actual* understanding of *all the sentences* of L. In this sense it is *never* the case that in order to understand a sentence it is necessary to understand the whole language. An actual understanding of any sentence S can require only an actual understanding of a finite number of sentences the complexity of which is not higher than the complexity of S. I call this **the first compositional thesis**.

Moreover, the supporter of compositionality maintains that it is *almost never* the case that the actual understanding of a sentence (or a word) requires an actual understanding of *all the words* of the language. The majority of sentences can be understood without

understanding *all* the words of the language. In this second sense it is *almost never* the case that in order to understand a sentence it is necessary to understand the whole language. This is **the second compositional thesis**. The second compositional thesis admits the possibility of sentences S such that in order to understand S a speaker has to understand all the words of the language L to which S belongs. This does not imply that S cannot be understood by a finite being, if we assume that the number of words in a language is finite. However, sentences with these characteristics are exceptional cases. An obvious exception of such a kind is a compound sentence S which is formed by combining in some way all the words of the language L.¹²

From now on, in dealing with compositionality, I shall normally use "understanding" and "knowledge" as equivalent to "actual understanding" and "actual knowledge", respectively. Also in the above boxed formulation of the requirement of compositionality "knowledge" is meant as *actual* knowledge. The requirement of compositionality for a theory of meaning is based on the two compositional theses concerning linguistic understanding and on the idea that a theory of meaning is a theory of understanding. If the two compositional theses are right, the specification of senses given by the theory of meaning should be such that knowledge of the sense of a sentence S – according to the theory – *never* requires knowledge of the senses of *sentences* whose complexity is higher than the complexity of S and *almost never* requires knowledge of the senses of all the *words* of the language. This is exactly what the requirement of compositionality demands.

A rejection of compositionality corresponds to the view which may be called *linguistic holism*. One can distinguish two versions of linguistic holism according to which of the two compositional theses is denied. **Linguistic holism 1** denies the first compositional thesis, and hence affirms that there are sentences S such that an actual understanding of S requires an actual understanding of *all the sentences* of the language L to which S belongs, including compound

¹² A more interesting exception will be described for an artificial language in chapter 3, section 18, example 2, where the actual understanding of a sentence in an artificial language presupposes an actual understanding of all the words of the language. Moreover see the remarks about the latter example in section 21 of the same chapter.

sentences of which S is a component subsentence. In this sense, in order to understand S one has to understand the whole language L. Such a view seems utterly implausible and I don't think it has been ever explicitly defended by anyone. It is utterly implausible because it implies that a speaker should have an *actual* knowledge of the meanings of all the infinitely many sentences belonging to L in order to understand S. Since any finite being like us is capable only of a finite actual knowledge, the consequence is that we cannot understand sentences like S. Thus, linguistic holism 1 implies that there are unintelligible sentences.

Linguistic holism 2 denies the second compositional thesis and affirms that the actual understanding of a sentence *always* requires an actual understanding of *all the words* of the language. In this sense, in order to understand a sentence, it is always necessary to understand the whole language. Also linguistic holism 2 is implausible, though perhaps less implausible than linguistic holism 1. Linguistic holism 2 is implausible because it is in conflict with our pretheoretical intuitions that the words of a language are not learnt at a single blow but step by step, and that a speaker's understanding of the words of a language is not an all-or-nothing matter, but the speaker can understand a part of the totality of such words, without understanding another part. In order to check whether someone understands the word "eight" we don't need to check whether he or she understands "kitten", "female", "grass" or "green". A speaker who hasn't learnt the whole language might understand one of these words and many sentences containing it without understanding the other words. This is as plausible as it is plausible, on the other hand, that in order to understand a word it may be very often necessary to understand also other words (e.g. in order to understand "eight" one has to understand "seven").

These remarks against linguistic holism 2 can be extended from words to sentences and used also against linguistic holism 1. In order to check whether someone understands "it's eight o'clock" we don't need to check whether he or she understands sentences like "the kitten is female" or "grass is green". Consider the following examples:

- i) it's seven o'clock
- ii) it's eight o'clock

- iii) the meat is cooked
- iv) the meat is raw
- v) it's seven o'clock and the meat is raw
- vi) the kitten is male
- vii) the kitten is female

Any English speaker would probably say that an understanding of **ii** presupposes an understanding of **i**, that an understanding of **iv** presupposes an understanding of **iii**, that an understanding of **v** presupposes an understanding of both **i** and **iv** and that **vi** and **vii** can be understood only together. But every English speaker (who is not a philosopher) would probably agree also that it is not necessary to understand **i** in order to understand **vi** and that it is not necessary to understand **v** in order to understand **iv**. A theory of understanding should take account of these pretheoretical intuitions.¹³

What the foregoing examples about words and sentences indicate is that there are two binary relations of presupposition (or dependence), one between words, the other between sentences of a language, such that *X presupposes Y* if, and only if, *in order to understand X it is necessary to understand Y*. In other words, to say that *X presupposes Y* is to say that *the fact that a speaker S understands X, implies that S understands Y*. Such relations are obviously *reflexive* (implication is reflexive) and *transitive* (implication is transitive). For example **v** presupposes **iii**, because **v** presupposes **iv** and **iv** presupposes **iii**.

But the two relations (in general) are *not total* (neither **i** presupposes **vi** nor **vi** presupposes **i**); they are *not symmetric* (**v** presupposes **iv** but **iv** does not presuppose **v**); and they are *not antisymmetric* (**vi** and **vii** are different sentences such that **vi** presupposes **vii** and, viceversa, **vii** presupposes **vi**).

Another important intuition concerning the relation of presupposition between sentences is that *a compound sentence* constructed by applying a certain word (e.g. the logical connective "and") to some component sentences *presupposes* those *component sentences*, whereas *the latter never presuppose the compound sentence*. For example, an understanding of the conjunctive sentence

¹³ See chapter 3, section 10.

v is acquired through an understanding of the conjuncts iv and i, but an understanding of the conjuncts does not require an understanding of the conjunctive sentence v.

The requirement of compositionality demands that appropriate relations of presupposition between sentences and between words *with the described properties* can be defined on the basis of the theory of sense for the language in question.

If linguistic holism is right, on the contrary, the relations of presupposition lack some of the aforementioned properties. Linguistic holism 1 is equivalent to the thesis that the relation of presupposition between sentences can hold not only between compound sentences and their components, but also viceversa between components and all the compound sentences which they can make up. Linguistic holism 2 can be described as the thesis that in general the relation of presupposition between words is total and symmetric.

Since the South African statesman Jan Christiaan Smuts coined the word "holism" in 1926 in order to express the key-concept of a sort of biologicico-metaphysical conception,¹⁴ "holism" is used by philosophers in many different ways in the philosophy of natural and social sciences and in the philosophy of language. Here the kind of holism we are dealing with is holism with respect to meaning and understanding, which, following Dummett's terminology,¹⁵ I have called "linguistic holism". Many precise definitions of linguistic holism are possible. The two definitions I have given here are

¹⁴ In the book *Holism and Evolution*, written after having decided to shun politics because his South African party was defeated at the elections in 1924, Smuts gives the following explication of the meaning of the word "holism": "its primary and proper use is to denote the totality of wholes which operate as real factors and give to reality its dynamic evolutionary creative character", Smuts (1926) p. 117. Later he adds: "Holism [is] the ultimate synthetic, ordering, organizing regulative activity in the universe which accounts for all the structural groupings and syntheses in it from the atom and the physico-chemical structures, through the cell and organisms, through Mind in animals to Personality in man [...] The all pervading and ever-increasing character of synthetic unity of wholeness in these structures leads to the concept of Holism as the fundamental activity underlying and co-ordinating all others, and to the view of the universe as a Holistic Universe", Smuts (1926) p. 317.

¹⁵ Cf. e.g. Dummett (1975b) p. 128 and Dummett (1978a) p. 441.

suggested by Dummett's treatment of the topic.¹⁶ Though in Dummett's many writings the formulations of the doctrine which he calls "holism" are not quite uniform,¹⁷ I think that Dummett's treatment of holism has many merits. Dummett distinguishes between atomistic, compositional (or molecular)¹⁸ and holistic views of language.

According to the *atomistic*¹⁹ view of language a word can be understood in isolation. Atomistic was the conception adopted by the British empiricists according to which to understand a word is to correlate it with an idea or a mental image, a conception to which Frege opposed his famous 'context principle' in *Grundlagen*.²⁰ An idea underlying an atomistic conception is that we can learn the meanings of words from ostensive definitions: a teacher points to a strawberry and says "red", then he points to a tomato and says "red", and so on. But, apart from the obvious fact that such an ostensive teaching is not possible for all kinds of words (think of "Wednesday", "virus", "minister", let alone "number") it is clear that from the fact that a child has acquired the propensity to repeat "red" in front of strawberries, tomatoes, sunsets, lipsticks and other red things we cannot conclude that the child understands the English word "red". To understand "red" is also to understand that this word is a one-place predicate, and that it can play a certain role in singular term/predicate sentential constructions. The gist of the context principle is precisely that in order to understand a word one must understand its contribution to the meanings (to the potential understanding) of sentences in which it occurs. If this is right, ostensive definitions

¹⁶ Cf. Dummett (1976) pp. 78-79 cf. also Dummett (1991a) ch.10.

¹⁷ Cf. Tennant (1987) about the different notions (or the different features of the notion) of 'holism' which can be found in Dummett's writings.

¹⁸ Dummett adopts the terminology which I follow in the present work ("compositional", and "compositionality") in Dummett (1991a). In less recent writings he prefers the expressions "molecular" and "molecularity". But the meaning is the same.

¹⁹ Cf. Dummett (1973) ch. 17, p. 597.

²⁰ The 'context principle' is the principle formulated in the Introduction to Frege (1884): "Nach der Bedeutung der Wörter muß im Satzzusammenhange, nicht in ihrer Vereinzelung gefragt werden", which is translated by Dummett "the meanings of words must be asked after only in the context of sentences, not in isolation" Dummett (1991b) p. 21; cf. also Dummett (1973) pp. 3-7.

alone are not sufficient. To understand a word like "red" is to master the use of at least some sentences in which "red" occurs. Considerations of this sort lead to discard the atomistic conception of understanding.

Discarding atomism, however, may lead to two very different views: the compositional or the holistic view. According to the *compositional* view, in order to understand a word or a sentence, one has to understand a limited fragment of the language, but not the whole language (except for some very particular limit-cases and only if 'language' means the totality of *words*, as we have seen above). According to the *holistic* view, in order to understand a word or a sentence, one must understand *the whole language*.

Dummett distinguished very clearly the two views²¹ and I think that such a distinction is very useful for a comparison between different conceptions of language. Fodor and Lepore in their recent book *Holism*²² give the following different definition of holism: "content holism is the claim that properties like *having content* are holistic in the sense that no expression in a language can have them unless many other (nonsynonymous) expressions in that language have them too". But here "many other expressions" can mean both "all the expressions belonging to a limited fragment of the language" (the compositional view) and "all the expressions of the whole language" (the holistic view in Dummett's sense). Hence such a definition hides the important difference between compositional and holistic views in Dummett's sense, and it is a regress if compared with Dummett's definition of holism.²³ Definitions show their worth by proving fruitful, as Frege wrote,²⁴ and I think Dummett's distinction is fruitful, that's why I have here adopted it and have tried to make it a little more precise.

The two versions of linguistic holism which I have here formulated are both very implausible views, which are not often defended directly and explicitly (their implausibility is an argument in

²¹ Cf. in particular Dummett (1976) p. 79.

²² Fodor and Lepore (1992).

²³ Moreover the definition given in Fodor and Lepore (1992) severs every connection with the notion of 'whole' which belongs to the etymological origin of the word: "holism" derives from the greek word "ολος" which means "whole".

²⁴ Frege (1884) § 70.

favour of the requirement of compositionality). However many conceptions of meaning which are explicitly advocated imply linguistic holism or are very close to linguistic holism as I have here defined it. Wittgenstein wrote in the *Philosophical Investigations* that "to understand a sentence is to understand a language".²⁵ In "Two Dogmas of Empiricism" Quine says that "the unit of empirical significance is the whole of science".²⁶ Donald Davidson in "Truth and Meaning" maintained that "only in the context of the language does a sentence (and therefore a word) have meaning".²⁷ In the next chapter we shall see that Harman's and Field's versions of conceptual role semantics imply linguistic holism 2. Hence I think it is fair to say that linguistic holism is often endorsed, at least indirectly.

5. Fourth requirement: *manifestability* and the thesis that meaning is public.

The knowledge of the sense of a sentential or subsentential meaningful expression should be completely manifestable in the exercise of a specific practical ability, so that an understanding of the expression can be publicly testable and any difference in understanding between two speakers can in principle be discovered.

The fourth requirement, the requirement of manifestability, is based on the requirement of compositionality and on the idea that meaning is public. Since Frege, the idea that meaning is public has played a decisive role in the philosophy of language. This idea can be interpreted in many ways.²⁸ Frege's distinction between *Sinn* and *Vorstellung* in "Über Sinn und Bedeutung"; his platonistic conception of senses in "Der Gedanke", Wittgenstein's Private Language Argument in the *Philosophical Investigations*, and Quine's linguistic behaviourism in *Word and Object* are very different views which are all centred on the public nature of meaning and language. Dummett's requirement of manifestability is another development of this idea.

²⁵ Wittgenstein (1953) I.199.

²⁶ Quine (1953) p. 42.

²⁷ Davidson (1967) p. 22.

²⁸ Cf. Stjernberg (1991).

Dummett argues in different ways for this requirement and formulates it in different ways. The way in which I formulate it and argue for it here is influenced by Dummett's writings, though my formulation of the requirement slightly differs from his.

It is a fact that we are capable of successful communication, if we want. A theory of meaning must account for this fact. It is also a fact that there are misunderstandings. There is never a *conclusive* evidence that two speakers understand each other perfectly well and do not give to the same expression different meanings. We can never rule out that some misunderstanding will be later discovered. *The publicness of meaning consists in the possibility in principle of discovering and eliminating each particular misunderstanding, if the speakers want to discover and to eliminate it.* We can rely upon such a possibility, of course, only if the speakers *want* to discover misunderstandings and don't want to deceive each other. But the notion of a misunderstanding that cannot be discovered, not even in principle, and not even if the speakers want to discover it, is an idle notion. If two speakers sincerely and completely agreed on the correct use of an expression, it would be idle, it would be to stretch the notion of misunderstanding beyond its reasonable and common use, to wonder whether there could be some absolutely unknowable misunderstanding between them. On the other hand, if the misunderstanding depends on some disagreement about what counts as a correct use of the expression, such a misunderstanding can be discovered and can be eliminated by adopting a common criterion of correct use, if the speakers are well disposed towards one another. We are all familiar with the practice of discovering and non-violently eliminating misunderstandings in rational intercourses between well disposed speakers.

By **the thesis that meaning is public** I mean here *the rejection of the notion of an absolutely unknowable or uneliminable misunderstanding.* The thesis that meaning is public in this sense is here assumed because – as suggested above – the notion of an absolutely unknowable misunderstanding is idle, or, in other words, does not play any role in our linguistic practice. We speak of an absolutely unknowable misunderstanding only when we philosophize, but then we are misusing the concept.

If meaning is public, every misunderstanding must be in principle discoverable, if the speakers want to discover it. But it is not sufficient that, if there is a misunderstanding, the speakers can in principle know that *there is* one: they must also know *how it can be eliminated*. Meaning would not be public if we only knew that there is a misunderstanding but were in principle incapable of eliminating it.

If we accept the thesis that meaning is public, a theory of meaning has to attribute to the utterances of a language a meaning which is *intersubjectively testable* in the following sense: if two speakers attach different meanings to the same expression E and they both don't want to deceive each other,²⁹ then they can in principle discover that there is such a difference between the meanings they attach to E. A difference between the meanings that two speakers attach to the same expression can be discovered only by discovering a difference in their *use* of language.³⁰ Therefore, if meaning is intersubjectively testable, a speaker's attaching a certain meaning to an expression must be completely manifestable in the speaker's practical ability to use language in a certain way.

A person possesses a practical ability P if, and only if, the person would perform some actions A in certain relevant circumstances C, and then we can say that the pair C-A belongs to P. Of course the actions (more precisely: the pairs C-A) belonging to a practical ability are *potentially infinite*. A practical ability is never exhausted by a finite set of actions. The question then arises: in what sense can a speaker's understanding be completely manifestable in a practical ability?

Now, the phrase "completely manifestable" can be interpreted in two ways. According to the *first* interpretation of "completely manifestable", which does *not* capture what is meant here, to say that

²⁹ Someone may ask: how can we know that two speakers don't want to deceive each other? how can we know that a speaker is sincere? My answer is that there is no conclusive knowledge of sincerity. Until we have reasons to believe that a speaker has some motive for concealing his or her understanding of an expression we can legitimately take the speaker to be sincere. We usually don't need a theory in order to assume legitimately that somebody is sincere in a given circumstance. A theory of sincerity would be a theory concerning the motives that people can have for deceiving other people. But such a theory is not part of a theory of meaning as it is conceived here.

³⁰ Cf. Dummett (1978a) p. 216.

the speaker's attaching a certain meaning M to an expression E , is completely manifestable in a practical ability P is to say that *there is a particular finite set Φ of pairs C-A (circumstances-actions) which belong to P such that all the meaning M of E is manifest in Φ* , or in other words, it is to say that

(+) the speaker S attaches M to E *if, and only if*, for any pair C-A belonging to the finite part Φ of P , S would perform the actions A in the corresponding circumstances C .

According to this interpretation, the speaker's attaching M to E is completely manifestable in a finite number of actions A performed in a finite number of circumstances C , i.e. it is completely manifestable in *a part* of the practical ability P , *not in the whole* P . If a speaker's understanding were publicly manifest in this sense, then, by bringing about the relevant circumstances C and by establishing that S does indeed perform the actions A , we could verify the right side of the biconditional (+) above and then *deductively* infer that S attaches M to E . But of course meaning is not public in this sense. Wittgenstein's remarks on following a rule bring into focus that no fact about past behaviour can *conclusively* establish what a speaker means.³¹ We can never rule out that some subsequent actions show that S , in spite of his past behaviour, does not attach to E the meaning M in question.³²

The *second*, and right, interpretation of "completely manifestable" might be described as follows. By saying that "the speaker's attaching meaning M to E is completely manifestable in the practical ability P " it is meant that *attaching M to E is equivalent to possessing the whole practical ability P* , that is:

(*) S attaches M to E *if, and only if*, for every pair C-A belonging to P , S would (in principle) perform the actions A in the corresponding relevant circumstances C .

or, in other words, it is meant that:

³¹ Cf. Wittgenstein (1953) I.185.

³² Cf. Prawitz (1977) p. 10.

(**) S does not attach M to E *if, and only if*, there are some actions A and some circumstances C, such that the pair C-A belongs to P but S would not perform the actions A in C.

On this view, there is nothing in the meaning of S which does not correspond to *some* aspect of the practical ability P. If a speaker's understanding of a sentence is in the latter sense completely manifestable in a practical ability to use language, then, as Prawitz says, "although each ingredient of the meaning of a sentence is capable of showing itself in some use of the language [...] no finite use in the language can fully determine [...] the meaning [of the sentence]".³³

We have now clarified the sense in which, if meaning is public, a speaker's attaching a certain meaning to an expression must be completely manifestable in the speaker's practical ability to use language in a certain way. We may thus conclude that a theory of meaning which agrees with the thesis that meaning is public ought to contain some general principles from which one could obtain, for each meaningful expression, a *description* of such a practical ability.

But, if it is also demanded that the theory satisfy the requirement of compositionality, one has to add that the practical ability in which the understanding of an expression is manifestable, according to the theory, ought to be *specifically* correlated with an understanding of that expression, or of a limited fragment of language presupposed by that expression, and that it should not count at the same time as a manifestation of an understanding of the whole language. If otherwise, according to the theory of meaning, the practical ability in which an understanding can manifest itself were the same practical ability for all language, for example the global practical ability to master the whole language, then a difference between two speakers in such a practical ability would indicate the presence of a misunderstanding between those speakers, without indicating where the misunderstanding lies, without indicating what expressions are understood differently by the two speakers. A specific misunderstanding could not be located. The only discoverable misunderstanding would be a misunderstanding concerning the whole

³³ *Ibidem*.

language. The understanding of a language would publicly show itself as an all-or-nothing matter, against the requirement of compositionality.

Thus, if we endorse both the thesis that meaning is public and the requirement of compositionality, we have to accept also the requirement of *specific* manifestability on a theory of meaning: the sense of an expression E, according to the theory, must be such that a *specific* practical ability can be correlated with a knowledge of the sense of E as a complete manifestation of such a knowledge. If knowledge of the sense of E is completely manifestable in a specific practical ability to use language in a certain way, every particular misunderstanding between two speakers concerning E can in principle be discovered and eliminated by mutually adjusting the respective specific practical abilities, if the speakers are willing to cooperate, without having to accomplish the unfeasible task of equalizing the whole use of the two speakers.

It is important to emphasize that a *practical ability in this sense is not a behavioural disposition in the strict sense*. Strictly speaking, a behavioural disposition has to do only with the bodily reactions with which a subject (animal, human being, machine etc.) responds to changes in the macroscopic physical environment. Thus, strictly speaking, a behavioural disposition must be specified in what the logical empiricists called a thing-language,³⁴ i.e. in terms expressing observable properties of observable physical objects of medium size. A subject X has a behavioural disposition if and only if, whenever placed in a certain condition C, X manifests a behaviour B, and both C and B can be described in a thing-language. For example: if the green light flashes, the guinea pig comes near the feed dispenser. A practical ability in my sense, for instance the ability to play chess, does not correspond to a behavioural disposition in the strict sense. There are some conditions C* in which a person X performs the actions A* which display that X has the relevant practical ability, but first: C* is not completely specifiable in a thing-language, second: A* too may be such that one cannot describe it completely in a thing-language. For example, first: if Martin is able to play chess, there is no observable physical condition sufficient for his performing those

³⁴ Cf. Carnap (1936) p. 69.

actions which show that he can play chess. Of course it is not sufficient to place him in front of a chessboard. He will begin to play only if he wants to play. Otherwise he can fail to exercise his practical ability. Secondly, the actions through which Martin displays his ability are best described by saying that he, moving the chessmen, acknowledges a move as a correct move only if he realizes that it conforms to the rules of the game concerning the different kinds of chessmen (queen, king, bishop etc.) and to the more general rule that moves should be aimed at winning the game (at checkmating the other player). This is not a behaviouristic description in thing-language because it involves non-behaviouristic phrases like "to realize that a move conforms to the rules", "to acknowledge as a correct move" and "moves should be aimed at winning". Martin may have the behavioural disposition to make some systematic mistake (e.g. to move the knight wrongly), although he knows the rules, and thus knows that it is a mistake (if somebody calls Martin's attention to the mistake, he withdraws the move). But, if we identify practical abilities with behavioural dispositions, we should say that Martin does not have the practical ability to play chess, and this is clearly wrong.³⁵ Even if we knew in every detail the observable chess-behaviour of chess players, such a knowledge alone would not give us an understanding of the game of chess, because we would not be capable of distinguishing a correct move from an unnoticed mistake, or a good move from a bad move, a move that never occurs because it is obviously a bad move from a move that never occurs because it is not allowed by the rules.³⁶

To say that a speaker understands an expression E if, and only if, he or she has the practical ability to use E in the way in which one uses E if one understands E is of course futile: it doesn't say anything about what it is to understand E, because in this case the non-behaviouristic description of the practical ability in question contains only a circular attribution of an understanding of E to the speaker and we actually haven't offered any clarification of the nature of such a practical ability. However, a description of the practical ability in which an understanding of E manifests itself can provide a genuine

³⁵ Cf. Kripke (1982) p. 29-30 where a similar objection to the dispositional view is raised.

³⁶ Cf. Dummett (1978b).

informative clarification by employing notions like 'correct inference' that are not reducible to strictly behaviouristic terms. Such a clarification can be given even if the description contains the expression E. For example, if we say that to understand the word "red" is to have a practical ability which involves (among other specified inferential uses concerning "red") the capacity to assert "it is red" in front of observably red objects, we have given an informative account of what it is to understand "red". Of course, nobody would acquire an understanding of "red" by means of our description, because in order to understand the description one has to understand "red". But if we already know what "red" means, through such a description we understand explicitly what it is that a person must be taught in order to acquire an understanding of "red", and the latter is a piece of knowledge which was not explicitly contained in our understanding of "red", because to understand "red" is not the same thing as to know in what an understanding of "red" consists.

In the present study I contend that an understanding of an expression is completely manifestable in the practical ability to accept as immediately correct (in that language) argumentation steps in which the characteristic structures of certain rules are recognized. To accept as immediately correct some argumentation steps is to accept them as adequate means for supporting the truth-claim which is involved in an assertion (*immediately*: that is without any further justification of their counting as adequate means to that end). Thus, a description of the practical ability in question resorts to the notions of 'assertion' and 'truth' which are not behaviouristic notions.³⁷ This is not to say that the notions of 'assertion' and 'truth' cannot be explicated in some way and that our raising a truth-claim when we assert a sentence does not manifest itself in our practices. On the contrary, in chapter 6 I shall offer an explication of truth and assertoric force in accordance with the argumental conception of meaning, which connects our raising truth-claims in assertions with our willingness to revise and enrich our languages so as to comply more and more with different criteria of epistemic fruitfulness and

³⁷ This is in conflict with some of Dummett's formulations of manifestability: cf. Dummett (1977) p. 376, where Dummett writes that the practical ability which counts as a manifestation of the understanding of a word must be a linguistic ability that can be specified without appeal to any semantic notion.

simplicity. Here I am only suggesting that the notions of 'assertion' and 'truth' cannot be reduced to behaviouristic language. If I am right, also the practical ability which counts as a manifestation of the understanding of an expression cannot be described in a behaviouristic language.

As we have seen, the requirement of manifestability is connected with the requirement of compositionality. According to the requirement of compositionality, a theory of meaning should be capable of distinguishing the understanding of a particular (sentential or subsentential) expression from the understanding of the whole language. According to the requirement of manifestability the understanding of a particular expression should be completely manifestable in a specific practical ability, i.e. in a particular feature of the use of that expression and possibly of a limited set of related expressions, but not in the use of the whole language. If one aims at a theory of meaning that gives a *systematic* picture of how language functions, one cannot merely identify meaning with the whole use of language. The whole use is in general an aggregate of different intertwined practices. Pretheoretically, the various interconnections of all these practices are unclear to us. A theory of meaning should try to detect an order in such a cluster of interconnected practices, and thereby to give an *articulated* picture of our use of language, a picture which can count as an explanation of our overall ability to master the language by analysing that complex ability into its interrelated components. If one aims at a theory of meaning in this sense, one should try to discover which particular practical ability, which particular feature of use, corresponds to an understanding of a particular expression.

The latter remarks shed light on the first requirement. According to the first requirement a theory of meaning is a theory of understanding. But a theory of understanding in this sense *is not a psychological hypothesis*.³⁸ It aims at clarifying what it is to understand. This aim is different from the aim of discovering the psychological processes through which individual human beings are capable of understanding. That there is a difference can be clearly seen if it is considered that we, for example, can check whether our fellow-speaker understands

³⁸ Cf. Dummett (1976) p. 70.

the sentence "it's eight o'clock" on the basis of her or his mastery of the language, though *we know almost nothing about the psychological mechanisms behind it*. The question which a theory of meaning has to answer is: what is the practical ability specifically concerning the sentence "it's eight o'clock" which a speaker who understands that sentence must possess? The answer should specify a particular practical ability. It is irrelevant what the psychological mechanisms are, which underlie such a practical ability. According to the theory, our fellow speaker gives a certain sense to a sentence if, and only if, he or she possesses a certain practical ability, regardless of internal processes. If we discovered that one of our fellow-speakers, who has the same relevant practical abilities we have, is an intelligent alien from outer space, and that the internal processes which causally determine this alien's practical abilities are entirely different from the internal processes of our own mind (or brain), this would not make us draw the conclusion that the alien does not understand. When we check whether our fellow-speakers understand a sentence as we do, we never take into account the hidden (probably diverse and idiosyncratic) psychological causes underlying their use.

CHAPTER 2

Some views on meaning and role in reasoning

The idea that the meaning of an expression is its role in arguments, or in reasoning, was the starting point for many conceptions of meaning which are different from the conception of meaning centred on the notion of immediate argumental role. The latter conception, which is the object of the present study, was summarized in the Introduction and will be described in detail in the next chapters. In the present chapter, in order to draw the reader's attention to some distinctive characteristics of my view, I shall briefly survey some of the other conceptions of meaning starting from a general idea which is to some extent similar to the idea from which I start.

1. Wittgenstein's view on meaning and rules of inference.

The idea that meaning is given by those rules of use which govern the use of words in arguments, as many of the ideas circulating in philosophy in the twentieth century, is present in Wittgenstein's writings. Wittgenstein often puts forward this view with respect to logical words like connectives and quantifiers. For example in *Remarks on the Foundations of Mathematics* he wrote:

We can conceive the rules of inference – I want to say – as giving the signs their meaning, because they are rules for the use of these signs. So that the rules of inference are involved in the determination of the meaning of the signs. In this sense rules of inference cannot be right or wrong.¹

However, it is very important to stress that the first thesis maintained in this passage – that meaning be given by argumentation rules – does not imply the second thesis asserted by Wittgenstein – that "rules of inference cannot be right or wrong". The addition of this second thesis presupposes the idea that meaning-giving principles are *beyond criticism*: to criticize them would be senseless because there is

¹ Wittgenstein (1956) V.23.

no independent notion with respect to which their validity can be questioned, since those very principles *constitute* the notion involved. According to such a view, meaning-giving principles are immediately and trivially valid, just because they constitute the meaning of the words involved. On the basis of his acceptance of both theses, Wittgenstein maintains that certain logical principles, like the principle of excluded middle,² or the classical law of double negation elimination,³ cannot be criticized and thus are immediately valid. For example, as to double negation elimination (i.e. the law that " $\neg\neg S$ " is equivalent to S), Wittgenstein's reasoning seems to be the following: 1) the principle of double negation elimination gives meaning to negation (i.e. to " \neg "); 2) meaning-giving principles cannot be criticized (any criticism would be senseless); 3) therefore double negation elimination cannot be criticized. It is clear that in order to conclude 3, premise 1 would not be sufficient and that also premise 2 is needed. However, a supporter of the first thesis (that meaning be given by argumentation rules) does not need to endorse the second thesis (that meaning-giving rules are beyond criticism). Indeed, although the first thesis is one of the basic principles that I intend to defend in this book, in chapter 5 the second thesis will be explicitly rejected. In chapter 5 I shall maintain that a language – and thereby the rules that give meaning to the words of that language – can be wrong and can be criticized.

By contending that language (and meaning-giving rules) can be incorrect, I shall part company with Wittgenstein⁴ and (if you allow the anachronism) I shall follow Plato. Plato's *Cratylus* begins with a comparison which is analogous with Wittgenstein's comparison in the *Philosophical Investigations* between words and the tools in a toolbox. Plato compares words with instruments of handicraft. But,

² Cf. Wittgenstein (1969a) II.23.

³ Already in 1931, in a conversation with Waismann, Wittgenstein defended the view that double negation elimination is constitutive of the meaning of negation and is therefore valid, cf. Wittgenstein (1967) VI p. 184. The same idea can be found in *Philosophical Grammar* (cf. Wittgenstein (1969a) I.14) in *Philosophical Investigations* (cf. Wittgenstein (1953) I.554b p. 148) and in *Remarks on the Foundations of Mathematics* (cf. Wittgenstein (1956) I.11).

⁴ At the beginning of Chapter 1 I mentioned another feature of Wittgenstein's views which is opposed to the spirit of the present study: Wittgenstein's repudiation of the idea of a systematic theory of meaning.

differently from Wittgenstein, Plato concludes that just because words are like instruments, they can be rightly or wrongly made. An instrument is rightly made if it is adequate to its aim. Similarly a word is rightly (or wrongly) made, according to Plato, if it is (or is not) adequate to its aim of providing knowledge.

A consequence of the idea that meaning-giving rules can be incorrect is that they cannot serve for a justification of logical principles which sets out to show that those principles are true (or valid) in virtue of meaning. Even if some logical principles are constitutive of the meanings of some logical constants, the mere fact that they are constitutive of meaning does not make those principles valid. Though pluralistic with respect to the meaningfulness of different logics, the conception of meaning centred upon immediate argumental role is *neutral* with respect to the question whether a logic is valid or not.

2. Short remarks on the verificationist theory of meaning proposed by Dummett and Prawitz.

In various papers and books, the first of which is the article "Truth", published in 1959,⁵ Dummett gave an argument⁶ against the idea of a theory of meaning centred on the notion of *bivalent truth*, i.e. a theory according to which the sense of a sentence is given by its bivalent *truth-condition*. The upshot of Dummett's argument is that such a theory cannot satisfy the requirement of manifestability, because knowledge of the bivalent truth conditions of some sentences (sentences for which we have no guarantee that their truth or falsity can be known) is a knowledge which may transcend our capability to recognize whether the truth conditions in question are fulfilled, and – according to Dummett – there is no other specific practical ability in which knowledge of truth conditions can fully manifest itself.⁷

⁵ Dummett (1959).

⁶ The best formulation of the argument is perhaps in Dummett (1975a), reprinted in Dummett (1978a).

⁷ However, the thesis that there is no other practical ability in which a knowledge of truth conditions can manifest itself is criticized by Paul Horwich in Horwich (1982) and by Peter Pagin in Pagin (1987).

As an alternative to the truth-conditional theory of meaning, Dummett proposed the idea of a theory of meaning centred on the notion of *direct verification*, which he called *verificationist theory of meaning*⁸ and which was defended and developed by Dag Prawitz in connection with his investigations in general proof theory.⁹ In a verificationist theory of meaning the sense of a sentence is given by conditions which fix what counts as a direct verification of that sentence (i.e. a direct way to come to *know* the truth of the sentence). The viability of a verificationist theory of meaning for a language depends on the fulfilment of two requirements: **i**) it must be possible to state, for each kind of sentence of the language, conditions of direct verification, so that the requirement of compositionality is satisfied; **ii**) every sound indirect (i.e. non-direct) verification must be in some sense reducible to a direct one.

Dummett's contention that we ought to abandon a truth-conditional conception of meaning and to adopt a verificationist view involves a criticism of classical logic and an argument for the adoption of intuitionistic logic. Prawitz's recursive definition of valid argument provides a semantics which can be embedded in a theory of meaning centred upon direct verification and which validates intuitionistic logic. Prawitz's semantics is a development of Gentzen's idea that an introduction rule of his systems of natural deduction gives the meaning of the logical constant involved, while the elimination rules can be seen to be valid in virtue of that meaning.¹⁰ The introduction rules fix what counts as a direct verification of a sentence with the logical constant involved as the principal operator in terms of what counts as a verification of its *subsences*. In other words, introduction rules give the meaning of logical constants in accordance with the requirement of compositionality. That's why they are *immediately* valid (meaning-giving rules are immediately valid). The elimination rules, on the other hand, are shown to be valid in virtue of the meaning of the logical constants by exhibiting operations of reduction which transform direct (or "canonical") verifications of the premises into a direct verification of the conclusion. In Prawitz's

⁸ Cf. Dummett (1976).

⁹ Cf. especially Prawitz (1973) and Prawitz (1985).

¹⁰ On Gentzen's natural deduction systems cf. Gentzen (1934) and Prawitz (1965).

semantics it is possible to prove the validity of first order intuitionistic logic. But one cannot give a general justification of the classical principles rejected by the intuitionists, like the laws of excluded middle and of double negation elimination. Moreover the introduction rules for impredicative second order quantifiers, according to Prawitz's construal of compositionality, are not compositional, and thus are not acceptable as fixing the meaning of second order quantifiers, nor seem to be justifiable in any other way in a verificationist theory of meaning.

This very short description of the characteristics of the proposal that a theory of meaning should be centred on the notion of direct verification is sufficient for indicating two main similarities and three main differences between this conception of the general form of a theory of meaning and the argumental conception of meaning proposed in the present study and developed in detail in the following chapters.

The *first similarity* is that both kinds of theories of meaning conform to Dummett's four requirements. The *second similarity* is that, according to both views, the sense of an expression is given by some rules of its use in arguments. For example in a verificationist theory the sense of logical constants, in accordance with Gentzen's idea, is given by the corresponding introduction rules (the sense of conjunction is given by the rule that allows " $A \wedge B$ " to be inferred from two valid arguments together, one for A and one for B ; the sense of disjunction by the rule that allows " $A \vee B$ " to be inferred from an argument for A or for B ; the sense of implication by the rule that allows " $A \rightarrow B$ " to be inferred from a valid argument for B depending on the hypothesis A , which can then be discharged, etc.).

However, this leads to the *first difference* between the two views. (For simplicity we continue to consider the particular case of logical constants, but what follows could be generalized). According to the verificationist view, only introduction rules of a *particular form* can give sense to a logical constant. Introduction rules like the introduction rules for second order quantifiers or the elimination rules for other logical constants (connectives and quantifiers) in Gentzen's systems of natural deduction cannot give sense to logical constants. In sum, *the verificationist view is very restrictive with respect to the form that the meaning-giving rules must have.* According to the

argumental conception of meaning, on the contrary, there is no restriction on the form of the meaning-giving rules.

The *second difference* is that on Dummett's and Prawitz's view *the meaning-giving rules are always immediately correct* just because they fix the meanings of the concerned words, while, as I already stressed in section 1 of this chapter, my view is that meaning-giving rules can be incorrect, even if they constitute our understanding of the concerned words. The reason is that our understanding does not guarantee the correctness of the understood language, which depends on various other factors (as we shall see in chapter 5). The argumental conception of meaning distinguishes the conditions of understanding for a given language from the criteria of correctness of the language, whereas the verificationist view does not make such a distinction.

The *third difference* is that Dummett's and Prawitz's verificationism is not only a theory of understanding, but also a philosophical justification of intuitionistic logic, which is thereby put forward as *the right logic*. Dummett and Prawitz think that logical truths are *analytic* (i.e. true in virtue of meaning). On their view, logical truths are true in virtue of the meanings of logical constants explicated by the verificationist theory. The conception of understanding I shall develop here, on the contrary, by admitting the possibility of meaning-giving rules which are incorrect, rejects the view that a sentence can be true only in virtue of meaning (i.e. of understanding). In my opinion, it is not the task of a theory of understanding to decide what the right logic is. The argumental conception of meaning is pluralistic with respect to the understandability of different logics and neutral with respect to their validity.

However, the two aforementioned similarities between the verificationist view and the argumental view of meaning indicate that some conclusions to which the supporter of the latter view is led are relevant also to the development of the verificationist view. In particular, it seems that also a verificationist theory of meaning ought to define relations of presupposition and immediate presupposition between words and sentences along the lines of chapter 3.

3. Conceptual Role Semantics.

Also the cluster of views known under the name "conceptual role semantics" can seem to bear some resemblance to the conception of meaning based on immediate argumental role. Therefore in this section I shall shortly consider two versions of conceptual role semantics, Harman's and Field's.¹¹ But since Wilfrid Sellars' paper "Some Reflections on Language Games" (1954)¹² already contained some basic ideas of conceptual role semantics, as Harman acknowledges,¹³ I shall start with a very compressed description of Sellars' views.

3.1. Wilfrid Sellars.

In "Some Reflections on Language Games" (1954) Sellars defends the view that linguistic behaviour is a pattern-governed-behaviour. A pattern-governed-behaviour, in Sellars' terminology, is not a behaviour which just happens to correspond accidentally with the pattern which could be made explicit by formulating some rules (what Sellars calls "behaviour conforming to rules"), nor is it a behaviour which is brought about by the intention that it exhibit that pattern and which thus involves some awareness of the rules (what Sellars calls "rule-obeying behaviour"). A pattern-governed-behaviour does not presuppose an awareness of the rules, but it occurs *because of the system of rules* since it has been selectively reinforced or extinguished in accordance with that system of rules. Sellars' favourite example of pattern-governed-behaviour is the language of bees which arises by natural selection. In the case of a human language the adult speakers would play an analogous role of selection of a child's propensities to linguistic behaviour.

¹¹ Other authors whose views should be considered in a detailed examination of conceptual role semantics (which is beyond the scope of this study) are Ned Block, Jerry Fodor, Brian Loar and Colin McGinn (cf. Block (1986), Fodor (1980), Loar (1981), McGinn (1982)).

¹² Cf. Sellars (1954).

¹³ Cf. Harman (1975) p. 284, Harman (1987) p. 56.

A linguistic pattern-governed-behaviour, a language game, – according to Sellars – involves ‘positions’ and ‘moves’ of the sort that *would* be specified by ‘formation’ and ‘transformation’ rules in a metalanguage if it were rule obeying behaviour.¹⁴ The rules of the language game are behaviouristic stimulus-response (S-R) associations of three kinds: 1) *language entry transitions*, where S is non-linguistic and R linguistic; 2) *intralinguistic moves*, where both S and R are linguistic (positions in the language game); 3) *language departure transitions*, where S is linguistic, but R is not.

Twenty years later, in "Meaning as a Functional Classification" (1974),¹⁵ Sellars develops the idea of language as a pattern-governed behaviour and the distinction between three different kinds of rules into a *functional theory of thinking*. In this paper Sellars seems to be somewhat under the influence of Harman's views. At the beginning of the paper he declares his agreement with Harman's distinction between three levels of meaning.

According to Harman's paper "Three levels of meaning", published in 1968,¹⁶ there are three different approaches to language, which correspond to three different types of theories of meaning of different level (but since 1974 Harman prefers to reserve the title "theory of meaning" for the second level only¹⁷): 1) the first approach studies language as *a medium in which we think*; 2) the second approach studies *the communication of thoughts through language*; 3) the third approach studies *linguistic acts as social practices*. Theories of level 1 are fundamental; theories of level 2 presuppose theories of level 1; theories of level 3 presuppose theories of level 2.

Sellars intends to present a theory of level 1,¹⁸ that is a theory of thinking. ‘Thinking that p’ – according to Sellars – has as its primary sense ‘saying "p"’ and as its secondary sense ‘having a short time propensity to say "p"’.¹⁹ A specification of what one says when he

¹⁴ Cf. Sellars (1963) p. 327.

¹⁵ Cf. Sellars (1974).

¹⁶ Cf. Harman (1968).

¹⁷ Cf. Harman (1974b) pp. 60-61.

¹⁸ Cf. Sellars (1974) p. 418.

¹⁹ Cf. Sellars (1974) p. 419. But Sellars qualifies his theory as "a ‘coarse grained’ behavioristic explanatory framework" which can then be developed into a fine-grained psychological theory dealing with ‘inner conceptual episodes’ which are only in an analogical sense verbal, cf. Sellars (1974) p. 418.

says "p", a specification of the meaning of "p", is thus at the same time a specification of the content of one's thought. To give such a specification – Sellars maintains – is to give a *functional classification* of "p".²⁰ Some "functions" with respect to which the functional classification can be performed are "purely intralinguistic (syntactical)". They are intralinguistic transitions. Other functions "concern language as a response to sensory stimulation by environmental objects". They are language entry transitions. Still others "concern the connection of practical thinking with behavior".²¹ They are language departure transitions.

What Sellars says about functional classification is not enough to judge whether his theory would satisfy the four requirements on a theory of meaning considered in chapter 1. Sellars' theory is not sufficiently developed. In particular, it is not clear how the requirement of compositionality could be satisfied. The "functions" on which the functional classification of an utterance depends correspond to behaviouristic stimulus-response associations. In section 5 of chapter 1 I argued that a behaviouristic approach cannot account for some important normative aspects of linguistic practice and that the practical ability in which linguistic understanding manifests itself cannot be described in purely behaviouristic terms. Nevertheless, in a behaviouristic spirit, Sellars' goal seems to be a theory of functional role as something which is publicly checkable and completely manifestable. One cannot judge whether this goal is reached. In Harman's case, on the contrary, it seems quite clear that the requirements of compositionality and manifestability are violated.

3.2. Gilbert Harman.

Gilbert Harman's first proposal of his "conceptual role semantics" dates back to 1974.²² In his book *Thought* he distinguishes a psychological theory of the "representational character"²³ or *content* of mental states from a theory of linguistic communication. He thinks that the theory of the representational character of mental states is

²⁰ Cf. Sellars (1974) p. 421 and p. 431.

²¹ Cf. Sellars (1974) p. 421.

²² Cf. Harman (1974a) and Harman (1974b).

²³ Cf. Harman (1974b) ch.4.

primary and reserves the term "theory of meaning" for the theory of communication. Strictly speaking, Harman says,²⁴ our representational mental states (beliefs, hopes, desires, fears, and other attitudes) which he calls also *thoughts*,²⁵ are not understood or misunderstood by anyone and though they have a *content*, they – strictly speaking – do not have a *meaning*. Only sentences of the outer language used in communication are understood or misunderstood and have a meaning.

The theory of the representational character of mental states, according to Harman, should consider representational mental states (i.e. thoughts) to be *instances or 'tokens'*²⁶ of *sentences of an "inner language" or "language of thought"*, sentences with which one can be in *different relationships*: "to believe that Benacerraf is wise is to be in a relationship to a sentence of the language of thought, and to desire that Benacerraf be wise is to be in a different relationship to the same sentence".²⁷ The sentences of the language of thought are sentences of the outer spoken language (e.g. English) "under analysis", i.e. they are structures that involve the *surface forms* of sentences of the outer language conceived under particular structural descriptions and thereby coupled with their *underlying syntactic structure* so that possible ambiguities of the surface forms are eliminated.²⁸

The *meanings* of sentences used in communication are determined by the *contents* of the representational mental states which they express.²⁹ We understand a sentence used in communication by correlating it with a corresponding sentence of the language of thought. Since the sentences of the language of thought are simply sentences of the outer language under grammatical analysis, to correlate a sentence of the outer language with a sentence of the language of thought does not involve any complicated decoding, it is

²⁴ Cf. Harman (1974b) p. 59.

²⁵ Cf. Harman (1974a) p. 10 and Harman (1987) p. 55.

²⁶ Cf. Harman (1974b) p. 58.

²⁷ Cf. Harman (1974b) p. 57.

²⁸ Cf. Harman (1974b) p. 92, and Harman (1975) p. 293.

²⁹ Cf. Harman (1974b) p. 60, Harman (1982) pp. 242-243, Harman (1987) p. 55.

not a translation into a completely different language.³⁰ The language of thought is a disambiguated counterpart of the outer language. If a speaker utters a sentence *S* of the outer spoken language, the hearer (belonging to the same linguistic community) associates with it a sentence *S** of his language of thought. *S** might be represented by the pair $\langle S, D(S) \rangle$, where *D(S)* is a description of the syntactic structure of the sentence *S* of the outer language, a description which is innerly coupled with the surface form of *S*.³¹ The sentence of the hearer's language of thought *S** – i.e. $\langle S, D(S) \rangle$ – has a content. By correlating such a content with the speaker's utterance of *S*, the hearer understands (or misunderstands) the utterance. That's why, according to Harman, a theory of communication depends on a theory of the content of thoughts.

What is the content (i.e. the representational character) of a sentence of one's language of thought, and thereby of any mental state (thought) which relates to an instance of that sentence? According to Harman it is *the role of the sentence in one's individual psychology*, that is the role of possible instances of the sentence *in all the functional system of one's mind*.³²

This view of representational mental states is embedded in a general *functionalist conception of mental states and processes*. A sufficiently detailed model of a person's mind, according to Harman, represents a device, realizable as a non deterministic automaton,³³ which is able to duplicate the person's behaviour. Abstractly, the automaton is specified by its program. Input represents the effect of perception. Output represents action. The same abstract automaton can be instantiated in different materials, e.g. in the brain or in something with different physical and chemical composition. An object instantiates an abstract automaton if its internal states and

³⁰ Cf. Harman (1975) p. 272; cf. also p. 282: "Mentalese is simply English used to think in" and p. 283: "the language used to communicate with is normally the same as that used to think with".

³¹ Cf. Harman (1975) p. 293: "we think with sentences conceived under particular structural descriptions".

³² Cf. Harman (1974a) p. 11, Harman (1974b) p. 60, Harman (1982) p. 242, Harman (1987) p. 55.

³³ Cf. Harman (1974b) p. 44. An automaton is nondeterministic if its program is such that some combination of internal states and input might be followed by at least two different results.

processes are related as required by the program. *Mental states and processes are "constituted" by their "function or role" in such a program. A type of mental state is a "function" in a person's program.*³⁴

In particular, the contents of thoughts (and indirectly the meanings of sentences expressing those thoughts) are determined by the "role" in the program of the corresponding possible instances of sentences of the language of thought:

Thoughts are to be identified, not in terms of truth conditions, but rather in terms of their potential role in a speaker's "conceptual scheme" – the system of concepts constituted by the speaker's beliefs, plans, hopes, fears, and so on, ways the speaker has of modifying his beliefs, plans, hopes, fears, and so on, and ways these modify what the speaker does.³⁵

More concisely, a person's program, when it works, modifies the person's thoughts, that is, performs reasonings. Contents and meanings depend on the roles which thoughts can have in a person's reasonings.³⁶

These ideas could be developed in different ways, some of which might perhaps be in agreement with the requirements on a theory of meaning formulated in chapter 1. For example, assuming that there is such thing as a person's program, if we defined the functional role of a word of the language of thought as given by a proper subset of instructions in the program which in some specified sense concern that word, then the functional role of the word could be separated from the whole program and from the totality of the person's mental states; thus the requirement of compositionality could be satisfied. But I think that, on the contrary, Harman's rather embryonic³⁷ conception of conceptual role violates the requirements of compositionality and manifestability.

³⁴ Cf. Harman (1974b) pp. 44-45, p. 53.

³⁵ Cf. Harman (1974a) p. 10.

³⁶ Cf. Harman (1987) p. 60.

³⁷ As Lepore and Loewer have remarked, the form of a theory of conceptual role is not very clear: Harman (like Sellars) does not provide a detailed account of such a theory, cf. Lepore and Loewer (1987) p. 90.

In 1987, in "(Nonsolipsistic) Conceptual Role Semantics", the last of his writings on this topic (so far), Harman summarizes his view in the following four points:

- 1) the meanings of linguistic expressions are determined by the contents of the concepts and thoughts they can be used to express;
- 2) the contents of thoughts are determined by their construction out of concepts;
- 3) the contents of concepts are determined by their 'functional role' in a person's psychology;
- 4) functional role is conceived non solipsistically as involving relations to things in the world, including things in the past and future.³⁸

Prima facie, point 2 might suggest that Harman's view be in agreement with the spirit of the requirement of compositionality. Compositionality requires that the sense of each sentence depend on the senses of its components, so that knowledge of the sense of a sentence can be acquired without an understanding of the whole language. According to Harman, the content of a thought depends on the contents of the component concepts (which are words in the language of thought).³⁹ However, a theory of conceptual role in Harman's sense would be compositional only if the content of a person's thought and thus the contents of its component concepts did not depend on the contents of every other thought and concept of the same person. But it seems clear that Harman's view is, on the contrary, that the content of a person's concept – its functional role – depends on the contents of all the beliefs of that person. In *Thought*, for instance, he writes: "what our words mean depends on *everything*

³⁸ Cf. Harman (1987) p. 55.

³⁹ However, Harman, perhaps inconsistently, has criticized the view "that a hearer determines what the meaning of an utterance is on the basis of his knowledge of the meanings of its parts and his knowledge of its syntactic structure", Harman (1975) p. 280.

we believe, on *all* the assumptions we are making".⁴⁰ Thus, a theory of conceptual role in Harman's sense is not compositional.

Harman maintains that the content of a concept is determined by its role in reasoning. But Harman's notion of reasoning is a psychological notion. Reasoning is the process through which we change our views, that is we revise our intentions and beliefs.⁴¹ It is a process of *psychological change*. So reasonings, in Harman's terminology, are different from arguments.⁴² An *argument* is what we publicly and intentionally put forward in order to justify an asserted conclusion, whereas a *reasoning*, according to Harman, may be unconscious or automatic: "it may well be that reasoning is a relatively automatic process whose outcome is not under control".⁴³ Beliefs involved in reasoning can be unconscious. For example "one might explicitly believe that one's mother does not love one", because such a belief "can be explicitly represented in one's mind, written down in Mentalese as it were", even though "this belief may not be consciously retrievable without extensive psychoanalysis".⁴⁴

Now it should be easy to see that *Harman's notion of meaning violates the requirement of manifestability and the principle that meaning is public*. Assume that there are differences between the set of beliefs B1 of an English speaker S1 and the set of beliefs B2 of another English speaker S2 or that there are differences between the program P1 of S1 and the program P2 of S2. The functional role of the concept "cat" of S1 depends on all B1 and all P1. The functional role of the concept "cat" of S2 depends on all B2 and all P2. So when the speakers S1 and S2, in front of the same cat, attend to the same type of sentence "the cat is on the mat" coupled with the same grammatical analysis in their respective languages of thought, they are not thinking the same type of thought. If S1 says "the cat is on the mat", S2 does not associate with that utterance the thought that S1 wants to express, but a different thought (because the content is different). There is a misunderstanding between the two speakers. In

⁴⁰ Cf. Harman (1974b) p. 14.

⁴¹ Cf. Harman (1974a) p. 11, Harman (1974b) p. 46, and specially Harman (1986a) p. 2.

⁴² Cf. Harman (1986a) p. 3, p. 115.

⁴³ Cf. Harman (1986a) p. 2.

⁴⁴ Cf. Harman (1986a) p. 14, cf. also Harman (1974b) p. 28.

general, misunderstanding is virtually inevitable, because virtually always there are differences between the beliefs and the programs of different persons. Such a misunderstanding is *not* a *specific* misunderstanding concerning only "the cat is on the mat". It concerns at the same time every other sentence, because conceptual role is holistically determined: a difference about the conceptual role of a sentence is a difference about the conceptual roles of all sentences.

The requirement of manifestability is already violated because the requirement of compositionality is violated: there is no *specific* publicly testable practical ability in which the *specific* understanding of a particular expression can be manifested. The only possible understanding is global understanding of the whole language and the only possible misunderstanding between two speakers is global misunderstanding.

But one can still ask: is there any guarantee that the two speakers S1 and S2 can discover that there is such a global misunderstanding, if they want to discover it? Even if all their uses of the sentence "the cat is on the mat" in arguments are exactly the same (they both justify the assertion of "the cat is on the mat" by pointing to the same kind of observable circumstances, they both infer from "the cat is on the mat" the sentence "there is an animal on the mat" and so on), the meanings that they attach to "the cat is on the mat" can still be different if the sets of beliefs and the programs differ. The only way to discover the difference is to make explicit all the beliefs of both speakers and their programs. But how can the speakers make explicit all their beliefs, if some of those beliefs "may not be consciously retrievable without extensive psychoanalysis"? Should they ask a psychoanalyst?

In order to discover a misunderstanding between the two speakers, one might build two theories which attribute to each of the speakers a set of beliefs, a set of intentions and a certain program. These theories could be tested by deriving consequences concerning the behaviours of the speakers, which would be compared with their actual behaviours. Each theory would contain a model of the concerned speaker's mind, the program of a non deterministic automaton which, given suitable sets of intentions and beliefs, duplicates the speaker's behaviour. Each speaker might develop theories of this kind concerning himself (or herself) and the other speakers. One might object that so far nobody knows any person's program, if there is such

a thing. Thus, at present nobody can discover the many misunderstandings due to differences in programs we constantly run into, according to Harman's view. The latter might be only a temporary limitation, but it seems clear that we usually don't detect misunderstandings by developing theories of this sort. A more serious problem, however, is that, even if we imagine that a satisfactory functionalist theory of a person's psychology can be developed, such a theory would be underdetermined by the person's behaviour and practical abilities. Different choices of beliefs (perhaps of unconscious beliefs) and intentions (perhaps unconscious intentions) attributed to the speaker and associated with appropriate programs can generate the same consequences concerning the behaviour of the speaker and also the practical abilities which we would normally credit to the speaker. Different programs can underlie the same practical abilities. One can easily describe two Turing Machines which both are capable of computing the sum of any pair of natural numbers with the same efficiency, but have very different programs. Programs are underdetermined by practical abilities. *There can be differences in programs which are not manifestable in any difference in practical abilities.* Thus, misunderstandings which depend on differences in programs may be in principle undiscoverable.

The latter remarks show that Harman's conceptual role semantics conflicts with the thesis that meaning is public, because Harman's conceptual role semantics involves the possibility of unknowable misunderstandings depending on differences in programs. But let us assume that the speakers can discover a difference in their programs. If two speakers were to discover a difference between their programs, they would thereby know that they attach a different meaning to every sentence of the common language, and that there is a total misunderstanding between them. Could they eliminate such a misunderstanding? Obviously, they could not eliminate it without changing their own programs, i.e. without changing not only their beliefs, but their own minds, a very drastic method of eliminating misunderstandings. But if their programs were changed, according to the functionalist conception of mind defended by Harman, are we entitled to say that they would remain the same speakers or should we rather say that they would become different persons? Should we conclude that, according to Harman, the only way of eliminating

misunderstandings is to make all speakers instantiate the same abstract automaton?

3.3. Hartry Field.

In "Logic, meaning and conceptual role" (1977),⁴⁵ Hartry Field presents a theory of conceptual role which differs in many respects from Sellars' and Harman's suggestions. In his paper Field defends what is called a "dual aspect"⁴⁶ view. According to Field, meaning contains *two* ingredients: referential meaning and conceptual role. A theory of meaning should have two distinct components, a truth-theoretic semantics – which specifies referential meaning – and a conceptual-role semantics – which specifies conceptual role.⁴⁷

According to Field, "truth theoretic semantics and conceptual role semantics must supplement each other".⁴⁸ The sole notion of reference, as Frege understood, cannot account for certain important differences.⁴⁹ Since Hesperus and Phosphorus are the same object, Field says, "Hesperus=Hesperus" and "Hesperus=Phosphorus" have the same *referential* meaning. But they differ in *meaning*.⁵⁰ So we need a notion of conceptual role in order to explain such a difference in meaning. On the other hand, as Hilary Putnam maintained in his "Comment on Wilfrid Sellars",⁵¹ conceptual role does not determine the relation between language and the world. Thus, since truth conditions depend on the relation between language and the world, a pure conceptual role account of meaning would imply that meaning does not determine truth-conditions, against "one of our most fundamental beliefs about meaning".⁵² So we need also truth-theoretic semantics.

The truth-theoretic semantics, according to Field, should be a theory of truth in Tarski's sense to which is added an account of

⁴⁵ Cf. Field (1977).

⁴⁶ Cf. Lepore and Loewer (1987).

⁴⁷ Cf. Field (1977) p. 380.

⁴⁸ *Ibidem*.

⁴⁹ Cf. Frege (1892).

⁵⁰ Cf. Field (1977) p. 390.

⁵¹ Cf. Putnam (1974).

⁵² Cf. Field (1977) p. 397.

primitive reference and satisfaction which is not simply a list of cases, as in Tarski, but a *physicalistic* definition of a relation between primitive singular terms and predicates on the one side and extralinguistic objects and properties on the other side. Such a truth-theoretic semantics would accomplish a real *physicalistic reduction* of the notions of truth and reference (which – Field says – is what Tarski aimed at).⁵³

The thesis that truth and reference ought to be explained as a physicalistic relation between signs and physical entities seems to me extremely dubious.⁵⁴ But to criticize this physicalistic conception of truth is not my task here. What concerns me here is rather Field's notion of *conceptual role*.

At the beginning of his paper Field very reasonably observes that his general idea could not be discussed "in any but the most vague and impressionistic way without some fairly precise account of conceptual role".⁵⁵ Accordingly, Field proposes a very precise account of conceptual role in terms of *subjective conditional probability*. He first defines the notion of a *reasonable probability function*.⁵⁶ A reasonable probability function is any function p such that:

i) p is a dyadic function which assigns real numbers ranging from 0 to 1 to pairs of sentences: $p(A|B)$ is the probability of A given B.

ii) p satisfies seven axioms which are a variant due to William Harper of Popper's axioms for conditional probability dealt with in Appendixes IV and V of *The Logic of Scientific Discovery*.⁵⁷

iii) p satisfies certain additional conditions formulated by Field in order to deal with first order quantified sentences.⁵⁸

⁵³ Field has defended this view especially in Field (1972).

⁵⁴ Cf. section 2.2 of chapter 6.

⁵⁵ Cf. Field (1977) p. 380.

⁵⁶ Cf. Field (1977) p. 384.

⁵⁷ Cf. Popper (1959), Harper (1975).

⁵⁸ Cf. Field (1977) pp. 384-388 and pp. 402-409.

"A is certain with respect to p " is defined as " $\forall C[p(A|C)=1]$ ". "A legitimizes B with respect to p " is defined as " $\forall C[p(A|C)\leq p(B|C)]$ ". "A is equipollent to B with respect to p " is defined as "A legitimizes B with respect to p and B legitimizes A with respect to p ", which is equivalent to " $\forall C[p(A|C)=p(B|C)]$ ". Field thinks that reasonable probability functions can be assigned to individual speakers. A reasonable probability function p_I assigned to a speaker S1 represents the actual degrees of conditional belief of the speaker S1. $p_I(A|B)$ represents the degree of subjective probability that S1 would attach to A if S1 were to come to believe B to degree 1.⁵⁹

Assuming that a reasonable probability function p_I is assigned to a speaker S1, Field defines sameness of conceptual role for S1 as equipollence with respect to p_I : "two sentences *have the same conceptual role* for a person if these sentences are equipollent with respect to that person's subjective probability function".⁶⁰

Field maintains that "*the meaning of a sentence is given by its referential meaning together with its conceptual role*",⁶¹ so "sameness of meaning is equipollence *plus sameness of referential meaning*".⁶²

An important feature of Field's theory of conceptual role is that it provides a justification of classical logic. One of Field's aims in "Logic, meaning and conceptual role" is to show that classical logic can be justified on the basis of a semantics which is centred on conceptual role and subjective probability, without appealing to the notion of truth. Indeed Field thinks of reasonable probability functions as *interpretations of a first order language*. In this perspective one can define a notion of *probabilistic validity* as follows: a sentence is probabilistically valid if, and only if, it is certain under every interpretation (i.e. certain with respect to p for every reasonable probability function p). Popper's axiomatization of probability does not include the assumption that logically equivalent

⁵⁹ This holds only if B is not contradictory, cf. Field (1977) p. 391, note 15: "[...]in some cases we cannot think of $p_I(A|C)$ as representing the probability I would attach to A if I were to come to believe C to degree 1; namely I cannot do this when C is absurd, that is when its negation is certain, for in this case $p_I(A|C)$ will be 1 for all A; and it seems unreasonable to say that were I to accept C, I would attach probability 1 to everything".

⁶⁰ Field (1977) p. 390. (Field's italics).

⁶¹ *Ibidem*. (Field's italics).

⁶² Field (1977) p. 394. (Field's italics).

sentences must have the same probability. Thus Popper's axiomatization does not presuppose the notions of logical truth and logical equivalence. But Popper was able to *prove* from his axioms that every classical tautology is certain with respect to every reasonable probability function p (and then one can also prove that logically equivalent sentences are equipollent with respect to p). From Field's point of view, this means that every classical tautology is probabilistically valid, which amounts to a soundness theorem for classical sentential logic in the framework of probabilistic conceptual role semantics. In his paper, Field extends Popper's result by giving a soundness and a completeness theorem for *first order* classical logic.⁶³ According to Field, the conditions (i-iii above) fixing what counts as a reasonable probability function specify the meanings of the logical constants. The meanings of logical constants, differently from the meanings of non-logical expressions, can be specified only in terms of conceptual role, and thus Field concludes that "the [classical] logical laws hold by virtue of meaning".⁶⁴

Does Field's notion of conceptual role agree with the requirement of compositionality? The answer is even clearer than in Harman's case: no, it doesn't. The conceptual role of a sentence A for a speaker S1 depends on the values of $p_I(A|C)$ for every other sentence C in the language, where p_I is the subjective probability function which is assigned to S1 and is defined at the same time for all pairs of sentences of the language. Therefore one cannot know the conceptual role of a sentence without knowing at the same time the conceptual role of every other sentence: *the requirement of compositionality is not satisfied*.

Since the requirement of compositionality is not satisfied, also *the requirement of manifestability is violated*: the conceptual role of a particular sentence cannot be completely manifestable in a *specific* practical ability of a speaker, because it cannot be separated from the conceptual roles of all other sentences of the language. But the question remains whether Field's conceptual role semantics agrees with the thesis that meaning is public. Assume that there is a difference between the conceptual role of A for a speaker S1 and the conceptual role of A for another speaker S2. Such a difference

⁶³ Cf. Field (1977) pp. 384-388 and 402-409.

⁶⁴ Cf. Field (1977) p. 402.

implies a difference in the conceptual roles associated by the two speakers to any other sentence of the common language. But ought we to conclude that there must be some difference in the practical abilities of S1 and S2 in which all the differences in conceptual roles of sentences can be manifested? The answer is: no, we oughtn't. A difference between the conceptual roles of the same sentence A for S1 and S2 implies a difference between the subjective probability functions p_1 of S1 and p_2 of S2. But such a difference is not necessarily manifested in different practical abilities of S1 and S2. Given the practice of a certain speaker, according to Field "the process of assigning a particular conditional probability function" is not unique, "a particular probability function is an idealization of a person's actual degrees of conditional beliefs, and there is no reason to think there will be a uniquely best idealization".⁶⁵ So S1 and S2 – whose probability functions we have assumed to be different – can nevertheless use language in the same way. Thus there are differences in the conceptual roles they associate to the same sentences of their common language, but such differences cannot be discovered by examining their linguistic practice: *Field's notion of conceptual role is in conflict with the thesis that meaning is public.*

But Field's approach has even more drastic consequences. In Harman's version of conceptual role semantics, as I have described it above, if two speakers have a different psychology, i.e. a different program, they associate different conceptual roles with every expression of their common language. The same happens in Field's version of conceptual role semantics if two speakers have a different subjective probability function. In Harman's case it seems reasonable to say that two persons have always a different program. Field writes explicitly that "different people have different subjective conditional probability functions".⁶⁶ The notion of sameness of conceptual role is defined only within the context of the same probability function. Field declares himself "pessimistic" about the feasibility of "an account that is both clear and useful of what it is for terms or sentences in the contexts of different probability functions to have the same conceptual role".⁶⁷ So Field prefers "to live without the concept of

⁶⁵ Field (1977) p. 398, note 23.

⁶⁶ Field (1977) p. 398.

⁶⁷ *Ibidem.*

inter-speaker synonymy". In other words, Field abandons the idea that a sentence may have the same meaning for two different speakers (or for the same speaker at different times).⁶⁸ What remains is only intersubjective sameness of reference,⁶⁹ which is certainly not enough to explain how successful communication is possible (it is not enough because there are important differences in communication which do not depend on reference: the two sentences "You murdered Laius" and "You murdered your father" give Oedipus two very different pieces of information, though they both refer to the king of Thebes, son of Labdacus and husband of Jocasta, whom Oedipus slew in a quarrel at the crossroads below Amphissa without knowing who he was).

The conclusion that has been reached so far is that both Harman's and Field's versions of conceptual role semantics violate the requirements of compositionality and manifestability, and the thesis that meaning is public. Therefore they both are very different from the theory centred on immediate argumental role that will be described in the following chapters. In addition to these, Field's theory contains two other features which distinguish it from the theory centred on immediate argumental role. First, as we have seen, Field's conceptual role semantics provides a justification of classical logic, while the conception of meaning based on immediate argumental role is pluralistic with respect to the meaningfulness of different logics, and neutral with respect to their validity. Secondly, a theory of meaning centred on immediate argumental role, as we shall see, does not imply that two logically equivalent sentences have the same immediate argumental role; on the contrary, according to Field's theory, if two sentences are logically equivalent, they are equipollent and thus have the same conceptual role with respect to every probability function. That two logically equivalent sentences have the same conceptual role is rather implausible if a theory of conceptual role is considered a theory of understanding. Two logically equivalent sentences can be extremely different and the reasoning required to show that they are logically equivalent can be very long and complicated. In cases of this sort it is intuitively clear that we understand the two sentences in a different way, and if meaning or

⁶⁸ Field (1977) p. 398, note 22.

⁶⁹ Cf. Field (1977) p. 399.

"conceptual role" is considered constitutive of understanding, the two equivalent sentences ought to have different meanings and different conceptual roles.

In any case, Field's notion of conceptual role is very idealized. For this reason it was criticized by Harman.⁷⁰ Field's theory of conceptual role, according to Harman, has nothing to do with the role of concepts in reasoning, because "people do not and could not operate probabilistically, since keeping track of probabilities involves memory and calculating capacities which are exponentially exploding functions of the number of logically unrelated propositions involved".⁷¹ Thus extensive use of probabilities is too complicated for finite beings.

4. Conclusions.

In this chapter I have surveyed the views of different authors who in different ways hold that the meaning of an expression is its role in reasoning. Reasoning can be understood as a psychological and subjective process or as the public activity of giving arguments in order to justify assertions (and perhaps also other actions). Harman and Field are concerned with reasoning in the former sense. On the contrary — like Wittgenstein, Dummett, Prawitz, and Sellars in his "Reflections on Language Games" — in the present study I shall be concerned with the role of words in reasoning in the latter sense: the argumental conception of meaning developed in the following chapters explains meaning in terms of rules governing *public arguments*, and not subjective psychological processes.

Wittgenstein rejects the idea of developing a *theory* of meaning and understanding. Sellars simply does not offer a detailed theory. Differently from Wittgenstein and Sellars, I shall try to describe in detail a theory of meaning and understanding centred on immediate argumental role. Such a theory honours Dummett's requirements on theories of meaning. In particular, differently from Harman's and Field's conceptual role semantics, the theory satisfies the requirements of compositionality and manifestability.

⁷⁰ Cf. Harman (1985), Harman (1986a) ch.3, Harman (1987) p. 66.

⁷¹ Cf. Harman (1987) p. 66.

All the characteristics of a theory centred on immediate argumental role which I have just mentioned are features that such a theory has in common with the theory centred on direct verification described by Dummett and Prawitz. But a verificationist theory is very restrictive with respect to the form of the meaning-giving rules, while the theory centred on immediate argumental role does not set any restriction on meaning-giving rules. Moreover, according to Dummett and Prawitz (and Wittgenstein) meaning-giving rules cannot be wrong, they are beyond criticism, because they constitute our very understanding of the involved words. On the contrary, I shall maintain that, even if meaning-giving rules constitute our understanding of certain words, they can be wrong and can be criticized, because *we can understand incorrect languages*. On my view, there is a distinction to be drawn between criteria of understanding and criteria of correctness of the understood language. The correctness of a language (and of the corresponding meaning-giving rules) is relative to a particular epistemic situation and cannot be decided in advance and absolutely, once for all, by a theory of understanding, before the language is used in concrete epistemic situations. Important consequences are that a theory of understanding cannot provide a justification of a logic, differently from what Dummett and Prawitz have maintained, and that a sentence cannot be true only in virtue of meaning.

Here I have summarized differences and similarities between the aforementioned views and the idea of an argumental theory of meaning. Now it's time for me to start describing the form of such a theory in detail.

CHAPTER 3

Immediate argumental role

1. The general idea.

In this chapter I begin to give a detailed description of the theory of meaning centred upon the notion of 'immediate argumental role'. As we saw in the Introduction, the idea underlying such a theory can be summarized by the two following theses:

i To know (implicitly) the sense of a *word* is to know (implicitly) all the argumentation rules concerning that word.

ii To know the sense (i.e. *the immediate argumental role*) of a *sentence* is to know the syntactic structure of that sentence and to know the senses of the words occurring in it.

One of the main aims of the following sections is a clarification of *i* and *ii*. The theory which will be described in the sequel is based on these two principles. Moreover, the theory honours the four requirements examined in the first chapter.

First, I use here the notion of 'sense of a sentence' in order to indicate the *specific* component of the meaning of an utterance of the sentence. After Frege it is a widespread view that when we use a declarative sentence assertorically we connect a component of meaning common to all assertions, the assertoric force, with the specific component of the meaning of the uttered sentence, i.e. with its sense. This *distinction between sense and assertoric force* plays a very important role in the argumental conception of meaning I am going to present. Sense and force are two ingredients of the *meaning* of a linguistic act.

Secondly, the notion of 'meaning' here is a notion which serves for an explanation of what it is *to understand* a linguistic utterance, i.e. for a *theory of understanding*. To understand the utterance of a sentence is to know its meaning. In order to understand an assertion a speaker must know that it is an assertion and what it is to make an

assertion. This is a knowledge of the assertoric *force* of the utterance. But, in order to understand, the speaker must also know what particular assertion has been made, what distinguishes this particular assertion from other assertions. This is a knowledge of the *sense* of the sentence uttered.

Thirdly, according to principle *ii*, knowledge of the sense of a sentence is acquired *compositionally*, i.e. on the basis of knowledge of the senses of the component words, which, as we shall see, can presuppose knowledge of some other words.¹

Lastly, knowledge of sense should correspond to a specific practical ability. This is the requirement of *manifestability* considered in chapter 1 (section 5). According to the requirement of manifestability, the theory of meaning should describe a speaker's knowing the sense of a sentence so that every aspect of such a knowledge can publicly manifest itself. The manifestation of a knowledge of the sense of a sentence should consist in all the actions which display the practical ability to use the sentence in a certain way. As we saw in chapter 1, this does not mean that knowledge of sense should be completely manifest in a finite sample of behaviour. Knowledge of sense should correspond to a practical ability, but a practical ability is *not* exhausted by a *finite* sample of behaviour. Moreover, a practical ability is not necessarily describable in *behaviouristic* terms. To be capable of performing and recognizing actions as correct inferences or argumentation steps² is a practical ability. According to my view, a speaker knows the sense of a sentence if, and only if, he/she is capable of performing and recognizing certain actions as correct argumentation steps. But this practical ability cannot be adequately described by simply describing some behavioural reactions to certain stimuli. An adequate description must say that the person performs or accepts relevant pieces of behaviour *as argumentation steps*, i.e. as acts which aim at justifying the truth-claim that is involved in an assertion (possibly depending on some hypotheses). It is difficult to imagine an adequate description of the relevant practical ability which does not resort to some *general* semantic notion like the notions of 'assertion' or 'truth' which, at least *prima facie*, are not behaviouristic, physicalistic or

¹ Cf. also chapter 1, section 4.

² For a detailed description of argumentation steps see the next section.

naturalistic notions. Therefore, a description of the practical ability corresponding to knowledge of the sense of a sentence, according to the notion of sense I shall propose, does not amount to *areduction* of the general notion of understanding to non-semantic notions.³

2. Argumentation steps.

Principle *i*, as it stands, is not very clear, because the notions of ‘argumentation rule’ and ‘concerning’ are not explained. In this chapter I shall clarify them. To this end, I first define the preliminary notion of ‘argumentation step’, which is a generalization of the notion of inference (argumentation steps, as the reader will see, are instances of argumentation rules). An argumentation step **P** is the particular act of justifying a token sentence, called *conclusion* (possibly depending on certain hypotheses):

iii An argumentation step **P** is determined by a list of seven finite items

P = <C, NL, PR, AR, H, VAR, S>.

The *conclusion* **C** is in general justified on the basis of some *evidence*, which can be either *linguistic* or the *non-linguistic* result of certain actions, or both. Of course also linguistic evidence is the result of an action, namely the exhibition of linguistic constructions. But the evidence for a conclusion **C** can also be the result of actions of a different sort. The most obvious actions of a different sort are what we may call in a wide sense perceptive actions, like observations or experiments, the result of which is determined by sense organs and scientific instruments. But non-linguistic evidence can also be the result of non-perceptive actions. (For instance we might want to consider a correct, though defeasible, argumentation step the step concluding that the bird Titi is not abnormal – and thus is capable of flying – if we have summoned all our present knowledge concerning birds and concerning Titi and we have failed to find an argument to the effect that Titi is an abnormal bird – incapable of flying –. In this case the action consists in trying to find an argument for Titi’s

³ See section 3 in this chapter.

abnormality, and the result is our failure, which counts as defeasible evidence for the sentence "Titi is not abnormal".⁴ Even if the arguments one tries to find are linguistic, *the failure* is not a linguistic construction). Non-linguistic evidence for the conclusion C constitutes a finite set **NL**.

Linguistic evidence consists in a finite list of token sentences called *premisses*, **PR**, and in a finite list of *arguments* **AR** for such premisses. Each premiss will be the conclusion of an argument. An argument is in general a finite concatenation of argumentation steps. The concatenation may also contain a single argumentation step, which in turn may also consist in a single token sentence (in the latter case the argument and the corresponding premiss coincide, the premiss is put forward without justification and thus must be either an axiom or an assumption⁵).

Arguments in **AR** may contain *assumptions which are discharged by the argumentation step*. Such assumptions constitute the finite set **H**. For example, if we have proved B by means of an argument D^1 depending on the assumption A, then we can perform an argumentation step **P'** which draws the further conclusion " $A \rightarrow B$ " (i.e. "if A, then B"), and *discharges* the assumption A. The result is a new argument D^2 which *does not depend anymore* on the assumption A and contains D^1 as a first part. The second part of D^2 is the argumentation step **P'** by means of which from the first part we have

⁴ Probably some readers have recognized the usual example in the literature concerning non-monotonic reasoning: cf. for example Reiter (1980). There are obvious similarities between the argumentation step described above and Prolog's negation by failure, in terms of which it is possible to deal with non-monotonic reasoning; cf. Clocksin & Mellish (1987). For a philosophical appreciation of Prolog's negation see Cellucci (1993).

⁵ According to the explanation given below in this section an *axiom* is an argumentation step without premisses (and thus without arguments for premisses): the conclusion of the argumentation step is asserted unconditionally. On the other hand, an *assumption* can be viewed as an argumentation step **P** with conclusion **C**, with only one premiss **S** supported by an argument **A**, such that in **P** argument **A**, premiss **S** and conclusion **C** coincide. The difference between an axiom and an assumption, therefore, is that the conclusion **C** in the former case is asserted unconditionally, in the latter case is advanced only under the condition of its premiss **S**, which is **C** itself.

concluded " $A \rightarrow B$ " in getting rid of the assumption A . D^2 can be represented as follows:

$$\boxed{\begin{array}{c} [A] \\ D^1 \\ \hline B \\ \hline A \rightarrow B \end{array}} = D^2$$

(the square brackets indicate the discharged assumption).

Arguments in AR may also contain *free variables* in a finite set **VAR**, which are *bound by the argumentation step*. For example, if we have an argument E^1 to the effect that a has the property F , where " a " is an individual variable which represents an indeterminate individual a (of some relevant kind) on which we don't make any particular (undischarged) assumption, then we can construct a new argument E^2 consisting of two parts. The first part of E^2 is E^1 . The second part is an argumentation step which from the first part draws the conclusion that *every* individual of the relevant kind has the property F , i.e. $\forall x F(x)$. In E^2 the indeterminacy which characterized the conclusion of E^1 is eliminated, because the conclusion of E^2 does not concern an indeterminate individual, it concerns all the individuals of the relevant kind. This is expressed by saying that the individual variable " a " is not free anymore, because the argumentation step has *bound* it. E^2 can be represented as follows.

$$\boxed{\begin{array}{c} E^1 \\ F(a) \\ \hline \forall x F(x) \end{array}} = E^2$$

Moreover, the justification of the conclusion of an argumentation step can be *conclusive* or *defeasible*. An argumentation step **P** is defeasible if it admits of possible subsequent stronger counter-evidence which would bind the speaker to withdraw the conclusion. On the contrary, **P** is conclusive if it does not leave room for such a subsequent stronger counter-evidence. For example, from an observable behaviour like moans or winces one can *correctly* draw the conclusion "John is in pain". But such an argumentation step is

defeasible, because one might later discover that John was only pretending to be in pain. In such a case, one would withdraw the assertion that John was in pain, even if there was no mistake in the previous observation of John's pain-behaviour. On the contrary, if from a mathematical proof (a *genuine* proof) one *correctly* draws the conclusion "Every natural number has a unique prime factorisation", the argumentation step is conclusive because no subsequent stronger counter-evidence is admissible (if we discover a mistake in a supposed mathematical proof, then our discovery shows that the argument is not and has never been a genuine proof, and thus it shows that the corresponding assertion has *never* been correct). Thus, an argumentation step is always characterized by a certain degree of strength *S* corresponding to the conclusion *C*. It is not essential how degrees of strength are represented, they might be represented by real numbers from 0 to 1 or perhaps in some other way. Conclusiveness is the highest degree of strength.

NL, PR, AR, H, VAR, can be empty. If NL is empty, we call *P* a *pure inference*. If NL, PR, AR, H, VAR are empty, *P* is the exhibition of *an axiom* (in mathematics an axiom is normally considered conclusive, but we can imagine also axioms of weaker strength).

I have tried to give a very general description of argumentation steps. However, the description might be not general enough. Perhaps one might conceive other ways of justifying conclusions that do not fall under this description. But this would not affect the development of the argumental theory in the sequel, because the definitions of the concepts I am going to introduce do not exploit the details of the description of argumentation steps given in this section, which, if necessary, could be adapted to new kinds of argumentation steps, and could be replaced by a more general description. However, the description given here is necessary in order to make clear that if we took no account of some of the seven factors I have mentioned, the resulting notion of argumentation step would not capture important aspects of our practice of justifying a conclusion. In particular, it is necessary to stress that non-linguistic evidence plays a role in argumentation. Moreover, it is necessary to stress that, even if we consider only pure inferences, the linguistic component of an argumentation step is not completely described by indicating conclusion and premisses: sometimes the correctness of an

argumentation step does not depend only on premisses and conclusion, but also on the global structure of the arguments leading to the premisses; sometimes certain conclusions are reached by making assumptions that are then discharged or by employing variables that are then bound.⁶ And of course the evidence used to support a conclusion can be conclusive or defeasible. If one of these factors were neglected, our notion of argumentation step would be inadequate.

3. A theory from inside language: quasi-empirical data.

I take here for granted that we have the capability to recognize that a speaker is performing an argumentation step. In chapter 1 (section 5) I already gave some reasons against equating the latter capability with the mere capability to recognize certain observable properties of the speaker's behaviour. Someone might naively say that we *can see* that a speaker is justifying an assertion. But many philosophers would more carefully point out that there is a big difference between an observational description of the speaker's behaviour to the effect that the speaker utters certain sounds in certain observable circumstances, and a description according to which the speaker is *justifying an assertion*. The latter description involves some important assumptions about the speaker. Justifying an assertion is a conscious and voluntary act. The speaker who utters those sounds is really justifying an assertion only if he/she *aims at justifying an assertion* while uttering those sounds. One's aiming at justifying an assertion implies that one has made (or is making) *an assertion*, and making an assertion is possible only if one *understands* the uttered sentence. When we *see*

⁶ Dag Prawitz is to my knowledge the first who -in "Towards a Foundation of a General Proof Theory", starting from Gentzen's analysis of first order inferences- has tried to give a *general and precise* characterization of what an inference is which takes into account the role of discharging assumptions and binding variables, cf. Prawitz (1973), p. 228. In 1983, as an undergraduate student, I listened to Prawitz's still unpublished lectures on general proof theory at the University of Rome "La Sapienza", where he developed the ideas of "Towards a Foundation of a General Proof Theory". My notion of 'argumentation step' is a generalization of Prawitz's notion of 'inference' obtained by taking into account also non-linguistic evidence and differences of strength among various defeasible or conclusive argumentation steps.

the speaker's observable behaviour *as* the act of justifying an assertion, we in a sense *implicitly* make all these assumptions. In particular, we assume that the speaker gives meaning to the uttered words. Such assumptions are normally made by all the members of a linguistic community confronted with a fellow speaker's utterance. They are *reasonable* assumptions. *Without specific counter-evidence*, it would be unreasonable, when we listen to our fellow speakers, to doubt whether they really give any meaning to what they say. It can even be to a certain extent misleading to call them "assumptions", because calling them so might suggest that a member of the linguistic community first considers the speaker's behaviour separately, only observationally, without any assumption, and then adds assumptions as to the linguistic nature of that behaviour. On the contrary, our seeing a speaker's behaviour *as linguistic practice* does not depend on our *inferring* from behavioural descriptions and from some distinct assumptions, the conclusion that the speaker is performing linguistic acts. Our seeing a behavioural performance as a linguistic act is *fused together* with our seeing the observable behaviour. Thus, our "assumptions" on the conscious, voluntary and linguistic character of the speaker's behaviour are not *separate* assumptions. Nevertheless, a statement to the effect that a language user is performing a linguistic act is clearly *defeasible* in such a way that we can subsequently meet with an epistemic situation in which we are bound to reject that statement without rejecting the original corresponding behavioural description. A prolonged interaction with a language-user can show in many different ways that the language-user's behaviour is not really a linguistic act. We can in many ways encounter subsequent counter-evidence that convinces us that our supposed fellow speaker *does not* understand at all and is just uttering sounds without attaching any meaning to them (for example we can discover that he/she has only memorized certain sentences but doesn't understand them, or that it is only a big puppet with a tape recorder inside). However, until we run into such a counter-evidence it is reasonable to believe that the pieces of behaviour we are confronted with are genuine speech acts. If these speech acts take place in appropriate circumstances, for example as responses to certain objections on our part, it is reasonable to identify them as argumentation steps.

Thus, the recognition of an argumentation step is always defeasible and involves semantic notions like 'assertion', 'justification', 'understanding' etc. Does this prevent us from considering the fact that a speaker justifies an assertion a *datum* of which we can avail ourselves for a theory of meaning? It depends of course on what our aim is. If our aim were to reduce semantical and intentional notions to non-semantical and non-intentional notions, then such data ought not to be admitted. But this is not our aim. Our aim is to explain in what a speaker's understanding of a language consists. A reduction to non-semantical notions (the possibility of which is highly dubious) is not the only form that such an explanation can take.

Such an explanation can also be developed *from inside the language*. By this phrase, borrowed from John McDowell, I mean that we can put ourselves in the position of *a member of the linguistic community*, who is confronted with the behaviour of a fellow speaker. Actually, we already are in this position. We are already capable of distinguishing a person who understands our language from a person who does not. And if we learn a foreign language, we learn how to make the corresponding distinction about speakers of that language. Thus, we already have some more or less implicit pretheoretic notion of 'understanding'. But we do not possess a theoretical clarification of such a notion. And this is precisely what we are seeking: a theory which makes clear and explicit what it is to understand a language. We know that our fellow speakers understand words and sentences, make assertions, and justify them. But we feel the need of *a theory which describes explicitly the different specific practices in which understanding single expressions, making assertions, and justifying them consist*, a theory which disentangles all these practices from one another and at the same time shows how they are connected with one another.

In some formulations of his requirement of manifestability, Dummett maintained that a theory of meaning must describe the practical ability in which a speaker's understanding of a sentence consists "without appeal to any semantic notions assumed as already understood".⁷ John McDowell described this idea as the idea "that a

⁷ Dummett (1977) p. 376.

proper theory of meaning for a language would be formulated 'as from outside' content altogether".⁸ I agree with McDowell and with Peter Pagin⁹ that a non-semantic specification of an observable behaviour 'as from outside' language would not be a satisfactory description of the practice in which someone's understanding of a sentence manifests itself. However, I do not agree with McDowell when he, in his defence of a 'modest' homophonic truth-conditional theory of meaning developed 'from inside language', proposes specifications of practical abilities in such form as

'the ability to use "NN" so as to be understood by speakers of the language to be expressing thoughts about NN'¹⁰

In my opinion, McDowell offers too little. Such a description does not help at all to explain what it is for "NN" to have the meaning that it has. From McDowell's description we don't get any clarification about the practical capacity in which an understanding of "NN" consists, because the description contains the notion of 'understanding "NN"' and *nothing more*. Thus, the description is not informative at all.

In the present chapter I propose an explication of 'understanding S' for every particular sentence S of a language, in the form of a description of the specific practical ability to perform and recognize certain actions as correct argumentation steps. Such a description is – I think – an *informative* specification of what it is to understand S, especially because, on the basis of such a specification, we can discriminate between those linguistic acts which are constitutive of an understanding of S and those which are not. The task of detecting the relevant argumentation steps, as we shall see, is not at all trivial, whereas McDowell's specification of the practical ability in which an understanding of "NN" consists is completely trivial and uninformative (and the same can be said of an homophonic formulation of the truth conditions of "NN").¹¹

⁸ McDowell (1987) p. 61.

⁹ Cf. Pagin (1987) ch. 2.

¹⁰ McDowell (1987) p. 72.

¹¹ Thus Dummett is right in saying that what McDowell's view amounts to is that we cannot explain at all what it is for the words and sentences of a language to

The aim of a theory of meaning is to detect those particular aspects of the linguistic activity which correspond to a speaker's specific understanding of single expressions, to make clear how such an understanding depends on the understanding of a particular fragment of the language, and to describe also those aspects of linguistic practice in which our grasp of assertoric force resides. In so far as the theory of meaning attains such aims, even if it is elaborated 'from inside language', it will satisfy our need of philosophical clarification of the linguistic activity in which we and our fellow speakers are already engaged.

In order to develop and to check theories of the kind we envisage, and also in order to frame the more general picture of the form that such theories should take, it is completely reasonable to accept as relevant *data* those episodes that every member of the investigated linguistic community would consider instances of speech acts, and in particular of those speech acts, here termed "argumentation steps", by means of which a certain conclusion is justified. The defeasibility of the description of a given observable behaviour as a linguistic act does not prevent us from using it as a datum for our theory of meaning more than the defeasibility of a statement to the effect that a certain physical object has an observable property ("the litmus paper is blue") prevents a scientist from considering the fact that the object has that property a datum for a scientific theory. But we have seen that ascriptions of speech acts cannot be equated to descriptions of observable properties of behaviours, because they involve semantic notions. Thus, I propose to call the ascriptions of speech acts which we shall use as data for the theory of meaning *quasi-empirical data*.

4. Immediate argumentation steps as data for a theory of meaning.

In this chapter I shall give a general account of the way in which we could in principle construct a theory of *sense* centred upon the notion

have the meanings that they have; cf. Dummett (1987) p. 256. I agree with Dummett that 'modest' homophonic truth-conditional theories of meaning are not satisfactory theories of understanding, but it goes beyond the scope of this work to develop a detailed criticism of such theories.

of immediate argumental role for a particular language (assertoric *force* will be considered in chapter 6). In order to construct a theory of sense for a particular language one has to detect a speaker's argumentation steps. But discerning a speaker's argumentation steps is only the first thing to do. The second thing to do is to discriminate between immediate and non-immediate argumentation steps. *Non-immediate* argumentation steps are such that, if the speaker performs them and they are challenged by some opponent, then the speaker – if well disposed – will provide some further argument in order to justify the argumentation step called in question. For example, suppose that a speaker performs an argumentation step **P** from "s" to " $\neg s \rightarrow (q \wedge r)$ " (where "s", "q" and "r" are some particular sentences) and that an opponent challenges **P**. Suppose the speaker replies by exhibiting the following argument:

1) $\neg s$	hypothesis;
2) s	hypothesis;
3) q	from 1, 2;
4) r	from 1, 2;
5) $q \wedge r$	from 3, 4;
6) $\neg s \rightarrow (q \wedge r)$	from 1–5, discharging 1.

Argument 1–6 depends only on the hypothesis 2, because 1 has been discharged. 1–6 consists of 6 consecutive argumentation steps:

- P1:** assumption that $\neg s$;
- P2:** assumption that s;
- P3:** from 1 and 2 to 3;
- P4:** from 1 and 2 to 4;
- P5:** from 3 and 4 to 5;
- P6:** from argument **P1–P5** to 6.

The original argumentation step **P** is a non-immediate argumentation step, because the speaker has justified **P** by giving an argument, which depends on the premiss "s" of **P** as a hypothesis, terminates with the conclusion " $\neg s \rightarrow (q \wedge r)$ " of **P** and consists of six different argumentation steps.

Now, suppose the opponent is not satisfied and challenges the last argumentation step, **P₆** (which is an instance of the argumentation rule of implication introduction, like the first boxed example given in page 63). In this case, suppose that the speaker does not give another argument to justify the argumentation step **P₆**, but only shows the structure of **P₆** to the opponent, either by describing it explicitly or indirectly, by comparing **P₆** with other argumentation steps with the same structure and by manifesting that he/she considers correct all the argumentation steps sharing the characteristic structure of **P₆**, just because they have that structure. If the opponent insists that **P₆** is not correct, the speaker retorts that the opponent does not understand the word for implication "→" or somehow manifests the conviction that the opponent is the victim of some linguistic misunderstanding. Well, in this case the argumentation step **P₆** is an *immediate* argumentation step. In sum, *an argumentation step is immediate for a speaker* if, and only if, the speaker accepts the argumentation step only in virtue of a certain structure that the argumentation step has, and neither acknowledges the need, nor the possibility of giving any further justification of the argumentation step within that language: rejecting an argumentation step which is immediate for a speaker (without failing to realize its characteristic structure) amounts to rejecting a fragment of the speaker's language, since anyone who understands and accepts the language as the speaker does would accept the argumentation step. For the speaker, the opponent's rejection of the immediate argumentation step is an error. But such an error does not depend on mere ignorance, on wrong information, or on inadvertence in a chain of reasoning, and cannot be eliminated by giving the right information, or by discovering the inadvertence; it is an error which depends on misunderstanding and can be corrected only by saying that this is just the way in which the words are understood.

We shall see in the following section that immediate argumentation steps are essential data for constructing a theory of sense centred upon immediate argumental role. But as the example above illustrates such data cannot be collected by simply observing the speaker's behaviour. In order to establish that an argumentation step is immediate one has to challenge the argumentation step, and thereby to engage a *critical dialogue* with the speaker until one can conclude that the speaker accepts the argumentation step only in

virtue of its structure. Thus, the datum is achieved through a linguistic exchange with the speaker, and this shows once again its being a datum gathered from inside language.

5. Argumentation rules and their descriptions.

The structure on the basis of which a speaker accepts an immediate argumentation step constitutes a rule that the speaker is following. I call such a rule an *argumentation rule*.¹²

iv An argumentation rule **R** is determined by a characteristic structure Σ which can be described in practice (not only in principle) and is such that an argumentation step **P** is an instance of **R** if, and only if, **P** has the structure Σ .

This is a partial clarification of the general notion of argumentation rule, but it is not a complete definition because a complete definition ought to define the notion of ‘characteristic structure’ which is not at all obvious, while here the notion of ‘characteristic structure’ is taken for granted. I choose to consider it an intuitive notion. In order to give a precise and general definition of ‘characteristic structure’, one would have to define *in general* what the ‘form’ or the ‘forms’ of an argumentation step can be. To my knowledge, there are no candidates for being such a definition. Probably a precise definition would not be sufficiently general, because it would make the notion too narrow or, in other cases, it wouldn't be sufficiently refined and would make the notion too broad.¹³ Moreover, it seems to me that, given any

¹² The following explanation *iv* does not exclude that also non-immediate argumentation steps be instances of argumentation rules. In that case the argumentation rule would be a *derived* rule for the speaker in question. However, the argumentation rules here considered will be *primitive* rules whose instances are *immediate* argumentation steps.

¹³ For example, if we took the relevant notion of ‘characteristic structure’ to correspond to the notion of a characteristic function of the set of instances of the rule, the most general notion of function would be obviously too broad (every set of argumentation steps would correspond to a rule); on the other hand, the notion of recursive function would be too narrow (how could it deal with non linguistic evidence?).

definition, one might always invent new rules with some structure which doesn't fit the definition.

Argumentation steps are instances of argumentation rules. A particular argumentation step can be instance of different rules, because it can have different structures at the same time, i.e. it can share different structural properties with different sets of argumentation steps (analogously, the same sentence can have the structures " $E \wedge F$ ", " $(C \rightarrow D) \wedge F$ " and " $E \wedge \forall xGx$ " at the same time). Thus, it is not sufficient that a person performs an argumentation step which is an instance of the rule R for this person to follow R. We can say that *a person (implicitly) follows an argumentation rule with a characteristic structure Σ* if and only if : 1) the person is capable of recognizing Σ in some argumentation step, 2) if well disposed and sincere, the person would acknowledge as correct every argumentation step in which he/she recognizes the structure Σ , 3) if the person were challenged, he/she would give the structure Σ without further justification as the only reason for the acceptability of the argumentation step. This does not necessarily mean that the person gives a general explicit description of Σ : the structure of an argumentation step may be shown also indirectly, through comparisons with other argumentation steps. I make it a condition on argumentation rules that the 'characteristic structure' Σ should be describable *in practice*, not only in principle, because otherwise the notion of argumentation rule would be unrealistic. A being that is subject to physical limitations could not follow an argumentation rule the characteristic structure of which is describable only in principle, but not in practice (for example because the number of words essentially involved in the structure, though finite, is greater than the number of elementary particles in the physical universe). I am here assuming that if the structure is not in practice describable, neither is it in practice recognizable.

Argumentation rules are often implicit. The theory of meaning must make them explicit and describe them in a metalanguage by adequate descriptions. What is crucial for a description to be adequate is that it provides a criterion which, given an argumentation step, enables us to decide whether it is an instance of the rule. Here 'criterion' must be understood in a broad sense. It cannot be demanded that there be a Turing machine capable of deciding

whether an argumentation step is an instance of an argumentation rule R, specially because non-linguistic evidence can be involved (this is an important difference between argumentation rules and the inference rules of a formal system). However, it is clear that a description of a rule R, in order to provide such a criterion, has to describe the 'characteristic structure' of R. In order to describe the characteristic structure of R, the description has to mention some words which play an essential role in that structure (for example, a description of the characteristic structure of the rule of *modus ponens* (cf. section 9) has to mention implication, i.e. the word " \rightarrow "). So, in order to give adequate descriptions of argumentation rules, the theory of meaning must employ metalinguistic devices which refer to words of the object language. The construction of the theory is facilitated if we fix some canonical metalinguistic devices. The most natural candidate for being the canonical name of a word like "red" is its quotational name "red". Thus, I define the notion of 'adequate description' as follows:

v A description Δ of an argumentation rule R is an *adequate description* if and only if a) Δ refers to individual words W by quotational names "W" b) Δ provides a criterion for deciding whether an argumentation step is an instance of R by describing the characteristic structure of R.

6. Idiolect or common language?

A speaker follows an argumentation rule with characteristic structure Σ only if every argumentation step in which the speaker can recognize the structure Σ is an immediate argumentation step for the speaker. Thus, one can formulate a hypothesis on the argumentation rules which a speaker is following on the basis of the speaker's immediate argumentation steps. Then the hypothesis can be tested also by presenting *new* argumentation steps and by interrogating the speaker about their correctness in order to establish whether they are immediate argumentation steps for the speaker.

But the same argumentation steps can be immediate for a speaker and non-immediate for another speaker, though we are pretheoretically inclined to regard both of them as speakers of the

same language, for example English. In such a case, the consequence is that the argumentation rules accepted by the first speaker are different from the argumentation rules accepted by the second speaker. Therefore, one might conclude that a theory of meaning centred upon immediate argumental role can only be a theory of meaning for the language spoken by a single speaker, i.e. for an *idiolect*, and not for a language shared by a whole linguistic community, like English or Swedish, and one might conclude that in the argumental conception of meaning there be no room for the notion of a language shared by a linguistic community. I shall now argue that this would be a too hasty conclusion.

It is a fact that the linguistic understanding of two different speakers is never exactly the same. Given two English speakers, for example, there are almost always words that the first understands differently from the second and also words that one of the speakers understands and the other does not understand at all. In order to account for this first fact, a theory of linguistic understanding must be capable of describing the understanding of a single speaker in such a way that it may differ from the understanding of another speaker.

A second fact (if meaning is public) is that if the two speakers are engaged in conversation with each other, they can discover that they are understanding the same word in different ways or that one of them does not understand a word which the other understands, and if they want, they can eliminate the misunderstanding, by mutually adjusting their different ways of understanding. In order to account for this second fact, the description of a single speaker's understanding must be such that a difference in understanding between him or her and another speaker can be in principle discovered and eliminated if the speakers are willing to cooperate.

A theory of meaning centred upon immediate argumental role satisfies these two requirements because it can describe the different ways of understanding of two speakers as differences in the argumentation rules which they accept and because these differences can be publicly manifested in the different practical abilities of following the different argumentation rules, in accordance with the requirement of manifestability.

However, if we limited ourselves to underline that, though different speakers have different idiolects, they can understand each

other by mutually adjusting their idiolects, we would perhaps seem to suggest the misleading idea that a common language, like English, be merely a set of overlapping idiolects, and that the notion of 'idiolect' be the fundamental notion which a theory of meaning centred upon immediate argumental role analyzes. I think that the idea that the notion of 'idiolect' be the fundamental notion is misleading because it neglects the *social character of language*. We can distinguish at least four aspects of language in which its social character is manifest. 1) Every speaker *learned* and – though in later stages less intensively – continually *learns* the language from other speakers in social situations where he or she is confronted with *the socially established meanings* as with something *given*. *The speaker learns to use the language in accordance with social criteria of correct use*. 2) With the partial exception of figures of speech and other deliberately non-standard and creative uses of words, a speaker is considered by other speakers and considers himself (or herself) bound to comply with the socially accepted meanings of words. Thus, each speaker is aware that the use of language is subject to *the authority of the linguistic community*: a speaker ought to withdraw what he or she said if it were shown that the utterance is in conflict with the socially accepted meanings.¹⁴ 3) As Hilary Putnam emphasized in his paper "The Meaning of 'Meaning'"¹⁵, linguistic practice is characterized by the *division of linguistic labour*: the authority of the community as to the socially accepted meanings is variously distributed among different members of the community who play different roles. The community acknowledges the authority of different experts on the meanings of words belonging to different fields. For example botanists know the criteria for the socially correct use of words like "elm" or "beech", chemists for the socially correct use of "gold", etc. 4) A consequence of the division of linguistic labour is that no single speaker knows the socially accepted meaning of every word of the common language. For each speaker there are words that he/she does not know and each speaker uses words the meanings of which he/she knows only partially, but in using these words *the speaker exploits the existence of a complete knowledge of those meanings which is possessed by the linguistic community as a whole*.

¹⁴ Cf. Dummett (1986) p. 462.

¹⁵ Putnam (1975c).

One might object that it is only a *contingent* fact that a single speaker's understanding depends on the recognition of the authority of the linguistic community. According to this objection, it is always *possible* for a single speaker to develop and to understand a language privately, in complete isolation, without presupposing any linguistic community. On this point Wittgenstein's argument against private language is of course relevant. Wittgenstein's considerations on rule-following seem to show that if we consider a speaker in complete isolation, no past uses, no inner states, no explicit formulations of the rule can exclude that "every course of action can be made out to accord with the rule".¹⁶ Therefore, if the speaker is considered in isolation, there is nothing against which to judge whether the speaker's linguistic uses are *correct* except the speaker's inclinations to behave in a certain way. But, as Wittgenstein suggests, the whole point of the distinction between 'correct' and 'incorrect' would be lost if anything the speaker is inclined to do were to count as correct. The very notion of 'correctness' seems thus to presuppose the possible judgment of the linguistic community. Without the authority of the linguistic community there would not be any difference between "obeying a rule" and "thinking one is obeying a rule", between "the correct use of a word" and "the use that seems correct to me".¹⁷ Thus, since the notion of 'following a rule' involves a notion of 'correct use', it is impossible to follow a rule privately and a private language is also impossible. If Wittgenstein's argument is right, it is not a merely contingent fact that a speaker's understanding of a language involves a recognition of the authority of the linguistic community, the social character of language is not a contingent feature of actual languages, but it is *essential* to language in general.

The moral I tend to draw from the social character of language is that the notion of 'idiolect', of 'language spoken by a single speaker' is not the primary notion for a correct theory of understanding. Obviously, it is the single speakers who understand or don't understand and it is the single speakers' understanding that can be *directly* checked. But it would be wrong to describe linguistic understanding as the knowledge of an idiolect and then to explicate a common language as a set of overlapping idiolects, because, as the

¹⁶ Cf. Wittgenstein (1953) I.201.

¹⁷ Cf. Wittgenstein (1953) I.202 and I.258.

social character of language shows, each single speaker's understanding presupposes the existence of a common language: integral part of the single speaker's understanding is the knowledge that his or her idiolect is a partial and partially incorrect approximation to the common language, an approximation which – normally – ought to be revised if a conflict with the common language is discovered. Dummett has insisted in many places on this point:¹⁸ idiolects presuppose common languages, thus the notion of 'idiolect' cannot be the fundamental notion prior to that of a common language.

If this is right, the primary object of a theory of meaning has to be a common language, a language that is shared by a linguistic community, and then an idiolect can be described as an individual's imperfect approximation to the common language. This holds also for a theory of meaning centred upon immediate argumental role. But a theory of meaning for a common language can be assessed only if there are some *linking principles*, as Dummett called them,¹⁹ which connect the theory with the way the language is actually used by the community. If the theory satisfies the requirement of manifestability, the linking principles are those which describe the practical abilities in which a speaker's understanding is manifestable (according to the interpretation given by the theory of what for the community counts as a speaker's understanding of the common language). It is the speakers who possess the relevant practical abilities, but, because of the division of linguistic labour, no single speaker possesses all the practical abilities in which knowledge of the common meanings manifests itself. Therefore, in order to assess a theory of meaning for a language one will have to consider the practical abilities of different single speakers chosen in accordance with the division of linguistic labour. As Dummett wrote:

The linking principles for a theory of meaning [for a common language] will be very complex, since they have to describe an

¹⁸ Cf. "The Social Character of Meaning" in Dummett (1978a). Moreover cf. Dummett (1986), where Dummett criticizes Davidson's view that "there is no such thing as language", cf. Davidson (1986). Cf. also Dummett (1988b) and Dummett (1991) ch.4, pp. 83-106.

¹⁹ Cf. Dummett (1986) p. 467.

immensely complex social practice: they will treat, among other things, of the division of linguistic labour, of the usually ill-defined sources of linguistic authority, of the different modes of speech and the relations between the parent language and various dialects and slangs.²⁰

All these difficulties face the task of building and testing a theory of meaning for a common language centred upon immediate argumental role. For *some* words the relevant argumentation rules have to be detected by considering those argumentation steps that are immediate for the speakers whose authority is acknowledged by the community, and the judgements about the independence of an understanding of those words from other words which are made by these authoritative speakers. As Dummett says in the quoted passage, the sources of linguistic authority are ill-defined and this is one of the reasons why the task is so complex. Another difficulty which faces the construction of a theory of meaning, centred on immediate argumental role or on any other notion, is the dynamic character of language. In speaking of a common language, we are imagining the language in a sort of frozen status, in a fixed stage of its development, and there is a certain degree of abstractness in the notion we are dealing with, because a language which is actually used is constantly changing. In the next chapters I will emphasize the importance of the fact that the argumentation rules accepted by a linguistic community may be changed and that the speakers know that they may be changed. However, the language presents itself to the single speaker as a given system of socially accepted rules, a system which can be described only if we – at first – make abstraction of its changing, though it may be difficult in practice to do it in the right way.²¹

²⁰ Dummett (1986) p. 475.

²¹ In linguistics, the need of regarding language as something static in order to study the point of view of a speaker which is in front of a given socially accepted system of signs is the basis of Saussure's celebrated adoption of a *synchronic point of view* which he distinguishes from the historical or *diachronic* point of view: "La première chose qui frappe quand on étudie les faits de langue c'est que pour le sujet parlant leur succession dans le temps est inexistante: il est devant un état. Aussi le linguiste qui veut comprendre cet état doit il faire table rase de tout ce qui l'a produit et ignorer la diachronie", Saussure (1916), crit. ed. by R. Engler, p. 181.

But, despite all these difficulties, there seems to be no obstacle that makes the construction of a theory of meaning centred upon immediate argumental role for a common language *in principle* impossible. It is important to bear in mind that the construction of a theory of meaning for a language is not regarded as a *practical* project: what is important for a philosophical clarification of meaning and understanding is not the actual construction of a theory of meaning, but that it could in principle be constructed in accordance with the general requirements spelled out in chapter 1.

However, in order to simplify my exposition in the following sections, I shall assume that an argumental theory of meaning for a common language is developed by considering as data the linguistic acts performed by a single *ideal speaker*, an ideal speaker who masters the language perfectly, a fictive personification of the linguistic community. I shall describe a linguist interrogating a single ideal speaker. I view such a description as a simplified picture of the much more complex investigation which the linguist should carry out by considering different speakers according to the division of linguistic labour. But, if the reader is not convinced by my considerations in favour of the idea of a theory of meaning for a common language, and prefers to think that the theory in question is the theory for an idiolect, he/she is free to look at the theory in this way. The choice between the two views, whether the priority belongs to the notion of common language or to the notion of idiolect, does not really affect what I shall say in the sequel. In this section, since it is an important matter, I only wanted to make clear that, though individual speakers differ from one another as concerns immediate argumentation steps, it is *not necessary* to regard the argumental theory of meaning as a theory for an idiolect.

7. Syntactic rules and argumentation rules formulated on the basis of syntactic data and argumental data.

Let us imagine a linguist who tries to construct a theory of meaning for a language in a certain fixed stage of its development. The linguist bases the construction of the theory on the linguistic acts of a speaker *S* (the ideal speaker). The argumentation steps which are immediate for *S* are data, which we can name "*argumental data*". On the basis of

argumental data the linguist can make explicit a set of argumentation rules. But in order to detect the characteristic structures of the argumentation rules the linguist must also consider the syntactic structure of the sentences of the language. And the syntactic structure of a sentence must be determined also in order to specify its immediate argumental role in accordance with principle *ii* of section 1. Thus, for both reasons, the linguist must make explicit *the syntactic rules* of the language. Admittedly, the assumption that the syntactic rules of the language can be made explicit is not beyond controversy. But there are good grounds for believing that a language user implicitly knows some syntactic rules, which could in principle be made explicit: the language user is capable both of constructing and recognizing an indefinite number of new sentences belonging to the language and of construing syntactically ambiguous sentences, if confronted with such ambiguities. The manifestations of these capabilities are *syntactic data* which the linguist can take into account in order to formulate the syntactic rules of the language. Also the argumental data, in so far as they display the speaker's recognition of a structure in the relevant argumentation steps, contain an information concerning the syntactic rules. Therefore, it is reasonable to believe that by considering together both syntactic data and argumental data the linguist can make explicit a set **L** of syntactic rules and a set **A** of argumentation rules associated with the language.

I shall thus assume that two sets of rules are implicitly associated with every meaningful language: **1**) a set **L** of *syntactic rules*, **2**) a set **A** of *argumentation rules*.

Syntactic rules in **L** fix: a) the *words* (i.e. the word-types) of the language of different syntactic categories; b) the combinations of words which constitute *compound expressions* of different syntactic categories; c) the expressions which constitute *sentences* (i.e. sentence-types).

Argumentation rules in the set **A**, according to principles *i* and *ii* of section 1, give sense to words and sentences of **L**, as we shall better see in the following sections. (Observe that words are here the smallest meaningful units of a language, which cannot be divided into meaningful parts, thus they usually don't coincide with typographical words). So:

vi L is the set of the syntactic rules.

A is the set of all the accepted argumentation rules.

It is important to stress, however, that a description of these two sets, L and A, is not an exhaustive description of what one has to know implicitly in order to master a meaningful language. In section 12 I shall add to the theoretical description of a meaningful language a third item, a relation of 'presupposition' between words introduced in section 10. But also the theoretical representation of section 12 is an incomplete description of what a competent speaker knows, because in using a language the speaker knows also (and this is an essential difference between a real language and a formal system) that in some situations it may be reasonable to *extend* or to *modify* L and A. Later, in chapter 6, I shall argue that this knowledge of the open character of the language is connected with assertoric force.

8. A first (unsatisfactory) idea for a definition of the notion of 'rule concerning a word'.

In order to clarify principle *i* of section 1, I have to explain what it means that an argumentation rule R *concerns* a word W. A first idea might be the following. One could present the speaker S with a description Δ of the rule R and ask him/her whether it is necessary to know R in order to understand a word W. If the answer were yes, this would mean that rule R concerns word W. Thus, one might define "R concerns W" as "when an adequate description Δ of R is offered, if well disposed, S gives an affirmative answer to the question whether it is necessary to know R in order to understand W". But the problem is that in most cases, even if R is really constitutive of the understanding of W, the interrogated speaker S can give no answer because he/she cannot understand the general metalinguistic description Δ of R, and thus cannot understand the question. In most cases S does not possess the notion of 'argumentation rule', nor any analogous meaning-theoretical notion inevitably involved in an adequate description of an argumentation rule. Even if S is an ideal speaker of the relevant language, S will perfectly master the language, but not necessarily the *meaning theoretical concepts* used by the linguist. Hence, if we adopted the definition in question, we would be

wrongly led to the conclusion that R does not concern W only because the speaker cannot understand our question.

However, we have assumed that the linguist develops his theory from inside the language, i.e. that the linguist is a member of the linguistic community, who is confronted with the behaviour of fellow speakers. Therefore – it might be objected – every concept employed by the linguist has to be in possession of the linguistic community, and thus of the ideal speaker. But the objection is wrong: though we have assumed that the linguist puts himself/herself in the position of a member of the linguistic community and becomes its member by learning the object language, we have not assumed that the theory of meaning be formulated in the object language, nor have we assumed that all the linguist's concepts be actually grasped by the linguistic community which the linguist investigates. We obviously should not demand that the linguist possess *only* notions shared by the community (and thus possessed by the ideal speaker). The latter demand would imply that the view here proposed be applicable only to very few languages, because very few languages contain the theoretical notions that the linguist must employ. Not only the notions of 'immediate argumentation step', of 'argumentation rule' and the other new notions discussed in this book, but also logical and linguistic notions like 'conclusive inference', 'non-conclusive inference', 'discharged assumption', 'syntactic structure', 'rule of inference', which now are rather common among philosophers, in the past did not belong to any language and even to day do not belong to the remaining primitive languages. Without possessing at least the latter more common notions a speaker cannot understand any adequate description of an argumentation rule. So, we have to imagine a linguist who, being equipped also with meaning-theoretical notions which are not possessed by the linguistic community in question, learns the language for which he/she wants to construct a theory of meaning and then, by putting himself/herself in the position of a member of the linguistic community in front of fellow speakers, *interrogates them in their language*. But after interrogating the speakers the linguist analyzes their answers by employing meaning-theoretical notions which are not in the community's possession. If the foregoing considerations are right, the linguist's questions ought not to contain the notion of argumentation rule or similar notions and the

linguist ought not to ask directly whether an argumentation rule R is constitutive of the understanding of a word. Thus, our conclusion is that, if we want that the conception of meaning here presented be generally applicable, we cannot explain what it is for an argumentation rule R to concern a word W in the way above described, but we must give a different definition of 'concerning'. On the other hand, since notions like 'understanding' or 'speaking our language' are *pretheoretical* notions through which *every* linguistic community distinguishes members of the community from non-members, we can legitimately assume that the speaker S possesses the latter notions and thus the linguist's questions to S may contain such notions.

9. Argumentation rules immediately touching a word.

A first step towards a definition of 'concerning' is to introduce the following basic notion.

vii An argumentation rule R *immediately-touches a word* W if, and only if, every adequate description of R contains a quotational name of W .

For example, consider the rule of *modus ponens* (MP), which, for any sentences A and B , allows B to be inferred from A and from the sentence obtained by writing A , " \rightarrow " and B in this order. In schematic form:

$$\text{MP} = \frac{A \quad A \rightarrow B}{B}$$

Furthermore, consider the rule $R^\#$, according to which from "*oboe*(x)" we may infer "*musical-instrument*(x)", i.e.:

$$R^\# = \frac{\text{oboe}(x)}{\text{musical-instrument}(x)}.$$

According to *vii*, *modus ponens* immediately-touches " \rightarrow ", and the rule $R^\#$ immediately-touches the words "oboe" and "musical instrument".

It is necessary to specify in *vii* that *every* adequate description of R must contain a quotational name of W, because only in this case we can be sure that it is really necessary to mention W in order to describe R. There can be particular adequate descriptions of R which mention a word U which is not necessary to mention in order to describe R. In such a case U would not be an essential element in the characteristic structure of R and thus R would not immediately-touch U. Only those words which are mentioned by *every* adequate description of R are really essential to its structure. Only those words are immediately-touched by R.

10. Presupposition between words.

The first step, the definition of 'immediately-touching', is not sufficient for a complete explanation of the notion of 'concerning', because the two notions do not coincide. Clearly, to know all the argumentation rules immediately-touching a word W is *not sufficient* for knowing the sense of W. The reason is that an argumentation rule immediately-touching a word W can immediately-touch some other word too. For example the rule $R^\#$ mentioned in the preceding section immediately-touches the word "oboe", but, at the same time, it immediately-touches "musical instrument". The problem is that there can be other argumentation rules which immediately-touch "musical instrument" and do not immediately-touch "oboe". If two persons accept completely different rules of the latter kind, should we say that they understand "oboe" in the same way? We shouldn't, even if they both accept $R^\#$ and the same rules immediately-touching "oboe". Rather we should say that an understanding of "oboe" depends on an understanding of "musical-instrument" and that, in this sense, "oboe" *presupposes* "musical instrument". We should say, that at least some of the rules immediately-touching "musical instrument" concern "oboe", even if they do not immediately-touch oboe, and (for principle *i*) we should say that in order to understand "oboe" one must (implicitly) know also such rules about "musical instrument". That is why two persons can understand "oboe" in different ways only

because they know different rules immediately-touching "musical instrument".

So, in order to understand "oboe", one has to understand also "musical instrument". But it is also reasonable to say that we can understand "musical instrument" without understanding "oboe". Similarly, if we had a rule according to which we may infer "sibling(x, y)" from a disjunctive sentence "brother(x, y)∨sister(x, y)", we would say that an understanding of "sibling" presupposes an understanding of disjunction (i.e. of "∨") but, although our rule immediately-touches both "sibling" and disjunction, it would be strange to say that an understanding of disjunction presupposes an understanding of "sibling". We wouldn't say that a speaker does not understand disjunction if he/she does not know the aforementioned rule and therefore does not understand "sibling": the rule in question *does not concern* disjunction. The reason is that the range of application of disjunction is very wide. Disjunction, like other logical constants, is a general device for forming compound sentences in any linguistic field. We can form disjunctions concerning kinship, but also concerning arithmetic, colours, or cookery. So the linguistic community prefers to adopt criteria of understanding that make an understanding of disjunction independent of the particular fields in which it is used. The difference between "oboe" and "musical instrument" is analogous, even if the contrast is not so extreme as the contrast between "sibling" and disjunction.

10.1. Pretheoretical intuitions of presupposition.

I have now exploited the fact that we, as speakers of a language, have some pretheoretical intuitions about a non-symmetric relation of presupposition between words in the language, a relation that obtains between a word W and a word U if it is necessary to understand U in order to understand W. The theory of meaning I am describing takes account of these pretheoretical intuitions. An English speaker will be rather convinced, for example, that it is necessary to understand "father" in order to understand "father-in-law", but not viceversa, that it is necessary to understand "music" in order to understand "clarinet", but not viceversa, that the word "hymenopteron" is explained by saying something like: "hymenopteron is an insect belonging to an

order comprising ants, bees, wasps and their allies", and thus an understanding of "ant", "bee" and "wasp" is necessary for an understanding of "hymenopteron", but the speaker will be also convinced that one can understand "ant", "bee" and "wasp" very well without understanding "hymenopteron". These examples can be described in my terminology by saying that "father-in-law" presupposes "father", but not viceversa, "clarinet" presupposes "music", but not viceversa, "hymenopteron" presupposes "ant", "bee" and "wasp", but not viceversa.

In these examples of *non-reciprocal* presupposition, when a word W presupposes a word U, the presupposed word U is more common and used in a larger variety of contexts than W (which does not mean that it has a wider extension, as the example on "hymenopteron" shows²²). Moreover, the presupposed word U serves as a basis upon which to learn the presupposing word W: U is learned by exploiting a previous understanding of W. Thus, to understand U is more important in order to be considered a competent speaker than to understand W and, while W depends on U, an understanding of U is independent of an understanding of W. As to argumentation rules, in cases of non-reciprocal presupposition, among the argumentation rules which constitute the meaning of the presupposing word W there are also all the rules constituting the meaning of the presupposed word U, but not viceversa. If W presupposes U non-reciprocally, then the set of argumentation rules concerning U is a proper subset of the set of rules concerning W.

But other examples can be given, in which presupposition is *reciprocal*. The words for the seven days of the week are understood together, thus "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday" and "Sunday" presuppose one another reciprocally. Likewise, reciprocal presupposition holds between words for the main colours, "red", "blue", "yellow" etc., or between the words "male" and "female".

In other cases the speaker's pretheoretical intuitions are only negative and indicate that two words are reciprocally *independent*. For example an English speaker would agree that it is possible to understand "wasp" without understanding "Tuesday" and viceversa,

²² Similarly, for an English speaker "housware" presupposes "pot", but the extension of "housware" is wider than the extension of "pot".

that it is possible to understand "father-in-law" without understanding "music", and viceversa.

In conclusion, pretheoretical intuitions indicate that: *first*, the relation of presupposition (though it can be reciprocal in particular cases) is not a symmetric relation; *secondly*, the relation is not total: there can be words W and U such that neither W presupposes U, nor U presupposes W; *thirdly*, to know all the argumentation rules immediately-touching a word W is *neither sufficient nor necessary* for understanding W. It is *not sufficient*, because it can be necessary also to know rules which do not immediately-touch W but some other word which is presupposed by W. It is *not necessary*, because a rule which immediately-touches W and another word U can be constitutive of the understanding of U without being constitutive of the understanding of W, if W does not presuppose U (as shown by the example about disjunction and "sibling").

10.2. Towards a theoretical notion of presupposition: theoretical constraints and heuristic principles.

We have seen that a competent speaker has some (positive and negative) pretheoretical intuitions about a relation of dependence between words which I have called presupposition. The hypothetical linguist, in order to construct a *theory* of meaning for the speaker's language, must try to fix a precise and explicit relation of presupposition which will serve as a basic notion for the theory. To this end, the linguist can exploit those aspects of the speaker's practice in which such pretheoretical intuitions manifest themselves.

The relation of presupposition is an order relation. We can express in symbols that a word W_i presupposes a word W_j by the formula " $W_i \geq W_j$ ". We have seen that, though presupposition is not symmetric, neither is it antisymmetric. If W_i presupposes another word W_j , it is not necessarily excluded that also W_j presupposes W_i . In some particular cases presupposition is reciprocal. We can express reciprocal presupposition between W_i and W_j by the expression " $W_i \approx W_j$ ". " $W_i \approx W_j$ " means that W_i and W_j presuppose each other (thus, it is an abbreviation of " $W_i \geq W_j \ \& \ W_j \geq W_i$ "). In order to express the fact that W_i presupposes W_j and that W_j does *not* presuppose W_i , I shall write " $W_i > W_j$ " (W_i presupposes W_j non

reciprocally). Thus, the formula " $W_i > W_j$ " is an abbreviation of the conjunction " $W_i \geq W_j \ \& \ \neg(W_j \geq W_i)$ ".

In section 7 we saw that our hypothetical linguist can make explicit the syntactic rules and the argumentation rules of the language on the basis of syntactic and argumental data. For simplicity, I have assumed that such data are obtained by considering the linguistic practice of a single (ideal) speaker S . Let's now assume that the pair of sets L and A is already fixed with respect to S . We have to explain how the linguist can determine the relation of presupposition for the words of L .

To say that a word W_i presupposes a word W_j for S (in symbols $W_i \geq W_j$) is to say that, if S were fully aware of his/her implicit knowledge of the language (which determines for him/her what counts as an understanding of those words), S would conclude that a speaker X understands also W_j from the assumption that X understands W_i . How can the linguist make S 's implicit knowledge explicit and thus fix the extension of " \geq " for the language in question?

First of all the linguist has to assume some *theoretical constraints* on presupposition. The relation expressed by " \geq " must be *transitive* and *reflexive*. These are *general* constraints on presupposition. They are obvious if we recall what " W_i presupposes W_j " means.

But in order to fix the *particular* relation of presupposition for the language mastered by S , the linguist must take into account S 's use of language and especially S 's pretheoretical intuitions about whether it is necessary to understand particular words in order to understand other particular words of the language. Therefore, the hypothetical linguist will have to interrogate S in order to achieve some relevant data, which I shall call *presuppositional data*.

The presuppositional data are the basis on which the linguist – guided by some regulative principles specified below – can establish certain statements of *immediate presupposition*. Statements of immediate presupposition are statements of presupposition which are *not* deduced from other statements of presupposition. Once a list of statements of immediate presupposition is obtained, by applying the theoretical constraint of transitivity, other statements of non-immediate presupposition can be deduced from the statements in the original list. The relation of immediate presupposition is represented by the symbol " \geq_{imm} ".

viii A word W_i *immediately presupposes* another word W_j , (in symbols $W_i \geq_{\text{imm}} W_j$) if, and only if:

- 1) $W_i \geq W_j$ and
- 2) the fact that $W_i \geq W_j$ can be established without deducing it from other statements of presupposition by resorting to the transitivity of \geq .

Our linguist must interrogate the speaker in order to obtain a list of statements of immediate presupposition. The choice of what questions to ask will depend on the argumentation rules that are accepted by S . The linguist – we have assumed – already knows the argumentation rules that are accepted by S . Such rules make up the set A . The fact that an argumentation rule is accepted (belongs to A) amounts to the fact that S considers correct every immediate argumentation step in which he/she recognizes the structure Σ characteristic of the rule and that, since the argumentation steps are immediate, Σ is the only reason why S takes those argumentation steps to be correct: for S it is neither necessary, nor possible to give any further justification of their correctness in the form of an argument within the language. Since justification must have an end, there must be – and in fact there are – such immediate argumentation steps. They have in common certain structural properties, S is aware of such structural similarities and considers the relevant structural properties a reason for accepting an argumentation step. Regardless of whether S is objectively right in doing so, *why* does he/she consider the structure Σ a reason for accepting an argumentation step? Why is the rule R with characteristic structure Σ accepted by S ? In my view, which is also the linguist's view, the answer is: because S implicitly considers the rule R *constitutive of the understanding* of some word W which is immediately-touched by R . As we have seen, there can be other rules which are constitutive of the understanding of W but do not immediately-touch W , therefore, in order to distinguish the two cases, I say that R , which immediately-touches W , is *immediately constitutive* of the understanding of W . The latter *heuristic* notion corresponds to the *theoretical* notion of ‘immediately concerning’ which will be defined in the sequel, and the more general heuristic notion of a rule which is ‘constitutive of the understanding of W ’

corresponds to the theoretical notion of a rule 'concerning W'. I distinguish the heuristic notions from the corresponding theoretical notions, because the latter will be precisely defined in terms of the relation of presupposition, while the former are tentatively employed by the linguist who tries to fix an explicit relation of presupposition with a view to constructing the theory of meaning in which 'concerning' and 'immediately concerning' will be precisely defined. So, one of the heuristic principles which guides the linguist's investigation is the following:

ix If a rule R belongs to A, then R is immediately constitutive of the understanding of at least one word immediately-touched by R. Try to discover such a word (or words).

According to this principle, if an argumentation rule R is in A and R immediately-touches the words W_1, \dots, W_n , then R is immediately constitutive of the understanding of at least one of these words, W_i . The linguist should try to discover which of the W_1, \dots, W_n is (are) W_i . But, if R is constitutive of the understanding of W_i , then in order to understand W_i it is necessary to know implicitly R. For this reason, in order to understand W_i it is also necessary to understand *all* the words which R immediately-touches, i.e. all of the W_1, \dots, W_n . Hence, if the hypothesis that R is constitutive of the understanding of W_i is right, W_i must immediately presuppose W_1, \dots, W_n . The linguist should thus check whether this is the case, as the following principle says:

x If R is immediately constitutive of the understanding of a word W_i and R immediately-touches a word W_j , then $W_i \geq_{\text{imm}} W_j$. If you suppose that R is constitutive of the understanding of W_i , check whether $W_i \geq_{\text{imm}} W_j$.

In the light of principle **x**, it would be very easy for the linguist to compile a list of statements of immediate presupposition if he/she *knew* that R is immediately constitutive of the understanding of W_i . But the linguist *does not know* yet whether R is immediately constitutive of the understanding of W_i . What the linguist knows is only that R belongs to A and that R immediately-touches W_i . On this

basis, the linguist ventures the *hypothesis* that R be immediately constitutive of the understanding of W_i . The hypothesis will become knowledge only after the relation of presupposition is rightly fixed. To this end, principle *x* – in so far as it states some required characteristics of the relation of immediate presupposition – plays a regulative and heuristic role.

Principle *x* affirms that the presence in A of an argumentation rule R immediately-touching two words, when the rule is immediately constitutive of the meaning of one of such words, W_i , implies that W_i immediately presupposes the other word. But there is an analogous connection in the other direction, which is stated by principle *xi*

xi If $W_i \geq_{\text{imm}} W_j$, then there is at least one rule R in A such that R immediately-touches both W_i and W_j , and R is immediately constitutive of the understanding of W_i . Do not accept the statement " $W_i \geq_{\text{imm}} W_j$ " if there is no such a rule R.

Principle *xi* is based on the consideration that the linguist cannot have any other reason for entertaining the hypothesis that a statement of immediate presupposition " $W_i \geq_{\text{imm}} W_j$ " holds, except that S accepts a rule R which immediately-touches both words W_i and W_j , and that there is reason to suppose that R is constitutive of the understanding of W_i . *x* and *xi* together imply the next principle *xii*, which, given the argumentation rules in A, provides a constraint on the list of statements of immediate presupposition:

xii If $W_i \geq_{\text{imm}} W_j$, then there is at least one rule R in A (called "*W_i-W_j connection rule*") with the following properties:

- 1) R immediately-touches both W_i and W_j ;
- 2) for every word W_k such that R immediately touches W_k ,
 $W_i \geq_{\text{imm}} W_k$.

Do not accept the statement " $W_i \geq_{\text{imm}} W_j$ " if there is no such a rule R.

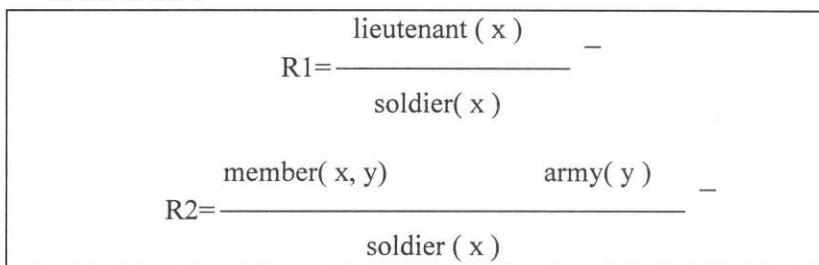
11. Presuppositional data.

The general heuristic principles *ix-xii* play a *regulative role* for the enquiry of the linguist who, once fixed the argumentation rules in A,

tries to determine the relation of presupposition. Guided by such principles, the linguist must collect the presuppositional data.

Like the argumental data, the presuppositional data cannot be collected by simply observing the speaker's behaviour. In order to establish the statements of immediate presupposition, the linguist has to interrogate and challenge the speaker and to engage a *critical dialogue*, in the course of which the speaker's implicit knowledge of language becomes explicit. There are different kinds of presuppositional data, which I shall illustrate by considering an example. Suppose that the speaker accepts the following argumentation rules:²³

EXAMPLE 1



A first kind of presuppositional data can be achieved by the linguist if he/she challenges the argumentation steps which are applications of R1 and R2. Since such argumentation steps are immediate, the speaker's reaction will be a manifestation of the conviction that there is some word immediately touched by the rules which the linguist does not understand. For example, to reject an argumentation step **P** in which the structure of R1 is clearly recognizable is for the speaker an aberration, which must depend on a misunderstanding. Thus, if the linguist rejects argumentation steps which are clearly recognizable instances of R1, the speaker's retort can be some utterance like "But then you don't know what a lieutenant is!", "You don't know what "lieutenant" means!", or "You don't understand "lieutenant"!".

²³ I give here schematic descriptions of argumentation rules instead of adequate descriptions in the sense of definition ν because schematic descriptions are easier to grasp. But it is straightforward to transform a schematic description into an adequate description.

Suppose that, on the other hand, the speaker does not seem to think that the linguist does not understand "soldier", the other word immediately touched by R1, and does not treat the linguist as if he/she did not understand "soldier". On the basis of the heuristic principle x the linguist takes R1 to be immediately constitutive of the understanding of "lieutenant" or "soldier", or both. But the speaker's reactions seem to show that R1 is constitutive only of the understanding of "lieutenant". Thus, by principle x , since R1 immediately-touches "soldier", the linguist draws the conclusion that "lieutenant" immediately presupposes "soldier" and not viceversa. In symbols, the linguist concludes:

- a) $\neg(\text{"soldier"} \geq \text{"lieutenant"})$;
- b) $\text{lieutenant} \geq_{\text{imm.}} \text{"soldier"}$.

A *second kind of presuppositional data* can be achieved by asking the speaker questions like: "is it necessary to understand W_i in order to understand W_j ?" for any pair $\langle W_i, W_j \rangle$ such that W_i and W_j are immediately touched by the same argumentation rule in A. For example, suppose that the linguist, by considering rule R2, asks the speaker the following questions and receives the following answers:

Question	Answer
1) Is it necessary to understand "soldier" in order to understand "army"?	1') Yes.
2) Is it necessary to understand "soldier" in order to understand "member"?	2') No.
3) Is it necessary to understand "member" in order to understand "army"?	3') Yes.
4) Is it necessary to understand "member" in order to understand "soldier"?	4') Yes.
5) Is it necessary to understand "army" in order to understand "member"?	5') No.
6) Is it necessary to understand "army" in order to understand "soldier"?	6') Yes.

From such answers the linguist can tentatively conclude:

- 1*) "army" \geq_{imm} "soldier";
- 2*) \neg ("member" \geq "soldier");
- 3*) "army" \geq_{imm} "member";
- 4*) "soldier" \geq_{imm} "member";
- 5*) \neg ("member" \geq "army");
- 6*) "soldier" \geq_{imm} "army".

The two kinds of data can be considered for every argumentation rule in A. In our example we could apply the two described strategies to both R1 and R2. If the positive and negative statements of presupposition obtained in the first way and those obtained in the second way harmonize, we can draw from a, b and 1*-6* (by the definitions of ">" and "≈" in section 10) the following conclusions.

- α) "lieutenant" > "soldier";
- β) "army" ≈ "soldier";
- γ) "soldier" > "member";
- δ) "army" > "member".

Then, by the transitivity of presupposition, one can further conclude:

- ε) "lieutenant" > "army"
- ζ) "lieutenant" > "member"

Of course, the situation just described is idyllic. In reality, the data initially collected by the linguist may be insufficient or inconsistent. The data may be *insufficient* because the speaker, though well disposed, does not know how to answer some questions which are suggested by the regulative principles \dot{x} and x , and by the fact that there are accepted argumentation rules in A which immediately-touch certain words. Moreover, the initial data may be *inconsistent*, because the speaker's answers may be inconsistent or because inconsistencies may come to light if the transitivity of presupposition is applied.²⁴ Insufficiency and inconsistency would mean that the speaker has not sufficiently reflected about his/her implicit knowledge of the language. In such a case the linguist can continue the dialogue in order to make the speaker's knowledge explicit by eliciting sufficient and consistent answers from the speaker. Both problems – insufficiency and inconsistency – can be tackled by the linguist by making the speaker aware of the inadequacy of the given answers and by pressing him/her for consistent and complete answers. Insufficiency can also be tackled by taking into consideration further

²⁴ Observe that in such a case it is not *the language* which is inconsistent, but *the description of the speaker's understanding of the language*.

data. A *third kind of datum* is the number and the variety of argumentation rules immediately touching a word. If there are many rules immediately touching a word W_i , the fact that a single rule R immediately-touches many words W_1, \dots, W_n , among which is W_i , is no strong evidence in favour of the hypothesis that R is constitutive of the understanding of W_i , and that W_i , for x , immediately presupposes all the W_1, \dots, W_n . But the fact that many argumentations rules immediately-touch W_i , especially if the other words immediately-touched by such rules are very various, shows that an understanding of W_i is necessary in many different areas, and thus shows that such an understanding is more fundamental than the understanding of most of the other words immediately-touched by the rules in question, which amounts to saying that the latter words presuppose W_i on reciprocally. This is typically the case for logical constants. Logical constants are immediately-touched by many argumentation rules which are not constitutive of their understanding and which belong to very different regions of language (remember the example of section 10 about "sibling" and disjunction). On the other hand, the situation is completely different if R is the only rule which immediately-touches W_i . In such a case there is no other argumentation rule which can give meaning to W_i and thus R must be constitutive of the understanding of W_i , and (for x) W_i must presuppose all the words immediately touched by R (e.g. if there is only one rule R immediately-touching "sibling", and R immediately-touches also "brother", "sister" and disjunction, then "sibling" presupposes immediately "brother", "sister" and disjunction).

By considering all the argumentation rules accepted by the speaker and all the presuppositional data of the three kinds the linguist can pursue the dialogue with the speaker until they find an agreement about the dependence of the words of the language upon other words. The result of such a dialogue will correspond to a list of positive statements of immediate presupposition (and of negative statements of presupposition) which conforms to the heuristic principles *ix-xii*. By the transitivity of presupposition this is sufficient to fix the relation of presupposition for the words of the language.

12. Theoretical representation of a meaningful language as a triple $\langle L, A, \geq \rangle$.

Once the linguist has made explicit the set of syntactic rules L , the set of accepted argumentation rules A , and the (reflexive and transitive) relation of presupposition between words \geq , the three starting points for the construction of a theory of sense centred upon immediate argumental role are determined. A description of the form of such a theory requires that we represent the object language by the triple $\langle L, A, \geq \rangle$. According to the view of meaning here defended every meaningful language in a fixed stage of its development must be capable of being so represented.

13. Presupposition sequences. Chains of argumentation rules.

In fixing the relation of presupposition for the words of a language, according to the strategy delineated in the preceding sections, relations of immediate presuppositions are the first to be established. But when the theoretical constraint of transitivity is applied to immediate presuppositions, the relation of presupposition turns out to hold also between words which are not immediately-touched by the same argumentation rule (there is no connection rule for them in the sense of *xii*). Thus there are also pairs of words W and U such that W presupposes U , but not immediately. However, since in these cases the relation of presupposition is established in virtue of the constraint of transitivity and on the basis of immediate presuppositions, there exists a certain sequence of words which connects W and U , as defined below:

xiii A sequence of words W_1, \dots, W_n , belonging to L is a *presupposition sequence from W to U* if, and only if:

- 1) W_1 is W
- 2) W_n is U
- 3) for every i ($1 \leq i < n$), $W_i \geq W_{i+1}$.

From *xiii*, and from the fact that statements of non-immediate presupposition hold only as far as they are consequences of

statements of immediate presupposition in virtue of the transitivity of presupposition, one can immediately draw the following conclusion:

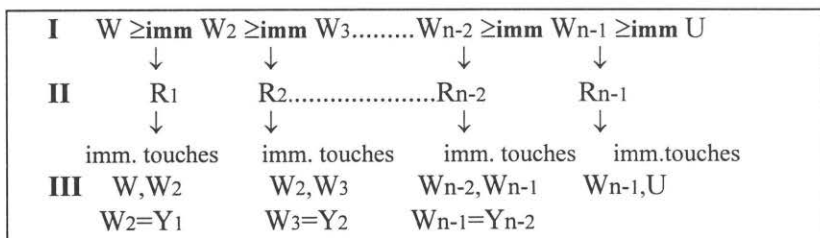
Observation 1. $W \geq U$ in $\langle L, A, \geq \rangle$, if, and only if, there exists a presupposition sequence from W to U .

From a presupposition sequence W_1, \dots, W_n from W to U it is possible to obtain a (not necessarily unique) sequence of argumentation rules which connects W and U . I call such a sequence of rules a "chain of rules from W to U ".

xiv A sequence of argumentation rules R_1, \dots, R_k is a chain of rules from W to U in $\langle L, A, \geq \rangle$ if, and only if:

- 1) R_1 immediately-touches W ;
- 2) R_k immediately-touches U ;
- 3). for every i ($1 \leq i < k$), R_i and R_{i+1} both belong to A and
 - 3.1) there is a word Y_i such that both R_i and R_{i+1} immediately-touch Y_i ,
 - 3.2) $Y_i \geq_{\text{imm}} V$, for every V which is immediately-touched by R_{i+1} ,
 - 3.3) $W \geq_{\text{imm}} Z$, for every Z which is immediately-touched by R_1 .

In order to obtain a chain of argumentation rules from a presupposition sequence W_1, \dots, W_n it is sufficient to take for each pair $\langle W_i, W_{i+1} \rangle$ such that $W_i \geq_{\text{imm}} W_{i+1}$ a corresponding $W_i - W_{i+1}$ connection rule (as defined in *xii*). So one can build the sequence of argumentation rules R_1, \dots, R_{n-1} according to the following diagram



Line **I** in the diagram above is the presupposition sequence W_1, \dots, W_n from W to U , line **II** is the corresponding chain of rules R_1, \dots, R_k ($k=n-1$), and line **III** shows that the chain R_1, \dots, R_k satisfies clauses 3.1)-3.3) of definition *xiv*. Observe that *xii* in section 10 implies that Y_i not only presupposes immediately Y_{i+1} but also every other word immediately-touched by R_{i+1} . Together with observation 1, the diagram and definition *xiv* imply the following additional observation.

Observation 2. $W \geq U$ in $\langle L, A, \geq \rangle$, if, and only if, there exists a chain of argumentation rules from W to U in $\langle L, A, \geq \rangle$

14. Argumentation rules immediately-concerning a word.

The task of making principle *i* precise has not been accomplished yet, because the notion of ‘concerning’ is still undefined. The definition of ‘concerning’ given in the next section employs the notion of ‘immediately-concerning’ which I am going to define in the present section.

In section 10 it was maintained that an argumentation rule can immediately-touch a word W without *concerning* W . One of the examples given was the rule according to which one may infer "sibling(x, y)" from "brother(x, y) \vee sister(x, y)". Let us call R^* this rule. In section 10 it was maintained that R^* does not *concern* disjunction (i.e. " \vee "), though it immediately-touches disjunction. The reason is that R^* immediately-touches a word, "sibling", an understanding of which is not necessary in order to understand disjunction. We wouldn't say that a speaker does not understand disjunction if he/she does not know R^* and does not understand "sibling". In other words, "sibling" presupposes (immediately) disjunction but disjunction does not presuppose "sibling". R^* is constitutive of an understanding of "sibling" and concerns "sibling", but R^* is not constitutive of an understanding of disjunction and does not concern disjunction.

We can generalize the foregoing considerations by saying that a rule R immediately-touching a word W also *concerns* W only if W presupposes each word U immediately-touched by R . A rule which

immediately-touches W and also concerns W may be called a rule *immediately-concerning* W .

xv An argumentation rule R *immediately-concerns* a word W in a language $\langle L, A, \geq \rangle$ if, and only if,

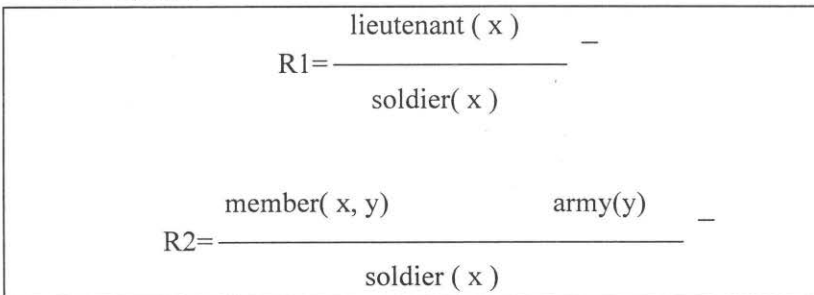
- 1) R belongs to A and R immediately-touches W ;
- 2) for every word U immediately-touched by R , $W \geq U$.

Clearly, a rule that immediately-touches words W_1, \dots, W_k can immediately-concern some of them without immediately-concerning the others. The reason is that presupposition is not always reciprocal. Presupposition is not a symmetric relation.

15 Argumentation rules concerning a word.

A rule R may concern a word W even though R does not concern W *immediately*. This fact is connected with one of the conclusions of section 10. In section 10 it was maintained that it is not necessary that a rule R immediately-touches a word W in order that R can concern W . For example, if the rule $R^\#$ of section 9 immediately-concerns "oboe", then any other rule concerning "musical instrument" concerns "oboe" too, even if it does not immediately-touch "oboe". Consider example 1, already examined in section 11.

EXAMPLE 1



From the evidence described in section 11 one could draw the following conclusions:

- α) "lieutenant" > "soldier";
- β) "army" ≈ "soldier";
- γ) "soldier" > "member";
- δ) "army" > "member".²⁵

A speaker of $\langle L, A, \geq \rangle$ in order to understand "lieutenant" must know implicitly R1, which immediately-touches (and immediately-concerns) "lieutenant", but this is not enough, because "lieutenant" presupposes "soldier". So, a speaker of $\langle L, A, \geq \rangle$ in order to understand "lieutenant" must know implicitly also R2, which immediately-concerns "soldier", even if R2 does not immediately-touch "lieutenant". Thus also R2 concerns "lieutenant", although it does not immediately-concern "lieutenant". This suggests the following definition of 'concerning'.

xvi An argumentation rule R *concerns* a word W in $\langle L, A, \geq \rangle$ if, and only if,
 there is a word W* in $\langle L, A, \geq \rangle$ such that
 1) R immediately-concerns W*;
 2) $W \geq W^*$.

In example 1 above, R1 and R2 both concern "lieutenant". R2 concerns "soldier" (and "army") but R1 doesn't, because "soldier" does not presuppose "lieutenant". Neither R1 nor R2 concern "member" because member does not presuppose "soldier", and thus does not presuppose "lieutenant" (for the consistency of presupposition). In sum, since presupposition is not symmetric, the sets of rules concerning different words can be (and in this case are) different sets.

²⁵ Remember that " $W > U$ " is an abbreviation of " $W \geq U \ \& \ \neg(U \geq W)$ " and " $W \approx U$ " an abbreviation of " $W \geq U \ \& \ U \geq W$ ".

Observation 3. $W \geq U$ if, and only if, if R concerns U, then R concerns W, for every argumentation rule R in A.²⁶

16. Argumentation rules concerning a compound expression.

On the basis of definition *xvi* one can easily define the notion of ‘concerning’ for compound expressions and thus for sentences, which are a particular kind of compound expressions.

xvii R (immediately) concerns a compound expression E in $\langle L, A, \geq \rangle$ if, and only if, there is a word W occurring in E such that R (immediately) concerns W in $\langle L, A, \geq \rangle$

17. The language fragment presupposed by an expression.

The theory I am describing is a compositional theory: in order to understand an expression E of the language $\langle L, A, \geq \rangle$ (a word or a compound expression) in general, according to the theory, it is not necessary to understand all the words of $\langle L, A, \geq \rangle$, but only the words presupposed by words occurring in E, which constitute a (mostly proper) subset of the set of all words. Such a subset can be called the *lexical fragment presupposed by E*.

xviii The lexical fragment Λ^E presupposed by an expression E in $\langle L, A, \geq \rangle$ is the set of all words W such that $U \geq W$ for some word U occurring in E.

²⁶ Here is the proof of observation 3: the only-if side is obvious: suppose that $W \geq U$ and R concerns U, then by the transitivity of \geq and by definition *xvi* it follows that R concerns W. The if-side is also straightforward. Suppose that R is a rule which immediately-concerns U (there must be such a rule if U is a meaningful word), and suppose that if R concerns U, then R concerns W. So R concerns W. If R concerns W immediately, then R immediately-concerns and immediately-touches both W and U, and thus $W \geq \text{imm}U$ (by definition *xv*). If R concerns W, but not immediately, there must be a W^* such that R immediately-concerns W^* and $W \geq W^*$. But since R immediately-concerns U too, $W^* \geq \text{imm}U$. By transitivity, $W \geq U$.

However, in order to understand an expression E in $\langle L, A, \geq \rangle$, it is not sufficient to know the lexical fragment Λ^E -presupposed by E : it is also necessary to know (implicitly) the argumentation rules which give sense to the words in Λ^E , the presupposition relation for Λ^E , and some syntactic rules which are necessary in order to construct E , if E is a compound expression. In sum, one has to know a *sublanguage*²⁷ of $\langle L, A, \geq \rangle$ which can be called the *language fragment presupposed by E*.

xix *The language fragment presupposed by a compound expression E in $\langle L, A, \geq \rangle$ is the language $\langle L^E, A^E, \geq^E \rangle$ such that*

- i) L^E is the smallest subset of L which contains Λ^E and all the syntactic rules which are necessary to generate all the expressions containing only words in Λ^E ;
- ii) A^E is the subset of A which contains exactly all the argumentation rules R which concern the expression E ;
- iii) \geq^E is the subrelation of \geq on Λ^E .

18. To know the sense of a word.

According to principle *i* of section 1, knowledge of the sense of a word W results from knowledge of all the argumentation rules concerning W . But if two words W and U are such that $U \approx W$ (i.e. they presuppose each other), then (for observation 3 in section 15) an argumentation rule R concerns W if, and only if, it concerns U .

Observation 4. Reciprocal presupposition of W and U implies that in order to understand W one has to know exactly the same argumentation rules which one has to know in order to understand U .

Nevertheless, knowledge of the sense of W is different from knowledge of the sense of U because the rules in question concern the two words in different ways. Consider the following example:

²⁷ $\langle L', A', \geq' \rangle$ is a sublanguage of $\langle L, A, \geq \rangle$ iff L' is a subset of L , A' is a subset of A , and \geq' is a subrelation of \geq .

EXAMPLE 2

R3 = the speaker asserts "green (*there*)" correctly, if he/she points to a place x, and at the same time it is seen by those present that x is green.

R4 = the speaker asserts "red (*there*)" correctly, if he/she points to a place x, and at the same time it is seen by those present that x is red.

$$\begin{array}{cc}
 \text{green} (x) \quad _ & \text{red} (x) \\
 \text{R5} = \frac{\quad}{\neg \text{red} (x)} & \text{R6} = \frac{\quad}{\neg \text{green} (x)} \\
 \\
 \text{P} \quad \quad \neg \text{P} & \quad \quad \neg \neg \text{P} \\
 \text{R7} = \frac{\quad}{\text{S}} & \text{R8} = \frac{\quad}{\text{P}}
 \end{array}$$

Suppose that L^* is a language containing only the words "there" "red", "green" and " \neg ", $A^* = \{R3, R4, R5, R6, R7, R8\}$, and that the relation of presupposition \geq^* for L^* is such that

- i) "green" \approx^* "there"
- ii) "red" \approx^* "there"
- iii) "green" \approx^* "red",
- iv) "green" $>^*$ " \neg "
- v) "red" $>^*$ " \neg ".

$\langle L^*, A^*, \geq^* \rangle$ is a very simple artificial language, a little language-game which can be used only in order to assert or to deny ostensibly that the places which are pointed to are red or green. In $\langle L^*, A^*, \geq^* \rangle$ all the argumentation rules in A^* concern "red", "green" and "there". However, it is clear that "red", "green" and "there" play different roles in these rules, and that's why their senses are different. The different roles of these words consist partly in the fact that different rules immediately-concern different words (e.g. R3 immediately-concerns "green" and R4 doesn't), and partly in the fact that different words occupy a different position in the structure of the same rules.

In order to distinguish the different roles played by two different words W and U in the argumentation rules concerning both words, when the set of the rules concerning W and the set of the rules concerning U are the same set, we have to represent such a set of rules in two different respects: we have to consider those rules in so far as they concern W , and in so far as they concern U ; in so far as they are associated with W and in so far as they are associated with U . In general, the speaker's association of a word W with the set Ω^W of all argumentation rules concerning W can be represented by an ordered pair, the first element of which is W and the second element of which is the set Ω^W . Accordingly, the speaker's knowledge of the sense of a word W in a language can be represented by the pair $\langle W, \Omega^W \rangle$. This representation means that the argumentation rules in Ω^W are considered with respect to W , in so far as they concern W and are associated with W . In this way we can always distinguish between a knowledge of the sense of W , represented by $\langle W, \Omega^W \rangle$, and a knowledge of the sense of U , represented by $\langle U, \Omega^U \rangle$, because W is different from U , even if Ω^W is equal to Ω^U .

xx A speaker's knowledge of the sense of a word W in a language $\langle L, A, \geq \rangle$ is represented by the ordered pair $\langle W, \Omega^W \rangle$, where Ω^W is the set of all argumentation rules concerning W in $\langle L, A, \geq \rangle$.

Thus, the specific knowledge which is necessary in order to understand a word W in a language $\langle L, A, \geq \rangle$ consists in knowing the argumentation rules concerning W in $\langle L, A, \geq \rangle$, i.e. the rules in the set Ω^W , and in associating Ω^W with W . This explication of the notion of 'knowing the sense of a word' is in agreement with the Fregean idea that the grasp of the meaning of a word is the grasp of how, in general, the word contributes to the meanings of the sentences in which it occurs. The reason is that premises and conclusions of instances of argumentation rules are sentences. This will be completely clear by considering the way in which principle *ii* of section 1 will be developed in the sequel. If an understanding of W consists in associating W with Ω^W , in order to understand W one has to understand also all the other words W' immediately-concerned by the rules in Ω^W , that is all the words in the lexical fragment presupposed by W . These are the only words *aspecific* understanding

of which will be necessary in order to understand W. Of course in some cases an application of an argumentation rule concerning W may involve also sentences containing some word V such that W does not presuppose V (for example an application of *modus ponens* may contain a word like "bachelor" which is not presupposed by the connective "→" concerned by *modus ponens*), but the understanding of none of these words V *in particular* will be specifically necessary for an understanding of W and of the rules concerning W.

19. Synonymy.

If W and U are two different word-types, then the pair $\langle W, \Omega^W \rangle$ is obviously different from the pair $\langle U, \Omega^U \rangle$. Thus, if the theoretical representation of the knowledge of the sense of a word W as a pair $\langle W, \Omega^W \rangle$ is correct, the knowledge of the sense of W will never be equal to the knowledge of the sense of a different word U. Understanding W is never the same epistemic state as understanding U, because the former has to do with W, and the latter with U. I think that this conclusion is right if to understand a word consists in knowing (a part of) *its* use. Indeed, when we learn how to use a word, what we learn is how to use *a word of that syntactic type*. We don't learn first some sort of abstract non-syntactic use which we later connect with a particular syntactic type. The primary knowledge of the use of a word is not separated from the word used.

Nevertheless, it seems reasonable to say that different words (i.e. word-types) can be used *in the same way* and that two words have the same sense if, and only if, they are used in the same way. Similarly, it seems reasonable to say that two compound expressions, in particular two sentences, have the same sense if they are used in the same way.

In this study, the notion which has theoretical priority is the notion of '*knowing* the sense of E' and not the notion of '*being* the sense of E' nor the notion of '*having the same* sense as E'. The reason is that the view here presented is a theory of understanding. In order to explain what it is to understand an expression E we need in the first place the notion of '*knowing* the sense of E'. Only because a speaker understands all the particular syntactic expressions of a language he/she can later reflect on the similarity between the use of one expression and the use of another expression, and can find it

reasonable to say, since the two expressions are used in the same way, that they have the same sense. This can lead to the idea of sense as an entity that can be considered separately from the particular expressions with which it is associated. However, this conclusion is right only as far as it means that we can consider senses independently of *some* expressions associated with them, *but not* independently of *all* expressions endowed with those senses. It is clear that senses cannot be known or considered separately from *all* linguistic expressions: there is no epistemic access to senses except through the association with a particular sign or combination of signs.

The argumental theory of meaning here presented explains first what it is to know the sense of a word. This was the object of the preceding section. Such an explanation can then be developed into an explanation of the knowledge of the sense of a compound expression, as I shall show in the next section. The explanation of the notion of '*knowing* the sense of E' represents systematically the knowledge of the sense of E as something that is not separated from the particular syntactic object E. We cannot know senses that are not associated with particular syntactic objects. The syntactic object E is the body of its sense. We cannot know disembodied senses.

However, in the present section I am going to show how the derivative notion of 'having the same sense as E', that is the notion of 'being synonymous with E', can be accounted for. On the basis of the notion of synonymy, I shall then suggest a possible definition of 'the sense of E'.

Wilfrid Sellars, in "Meaning as a Functional Classification",²⁸ maintains that we could specify the meaning of a word as functional role by abstracting from the syntactic form of the word in such a way that two different words can have the same meaning. Sellars uses the notion of 'functional classification' in order to distinguish between the descriptive character of a linguistic token, i.e. its "shape (or sound) and arrangement" and its functional character: to say what an expression means is to classify it functionally by means of an illustrating sortal "'f'".²⁹ A functional classification has the following form:

²⁸ Cf. Sellars (1974), p. 427; see also chapter 2 of the present study, section 3.1.

²⁹ Cf. Sellars (1974), p. 427.

*) t in L_1 is an 'f'

which amounts to saying that t is functioning in L_1 in the same way as in the base language L (the ability to use which is presupposed) are functioning those items having the design of which "f" is a representative sample. For example – Sellars writes – " "Oder"s in German are 'or's"³⁰, assuming that English is the base language. Clearly, in Sellars' view the notion of functional role *in the base language* is primary. Sellars does not give a precise account of such a notion. But I think that Sellars is on the right track when he says that two expressions have the same meaning if they "function" in the same way, which amounts to saying that they *are used* in the same way. I am going to elaborate this idea.

In order to give substance to the idea that two expressions have the same sense if, and only if, they are used in the same way, it is necessary to clarify the notion of 'E¹ is used in the same way as E²'. A possible line of thought is to say that E¹ is used in the same way as E² if there is a certain isomorphism between the language fragment presupposed by E¹ and the language fragment presupposed by E². Such an isomorphism would be a *translation* from the language fragment presupposed by E¹ to the language fragment presupposed by E².

xxi A translation from $\langle L^1, A^1, \geq^1 \rangle$ to $\langle L^2, A^2, \geq^2 \rangle$ is a pair of functions $\langle \tau, \tau^* \rangle$ such that

- 1.1) τ is a one-one function with domain L^1 and range L^2 ,
- 1.2) τ assigns each word W of L^1 a word $\tau(W)$ of L^2 ,
- 1.3) τ assigns each rule ϵ for forming a compound expression of L^1 a rule $\tau(\epsilon)$ for forming a compound expression of L^2 ,
- 1.4) $W_i \geq^1 W_j$ if, and only if, $\tau(W_i) \geq^2 \tau(W_j)$ (where \geq^1 is the presupposition relation for L^1 and \geq^2 is the presupposition relation for L^2),
- 1.5) $\epsilon(W_1 \dots W_n)$ is an expression of syntactic category C in L^1 if, and only if, $\tau(\epsilon)(\tau(W_1) \dots \tau(W_n))$ is an expression of the same category C in L^2 ;

³⁰ *Ibidem*, p. 437.

- 2.1) τ^* is a one-one function with domain A^1 and range A^2 ,
 2.2) τ^* assigns each rule R in A^1 a rule $\tau^*(R)$ in A^2 such that:
if a) R immediately-touches exactly $W_1 \dots W_k$, b) Δ is an adequate description of R which contains only quotational names of $W_1 \dots W_k$ and c) Δ^τ is the description obtained from Δ by substituting quotational names of $\tau(W_1) \dots \tau(W_k)$ for quotational names of $W_1 \dots W_k$ respectively, *then* Δ^τ is an adequate description of $\tau^*(R)$,
 2.3) R concerns W in $\langle L^1, A^1, \geq^1 \rangle$ if, and only if, $\tau^*(R)$ concerns $\tau(W)$ in $\langle L^2, A^2, \geq^2 \rangle$.

Observe that the language fragments $\langle L^1, A^1, \geq^1 \rangle$ and $\langle L^2, A^2, \geq^2 \rangle$ may be sublanguages of different languages or sublanguages of the same language. A translation from $\langle L^1, A^1, \geq^1 \rangle$ to $\langle L^2, A^2, \geq^2 \rangle$ can also correlate two parts of the same language.

EXAMPLE 3.

Consider the language $\langle L^*, A^*, \geq^* \rangle$ of example 2 in section 18. We can easily describe a different language which functions in the same way. Let L° be a language containing only the words "li" "rosso", "verde" and "~"; let the relation of presupposition \geq° for L° be such that

- i) "verde" \approx° "li"
- ii) "rosso" \approx° "li"
- iii) "verde" \approx° "rosso",
- iv) "verde" $>^\circ$ "~"
- v) "rosso" $>^\circ$ "~".

Moreover, let A° be $\{R3^\circ, R4^\circ, R5^\circ, R6^\circ, R7^\circ, R8^\circ\}$, where

$R3^\circ$ = the speaker asserts "verde (*li*)" correctly, if he/she points to a place x , and at the same time it is seen by those present that x is green.

$R4^\circ$ = the speaker asserts "rosso (*li*)" correctly, if the speaker points to a place x , and at the same time it is seen by those present that x is red.

$$\begin{array}{ccc}
 \text{verde} (x) & - & \text{rosso} (x) \\
 R5^\circ = \frac{\quad}{\sim \text{rosso} (x)} & & R6^\circ = \frac{\quad}{\sim \text{verde} (x)} \\
 \\
 P & \sim P & \sim \sim P \\
 R7^\circ = \frac{\quad}{S} & & R8^\circ = \frac{\quad}{P}
 \end{array}$$

If τ is such that $\tau(\text{"red"})=\text{"rosso"}$, $\tau(\text{"green"})=\text{"verde"}$, $\tau(\text{"there"})=\text{"li"}$, $\tau(\text{"¬"})=\text{"¬"}$, and τ assigns the sentence forming operations of L^* analogous sentence forming operations for L° , then $\langle \tau, \tau^* \rangle$ is a translation from $\langle L^*, A^*, \geq^* \rangle$ to $\langle L^\circ, A^\circ, \geq^\circ \rangle$. Clearly, $\tau^*(R3)=R3^\circ$, $\tau^*(R4)=R4^\circ$, $\tau^*(R5)=R5^\circ$, and so on. Indeed the two languages are used in the same way. $\langle L^\circ, A^\circ, \geq^\circ \rangle$ is a language game which can be used as $\langle L^*, A^*, \geq^* \rangle$ is used in order to assert or to deny ostensively that places which are pointed to are red or green. The two languages differ only in the syntactic forms of the words.

The notion of synonymy can then be defined on the basis of the notion of 'translation from $\langle L^1, A^1, \geq^1 \rangle$ to $\langle L^2, A^2, \geq^2 \rangle$ '.

xxii An expression E^1 is *synonymous* with an expression E^2 (i.e. E^1 has the same sense as E^2) if, and only if, there exists a translation $\langle \tau, \tau^* \rangle$ from the language fragment presupposed by E^1 to the language fragment presupposed by E^2 such that if we apply τ to each of the words in E^1 and to each syntactic rule by means of which E^1 can be built out of those words, then we obtain E^2 .

E^1 and E^2 can be expressions of different languages or expressions of the same language, because a translation can correlate not only two sublanguages of different languages, but also two language fragments belonging to the same language. The relation 'X is synonymous with Y' is an *equivalence relation*. Reflexivity follows from the fact that, if τ and τ^* are identity functions, $\langle \tau, \tau^* \rangle$ is a trivial translation. Symmetry follows from the fact that if $\langle \tau, \tau^* \rangle$ is a translation from $\langle L^1, A^1, \geq^1 \rangle$ to $\langle L^2, A^2, \geq^2 \rangle$, τ^{-1} is the inverse function of τ and τ^{*-1} is the inverse of τ^* , then $\langle \tau^{-1}, \tau^{*-1} \rangle$ is a translation from $\langle L^2, A^2, \geq^2 \rangle$ to $\langle L^1, A^1, \geq^1 \rangle$. Transitivity follows from the fact that the composition of two translations is a translation.

Thus the sense which is common to synonymous expressions might be defined as the corresponding equivalence class:

xxiii The sense of an expression E is the class of all possible expressions X which are synonymous with E.

However, in order to know the sense of E in a language $\langle L, A, \geq \rangle$ one does not have to know the senses of all expressions X, belonging to the same language or to another language, which are synonymous with E. It is sufficient to know the syntactic structure of E and, for each word W occurring in E, all the argumentation rules concerning W in $\langle L, A, \geq \rangle$, i.e. the rules in the set Ω^W , and to associate such rules with W. Moreover, from the fact that E^1 is synonymous with E^2 , and that a speaker knows the sense of E^1 and the sense of E^2 , we cannot infer that the speaker *knows* that E^1 has the same sense as E^2 . In order to get to know that the two words are synonymous the speaker has to compare the language fragment presupposed by E^1 with the language fragment presupposed by E^2 , and this can be a rather complicated task.

20. The immediate argumental role of a sentence and the general form of a theory of sense centred on immediate argumental role.

According to principle *ii*, knowledge of the sense of a sentence is acquired *compositionally*, i.e. on the basis of knowledge of the senses of the component words. A sentence is the smallest linguistic unit through which one can perform a linguistic act. That's why the main

task of a theory of understanding is to explain what it is to understand a sentence. A satisfactory account of a speaker's knowledge of the sense of an expression is an account of its contribution to the speaker's knowledge of the sense of a sentence in which the expression can occur; and a satisfactory explanation of the speaker's knowledge of sentential senses must show how such a knowledge is determined by the speaker's knowledge of the senses of the component expressions.

The latter explanation is the object of this section. I call the sense of a sentence *S* the *immediate argumental role* of *S*. So the notion of 'immediate argumental role of a sentence' is *the central notion* of the theory of meaning I am describing. In this section I am going to show how a speaker's knowledge of the immediate argumental role of a sentence is ultimately determined by the speaker's knowledge of the senses of the component words.

A theory centred on immediate argumental role for a given language faces three fundamental tasks. *First*: it should find out the syntactic rules of the language; in particular, it should tell a) the words of the language, and b) the ways in which words may be combined in order to build sentences. *Second*: it should detect and describe the argumentation rules presently associated by the (ideal) speaker with the words. *Third*: it should determine the relation of presupposition for the words of the language on the basis of the presuppositional data, as we saw in section 11. The first two tasks are not necessarily performed separately, one can investigate simultaneously the syntactic rules and the argumentation rules of the language. When all the three tasks are accomplished the three items of the triple $\langle L, A, \geq \rangle$ are made explicit, and for each word *W*, by virtue of definition *xvi*, the set Ω^W of all rules in *A* concerning *W* is fixed. The theory of sense will consist of two kinds of axioms. *Axioms about words* represent the speaker's knowledge of the sense of each word *W* by the pair $\langle W, \Omega^W \rangle$. *Axioms about sentences and compound terms* specify how the speaker's knowledge of the senses of compound expressions, and in particular of the immediate argumental roles of sentences, is determined by knowledge of the senses of the component words. The axioms of the latter kind are easily formulated once the first fundamental task is accomplished, because they mirror the syntactic rules of sentence-building. I shall

now show how this can be done for a wide set of languages with a certain syntactic structure. I do not claim that natural languages like English, Swedish or Italian have such a syntactic structure. But, even if they don't have this structure, they must have *some* syntactic structure. The definition below can be regarded as an example which shows how, given the syntactic structure of a language, a relation of presupposition on its words, and a set of accepted argumentation rules, one can recursively represent a speaker's knowledge of the immediate argumental role of each sentence of the language as determined by a knowledge of the senses of the component expressions.

In the languages which I am going to consider, a sentence can be built by combining individual, functional or predicate constants, logical constants and variables. I shall not make any assumption on logical constants except that by applying logical constants to sentences of lower complexity one can form compound terms and compound sentences, and that logical constants may bind individual or predicate variables. Variables can be regarded as quasi-words that serve only for indicating a lacuna in a certain place corresponding with a particular syntactic category, a lacuna which can be saturated by substituting for the variable an expression of the suitable syntactic category or by binding the variable by means of a logical constant. Even if their sense is in a way indeterminate, variables give an information that plays an important role in the understanding of the sentences where they occur. So variables contribute to the sense of sentences, and therefore they have a special sense the knowledge of which can be represented – like the knowledge of the sense of genuine words – by an ordered pair. There are no argumentation rules concerning or immediately-touching particular variables. Thus, if x is a particular variable, the knowledge of its sense is represented by a pair $\langle x, \Omega^x \rangle$ the second item of which, Ω^x , is the empty set. The different roles played by different variables in the same sentence (where the variables have different positions) depend only on their different syntactic identities. In the languages here considered one can build up *terms* out of formulas containing unbound variables by applying to them a logical constant that binds those variables (e.g. the operator of λ -abstraction). In order to understand terms that are formed in this way it is necessary to understand the formulas out of

which they are built up. Therefore, we must give simultaneously a representation of the knowledge of the senses of compound terms and a representation of the knowledge of the immediate argumental roles of sentences.

xxiv Knowledge of the sense of a compound term and knowledge of the immediate argumental role of a sentence in $\langle L, A, \geq \rangle$:

a) A knowledge of the sense of an atomic individual or predicate term or functional symbol W is represented by the pair $\langle W, \Omega^W \rangle$, where Ω^W is the set of all argumentation rules concerning W in $\langle L, A, \geq \rangle$.

b) The knowledge of the sense of a *compound term* $f(t_1...t_n)$ built up by applying the n -ary functional constant f to the terms $t_1...t_n$ is represented by the $n+1$ -tuple $\langle \phi, \tau^1, \dots, \tau^n \rangle$, where ϕ represents the knowledge of the sense of f and τ^i represents the knowledge of the sense of t_i ($\forall i 1 \leq i \leq n$).

c) The knowledge of the immediate argumental role of a *formula* $R(t_1...t_n)$ built up by applying the n -ary predicate term R to the individual terms $t_1...t_n$ is represented by the $n+1$ -tuple $\langle \rho, \tau^1, \dots, \tau^n \rangle$, where ρ represents the knowledge of the sense of R and τ^i represents the knowledge of the sense of t_i ($\forall i 1 \leq i \leq n$).

d) If \oplus is a n -ary logical constant which binds m individual variables x_1, \dots, x_m and k predicate variables Y_1, \dots, Y_k ($m \geq 0, k \geq 0$), and by means of \oplus one can build up a *formula* $\oplus Y_1 \dots Y_k x_1 \dots x_m F_1 \dots F_n$ out of the formulas F_1, \dots, F_n , then the knowledge of the immediate argumental role of $\oplus Y_1 \dots Y_k x_1 \dots x_m F_1 \dots F_n$ is represented by the $n+1$ -tuple $\langle \langle \chi, \langle Y_1 \dots Y_k x_1 \dots x_m \rangle \rangle \alpha_1, \dots, \alpha_n \rangle$, where χ represents a knowledge of the sense of \oplus and α_i a knowledge of the immediate argumental role of F_i ($\forall i 1 \leq i \leq n$).

e) If \oplus is a n -ary logical constant which binds m individual variables x_1, \dots, x_m and k predicate variables Y_1, \dots, Y_k ($m \geq 0, k \geq 0$), and by means of \oplus one can build up a *compound term* $\oplus Y_1 \dots Y_k x_1 \dots x_m F_1 \dots F_n$ out of the formulas F_1, \dots, F_n , then a knowledge of the sense of $\oplus Y_1 \dots Y_k x_1 \dots x_m F_1 \dots F_n$ is represented by the $n+1$ -tuple $\langle \langle \chi, \langle Y_1 \dots Y_k x_1 \dots x_m \rangle \rangle \alpha_1, \dots, \alpha_n \rangle$, where χ represents a knowledge of the sense of \oplus and α_i a knowledge of the immediate argumental role of F_i ($\forall i 1 \leq i \leq n$).

EXAMPLE 4

If a symbol of L is the second order existential quantifier " \exists_2 " and all the argumentations rules *concerning* " \exists_2 " in A are the introduction and elimination rules of a natural deduction system for second order logic \exists_2I and \exists_2E , then a knowledge of the immediate argumental role of " $\exists_2YF(Y)$ " in $\langle L, A, \geq \rangle$ is represented by the ordered pair $\langle \langle \varepsilon, \langle Y \rangle \rangle, \beta \rangle$, where β represents a knowledge of the immediate argumental role of " $F(Y)$ ", $\varepsilon = \langle \exists_2, \Omega^{\exists_2} \rangle$, and $\Omega^{\exists_2} = \{ \exists_2I, \exists_2E \}$. This example is especially relevant for a comparison between a theory of meaning centred on immediate argumental role and a verificationist theory of meaning. According to the latter theory of meaning one cannot give sense to the second order existential quantifier " \exists_2 " by means of the introduction rule \exists_2I , because such a rule violates the verificationist interpretation of the requirement of compositionality.³¹

21. Compositionality and presupposition between sentences.

The theory of meaning centred upon immediate argumental role honours the requirement of compositionality. *First*, according to such a requirement knowledge of the sense of a sentence (i.e of its immediate argumental role) should be acquired on the basis of knowledge of the senses of the component words and of the syntactic structure of the sentence. In the foregoing section I showed that the theory centred on immediate argumental role fulfils this condition.

Secondly, compositionality demands that knowledge of the sense of a sentence should presuppose an understanding of a fragment of the language, not of the whole language. In section 17 we saw that in order to understand an expression E in a language $\langle L, A, \geq \rangle$, a speaker must know only a sublanguage of $\langle L, A, \geq \rangle$, the language-fragment

³¹ Cf. Prawitz (1987), an article in which, following Dummett's terminology at that time, Prawitz calls compositionality "molecularity". The introduction rule for the second order existential quantifier is not compositional from the verificationist point of view because the logical complexity of the premiss $A(T)$ can be greater than the logical complexity of the conclusion $\exists_2XA(X)$, since T is a *second order* term. But, according to definition *xxiv*, what matters is the complexity of the formula $A(X)$, which is clearly smaller than the complexity of $\exists_2XA(X)$.

$\langle L^E, A^E, \geq E \rangle$ presupposed by E. This is also true, in particular, if E is a sentence. The language fragment $\langle L^E, A^E, \geq E \rangle$ presupposed by E will normally be a proper sublanguage of $\langle L, A, \geq \rangle$. Admittedly, in a very simple *artificial* language like $\langle L^*, A^*, \geq^* \rangle$ in example 2 of section 18 the language fragment presupposed by a sentence like "red(*there*)" is the whole language $\langle L^*, A^*, \geq^* \rangle$ because all the argumentation rules in A^* concern "red" and "*there*". In this very particular case (which is admitted by the second compositional thesis of chapter 1, section 4) in order to understand "red(*there*)" one has to know all the words in L^* , and (implicitly) all the argumentation rules in A^* . But in most cases, and especially if $\langle L, A, \geq \rangle$ is a *natural* language, like English, the language fragment presupposed by a sentence will be a proper sublanguage of $\langle L, A, \geq \rangle$. Anyway, what compositionality denies is the holistic thesis that *in general* in order to understand any sentence one has to understand all the words of the language to which the sentence belongs (a thesis which was labelled "linguistic holism 2" in chapter 1, section 4). Compositionality does not deny that in some very particular cases the understanding of a particular sentence requires an understanding of all the *words* of the language, and thus an implicit knowledge of all the argumentation rules. There is only a finite number of words and argumentation rules in a language, therefore a finite being can have such a knowledge.

Thirdly, compositionality demands that the understanding of a sentence should depend on an understanding of a finite number of *sentences* of the same language of lower or equal complexity, and not of all the infinitely many sentences that can be constructed in the language. This is the first compositional thesis of chapter 1, section 4. It cannot be denied that in order to understand a sentence it is often necessary to understand other sentences. In particular, the first aspect of compositionality considered above entails that in order to understand a compound sentence one has to understand its subsentences. The theory of meaning should be such that a reflexive and transitive relation of presupposition between sentences can be defined in the theory: a sentence S^1 presupposes another sentence S^2 if, and only if, a speaker who understands S^1 must understand S^2 . But such a relation should be non-symmetric. Otherwise, if presupposition were symmetric, every sentence S^1 would presuppose each of the infinitely many compound sentences S^2 of higher complexity which

contain S^1 as a subsentence (since each S^2 presupposes S^1), and thus, in the end, S^1 would presuppose every other sentence of the language.

In the present section I am going to show how a reflexive, transitive and non-symmetric relation of presupposition *between sentences* can be defined in a theory of meaning centred on immediate argumental role. Thereby, I show that such a theory of meaning conforms also to the third demand involved in the requirement of compositionality.

In order to define presupposition between sentences I employ the notion of 'language fragment presupposed by a sentence'³² and the notion of 'logical complexity of a sentence', which, as usual, is defined in the following way:

xxv The logical complexity of a sentence S (in symbols $LC(S)$) is the number of logical constants occurring in S .

(A logical constant is any word \oplus such that, by applying \oplus to a certain number of sentences, possibly containing variables, one can form compound terms and compound sentences, and can bind those variables).

The definition of presupposition between sentences is the following:

xxvi A sentence S presupposes a sentence E if, and only if,
 1) $\langle L^E, A^E, \geq E \rangle$ is a sublanguage of $\langle L^S, A^S, \geq S \rangle$
 (i.e. the language fragment presupposed by E is a sublanguage of the language fragment presupposed by S) and
 2) $LC(E) \leq LC(S)$.³³

According to the theory of meaning centred upon immediate argumental role, an understanding of a sentence E is necessary in order to understand another sentence S if, and only if, S presupposes E . This relation of presupposition has the following properties : it is *reflexive* (S presupposes S), it is *transitive* (if S presupposes E , and E

³² Cf. section 17, definition **xix**.

³³ In 2, the symbol " \leq " expresses the relation "smaller than or equal to" between natural numbers.

presupposes F, then S presupposes F), it is *not total* (there can be sentences S and E such that neither S presupposes E nor E presupposes S), it is *not symmetric* (there are sentences S and E, such that S presupposes E, but E does not presuppose S), and it is *not antisymmetric* (some different sentences S and E can presuppose each other). These properties follow from definition xxvi and from the fact that also the relation of presupposition between words is only transitive and reflexive.

22. Manifestability.

According to the argumental theory of meaning here described a knowledge of the immediate argumental role of a sentence S in a language $\langle L, A, \geq \rangle$ is completely manifestable in the exercise of a specific practical ability. Such a practical ability consists of two component practical abilities: 1) the practical ability to analyse S syntactically, to discern what words occur in S, and to impose a syntactic structure upon the linear sequence of words (by grouping them in some way), and 2) the practical ability to follow the argumentation rules concerning S (which belong to the subset A^S of A). If two sentences presuppose the same language fragment, it is the first component that distinguishes the manifestation of an understanding of the one sentence from the manifestation of an understanding of the other. We may therefore conclude that a theory of meaning centred upon immediate argumental role satisfies the requirement of manifestability.

CHAPTER 4

Epistemological holism without linguistic holism

Epistemological holism is usually associated with *linguistic* holism, and sometimes the latter is inferred from the former. In this chapter I shall show how the view that the sense of a sentence is its immediate argumental role, though it conforms to the requirement of compositionality and hence involves a denial of linguistic holism, is perfectly compatible with epistemological holism. Thus, by accepting the argumental conception of meaning, we can have epistemological holism without linguistic holism.

In short, my point will be the following. The epistemological holist rightly maintains that one cannot set any limit in advance to what can be counted as evidence for a sentence or can be inferred from it, because every sentence of the language may become evidentially relevant to any other sentence. But, according to the argumental conception, *not all* the evidential and inferential connections in which a sentence may be involved are constitutive of an understanding (of the sense) of that sentence. My view is that *only some* of these connections, only certain *direct links* with some linguistic or non-linguistic evidence, constitute the sense of the sentence. In order to grasp such direct links (and to understand the sentence), it is sufficient to know the language fragment presupposed by the sentence, the limits of which are firmly fixed by the sense of the sentence in accordance with the requirement of compositionality: it is not necessary to know the rest of the language. Thus I reject *linguistic* holism. But I can consistently accept *epistemological* holism because the sense (i.e. the immediate argumental role) of the sentence does not set any limit to possible *new* evidential connections which are not reducible to the direct links which constitute understanding. To prove this, in section 2 I shall show that even in very elementary languages the whole use of a sentence in arguments, its *global argumental role* (defined in section 1), is not determined by – nor is it reducible to – the immediate argumental role of the sentence. Through the fact that global argumental role outruns immediate argumental role epistemological holism shows itself with special clearness in the

framework of the argumental conception. According to this conception, the sense of a sentence determines only *some* evidential and inferential connections between that sentence and other sentences, or non-linguistic evidence, *but not all*; the totality of such connections depends ultimately on all our knowledge.

1. Global argumental role of a sentence.

Does the immediate argumental role of a sentence constitute the whole use of that sentence in arguments? In order to answer this question we have to deepen our analysis of the notion of 'argument'. An argument is given within a language $\langle L, A, \gg$. Hence its correctness is first considered with respect to the language and its argumentation rules in A. Of course, the speakers do not explicitly compare the given argument with the argumentation rules of the language, because they usually know these rules only implicitly. Moreover, if arguments were fully articulated, they would be exceedingly long. In practice they mostly contain many non-immediate argumentation steps which are not simple applications of single argumentation rules. In addition, arguments often involve observation and manipulation of diagrams, pictures and other iconic aids. Thus, even if they purport to be conclusive arguments (e.g. mathematical proofs) they are often sketchy and tentative, and in general fallible. That's why Lakatos described even mathematical proofs as "thought-experiments".¹ However, just because arguments are fallible, they are subject to criticism. Under the pressure of criticism arguments are further elaborated and articulated. Argumentation steps which seem to be simple are elaborated to compound arguments by inserting one or more intermediate argumentation steps between premises and conclusion. Such an articulation leads (or would lead, if pursued far enough) to immediate argumentation steps, which the speaker does not consider susceptible of any further elaboration, because their acceptability is part of an understanding of the involved words or, some might say, "is part of the concept". Immediate argumentation steps are applications of argumentation rules (they are accepted only in virtue of their

¹ Cf. Lakatos (1976) p. 9.

structure, which is the characteristic structure of an argumentation rule).

One might rightly object that in the natural sciences, in mathematics, and also in everyday life, criticism does not always stop at immediate argumentation steps. It can continue. Also immediate argumentation steps which are applications of previously accepted argumentation rules (i.e. of rules in the set A) can be criticized. This kind of criticism is an implicit criticism of the argumentation rules and thus of the meanings (or "concepts") which are constituted by those rules. Lakatos has called "concept-stretching"² such a criticism and the modifications and improvements of the language that can arise from it. In particular cases it can be difficult to distinguish the latter more creative kind of criticism from the criticism which only demands a justification on the basis of the already accepted argumentation rules which implicitly constitute the common meanings of the words, because both aspects are present in our concrete practice of criticizing arguments.³ But the distinction is in principle clear and very important. By exploiting Wittgenstein's metaphor in *Über Gewissheit* we might say that both the waters (assertions and arguments within the language) and the river-bed (the language with its argumentation rules) may move (may be improved by criticism). In particular cases, it can be difficult to make the distinction between the movement of the waters and the shift of the river-bed, but the difficulty does not eliminate the distinction: the waters couldn't move if there were no relatively firm and solid river-bed functioning as a channel for their flux.⁴ Without metaphor: arguments cannot be elaborated offhand in an epistemic void, otherwise no agreement about their acceptability would be possible. Therefore arguments must be constructed on the basis of a relatively stable background of commonly accepted argumentation rules, although such rules too may be changed.

A criticism which is directed against the meanings of words (against "the concepts") involves a notion of 'correctness of the language' which is very different from the notion of 'correctness' as

² Cf. Lakatos (1976) pp. 83-99.

³ This is the reason why Lakatos speaks of "intrinsic unity between the 'logic of discovery' and the 'logic of justification'" Lakatos (1976) p. 37.

⁴ Cf. Wittgenstein (1969b) §§ 95-99.

'agreement with the argumentation rules of the language'. The latter correctness is *relative* to a language $\langle L, A, \geq \rangle$, i.e. it is *based on* an acceptance of (the argumentation rules of) $\langle L, A, \geq \rangle$, whereas the notion of 'correctness of the language' involves completely different criteria on the basis of which $\langle L, A, \geq \rangle$ and its argumentation rules are *subjected* to a judgement, instead of being simply treated as the precondition for assessing a reasoning. I shall deal with the criteria for the correctness of a language in the next chapter. Here it is enough to point out the distinction.

The present chapter will consider the language *in a fixed stage of its development*, and thus my analysis will now be focused on the notion of correctness relative to $\langle L, A, \geq \rangle$. I shall address myself to the question: *does the immediate argumental role of a sentence in $\langle L, A, \geq \rangle$ constitute the whole use of that sentence in arguments which are correct with respect to $\langle L, A, \geq \rangle$?*

A first notion of 'correct argument relatively to $\langle L, A, \geq \rangle$ ' is the notion of 'fully articulated argument relatively to $\langle L, A, \geq \rangle$ ', which can be defined as follows:

xxvii An argument D for a conclusion C from assumptions H^1, \dots, H^n and from non-linguistic evidence NL^5 is *correct and fully articulated relatively to $\langle L, A, \geq \rangle$* if, and only if: 1) every non-discharged assumption in D is among H^1, \dots, H^n ; 2) all the employed non-linguistic evidence is in NL ; 3) every argumentation step in D is an application of an argumentation rule belonging to A ; 4) the conclusion of the last argumentation step in D is C .

(Observe that an argument which is correct and fully articulated relatively to $\langle L, A, \geq \rangle$ is not a derivation in a formal system, because argumentation rules are not formal inference rules, as we have seen in chapter 3, section 5).

Arguments allowed by a language $\langle L, A, \geq \rangle$ are fully articulated, when they consist entirely of immediate argumentation steps conforming to the argumentation rules in the set A . In practice, as it was said above, we seldom give fully articulated arguments, because

⁵ Here and in the other definitions in this section "non-linguistic evidence NL " is an abbreviation of "the set NL of pieces of non-linguistic evidence".

they are exceedingly long. We usually give shorter arguments in which most argumentation steps are non-immediate. However, we accept a non-immediate argumentation step because we implicitly believe that it *could* be transformed into an argument consisting of many different more elementary argumentation steps which are immediate and conform to accepted argumentation rules. If such a belief is shaken by successful criticism, then we have to choose between two possible rational responses to such a criticism: we can either agree with our opponent and reject the argumentation step, or we can modify the language and adopt a new argumentation rule of which the problematic argumentation step is an instance. In the latter case the argumentation step becomes an immediate argumentation step in a new enriched language. But, as I said above, I reserve a treatment of the possibility of modifying the language for the next chapter,⁶ now I put this topic aside. If we keep the language $\langle L, A, \gg$ fixed, a non-immediate argumentation step is acceptable relatively to the given language $\langle L, A, \gg$ if, and only if, it can be articulated by inserting intermediate argumentation steps between its premises and its conclusion, so as to obtain a fully articulated argument which is correct relatively to $\langle L, A, \gg$. Hence, in general, an argument which is correct relatively to $\langle L, A, \gg$ can be defined as follows.

xxviii An argument D for a conclusion C from assumptions H^1, \dots, H^n and from non-linguistic evidence NL is *correct relatively to* $\langle L, A, \gg$ if, and only if, by an appropriate articulation of the non-immediate argumentation steps in D , it is possible to obtain an argument D^* for the same conclusion C , from the same assumptions H^1, \dots, H^n and from the same non-linguistic evidence NL such that D^* is correct and fully articulated relatively to $\langle L, A, \gg$.

So, there is a *first* sense in which the immediate argumental role of a sentence S in $\langle L, A, \gg$ does not constitute the whole use of S in arguments which are correct relatively to $\langle L, A, \gg$. As we have seen in chapter 3, only the *argumentation rules* in A which concern S are involved in its immediate argumental role, and, strictly speaking, only *immediate* argumentation steps are applications of argumentation rules. When S is used in a correct *non-immediate* argumentation step

⁶ See also section 3 of chapter 6.

– which is part of a correct argument that *is not* fully articulated – the speaker is not simply applying argumentation rules belonging to the immediate argumental role of S.

However, this is not a very *deep* sense in which the whole use of S in arguments might be said to transcend its immediate argumental role. To see why, consider the situation in which a non-immediate argumentation step involving S can be transformed into an argument consisting only of applications of argumentation rules which all concern S, and thus belong to the language fragment presupposed by the immediate argumental role of S. In this situation the non-immediate argumentation step in question is after all justifiable on the basis of the immediate argumental role of S. There are many non-immediate argumentation steps involving S with these characteristics. But let us suppose that the linguistic community regarded as correct *every* argumentation step in which S and other sentences belonging to the language fragment presupposed by S are involved *only if* such an argumentation step is either immediate and an application of an argumentation rule concerning S or a non-immediate argumentation step which can be justified on the basis of the immediate argumental role of S in the way described above (by a chain of applications of rules concerning S). If that were the case, then one could rightly say, in a *second* more interesting sense, that the immediate argumental role of S *does* constitute the whole use of S in arguments.

Therefore, the interesting question is whether this is in general the case, that is whether in all languages $\langle L, A, \geq \rangle$ all argumentation steps which are correct relatively to $\langle L, A, \geq \rangle$ and involve sentences which all belong to the fragment presupposed by S can be justified by arguments that contain only applications of argumentation rules concerning S, i.e. by arguments in the language fragment $\langle L^S, A^S, \geq^S \rangle$ presupposed by S. In other words, the question is whether in general the language fragment $\langle L^S, A^S, \geq^S \rangle$ is *completely autonomous and independent of the rest of the language*.

Before answering this question, I shall introduce some useful notions in terms of which it can be reformulated. The whole use of a sentence in arguments in a language $\langle L, A, \geq \rangle$ can be taken to correspond to what I shall call its *global argumental role* in $\langle L, A, \geq \rangle$. A sentence may be used in argumentation in two ways. It may be *asserted* (possibly on the basis of some assumptions, or some non-

linguistic evidence, or both) and it may be used (possibly together with other sentences or with some non-linguistic evidence) as a reason for *inferring* a certain conclusion. The argumentation rules of a language $\langle L, A, \geq \rangle$ allow immediate and non-immediate argumentation steps of both kinds. Thus, the argumentation rules in A fix *assertability* conditions and *inferrability* conditions for any sentence in $\langle L, A, \geq \rangle$. The *global argumental role* of a sentence S in $\langle L, A, \geq \rangle$ is constituted by all the assertability and all the inferrability conditions of S in $\langle L, A, \geq \rangle$.

The assertability and inferrability conditions of a sentence in $\langle L, A, \geq \rangle$ can be considered in a "subjective" sense – i.e. with respect to a speaker in a given circumstance of utterance – or, in a more "objective" way, only with respect to the language $\langle L, A, \geq \rangle$. Here we are interested in the latter more objective notion.⁷

xxix A sentence S is *assertable* in $\langle L, A, \geq \rangle$ on the basis of non-linguistic evidence NL and of assumptions H^1, \dots, H^n (in symbols: $NL, H^1, \dots, H^n \Rightarrow_A S$) if, and only if, there is an argument D for S from assumptions H^1, \dots, H^n and from the non-linguistic evidence NL , which is correct and fully articulated relatively to $\langle L, A, \geq \rangle$.

A speaker in a certain circumstance *correctly asserts a sentence* S *relatively to* $\langle L, A, \geq \rangle$, on non-linguistic evidence NL and on assumptions H^1, \dots, H^n , if, and only if, he/she in that circumstance, at the time of utterance, *gives or is immediately capable of giving* an argument for S from that non-linguistic evidence and from those assumptions, which is correct relatively to $\langle L, A, \geq \rangle$. But S can be *assertable* in $\langle L, A, \geq \rangle$ even if no speaker asserts S correctly. In order that S be *assertable* in $\langle L, A, \geq \rangle$ on the basis of the non-linguistic evidence NL and of the assumptions H^1, \dots, H^n , it is necessary and sufficient that *there exist* a correct argument for S from NL and $H^1, \dots,$

⁷ The notion of 'assertability conditions' here introduced is clearly different from the notion of 'assertability conditions' which is considered by Dummett and Prawitz in their verificationist theory of meaning: cf. for example Prawitz (1987) where assertability conditions are not relative to a fixed set of argumentation rules and, on the other hand, are related to a particular circumstance of utterance (hence they are assertability conditions in the above-mentioned "subjective" sense).

H^n such that if one were to find it and to exhibit it, one would assert S correctly in $\langle L, A, \geq \rangle$. In using this notion of existence of an argument we abstract from the linguistic acts of particular speakers and consider only what is allowed by the argumentation rules of $\langle L, A, \geq \rangle$.

The corresponding notion of inferrability with respect to $\langle L, A, \geq \rangle$ is defined in terms of the notion of assertability in an obvious way.

xxx A sentence E is *inferrable in* $\langle L, A, \geq \rangle$ from S together with H^1, \dots, H^n and with the non-linguistic evidence NL if, and only if, $NL, H^1, \dots, H^n, S \Rightarrow_A E$

Hence, one can define the notions of *global* assertability and inferrability conditions in $\langle L, A, \geq \rangle$.

xxxi A *global assertability condition* of a sentence S in $\langle L, A, \geq \rangle$ is an ordered pair $\langle NL, \{H^1, \dots, H^n\} \rangle$ such that $NL, H^1, \dots, H^n \Rightarrow_A S$.

xxxii A *global inferrability condition* of S in $\langle L, A, \geq \rangle$ is an ordered triple $\langle NL, \{H^1, \dots, H^n\}, E \rangle$ such that $NL, H^1, \dots, H^n, S \Rightarrow_A E$.

A consequence of definition **xxxi** is that among the global assertability conditions of S can be also the "empty pair" $\langle \emptyset, \emptyset \rangle$ which contains the empty set in both the first and the second position. The empty pair is a global assertability condition of S , if, and only if, S can be asserted categorically, i.e. if S is an axiom or can be proved independently of assumptions and of non-linguistic evidence. In such a case we may say that S is a *a priori assertable relatively to* $\langle L, A, \geq \rangle$ (I shall deal with this notion in chapter 7). On the other hand, according to **xxxii**, if the empty pair is a global assertability condition of a sentence E , then the triple $\langle NL, K, E \rangle$ is a global inferrability condition of every sentence S for any set NL of pieces of non-linguistic evidence and for any set K of assumptions: in short, if E can be asserted categorically, then E can always be correctly inferred from whatever sentence.

Finally, the global argumental role of a sentence S in $\langle L, A, \geq \rangle$ is defined as follows.

xxiii The *global argumental role* of a sentence S in $\langle L, A, \geq \rangle$ is the pair $\langle AC(S)^A, IC(S)^A \rangle$ where $AC(S)^A$ is the set of *all* global assertability conditions of S in $\langle L, A, \geq \rangle$, and $IC(S)^A$ is the set of *all* global inferrability conditions of S in $\langle L, A, \geq \rangle$.

Our question is: can the *global argumental role* of S go beyond its *immediate argumental role*? The answer is: yes, it can. To see why, we have to compare the global argumental role of S in $\langle L, A, \geq \rangle$ with the global argumental role of S in the sublanguage $\langle L^S, AS, \geq^S \rangle$ presupposed by S , since the latter determines – and is determined by – the immediate argumental role of S . I shall show that, for some S , there are argumentation steps which involve only sentences in $\langle L^S, AS, \geq^S \rangle$ but can be justified only by resorting to the rest of $\langle L, A, \geq \rangle$. In this sense, the outcome will be that $\langle L^S, AS, \geq^S \rangle$ is not completely independent of the rest of $\langle L, A, \geq \rangle$.

2. The global argumental role of a sentence can transcend its immediate argumental role.

A language $\langle L, A, \geq \rangle$ which contains a sentence S and the language fragment $\langle L^S, AS, \geq^S \rangle$ presupposed by S are identical only in very exceptional cases.⁸ If we set aside such exceptional cases, the global argumental role of S in $\langle L, A, \geq \rangle$ always differs from the global argumental role of S in $\langle L^S, AS, \geq^S \rangle$: the global assertability and inferrability conditions of S in $\langle L, A, \geq \rangle$ respectively differ from the global assertability and inferrability conditions of S in $\langle L^S, AS, \geq^S \rangle$. The obvious reason is that L contains words which are not contained in L^S and thus some sentences that can be built in L cannot be built in L^S . Hence $AC(S)^A$, the set of the global assertability conditions of S in $\langle L, A, \geq \rangle$, contains some pairs $\langle NL, \{H^1, \dots, H^n\} \rangle$ in which some of the assumptions H^1, \dots, H^n are not sentences of L^S . Such pairs $\langle NL, \{H^1, \dots, H^n\} \rangle$ do not belong to the set $AC(S)^{AS}$ of the global assertability conditions of S in $\langle L^S, AS, \geq^S \rangle$. Similarly, the set $IC(S)^{AS}$

⁸ Cf. chapter 3, section 21 and chapter 1, section 4.

of the global inferrability conditions of S in $\langle L^S, A^S, \geq^S \rangle$ is a proper subset of the set $IC(S)^A$ of the global inferrability conditions of S in $\langle L, A, \geq \rangle$. Nevertheless, these obvious differences between the global argumental roles $\langle AC(S)^A, IC(S)^A \rangle$ and $\langle AC(S)^{A^S}, IC(S)^{A^S} \rangle$ depend only on the fact that L contains more words than L^S . Since L contains more words than L^S , there must be additional argumentation rules concerning the additional words. So, A contains argumentation rules which are not contained in A^S . But if the additional rules have no consequence upon the possible argumentation steps which involve *only sentences of the proper sublanguage* $\langle L^S, A^S, \geq^S \rangle$, then $\langle L, A, \geq \rangle$ is a *conservative extension* of $\langle L^S, A^S, \geq^S \rangle$, and the sole reason why the global argumental role of S in $\langle L, A, \geq \rangle$ outruns the global argumental role of S in $\langle L^S, A^S, \geq^S \rangle$ is the fact that L contains more words than L^S . In such a case, the gap between the *immediate* argumental role of S in $\langle L, A, \geq \rangle$ (which is determined by $\langle L^S, A^S, \geq^S \rangle$) and the *global* argumental role of S in $\langle L, A, \geq \rangle$ (which is determined by the whole language $\langle L, A, \geq \rangle$), is not very significant.

But there is a *much stronger sense* in which the global argumental role of S in $\langle L, A, \geq \rangle$ can outrun the immediate argumental role of S. Such a wider gap between the immediate argumental role of S in $\langle L, A, \geq \rangle$ and its global argumental role in $\langle L, A, \geq \rangle$ can occur if some argumentation rules in A which *do not concern* S, and thus don't belong to A^S , allow *new* possible argumentation steps which involve only sentences of the fragment $\langle L^S, A^S, \geq^S \rangle$; in other words the wider gap takes place if $\langle L, A, \geq \rangle$ is *not a conservative extension* of $\langle L^S, A^S, \geq^S \rangle$.

If in a language $\langle L, A, \geq \rangle$ the argumentation rules in A which don't concern a sentence S (i.e. are not in A^S) determine global assertability or inferrability conditions of S which involve only sentences in the language L^S presupposed by S, but these assertability or inferrability conditions *would not hold* if only the rules in A^S were available, we can say that $\langle L, A, \geq \rangle$ is not a conservative extension of $\langle L^S, A^S, \geq^S \rangle$ and the global argumental role of S in $\langle L, A, \geq \rangle$ transcends the immediate argumental role of S. More precisely:

xxxiv *The global argumental role of S in $\langle L, A, \geq \rangle$ transcends the immediate argumental role of S in $\langle L, A, \geq \rangle$ if, and only if, there is a (possibly empty) sequence H^1, \dots, H^n, E ($n \geq 0$) of sentences belonging to L^S and (possibly) a non-linguistic evidence NL such that *either**

- 1) $NL, H^1, \dots, H^n \Rightarrow_A S$ and not $NL, H^1, \dots, H^n \Rightarrow_{A^S} S$, or
- 2) $NL, H^1, \dots, H^n, S \Rightarrow_A E$ and not $NL, H^1, \dots, H^n, S \Rightarrow_{A^S} E$.

It is very easy to describe a language in which the global argumental role of a sentence transcends its immediate argumental role, as it is shown by the next example.

EXAMPLE: Let L be a language for propositional calculus with implication " \rightarrow " and negation " \neg " as logical constants. Let the rules in A be the following:

(\neg E): from " $\neg\neg B$ " we may infer B;

(\neg I): from an argument D_1 for " $\neg B$ " depending on an assumption H and an argument D_2 for B depending on the same assumption H, we may infer " $\neg H$ " and discharge the assumption H;

(\rightarrow E): from A and " $A \rightarrow B$ " we may infer B;

(\rightarrow I): from an argument D for B depending on an assumption A, we may infer " $A \rightarrow B$ " and discharge the assumption A.

Since no argumentation rule immediately-touches more than one word, presupposition holds only reflexively for " \rightarrow " and " \neg ", that is: " $\rightarrow \geq \rightarrow$ " and " $\neg \geq \neg$ ", but " \neg " does not presuppose " \rightarrow ", nor does " \rightarrow " presuppose " \neg ".⁹ The sentence " $((p \rightarrow q) \rightarrow p) \rightarrow p$ ", called Peirce's law (abbreviated: **P**), is categorically provable in $\langle L, A, \geq \rangle$, which is a system for classical propositional logic. Therefore the empty pair $\langle \emptyset, \emptyset \rangle$ is a global assertability condition of **P** in $\langle L, A, \geq \rangle$. But **P** is not categorically provable in the fragment of language $\langle L^P, A^P, \geq^P \rangle$ presupposed by its immediate argumental role, which is the implicational fragment of $\langle L, A, \geq \rangle$, containing only the rules (\rightarrow I) and (\rightarrow E). To see why, observe that Peirce's law is classically but not intuitionistically valid. If Peirce's law were provable in $\langle L^P, A^P, \geq^P \rangle$, then it would be intuitionistically valid; but we know that it isn't. Thus, the empty pair $\langle \emptyset, \emptyset \rangle$ is *not* a global assertability condition of Peirce's law in $\langle L^P, A^P, \geq^P \rangle$: we have proved in the metalanguage that

⁹ Cf. chapter 3, section 10, principle xi.

" $\Rightarrow_{\mathbf{A}}\mathbf{P}$ " holds but " $\Rightarrow_{\mathbf{A}\mathbf{p}}\mathbf{P}$ " does not hold. Hence the global argumental role of Peirce's law in $\langle L, A, \geq \rangle$ transcends its immediate argumental role.

By the latter example we have established that there are languages (even very simple languages) in which the global argumental role of a sentence transcends its immediate argumental role.

That the global argumental role of a sentence S in $\langle L, A, \geq \rangle$ can transcend the immediate argumental role of S means that the linguistic knowledge which constitutes an understanding of S does not necessarily determine all the ways in which S can be correctly asserted in $\langle L, A, \geq \rangle$ nor does it determine all the ways in which S may be used for drawing consequences: there can be new ways to assert S correctly in $\langle L, A, \geq \rangle$ and to draw consequences from S, new ways which we did not even potentially grasp when we began to master the fragment of language presupposed by S. Therefore, if we enrich the language $\langle L, A, \geq \rangle$ with new words and new argumentation rules, new ways to assert our old S and to draw consequences from it can come to light.

The latter observations show that, despite its compositionality, the argumental conception of meaning tends to epistemological holism.

3. Epistemological holism.

As we saw in chapter 1 (section 4), *linguistic* holism is the thesis that sentences cannot be understood unless the whole language is understood, and thus the understanding of a single sentence depends on the understanding of the whole language. *Epistemological* holism is the doctrine that the epistemic criteria for a sentence (criteria of verification, confirmation, falsification, infirmation etc.) depend on a whole set of accepted theories, or, more radically, on the whole science, or, even more radically, on all our beliefs.

Today very few philosophers would deny epistemological holism for scientific sentences. After Duhem's *La Theorie Physique* (1906) it has now become a common view that a scientific hypothesis cannot be tested in isolation, because in order to draw an observational consequence one needs other hypotheses belonging to the same theory, and sometimes also to other theories, or simply to "common

sense", and because in order to perform and to interpret an experiment one needs other theories concerning the experimental apparatus. Duhem wrote:

The prediction of the phenomenon, whose non-production is to cut off debate, does not derive from the proposition challenged if taken by itself, but from the proposition at issue joined to that whole group of theories; if the predicted phenomenon is not produced, not only is the proposition questioned at fault, but so is the whole theoretical scaffolding used by the physicist. The only thing the experiment teaches us is that among the propositions used to predict the phenomenon and to establish whether it would be produced, there is at least one error; but where this error lies is just what it does not tell us.

The holistic conception of a scientific theory has been developed by Quine into a general conception of language. In "Two Dogmas of Empiricism" (1951) Quine defended epistemological holism in criticizing "the dogma of reductionism". Reductionism maintains that to each (synthetic) statement taken in isolation from other statements, there are associated "a unique range of possible sensory events such that the occurrence of them would add to the likelihood of truth of the statement" and another "unique range of possible sensory events whose occurrence would detract from that likelihood". Quine's counterclaim, in full agreement with Duhem¹⁰, is that: "our statements about the external world face the tribunal of sense experience not individually but only as a corporate body".¹¹

Two remarks are important in this context. In the quoted passages Duhem and Quine are concerned with the relation between evidence and sentences which can be supported or undermined by that evidence. The *first* remark is that, of the many different kinds of evidence, Duhem and Quine consider only *sensory experience* (Quine says "impacts at our nerve endings"¹²). They both highlight the fact that in order to test a single theoretical sentence by deriving from it

¹⁰ Quine writes that "this doctrine was well argued by Duhem" Quine (1953) p. 41, footnote 17.

¹¹ Quine (1953) p. 41.

¹² Quine (1960) p. 2; similar formulations occur also in Quine's most recent works, cf. Quine (1990) p. 1.

empirical consequences which can be confronted with sense experience we need to employ a whole system of other sentences (even if, when we are testing that single sentence, we usually choose to treat the rest of the system, for the time being, as firm).

The *second* remark is that, though we cannot set fixed and precise limits to the system of auxiliary sentences which we in particular circumstances may have to employ in order to test a sentence, such a system of sentences is in practice never the *complete totality* of science. Quine clarifies this point in "Five Milestones of Empiricism" (1981):

[...] how inclusive should we take this system to be? Should it be the whole of science? or the whole of *a* science, a branch of science? This should be seen as a matter of degree, and of diminishing returns. All sciences interlock to some extent; they share a common logic and generally some common part of mathematics, even when nothing else. It is an uninteresting legalism, however, to think of our scientific system of the world as involved *en bloc* in every prediction. More modest chunks suffice [...].¹³

In the same paper Quine calls "*moderate holism*" the doctrine proposed in this passage, according to which, usually, in our testing a sentence is involved not the totality of science, but "more modest chunks".

As to the first remark, it seems to me that to take only sensory evidence into account is somewhat in conflict with the model of language which Quine himself first outlined in "Two Dogmas of Empiricism". In that famous essay Quine gave a picture of language which makes clear that not only sense experience can be counted as favourable or unfavourable evidence for a sentence.¹⁴ Quine describes language as an articulated structure, "a man-made fabric which impinges on experience only along the edges" or "a field of force

¹³ "Five Milestones of Empiricism" now in Quine (1981b) p. 71. This essay was part of a wider paper entitled "The pragmatist's place in empiricism" presented at a Symposium at the University of South Carolina in 1975.

¹⁴ Cf. Dummett (1976) p. 111: "The great contribution of that essay was that it offered an essentially verificationist account of language without committing the logical positivist error of supposing that the verification of every sentence could be represented as the mere occurrence of a sequence of sense experiences".

whose boundary conditions are experience".¹⁵ Only the sentences lying at the periphery of this structure are directly connected with sense experience. (We may say that their immediate argumental role involves argumentation rules according to which sense experience is non-linguistic evidence for those sentences). Other sentences lie at different levels within the interior of the structure and are not directly connected with sense experience. They are directly linked only *with other sentences* by deductive or non-deductive inferential links. (From the point of view of the argumental conception, we may say that the *links* connecting the sentences in the interior with other sentences which are their neighbours in the structure are *argumentation rules* constituting the immediate argumental role of the sentences in the interior, and that the other sentences with which the former are linked are the linguistic evidence or the conclusions admitted by such argumentation rules).

According to Quine's model of language, through the links which connect sentences in the structure the impact of sense experience is transmitted from the periphery inwards into the interior: "a conflict with experience at the periphery occasions readjustments in the interior of the field".¹⁶ But the connection of a non-peripheral sentence with sense experience is *indirect* because it depends on many other sentences. Peripheral (i.e. observational) sentences, on the contrary, are *directly* connected with sense experience. So, if we consider *only sense experience* as relevant evidence, we are clearly led to the conclusion that observational sentences are the only sentences which are *directly* connected with some evidence independently of other sentences. Thus Quine, taking only sensory evidence into account, seems to maintain that a sentence in isolation from the whole system of other sentences accepted as true cannot be directly connected with *any* evidence or counterevidence.¹⁷

¹⁵ Quine (1953) p. 42.

¹⁶ *Ibidem*.

¹⁷ Cf. Quine (1953) p. 41: "The dogma of reductionism survives in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all: My countersuggestion [...] is that our statements about the external world face the tribunal of sense experience not individually but only as a corporate body".

But if also *linguistic* evidence is considered, then it is clear that also non-peripheral sentences are *directly* connected with *some* evidence, though this evidence is not sense experience. A competent speaker does not know all the possible (sometimes very long and complicated) chains of inferences that can remotely connect a sentence S with other sentences which can count as evidence for S or as consequences of S. However, it is clear that the competent speaker must know at least those *immediate inferential links* which connect S with its neighbours in the structure (otherwise the impact of experience could never be transmitted inwards). Therefore there must be some *linguistic* evidence which is *directly* connected with individual non-peripheral sentences. Duhem and Quine neglect this fact because they neglect linguistic evidence.

By this resort to a wider conception of evidence, which takes also linguistic evidence into account, I do not intend to argue against epistemological holism. Indeed, even if there is always a direct connection with *some* non-linguistic or linguistic evidence a grasp of which is part of a competent speaker's understanding of both peripheral and non-peripheral sentences, *the crucial holistic point* is that the linguistic evidence which is directly connected with non-peripheral sentences and the non-linguistic evidence which is directly connected with peripheral sentences, in both cases, are *not all* the relevant evidence. In both cases the favourable or unfavourable evidence which is directly connected with those sentences is *not all* that can be counted as evidence or counterevidence for them. There is other relevant evidence or counterevidence which counts as such not only in virtue of the speaker's understanding of the sentence, but also because of his/her acceptance of a wider system of other sentences and thus on the basis of his/her knowledge of other parts of the language. To take one of Quine's examples¹⁸, evidence for the observational sentence "That is green" is not only our seeing that something is green, but it can also be our accepting the sentence "That is copper oxide" together with the chemical theory from which the sentence "Copper oxide is green" can be derived. Obviously, a knowledge of such a theory goes far beyond our understanding of the sentence "That is green".

¹⁸ Cf. Quine (1960) pp. 11-12.

Epistemological holism is thus best formulated as the thesis that for both observational and non-observational sentences there can be also relevant (linguistic and non-linguistic) evidence or counterevidence which is recognized as such only indirectly, i.e. only through an acceptance of systems of other sentences to the comprehensiveness of which no limit can be set in advance. As Putnam wrote:

A model of the fixation of belief – of inductive inference, or of abductive inference (theory construction) – is “holistic” if it allows that beliefs on any topic *may* become relevant to the fixation of beliefs on any other topic.¹⁹

Putnam's formulation of holism with respect to belief fixation is more enlightening than Duhem's and Quine's above mentioned passages, because Putnam does not limit himself to sensory or perceptive evidence, but brings into focus that any belief may become evidentially relevant to any other belief. In terms of sentences we can correspondingly say: one can never rule out that a sentence may become evidentially relevant to another sentence.

From the point of view of the conception of language centred on immediate argumental role, we may look at epistemological holism in the following way. Since our notion of ‘evidence’ includes both linguistic and non-linguistic evidence, it is always wrong to say that an individual sentence admits of no direct connection with any evidence. The immediate argumental role of a sentence connects the sentence with some favourable evidence, and with some conclusions. Thus a competent speaker, by knowing the immediate argumental role of a sentence S, knows that something can count as evidence for S.²⁰ An understanding of S, which involves a knowledge of the language fragment presupposed by S, is *sufficient* to know that *some* evidence is relevant for S and that *some* consequences can be drawn from S, but, as the preceding sections of this chapter indicate, the immediate argumental role of S determines neither *all* that can count as evidence for S (the global assertability conditions of S) nor *all* that

¹⁹ Putnam (1987) p. 251.

²⁰ Correspondingly, by understanding the negation of S, the competent speaker knows that something counts as counterevidence for S.

can be derived from S as a consequence (the global inferrability conditions of S). The global assertability conditions of S and the global inferrability conditions of S (which together constitute the global argumental role of S) do not depend only on S, on its component words, and on the fragment of language which they presuppose, but also on other parts of the language and on other sentences accepted as true. *Epistemological holism amounts to the fact that, in general, the global argumental role of a sentence S transcends the immediate argumental role of S.*

A consequence of epistemological holism is that if a language is enriched with new words and new argumentation rules concerning those words one can acquire new ways for verifying sentences belonging to the old language (sometimes unverifiable in the old language) and for drawing consequences from them (which sometimes it was impossible to draw in the old language). The many impressive examples of the holistic character of knowledge seem to show that we cannot set any limit *in advance* to what in future can be used to verify a given sentence or to infer other sentences from it. "Who would have said, a few years ago, that we could ever know of what substances stars are made whose light may have been longer in reaching us than the human race has existed?" wrote Peirce in 1878.²¹ He was referring to the new method discovered in his times of determining whether a substance is present in a star by means of an analysis of the spectrum of the star. To day we could add very many other surprising examples.

One of the lessons which Gödel's first incompleteness theorem taught us is that a similar phenomenon occurs also in mathematics.²² Gödel showed that by adding new concepts and new argumentation principles to any formal system expressing at least an elementary fragment of first order arithmetic one can prove sentences belonging to the language of first order arithmetic that are not provable in the system in question. An interesting example of this kind belonging to mathematical practice is Goodstein theorem. Goodstein theorem is an arithmetical sentence that, as Kirby and Paris have shown in 1981, is provable only by means of non-arithmetical principles.²³

²¹ Peirce (1931-35), 5.409.

²² Cf. Cellucci (1987).

²³ Kirby and Paris (1982).

The holistic character of verification is not limited to scientific or mathematical language, but applies also to the language of daily life. If you have learnt what the word "rockabilly" means, you will be able to infer that a youth most likely wears a certain kind of shoes from the fact that his hair are cut in a certain fashion. But if you haven't acquired the notion of 'rockabilly', you will not know that rockabillies are young people with a very peculiar haircut, wearing typical jackets and typical shoes, and therefore you will not perform the inference.

In "Two Dogmas of Empiricism" Quine used epistemological holism to refute the logical empiricists' verificationist theory of meaning. According to such a theory the meaning of an individual sentence is given by the conditions for the verification and the falsification of the sentence, and both verification and falsification consist merely in the occurrence of certain sensations. Therefore this kind of verificationist theory of meaning involves the tenet that every individual sentence has its own range of verifying and falsifying (or confirming and infirming) experiences, which amounts to the dogma of reductionism attacked in Quine's essay.

Dummett's and Prawitz's neoverificationist conception (which was shortly described in chapter 2, section 2) is very different. Dummett and Prawitz accept Quine's model of language as an articulated structure which impinges on experience only along the edges.²⁴ According to the neoverificationist view, a direct verification consists in the occurrence of certain sense experiences only for a restricted class of sentences which are extreme cases (Quine's peripheral sentences), whereas for other sentences a verification must involve some (conclusive or non-conclusive) inferential procedure. In general, verification is a mixture of sense experiences and of inferences from other sentences. Observational sentences which are verified by mere sense experience are one extreme case. The other opposite extreme case are mathematical and logical sentences, the verification of which is a purely inferential procedure, i.e. a proof. For such sentences, then, meaning is given by proof-conditions, as the intuitionists maintained.²⁵

²⁴ Cf. Dummett (1976) p. 111; Prawitz (1987) p. 135 and p. 140, about the sentence "it is raining".

²⁵ Cf. Heyting (1934) and (1956).

Despite this crucial difference between the neoverificationist conception of meaning advocated by Dummett and Prawitz and the verificationism of logical empiricists, epistemological holism is a problem also for neoverificationism. As we have seen in chapter 2, the neoverificationist conception conforms to Dummett's requirements on theories of meaning. Hence the neoverificationist rejects linguistic holism and denies that in order to understand a sentence it is necessary to understand the whole language. The neoverificationist is convinced that, in order to give a real explanation of how it is possible to understand a language, a theory of meaning must be *compositional*, i.e. it must explain what it is to know the sense of a sentence in terms of what it is to understand its components and a fragment of language of lower, sometimes of equal complexity (in order to allow that the senses of some expressions can be understood simultaneously), but never of higher complexity.

But if the theory of meaning equates the sense of a sentence with its verification conditions there is a danger that epistemological holism can lead to linguistic holism (this is a danger because if linguistic holism is right, a compositional theory and, thus, a real explanation of linguistic understanding are impossible). The verificationist theory of meaning must dispel this danger. Dummett and Prawitz try to avoid the danger by distinguishing between *direct* and *indirect* verifications. According to this distinction the viability of a verificationist theory of meaning depends on the fulfilment of two requirements: *a*) it must be possible to state, for each kind of sentence of the language, conditions of direct verification which are *compositional*, i.e. specified in terms of the verification of sentences of lower or equal complexity; *b*) every sound indirect verification (that is: not direct, not compositionally describable) must be in principle *reducible* to a direct one. Even if *the conditions* in virtue of which something can be a direct verification of a sentence must be statable only in terms of a fragment of language of lower or equal complexity, the possibility remains that a particular direct verification which satisfies those general conditions can employ also parts of the language of higher complexity.²⁶ Nevertheless, the two requirements

²⁶ Prawitz emphasizes this point when he considers the notion of direct verification (i.e. canonical proof) for sentences of the form $A \rightarrow B$ or $\forall xAx$. For example: a canonical proof of $A \rightarrow B$ is a proof of B from the hypothesis A , which

on which the viability of a verificationist theory of meaning depends, especially the requirement of reducibility of indirect verifications to direct ones, set a limit on what can count as a verification of a sentence and thus are somehow in conflict with epistemological holism.

A simple logical example of this conflict regards the verificationist critique of classical logic: if S is not in principle decidable, an indirect argument for the law of excluded middle " $(S \vee \neg S)$ " in classical logic cannot be reduced to a direct proof terminating with an application of the introduction rule for disjunction, and therefore cannot count as a real proof. Therefore the verificationist maintains that classical logic ought to be abandoned.

But the problem is much more general. Many new methods of verification for old sentences result from new scientific and technological developments: new diagnostic procedures, new tests for recognizing chemical substances, new media of communication. By television, I can come to know that now Helmut Kohl in Berlin and John Major in London are wearing the same kind of striped tie. In order to verify this *directly*, it would be necessary to see at the same time Kohl in Bonn and Major in London. Is there a guarantee that this is in principle possible? Another (unpleasant) example: we can imagine that on the basis of a neurologic theory one can establish that a serious neurologic disease, which causes a complete paralysis, causes also pain in the back of a person, Phil, affected by that disease (by means of a special test one can also establish that the corresponding nerves are in the condition characteristic of pain according to the theory). In such a case, in order to verify *directly* the sentence "Phil feels pain in the back", one would have to observe Phil's (verbal or non-verbal) pain-behaviour, but Phil is paralyzed (and

is a method for obtaining a canonical proof of B from a proof of A (which in turn is a method for finding a canonical proof of A). This *specification of the condition* fixing what counts as a canonical proof of $A \rightarrow B$ employs only the notions of a canonical proof of A and of a canonical proof of B . Thus it is compositional. But Prawitz puts "no restrictions on the sentences or formulas that can occur" in a *particular canonical proof*. On the contrary, he underlines that some sentences occurring in a hypothetical proof of B from A may be of higher logical complexity than A and B , and may use "new mathematical concepts and principles of reasoning" or "notions so far unheard of". Cf. Prawitz (1987) pp. 159-161.

thus incapable of communicating), and pain and paralysis are interdependent. Would a direct verification be in principle possible? Historical sentences are also a problem: a sentence about the Sumerian civilization, "The king of Erech Lugalbanda conquered the city of Aratta in Iran", can be verified by means of an interpretation of written records which involves many theories not only about the Sumerian language (and alphabet), but also about other languages (e.g. Assyrian), other civilizations, and thus, perhaps, also theories about geographical and climatic circumstances at that time, and so on. The only way to verify the sentence *directly* would be to travel back in time. Is it in principle possible?

Hence, it seems that the idea of a verificationist theory of meaning advocated by Dummett and Prawitz is not fully compatible with epistemological holism, as far as epistemological holism implies that we cannot in advance set any limit to what can count as a verification of a given sentence. On the contrary, a theory of meaning centred on immediate argumental role is a compositional theory (as we have seen in chapter 3 section 21) but it is fully compatible with epistemological holism, because it does not require that the global argumental role of a sentence should be reducible to its immediate argumental role and to the language fragment which the immediate argumental role presupposes (as we have seen in the present chapter section 2). The conception of understanding which I am here presenting is compatible with epistemological holism *because* it does not place any a priori restriction on the argumentation rules that can constitute a speaker's understanding of the words concerned, and that can belong to A in a language $\langle L, A \rangle$. The theory of understanding centred on immediate argumental role is tolerant: no bounds are set in advance on the ways in which one can verify a sentence or draw consequences from it.

CHAPTER 5

Correctness of a language

1. Meaningful paradoxical languages.

At the end of the preceding chapter tolerance about the form of the argumentation rules which may constitute the sense of a word, one of the main characteristics of the argumental conception of meaning, was contrasted with the restrictive attitude of the verificationist conception of meaning. Tolerance was regarded as an advantage of the argumental conception, because it made such a conception fully compatible with epistemological holism: no bounds are set in advance on the ways in which one can verify a sentence. A supporter of the verificationist theory of meaning, however, has an immediate objection to this seemingly unrestricted openness with respect to what can count as a verification of a sentence on the part of the argumental conception. If we don't put any limit, in what sense can we say that a new verification which is put forward is correct? Is a linguistic community free to adopt argumentation rules, and thereby standards of correct verification, arbitrarily? But the issue is not whether *there are* limits. The issue is whether the limits can be fixed *in advance* and whether they can be fixed by a theory *of meaning*.

Anyway, the verificationist's worries may seem right if one considers that the argumental conception admits the possibility of *meaningful paradoxical languages*. We may say that a *language (or fragment of language)* is *paradoxical* if, and only if, whenever a sentence is assertable in that (fragment of) language, also every other sentence is assertable. In a paradoxical language one cannot distinguish different circumstances in virtue of the assertability of different sentences: if something can be said, then everything can be said. This is of course a very bad defect because we need a language in order to impose an intersubjective order upon our experience and a minimal requirement for this aim to be achieved is that one can distinguish different circumstances through the legitimacy of different linguistic moves.

Now, it is not difficult to see that if there are no restrictions on the argumentation rules by means of which new words are introduced into a language, we can introduce new words by associating with them argumentation rules through which not only some new sentence becomes assertable in the resulting language, but *everything* becomes assertable, because the resulting language is paradoxical. A very clear and simple example of this general fact is Arthur Prior's connective "**tonk**". In "The runabout inference-ticket"¹, published in 1960, Prior described "**tonk**" as a connective introduced into a language by giving the following introduction and elimination rules:

$$\begin{array}{l} \text{tonk-I} \quad \frac{C}{C \text{ tonk } D} \qquad \text{tonk-E} \quad \frac{C \text{ tonk } D}{D} \end{array}$$

If "**tonk**" belongs to a language $\langle L, A, \geq \rangle$, then every sentence D is assertable in $\langle L, A, \geq \rangle$ on the basis of any assumption C . To see how this is possible, it is sufficient to put an application of **tonk**-introduction on top of an application of **tonk**-elimination.

$$\frac{\frac{C}{C \text{ tonk } D}}{D}$$

Thus, if there is some C assertable in $\langle L, A, \geq \rangle$, we may assert every sentence D in $\langle L, A, \geq \rangle$ by means of the argument above.

Prior's intention in describing "**tonk**" was to show that one cannot give meaning to a sentential connective by fixing some inference rules concerning it. His view was that "an expression must have some independently determined meaning before we can discover whether inferences involving it are valid or invalid".² "**tonk**" is simply meaningless and the **tonk**-introduction and **tonk**-elimination rules cannot give it a meaning that it does not already have. Paradoxicality

¹ Prior (1960).

² Prior (1960) p.38.

arises, according to Prior, only if we wrongly think that meaning can be given by inference rules.³

Nuel Belnap, more in sympathy with the idea that meaning can be given by fixing inference rules, preferred to conclude that one should demand in advance that the rules fulfil certain requirements (especially the requirement that the language obtained by adding a new expression and rules concerning that new expression should be a conservative extension of the old language).⁴ Also Dummett's and Prawitz's demand that every indirect verification should be in principle reducible to a direct verification corresponds to a general restriction on the acceptability of inference rules for a logical constant: the requirement that there should be *aharmony* between the introduction rules fixing the meaning of the logical constant and the elimination rules that are valid in virtue of that meaning.⁵ So, a verificationist theory of meaning for a given language, as described by Dummett and Prawitz, would provide not only an articulated picture of an understanding of that language, but also *a guarantee that the language is not paradoxical*.

Despite the differences, the common trait of Prior's, Belnap's, Dummett's and Prawitz's attitude is that a paradoxical set of rules cannot give meaning to an expression. The common assumption is that a paradoxical (fragment of) language cannot be meaningful, and if a theory of meaning implies that there can be meaningful paradoxical languages, then such a theory is wrong.

My claim will be that, on the contrary, this common assumption is wrong. More exactly, I claim that if we agree that a theory of meaning a) has to be a theory of understanding, b) has to be adequate to explain linguistic practice, and c) has to satisfy the requirement of manifestability, then our conception of meaning *must* admit the possibility of meaningful languages that are paradoxical. The admissibility of meaningful paradoxical languages is *a condition of*

³ From Stevenson (1961) to Johnson-Laird (1983), pp.41-42, many commentators agree with Prior's view that "**tonk**" shows that meaning cannot be given by rules of inference.

⁴ Cf. Belnap (1962).

⁵ Cf. Prawitz (1977) and Prawitz (1987) on the distinction between the requirement of harmony and Belnap's requirement of conservativeness (which Prawitz does not demand). However, Dummett seems to equate the two requirements; cf. Dummett (1991) p.209 and pp.246-251.

adequacy for a conception of meaning in this sense. Obviously, such a claim is not meant as a denial that paradoxical languages are *incorrect* languages, and that they should be emended. I already stressed that paradoxical languages are deeply defective. The issue is not whether they are defective, but whether they are meaningful, that is to say whether they are understandable.

The claim that paradoxical languages are understandable is based on a patent fact. It is a fact that we are capable of constructing and of using languages that are paradoxical. Because of the liar paradox Tarski suggested that *natural language* is paradoxical.⁶ Perhaps Tarski was wrong, but important examples like set theory and the calculus show that in the course of the history of science paradoxical languages were fruitfully and lastingly used even if their paradoxicality was *well known*. Moreover we mostly have *no guarantee* that the languages we *now* use are not paradoxical.

A supporter of the idea that a paradoxical language cannot be meaningful maintains that it is not possible to understand paradoxical notions. Facing the fact that people use paradoxical languages he may say that they believe that they understand, but that in reality they do not understand. A real understanding – he maintains – implies the non-paradoxicality of what is understood. I shall call such a notion of understanding REAL-UNDERSTANDING. Such a notion of understanding, however, if nothing is added, *does not provide any explanation of the paradoxical practice*. But the only reason why we need a theory of understanding is that through a theory of understanding we hope to gain an explanation of our capacity to master a language, that is of our linguistic practice.

So, if you support the idea that REAL-UNDERSTANDING implies the non-paradoxicality of what is understood, but you want that your notion of understanding be relevant to an explanation of linguistic practice, you should not say that in a paradoxical practice there is no REAL-UNDERSTANDING *at all*. You had better say that the language users who implicitly or explicitly accept paradoxical rules concerning some words *have understood some non-paradoxical notions independently of the paradoxical argumentation rules*, that they have associated the non-paradoxical notions with the words in question and so have given sense to those words, but in performing

⁶ Cf. Tarski (1943).

reasonings concerning those words have come to accept the paradoxical rules because they *wrongly interpreted* the previously grasped non-paradoxical notions. So the paradoxical practice would be explained by the understanding of non-paradoxical notions. The paradoxical principles would originate from a *wrong interpretation* of non-paradoxical notions, they would distort and betray the original notions, but they would depend on them. The understanding would not consist in the paradoxical argumental practice which, in itself, would be meaningless, but that practice would depend on a previous REAL-UNDERSTANDING.

According to such a view, for example, the mathematicians who in the seventeenth and eighteenth centuries used the paradoxical Newtonian method of fluxions or the equally paradoxical Leibnizian calculus of infinitesimals, and used expressions like "infinitely small distance" or "ultimate ratio of the Evanescent Parts" had in reality grasped some non-paradoxical notions independently of the paradoxical calculi, but, since they did not reflect enough on these independent notions and their understanding was still in a way unripe, when they came to perform public reasonings concerning those notions they were misled into paradoxes.

This response to the objection based on the existence of a paradoxical practice is available only if the supporter of REAL-UNDERSTANDING can emend the paradoxical practice and reconstruct it in a unique non-paradoxical way, so that all its important epistemological features are preserved. There is no guarantee that this can always be done. But only if it can be done the supporter of REAL-UNDERSTANDING will have some grounds for saying that there are non-paradoxical notions a grasp of which underlies the paradoxical practice.

My main objection to this response, however, is that *it does not satisfy the requirement of manifestability*. To see why, assume that there are two language users who *both* accept some paradoxical argumentation rules. The first has independently grasped some non-paradoxical notions, but in his attempt at formulating reasonings concerning those notions has erroneously accepted paradoxical principles. The second language user hasn't grasped any non-paradoxical notions, but he has been socially trained to use the relevant words according to the paradoxical principles as the first

language user uses them. Thus the second language user believes to understand the relevant words in the same way as the first one. However, the supporter of REAL-UNDERSTANDING must say that only the first language user really understands something, while the other does not understand, and thus simply utters empty sounds and scribbles meaningless marks on paper. My point is that there is no intersubjectively testable difference between them, and therefore the notion of REAL-UNDERSTANDING violates the requirement of manifestability and the principle that meaning is public. Indeed the two language users accept the same reasonings and therefore believe that they understand each other and give the same meanings to the relevant words. If they discover the paradoxicality of their argumentation rules, then – since they *both* are aware that a language in which every sentence is equally assertable is a defective language – they *both* will feel the need to emend those argumentation rules without loosing all the epistemological advantages that motivated the corresponding argumental practice.

Therefore the theory of REAL-UNDERSTANDING either does not provide any explanation of a large part of linguistic practice or violates the requirement of manifestability. I conclude that a theory of understanding which is relevant to an explanation of linguistic practice and satisfies the requirement of manifestability must allow that our understanding of some words can consist in our acceptance of some argumentation rules concerning those words even if these rules are paradoxical.

2. Correctness of a language.

The argumental conception of meaning allows that we can understand paradoxical languages even if paradoxical languages are incorrect. The understandability of a language does not guarantee its correctness. According to such a view two kinds of questions should be clearly distinguished. The first is: how is it possible to be capable of mastering a language? in what does our understanding of a language consist? what must a speaker (implicitly) know in order to understand a language? The second is: how can a language be criticized? in what sense can a language be incorrect? what does "correctness" mean when applied to a language?

A notion of correctness which applies to *a meaningful language or fragment of language* is clearly different from the notion of correctness of an assertion, from the notion of correctness of an argument and from the notion of truth of a sentence. The latter notions have to do with assertions, arguments and sentences *within* a language but they do not concern the language itself – at least not directly. The idea of a notion of correctness which applies to a meaningful language or fragment of language is not a new idea in the history of philosophy. Plato expounds the notion of truth of a sentence as right connection of name (ὄνομα) and verb (ῥημα) in the *Sophist*, but in *Cratylus* we can find a different notion of correctness which does not concern particular connections of words in sentences, but the words themselves.⁷ In *Cratylus* Plato's Socrates compares words with the instruments of craftsmen. A carpenter can make a shuttle more or less rightly or wrongly. The shuttle is right if it is adequate to the aim of weaving. Similarly the language-maker can make words more or less adequate to the aim of knowledge. Therefore – against Hermogenes – Socrates maintains that words may be right or wrong. But – against Cratylus – Socrates adds that words may be right or wrong in different degrees, and even if they are wrong, they are meaningful, i.e. they can be used (imperfectly) for their aim. Moreover, since words may be wrong, it is necessary to criticize language and to judge words with respect to their correctness. This is the dialectician's task, which is performed through the art of interrogating and answering.

The main characteristic of the view of language which I am here describing is that the mere understanding does not guarantee the correctness of the understood language, and that the criteria on the basis of which we can establish that a language is understood are different from the criteria on the basis of which we judge the correctness of the language. But what are the latter criteria?

If it is proposed that a new fragment of language be added to a preexisting language or that the preexisting language be modified, how can such a proposal be rationally evaluated? History of science shows that there are different, sometimes conflicting, criteria, most of which are to a certain extent contextual and relative to an overall epistemic situation.

⁷ Cf. Plato (1953).

An epistemic situation can be described as a triple $\langle\langle L, A, \geq \rangle, AR, P\rangle$ where the first item $\langle L, A, \geq \rangle$ is a *language* that is used in that epistemic situation, the second item AR is a set of *accepted arguments* in $\langle L, A, \geq \rangle$, and P , the third item, is a set of *open problems* (of different importance) which can be formulated as questions in $\langle L, A, \geq \rangle$.⁸ In general, the development of knowledge can be described as a series of "epistemic transitions", i.e. transitions from an epistemic situation $\langle\langle L, A, \geq \rangle, AR, P\rangle$ to another epistemic situation $\langle\langle L', A', \geq' \rangle, AR', P'\rangle$. But in some epistemic transitions, for example when the only novelty is that a new sentence is verified (and thus AR and AR' are different), $\langle L, A, \geq \rangle$ and $\langle\langle L', A', \geq' \rangle$ are equal. A modification of the language is a *special kind* of epistemic transition, an epistemic transition in which the language $\langle L, A, \geq \rangle$ is changed, and thus $\langle\langle L', A', \geq' \rangle$ is different from $\langle L, A, \geq \rangle$.

What are the criteria according to which a modification of language is a *rational* epistemic transition? Though the criteria in question may be sometimes conflicting, it seems that they are all governed by the fundamental aim of imposing an intersubjective order upon experience, as far as possible.

A *first* criterion, as we already saw, is the *non-paradoxicality* of the new language. This criterion is a contextual criterion, because sometimes paradoxes arise from the interaction of a new fragment of language with the context of the preexisting language to which the new fragment is added.

A *second* criterion is *the ease with which the new language and its argumentation rules can be learnt and used* in the given epistemic situation. This depends in part on the simplicity of the new (fragment of) language considered in isolation, and in part on its relations with the preexisting language, like the similarity between the new language and (some parts of) the old one, the possibility to draw

⁸ This description of an epistemic situation was suggested to me by Kitcher's description of "a mathematical practice" as consisting of five components: a language, a set of accepted statements, a set of accepted reasonings, a set of questions selected as important, and a set of metamathematical views. Kitcher regards the growth of mathematical knowledge as a series of "rational interpractice transitions"; cf. Kitcher (1983) ch.7. Cf. also Kitcher's description of a "consensus practice" in Kitcher (1993) p. 87, where the approach of Kitcher (1983) is further developed and applied to science in general.

interesting analogies with something already known, and to a certain extent even the agreement with some preconceived ideas.

A *third* criterion is the *epistemic fruitfulness* of the new language in the given epistemic situation. The new language is epistemically fruitful if it offers the possibility of discovering new laws and new systematic connections, of solving previously unsolved problems, of unifying disparate fields.

In order to evaluate rationally the proposal of a new language in a given epistemic situation one should consider all these factors. Often the disadvantages on one side (though they are still considered disadvantages) are outweighed by the advantages on the other side. For example in the seventeenth and eighteenth centuries the paradoxicality of the calculus of infinitesimals was outweighed by the great epistemic fruitfulness of the new language, even if the community of mathematicians still felt the need of getting rid of the paradoxes.⁹ So, a language is rationally acceptable in a given epistemic situation if one can reach what in that situation is a good balance between advantages and disadvantages with respect to these different criteria. If the epistemic situation changes, as the linguistic and epistemic context develops, the balance can be altered and a language which was previously acceptable may lose its acceptability. Therefore one should not speak of the correctness of a language *absolutely*, one should speak of the correctness of a language *relatively to a given epistemic situation*.

⁹ Cf. Kitcher (1983) ch.10.

CHAPTER 6

Truth and assertion

To know the immediate argumental role of an asserted sentence is not enough in order to understand the assertion of that sentence. It is also necessary to know the assertoric force, which is common to all assertions. In this chapter I shall argue that assertoric force establishes a connection between the two notions distinguished in the preceding chapter: understanding and correctness of a language. My conclusion will be that by understanding the assertoric force we understand that our language and its present argumentation rules, in order to justify the truth-claim which is raised by the act of assertion, can be changed and enriched in a rational way so as to comply more and more with the different criteria of correctness.

1. Truth and assertoric force.

When we assert a sentence we take the responsibility that the asserted sentence is true and we (implicitly) demand that it be accepted as true.¹ In this sense we can say that *by the act of asserting a sentence we implicitly raise the claim that the uttered sentence is true in the circumstances of utterance.*² The truth-claim which we raise constitutes *the force* that we attach to the asserted sentence.

If the truth-claim is challenged by an opponent, then we should *justify* our act of assertion, i.e. we should give a correct argument for the asserted sentence, an argument which shows – conclusively or not – that the asserted sentence is true. *Our assertion in a given circumstance of utterance is correct or justified*, i.e. we have the right to raise the truth-claim concerning the asserted sentence, if, and only if, *we in that circumstance know a correct argument for the asserted*

¹ This view of assertion is present in Frege (1884) §3; cf. also Frege (1918) and Dummett (1973) ch. 10. Also Peirce endorses this view in writings which date back to 1903, cf. Peirce (1931-35) 2.252 and 5.29-5.31; cf. also Peirce (1958) 8.337. Among the various supporters of this conception cf. Habermas (1979), Apel (1981), Martin Löf (1983), first lecture.

² We have to add "in the circumstances of utterance" in order to take account of sentences containing indexical expressions.

sentence. Of course, it has to be allowed that in some circumstances it may be improper and even unreasonable to demand a justification of an assertion: it would be stupid to ask a doctor who is trying to save somebody's life to justify on the spot his/her assertion "this is brain hemorrhage"; the doctor's assertion can be correct, if he/she knows a correct argument for the former sentence, even if he/she does not give such an argument immediately. But in suitable circumstances, if we don't give a correct argument for the asserted sentence when the hearer asks for a justification, the hearer can criticize our assertion because it is not a *correct* assertion. In this case the hearer can rightly say that we did not have the right of making the assertion. The assertion was not justified. However, if the hearer agrees that the asserted sentence is true because he/she knows a correct argument for the sentence in question, we are satisfied because then the claim we have raised is right and *this is what matters to us*, even if we at the moment were not able of showing it. If another person gives for the sentence asserted by us good grounds which we were not capable of giving, then, though *we* were not entitled to make the assertion and thus deserve to be criticized, the incorrect assertion is *not withdrawn*. That is why the claim raised by an assertion is not that the assertion is correct or justified, but only that the asserted sentence is true.

However, the view of assertion that I have just summarized is open to many different interpretations because the notion of truth of a sentence and the notion of correct argument could be interpreted in many different ways. We want to understand what a speaker does when he/she asserts a sentence. Thus we have to explain what one claims when one claims that a sentence is true.

2. Two conceptions of truth which are not defended in this study, but are compatible with the theory of sense centred on immediate argumental role.

In the present chapter I shall adopt an epistemic conception of truth. But I shall do it on the basis of some considerations, which, though they are in agreement with the general spirit of the explanation of sense that I gave, are not *consequences* in a strict sense of the description of a theory of sense centred on immediate argumental role

contained in chapter 3. The content of the preceding chapters does not imply any particular conception of truth.

2.1. The equivalence thesis and the redundancy theory of truth.

In the first place, there is no contradiction, as far as I can see, if we combine the explication of sense in terms of immediate argumental role with the so-called *redundancy theory of truth*. The redundancy theory of truth was formulated in many ways,³ but the common core of all such different formulations is the idea that the complete explanation of the notion of truth is given by an explicit statement of the general correctness of the thesis that, following Dummett,⁴ I shall call "the equivalence thesis", i.e. the thesis that

E) it is true that A if, and only if, A.⁵

In his recent book *Truth*⁶, Paul Horwich gave a detailed defence of a formulation of the redundancy theory which he calls "the minimalist conception of truth". According to the minimalist *conception* of truth, a complete explication of the notion of truth is given by the minimalist *theory* of truth. Roughly,⁷ the minimalist theory consists of

³ An unequivocal endorsement of the redundancy theory of truth is in Wittgenstein (1956) Part I, App.I, 6. For further references cf. Horwich (1990) p. 6, footnote 2.

⁴ Cf. Dummett (1973) p. 445 and Dummett (1978a) p. xx.

⁵ The importance of the equivalence thesis was underlined in different ways by Frege, Wittgenstein, Ramsey, Tarski and Quine. Frege in "Der Gedanke" formulates the equivalence thesis in the context of his doctrine that truth is undefinable; cf. Frege (1918) p. 34. Ramsey and Wittgenstein defended different versions of the redundancy theory; cf. Ramsey (1927) and Wittgenstein (1956). Tarski took "true" to be a metalinguistic predicate of sentences and considered the corresponding version of the equivalence thesis a condition of material adequacy on a definition of "true" for a particular object-language; cf. Tarski (1935). Quine regards the Tarskian version of the equivalence thesis as the crucial principle on which the role of the predicate "true" – as "a device of disquotations" indispensable for "semantic ascent" – is based; cf. Quine (1970).

⁶ Horwich (1990).

⁷ This is rough because Horwich prefers to employ the notion of propositional structure and a special notation involving angled brackets in order to deal with

infinitely many axioms which are instances of the equivalence thesis (E). As Horwich rightly emphasizes, the equivalence thesis is a fundamental principle concerning the word "true", on which a very important aspect of the use of this word is based. We use the word "true" in order to express indirectly our attitudes towards sentences which we, for different reasons, cannot specify directly and explicitly. For example, by saying: "Some of Nixon's statements about Watergate are not true", we deny some statement that Nixon made, without specifying directly which. Or if we say: "Every sentence of the form '(A → ¬¬A)' is true", we assert indirectly, by means of a single sentence, all the infinitely many sentences of the aforementioned form, which we cannot assert all directly.

It is unquestionably right to describe the use of the word "true" in arguments on the part of an English speaker by saying that the speaker performs inferences of the forms

$$\frac{\text{it is true that } A}{A}$$

$$\frac{A}{\text{it is true that } A}$$

$$\frac{\text{"A" is true}}{A}$$

$$\frac{A}{\text{"A" is true}}$$

So, from the point of view of a theory of sense centred on immediate argumental role, the sense of the word "true" in English could be completely given by some set of argumentation rules which constitute an appropriate version of the equivalence thesis.

One might adopt the theory of sense described in chapter 3 and explain the sense of "true" by means of some version of the equivalence thesis. After this explanation of the sense of "true", one might say that *nothing more about truth has to be added*. This would

propositions that are not expressible in current English; cf. Horwich (1990) pp. 18-22, in particular footnote 4.

amount to accepting the redundancy theory of truth.⁸ I don't see any contradiction in such a combination of the redundancy theory of truth and the argumental conception of sense, but I think that it is unsatisfactory, because it does not explain the nature of the truth-claim involved in the act of assertion.

In the first section of the present chapter I endorsed the principle that by the act of asserting a sentence we raise the claim that the uttered sentence is true (in the circumstances of utterance). However, if we want to explain what we do when we make an assertion, this is only the first step, and it is a step of little value if we don't explain what a truth-claim is. The task of explaining the nature of the truth-claim involved in an assertion goes beyond an explication of the meaning of the word "true" (or "wahr", or "vrai", or "sann") in a particular language by means of the equivalence thesis, because we make assertions which don't contain the word "true", and we can imagine languages in which there is no word corresponding to "true" and nevertheless assertions can be made.

The redundancy theory of truth is perfectly *compatible* with the thesis that to assert a sentence is to claim that such a sentence is true. But it doesn't explain what *in general* a truth-claim is. The redundancy theorist will agree that when we assert "Oliver Tambo was chairman of the African National Congress" we claim that *it is true that* Oliver Tambo was chairman of the African National Congress. Such a claim is explained by the redundancy theorist merely by saying that it is the claim that Oliver Tambo was chairman of the African National Congress. Moreover, when we assert "there are even perfect numbers", we claim that *it is true that* there are even perfect numbers, but this – according to the redundancy theorist – is simply to claim that there are even perfect numbers. This is unquestionably right, but the two acts have something in common. What is it? Is there a general

⁸ This combination of the redundancy theory of truth and the conception of meaning centred upon immediate argumental role seems to agree with the tendency manifested by Horwich when he writes "the general conception of meaning and translation to which I wish to appeal is the so called use theory of meaning articulated in various ways by Wittgenstein (1953), Sellars (1954), Quine (1960), Harman (1982), (1987), Peacocke (1986) and many others"; cf. Horwich (1990) p.97. Also the view expounded here in chapter 3 is a way of articulating "the so called use theory of meaning".

property that they share? Well, – the redundancy theorist will answer – they are assertions. But this is precisely what we want to understand. We want to understand what an assertion is. The redundancy theory does not help us at all.

The redundancy theorist might reply that to explain the nature of the act of assertion is not the task of a theory of *truth*, it is the task of a theory of *assertion*. But the philosophical discussion about the notion of truth has always concerned at the same time the nature of assertion or of the inner and tacit counterpart of assertion called "judgement". Many philosophers from Plato⁹ to our times have been aware that it is essential to assertions or judgements their being subject to an objective notion of correctness – an objective notion of correctness which philosophers have usually distinguished from the more subjective notion of correctness concerning the ways in which assertions and judgements are justified by the speakers.¹⁰ The philosophical problem of truth has been understood by these philosophers as the problem of clarifying in what general sense assertions or judgements can be objectively correct, and since this possibility of being objectively correct has been considered essential to the very notions of assertion and judgement, the problem of truth has not been considered separate from the problem of the nature of assertion and judgement. Indeed even Ramsey, who is counted among the supporters of the redundancy theory of truth, in his article "Facts and Propositions", published in 1927, on the basis of the equivalence thesis, maintained that "there is really no separate problem of truth"¹¹, and that

⁹ In Plato's *Sophist* one can find the first philosophical analysis of truth in the shape of an explanation of the possibility of false statements (λογος). This analysis almost coincides with Plato's explanation of what a statement is. Very roughly, a statement – according to Plato – is a connection of a name (ονομα) and a verb (ρημα) which is correct if it corresponds with an objective connection between ideal forms.

¹⁰ Plato already makes this distinction in *Theaetetus*.

¹¹ Cf. Ramsey (1990) p. 38.

[...] what is difficult to analyse [...] is 'he asserts aRb'. It is, perhaps, also immediately obvious that if we have analysed judgement we have solved the problem of truth.¹²

So, it seems to me that even Ramsey in some way thought that the problem of truth and the problem of assertion and judgement cannot be separated.

Nothing prevents the redundancy theorist from dismissing the problem of the nature of assertion by saying that it has nothing to do with truth. But our problem here is exactly this: what a speaker does when he/she asserts a sentence. What we are looking for is a *general* answer. I think we can give such a general answer, which begins in the following way: when we assert a sentence we take the responsibility that the asserted sentence is correct in an objective sense, we implicitly demand that it be regarded as objectively correct and we claim that it is correct in this objective sense. The notion of objective correctness which is involved in the meaning-theoretical explication of the act of assertion is what I here, following the philosophical tradition, call "truth". The use of the word "true" in the *object language* in conformity with the equivalence thesis is in agreement with this way of understanding the *meaning-theoretical notion* of truth. But the equivalence thesis by itself does not explain what such a notion of objective correctness is and how it is related with the sense of the asserted sentence. Therefore I think that the equivalence thesis by itself is not sufficient for a complete explanation of the *notion* of truth. What I here call "the notion of truth" goes beyond the use of the word "true" in a particular language and in a particular epistemic situation, which use is governed by the equivalence thesis.

2.2. Realistic conceptions of truth.

If one rejects the redundancy theory of truth, one can choose between two general approaches to the problem of truth: the realistic and the

¹² Cf. Ramsey (1990) p. 39.

epistemic approach.¹³ The concept of 'realism' is defined in many different ways by different authors, but I shall use it in the following sense: the realist takes as *primitive* some notion belonging to the *ontologic* family, like 'being', 'reality', 'object', 'state of affairs', 'cause', 'world', 'truth' etc. As to the notion of *truth* in particular, the realist will either take it to be a primitive, undefinable or inexplicable notion, like Moore,¹⁴ Russell,¹⁵ and Frege¹⁶ in various ways did, or will try to explain the notion of truth in terms of some other ontologic notion taken as primitive, for example by describing truth as 'correspondence' with reality, with states of affairs, or with things, and taking the notion of 'reality' or 'state of affairs', or 'thing' as primitive, in the footsteps of the traditional correspondence theory of truth, a conception which can be traced back to Aristotle¹⁷ and Aquinas¹⁸ and which was revived in our century in many different ways by Wittgenstein in the *Tractatus*¹⁹, by Popper²⁰ and by many other authors.

The realist might perhaps allow that in order to explain what the entities are to which truth may be attributed – utterances, beliefs, sentences, statements, propositions, thoughts etc.: the so-called "truth-bearers" – one has to employ some epistemological or pragmatic notion. But once the notion of 'truth-bearer' is given, an explanation of what it is for a truth-bearer to be true – according to the realist –

¹³ Here I do not intend to give a picture of all the alternative conceptions of truth. I just want to concentrate on the crucial metaphysical problem of the relation between truth and epistemic practices, which is the matter at issue between the realistic conception of truth and the epistemic conception of truth.

¹⁴ Cf. Moore (1899).

¹⁵ Cf. Russell (1904).

¹⁶ Cf. Frege (1918).

¹⁷ Cf. *Metaphysics*: "he who thinks the separated to be separated and the combined to be combined has the truth, while he whose thought is in a state contrary to that of the objects is in error", Aristotle (1960) (1051b 1-5); cf. also 1011b 26-29. The influence of Plato's *Sophist* is evident: cf. footnote 9 in this chapter.

¹⁸ Cf. *Quaestiones disputatae de Veritate*, Aquinas (1964) q.1, a.1: "Convenientiam vero entis ad intellectum exprimit hoc nomen *verum* [...] Prima ergo comparatio entis ad intellectum est ut ens intellectui respondeat: quae quidem correspondentia, adaequatio rei et intellectus dicitur".

¹⁹ Cf. Wittgenstein (1921) 2.21.

²⁰ Cf. Popper (1963b).

does not employ epistemological or pragmatic notions. So, the realist will maintain that the notion of truth is conceptually independent of any pragmatic or epistemological notion, that it is independent of our use of language and in particular of our practice of justifying assertions by giving arguments in support of them. An epistemological notion may depend on the notion of truth, but not viceversa. For example, the realist might agree that a correct argument must show the truth of its conclusion, and that, therefore, the notion of correct argument presupposes the notion of truth. But he/she will maintain that the notion of truth does not depend on the notion of correct argument.

Since what characterizes a realist in my sense is the idea that the notion of truth does not depend on epistemological or pragmatic notions, the realist interprets the objectivity of truth in such a way that truth is completely independent of our epistemic practice of giving arguments. There is no guarantee that, if a sentence is true, then there is an argument which would show us that the sentence is true, if we were to find such an argument. According to the realist the notion of 'true sentence' transcends the notion of 'sentence for which there exists a correct argument', thus the realist is willing to maintain that:

T) we are not entitled to rule out that a sentence S be true even if no correct argument for S exists.

I call (T) *the transcendency thesis*. A different thesis is:

T*) we are not entitled to rule out that a sentence S be true even if its truth is not even in principle knowable.

The willingness to endorse (T) distinguishes a realist in my sense from a non-realist. In the literature (T) and (T*) are not sharply distinguished, and both are often considered essential part of a realistic conception of truth.²¹ But from the so-called "paradox of knowability", a formal modal argument first published by Frederic Fitch in 1963,²² we can learn that (T) and (T*) are not equivalent. Fitch's formal reasoning shows that the truth of a sentence of the form

²¹ Cf. for example Dummett (1975a) and Dummett (1976).

²² Cf. Fitch (1963).

(\Box) q and nobody will ever know that q

is *unknowable*, even in principle. Therefore, if we know that there are truths which will remain unknown, by the paradox of knowability we know also that *there are truths which are unknowable*, and *a fortiori* we know that (T*) is right.

An informal counterpart of Fitch's reasoning is the following. Assume that it is known that (\Box) is true. Well, in order to know that (\Box) is true one must know that q – the first conjunct – is true; but in such a case the second conjunct – "nobody will ever know that q " – would be false, and thus also (\Box) would be false, which is contrary to the assumption that (\Box) is (known to be) true. Our assumption that the truth of (\Box) be known implied a contradiction. Thus it is logically impossible to know that a sentence of the form (\Box) is true: if such a sentence is true, it is unknowable.

In fact, we know that *there are* sentences which can be substituted for " q " so that the result is a true instance of (\Box), though we cannot exhibit any of these sentences in particular. For example, I am going to throw all the matches in this box into the fire and they will be burnt away. I have not counted the matches, nor has anybody else. Thus nobody will ever know whether the sentence that I am uttering "there are more than twenty matches in this box now" is true, or its negation is and in either case there is a truth which will remain unknown. If "S" is an abbreviation of "there are more than twenty matches in this box now", we know that either S and nobody will ever know that S, or not-S and nobody will ever know that not-S. So, we know that there is an X such that X and nobody will ever know that X, though we cannot tell whether X is S or its negation. Therefore, we know that there is an instance of (\Box) which is true, and thus – by Fitch's reasoning – *we know that there are truths which we cannot know*, and *a fortiori* we know that (T*) holds.

However, one can consistently accept (T*) and reject (T): a non-realist might maintain that if an instance of (\Box) is true, then *there is* (in an abstract sense of 'is'²³) *an ideal* argument for it, though this

²³ Cf. Prawitz (1987) p. 153.

argument cannot be constructed by us.²⁴ Such an argument would be composed of an argument for the first conjunct (the sentence replacing "q") and an argument for the second conjunct (i.e. an empirical argument which shows that nobody will ever know the first conjunct). The non-realist might advocate an epistemic conception of truth which identifies the truth of a sentence with the existence of an ideal argument for it (which for axioms or observational sentences is a one-step argument). Such a non-realist would of course deny the transcendency thesis (T) above, according to which a sentence may be true even if there is no correct argument for it. But – in view of the "paradox" of knowability – he/she could consistently accept (T*) (i.e. that a sentence may be true, though its truth is not even in principle knowable). That is why it is the transcendency thesis (T) which is crucial for a discrimination between realistic and non-realistic – epistemic – conceptions of truth. On the other hand, (T*) is a consequence of (T), because we can know that S is true only if an argument for S exists; thus the realist who accepts (T) ought to accept (T*) too.

The realistic idea that truth is conceptually independent of any pragmatic or epistemological notion implicitly involves the transcendency thesis, because a denial of the transcendency thesis would establish a conceptual dependence of truth upon the existence of a correct argument, which is an epistemological notion. Sometimes transcendency²⁵ is also explicitly endorsed by the realist. Frege endorsed the transcendency thesis explicitly in *Grundgesetze*.²⁶ Hilary Putnam, in 1967, when he was a "metaphysical realist"²⁷, after remarking that the truth value of the continuum hypothesis may be undiscoverable by rational beings,²⁸ extended his acceptance of the transcendency thesis to non-mathematical sentences with the following words:

²⁴ Cf. Cozzo (1994c).

²⁵ I mean both the two above mentioned theses (T) and (T*), which, as I said, are not clearly distinguished in the literature.

²⁶ Cf. Frege (1903) p. 69.

²⁷ This is Putnam's terminology, cf. "Realism and Reason" in Putnam (1978).

²⁸ Cf. also Hellman (1989) p. 3: "Of course, it must not be assumed that all true mathematical assertions are knowable, even in principle".

The existence of propositions whose truth value we have no way of discovering is not at all peculiar to mathematics. Consider the assertion that there are infinitely many binary stars (considering the entire space-time universe, i.e. counting binary stars past, present and future). It is not at all clear that we can discover the truth value of this assertion. Sometimes it is argued that such an assertion is 'verifiable (or at least confirmable) in principle', because it may *follow from a theory*. It is true that in one case we can discover the truth value of this proposition. Namely, if either it or its negation is derivable from laws of nature that we can confirm, then its truth value can be discovered. But it could just happen that there are infinitely many binary stars without this being required by any law. Moreover the distribution might be quite irregular, so that ordinary statistical inference could not discover it.²⁹

In "Reference and Understanding" (1976)³⁰ Putnam wrote that a realist might hold at the same time a theory of *understanding* based on use and a realistic theory of *truth*. According to Putnam's suggestions, the realist might adopt the view that to understand a sentence is to know some rules governing the use of the sentence and, at the same time, a realistic theory of truth, for example – Putnam suggests – a correspondence theory of truth where correspondence is explained in terms of causal interactions between the speakers' linguistic behaviour and the physical world. For such a realist, the theory of truth is separate from and independent of the theory of understanding, because the notion of truth does not play any role in our understanding language, though it is relevant for an explanation of our relation to the physical world:

one can use one's language, at least on an 'object language' level, without any sophisticated notion of truth. Of course one has to be able

²⁹ Putnam (1967), reprinted in Putnam (1975a) p. 53. The example concerning binary stars occurs again in Putnam (1975c) p. 238: "suppose there are infinitely many binary stars. *Must* we be able to verify this, even in principle?"

³⁰ This paper is now in Putnam (1978), but – according to the "Preface" – it was written in 1976. The above described view was in a sense foreshadowed by Putnam's previous criticism of the idea that what constitutes a speaker's understanding of a term determines its extension; cf. Putnam (1974) and Putnam (1975c). Analogous is Field's attitude towards conceptual role semantics and truth theoretic semantics in Field (1977) (see chapter 2 of this book).

to assent and dissent; but [...in order to have such an ability we have to follow rules of use which] do not presuppose notions of the order of 'true'; [...] But the *success* of the 'language-using program' may well depend on the existence of a suitable correspondence between the words of a language and things, and between the sentences of the language and states of affairs.³¹

Putnam illustrates his idea through an enlightening comparison:

the instructions for turning an electric light on and off – "just flip the switch" – do not mention *electricity*. But the explanation of the success of switch-flipping as a method for getting lights to go on and off certainly does mention electricity. It is in this sense that reference and truth have less to do with understanding language than philosophers have tended to assume, in my opinion.³²

As this comparison shows, Putnam's idea is that the notion of truth is important in explaining the relation of language to the world and "the contribution of our linguistic behaviour to the success of our total behaviour"³³, but truth does not play any role in an explanation of understanding and of use. On the other hand, the theory of understanding does not determine the theory of truth. In particular, the rules of use for a sentence which – in the light of the theory of understanding – fix what counts as an understanding of that sentence do not determine the truth condition of the sentence, which is (should be) specified by the theory of truth. According to this picture of the workings of language, a speaker can understand a sentence without knowing its truth condition.

At the time of "Reference and Understanding" Putnam's philosophical standpoint was shifting from "metaphysical realism" towards "internal realism", which involves an epistemic conception of truth (and thus is not realism in my sense). The term "internal realism" is introduced in "Realism and Reason", which was written

³¹ Putnam (1978) p. 100. In the same place Putnam describes the rules of use as follows: "they are instructions for assigning high weights to certain sentences when one has certain experiences, instructions for uttering, instructions for carrying out syntactic transformations, instructions for producing non-verbal behaviour".

³² Putnam (1978) p. 99.

³³ Putnam (1978) p. 101.

shortly after "Reference and Understanding",³⁴ but the term is introduced in order to refer to the kind of realism defended in "Reference and Understanding". Thus, there is reason to believe that the notion of truth Putnam is thinking of is already in the latter paper an epistemic notion of truth.

However, a realist in my sense (i.e. what Putnam calls "a metaphysical realist") may adopt Putnam's idea of separating the theory of truth from the theory of understanding. Such a realist would distinguish two separate theories: a use theory of understanding and a realistic correspondence theory of truth in terms of causal interactions between the speakers' behaviour and the physical world, which would involve the transcendency thesis (Hartry Field's views are an example of this kind of realistic position with respect to sentences about the physical world).³⁵ Such a realist, of course, means "physical world" and "causal interactions" as they are *in themselves*, not as they are described by our current (or ideal) theories, which – from the realist's point of view – may be false or incomplete.

A detailed critical examination of such a view lies beyond the scope of the present study, but I think that there are at least two objections to it. *First*, the idea that truth consists in some appropriate causal connection between linguistic behaviour and physical things leads into great difficulties if it is applied to the case of sentences about entities with which we do not have any causal interaction. For example, arithmetical sentences deal with natural numbers, and it seems reasonable to say that natural numbers are *not* causally efficacious. Thus, the supporter of the causal theory of truth is placed in the following dilemma: either to reinterpret arithmetical sentences so that they can be taken to refer to causally efficacious entities, in spite of what they seem to mean on the surface, or to deny that sentences like " $2+2=4$ " be true, as Field does.³⁶ I think it is much

³⁴ Cf. Putnam (1978) p. viii.

³⁵ Field's distinction between truth theoretic semantics and conceptual role semantics in Field (1977) (which was considered in chapter 2) is a particular development of Putnam's general idea of separating the theory of truth from the theory of understanding.

³⁶ Cf. Field (1989) p. 3. The idea that abstract entities are not causally efficacious has been used by many philosophers who adhere to causal theories of knowledge, reference and truth as the starting point of an argument against abstract entities in general and against mathematical platonism in particular. Cf. Benacerraf (1973),

better to abandon the causal theory of truth and to take arithmetical truths at face value.

The *second*, deeper and more general, objection is that a theory of truth which is entirely separate from the theory of understanding cannot serve as an answer to the fundamental question concerning the nature of assertoric force, which motivates the further question concerning truth. We started by saying that in order to understand an assertion it is not enough to know the specific sense of the asserted sentence, because it is also necessary to know the assertoric force, which is common to all assertions. A competent speaker has to know what it is to assert a sentence. Well then, what does one do when one asserts a sentence? A first incomplete answer is: by the act of asserting a sentence one implicitly raises the claim that the uttered sentence is true. In order to have a full answer, we have to explain in general what it is for a sentence to be true. But we ought not to forget that a competent speaker must *know* the assertoric force and thus must somehow understand what a truth-claim is. If we keep this in mind, the trouble with the idea that a notion of truth might be completely independent of our understanding becomes clear: a knowledge of assertoric force is part of the understanding of an assertion and hence *also the truth-claim must be understood in some way*. In what does an understanding of the truth-claim consist?

A plausible answer is: to understand the truth-claim is to know what the commitment is to which one is bound by the truth-claim. If we take the responsibility that the asserted sentence is true, then – if challenged – we have to show that it is true by giving a good argument for it. We commit ourselves to giving such an argument. So, an understanding of the truth-claim consists in our mastering the practice of giving and assessing arguments for the asserted sentence.

But if we adopt the causal realistic view, we cannot give such an answer, because a transcendent truth (which depends on a causal connection with things in themselves) and our practice of giving and assessing arguments may be *entirely unrelated*. Thus, an understanding of the truth-claim in this realistic sense cannot be explained in terms of our practice of giving arguments. (And, of

Lear (1977), Kitcher (1983) ch. 6. For a critical examination of such views cf. Wright (1983) pp. 84-103.

course, to opt for the other realistic view that the notion of truth is primitive and undefinable would not help at all).

So, the realistic view leads into perplexities which cannot be easily dismissed. If truth is a causal connection with things in themselves, independent of our epistemic practices of justifying assertions by giving arguments, how can a speaker grasp the truth-claim which constitutes assertoric force? What would be the difference between a speaker who understands a truth-claim as it is interpreted by the realist and another speaker who does not understand it, but shares with the former speaker all the practices of accepting and rejecting arguments and assertions in every relevant conceivable epistemic situation (a possibility which cannot be ruled out if the transcendency thesis is accepted)? Clearly, the difference would not be manifestable in the speakers' practical abilities, and thus the requirement of manifestability would be violated with respect to assertoric force.³⁷

The upshot seems to be that, in order to follow the realistic line of thought which we are considering, one should abandon not only the idea that the *sense* of a sentence consists in its truth-condition, but also the explanation of *assertoric force* in terms of the notion of a truth-claim. But if the connection between truth and assertoric force is severed, what do we need the notion of truth for? Putnam's tenet is that we need truth for an explanation of the contribution of our linguistic behaviour to the success of our total behaviour. For example: we want to build a bridge on a river, we make a plan, which contains sentences about the physical world, we build the bridge according to our plan, and the bridge does not collapse. So we succeed in having a good bridge which enables us to cross the river.³⁸ The explanation of the fact that we succeeded is that the sentences in the plan, which guided our actions, are (approximately) true.

In my opinion, the thesis that we need the notion of truth *only* for an explanation of the success of our behaviour wrongly diminishes the real importance of this notion. Now Putnam would agree that the role of truth is more important than this. In *Reason Truth and History*

³⁷ This may be viewed as an adaptation for this context (where assertoric force and the truth-claim are concerned) of Dummett's antirealist argument against a transcendent notion of truth (which concerns sense and truth-conditions): cf. for example Dummett (1975a) and Dummett (1976).

³⁸ This is Putnam's example, cf. Putnam (1978) pp. 100-101.

(1981), where he advocated an epistemic conception of truth as "idealized justification",³⁹ he wrote that without a notion of truth we could not "make any sense of the distinction between *asserting* or *thinking* on the one hand, and *making noises* (or *producing mental images*) on the other".⁴⁰

However, it is certainly right that we use the notion of truth *also* for explanations of the success of our behaviour. But it seems clear that the notion of truth which we use in such explanations *is not* (or at least *not necessarily*) a transcendent notion of truth. Roughly, the explanations of the success of our behaviour which exploit the notion of truth have the following (over-simplified) form:

- 1) P believes that S_1, \dots, S_n are true, and thus acts according to S_1, \dots, S_n .
- 2) S_1, \dots, S_n are true.
- 3) Therefore P succeeds.⁴¹

In order to give such an explanation, we must establish the premise (2), and thus we must establish that S_1 is true, that S_2 is true, ..., that S_n is true. But this means that we must have arguments for S_1, \dots, S_n . In other words the truth of S_1, \dots, S_n *must be epistemically accessible*. If the truth of S_1, \dots, S_n were a transcendent truth beyond our recognitional capacities, it would be unknown, and thus we could not use it for any explanation. Indeed, in "Realism and Reason" Putnam repudiated "metaphysical realism".

So, I think that great difficulties beset the realistic view. But, though I am not in sympathy with it, *there is no contradiction*, as far as I can see, between the realistic view and the theory of sense in terms of immediate argumental role described in the previous chapters. A realist could adopt the argumental theory of sense described in chapter 3 as a theory of understanding, and defend a separate and independent realistic theory of truth. Thus, the theory of sense described in chapter 3 is *compatible* with a realistic conception of truth.

³⁹ Putnam (1981) p. 122.

⁴⁰ *Ibidem*.

⁴¹ Actually, the word "true" could be eliminated from the explanation. Cf. Horwich (1990).

The defect of the realistic conception of truth is that it takes for granted primitive ontological notions like 'state of affairs', 'physical world', 'cause', or the very notion of 'truth', without requiring any explanation of these concepts in terms of other less problematic non-ontological concepts, as if the ontological concepts in question were completely clear, unproblematic, and immediately acceptable. There is a striking contrast between this realistic attitude, which is common among philosophers, and the opposite attitude which other philosophers and also many lay persons often express nowadays by the words "there is no such thing as truth" or "there is no such thing as the *real* world". It seems to me that if so many people doubt the acceptability of ontological notions like 'truth', or 'real world', there are grounds for not taking for granted that they are immediately acceptable as primitive notions. This does not mean that one ought to reject such notions, but that we need some explanation which connects the ontological notions with some notions with which we are more familiar, or which one might be more willing to accept, some notions which are more directly connected with what we do everyday. The acknowledgement of this need is the basic reason – I think – for adopting an epistemic conception of truth.

3. An epistemic conception of truth.

The supporter of an *epistemic conception* of some ontologic notion tries to explain the ontologic notion in terms of epistemological notions like 'knowledge', 'experience', 'evidence', 'belief-fixation', 'reasoning', 'justification', 'argument', 'proof', 'judgement', 'correct assertion' etc.

The supporter of the kind of epistemic conception of *truth* which I have here in mind thinks that the notions of 'justification of an assertion' or 'correct argument' are nearer and clearer to us than the bare notions of 'truth' or 'real world'. The reason is that the notions of justification and correct argument relate to our linguistic practice. We all are engaged in linguistic practice every day. We all make assertions, and when our assertions are challenged, we all give arguments in support of those assertions. If the argument we give for an asserted sentence is correct, the assertion is correct and justified.

So, the supporter of an epistemic conception of truth tries to explain what truth is by connecting truth with the notion of correct argument.

However, the connection between the notion of truth and the notion of correct argument ought not to be too close. If the connection is too close, and we say that an asserted sentence is true if, and only if, the speaker who makes the assertion gives a correct argument for the sentence in question, we lose the possibility of making an important distinction between two different ways in which an assertion can be wrong.

If a speaker who makes an assertion does not give a correct argument for the asserted sentence when an opponent asks for a justification, the assertion is wrong in a first sense of 'wrong', which I expressed in section 1 by saying that the assertion is not correct. In this case the opponent can rightly criticize the assertion because it is not justified. But if later the opponent gives a correct argument for the sentence which the speaker asserted, then, though *the speaker's assertion* was wrong, *what the speaker asserted* was right, the claim that he/she raised was right: *the speaker did not show* that it was right, but the opponent has shown that it was, and this is what ultimately mattered to both of them.

A very different case is when the opponent does not criticize only *the speaker's assertion* because it is not justified, but also *the asserted sentence*, because it is not true. In order to show that the asserted sentence is not true, the opponent has to show that *no correct argument for the asserted sentence exists*, not only that the speaker has not given such an argument. In this case the assertion is wrong in a second and deeper sense: it is wrong because the asserted sentence is not true, and the claim raised by the speaker by making the assertion was wrong. In the first case the speaker might say to the opponent: "Okay, *I* didn't justify my assertion, but after all *you* have shown that what I asserted was true. This is the important thing." In the second case the speaker has to admit: "Okay, it isn't true, forget what I said."

In order to distinguish the two ways in which an assertion can be criticized, the supporter of an epistemic conception of truth has to discriminate between failure to say what is justified and failure to say what is true, and thus he/she has to distinguish between the correctness of an assertion and the truth of the asserted sentence. *A*

speaker's assertion is correct if, and only if, the speaker knows a correct argument for the asserted sentence. *The asserted sentence is true* if, and only if there exists a correct argument for such a sentence, even if this argument is not known and has not been given. Truth is the objective notion of correctness I was referring to in subsection 2.1 of this chapter.

The supporter of an epistemic conception should also take account of the pretheoretical intuition that a sentence may be true even if no correct argument for it will ever be found. If 'S is true', or 'there exists a correct argument for S' were defined as 'a correct argument for S has been given or will be given', we should conclude that there are no true sentences which are never in fact correctly asserted. This would lead us to many counterintuitive consequences. For example, one could maintain that a mathematical sentence is not true on the basis of an empirical argument to the effect that for some empirical reason nobody will ever prove the sentence in question. Also for a non-mathematical sentence S one could have some empirical argument concerning the physical world completely unrelated to S, for example an argument to the effect that the end of the universe is imminent, from which it would be right to draw the consequence that nobody will ever give a correct argument for S, and then one ought to conclude that S is not true without exploiting in any way the specific content of S.⁴² According to our pretheoretical intuitions about the acceptable ways in which one can justify the claim that a sentence is not true, a mere argument to the effect that the end of the universe is imminent, even if correct, would not be an acceptable refutation: it would perhaps show that by that time it wouldn't be worth caring about the truth of the sentence, not that the sentence is not true.

Thus, if the supporter of an epistemic conception of truth wants to defend the principle that a sentence is true if, and only if, there exists a correct argument for that sentence, he/she has to interpret the phrase 'there exists a correct argument' differently from 'a correct argument has been given or will be given'. This point was specially stressed by Prawitz.⁴³

⁴² Cf. also the different example about the sentence "there are more than twenty matches in this box now" in subsection 2.2.

⁴³ Cf. Prawitz (1987) pp. 150-156.

Moreover, the considerations on the paradox of knowability in the previous section showed that the supporter of an epistemic conception of truth ought not to interpret 'there exists a correct argument' as 'a correct argument *can* be given', because there are true sentences of the form "q and nobody will ever know that q" for which a correct argument exists, but cannot be given.

As Prawitz wrote, 'there exists', in the epistemic thesis must be taken in an abstract sense of "exists".⁴⁴ A comparison with the notion of existence of a derivation in a formal system may be helpful. To say that a formula is a theorem of a formal system Σ , means that there exists a categorical derivation in Σ of the formula in question in an abstract sense of "exists". A derivation in Σ is defined as a finite concatenation of formulae (for example a sequence or a tree, or some other finite structure) in which every formula is added to the preceding formulae according to the inference rules of Σ . The definition of a theorem of Σ as a formula for which such a derivation exists does not employ the notion of a subject who can discover the derivation in Σ . What it employs are the notion of rule of Σ and the appropriate notion of finite concatenation. The concept of theorem is clear to us in so far as these two notions are clear. We take the derivations as being already there in an abstract sense, once the rules of Σ are given. Analogously, for the supporter of an epistemic conception of truth, a sentence is true if, and only if, there exists (in an abstract sense of "exists") a correct argument for that sentence, and a correct argument is a concatenation of sentences according to argumentation rules. In giving this explanation we do not employ the notion of the argument's being possibly known or discovered by a subject. What we employ is the notion of argumentation rule, and it is the dependence upon this notion of argumentation rule which gives to our explanation of truth its epistemic character. This view is clear in so far as the notion of argumentation rule is clear. As we saw in chapter 3 – argumentation rules are not inference rules of a formal system, because they are mostly implicit and because they have to do with non-linguistic evidence. But the question arises: in the epistemic explanation of truth, should we take into account only the fixed set of

⁴⁴ Cf. Prawitz (1987) p. 153.

argumentation rules accepted in a particular language or should our epistemic notion of truth go beyond such a fixed set?

In other words: how should one interpret the notion of *correct argument* which we need in this context? All our previous considerations suggest the following approach to the problem: in order to choose the right interpretation of the notion of ‘correct argument’ we have to look at the kinds of criticisms which would make a speaker withdraw an assertion.

A first view which can be considered is that the relevant notion of correct argument is the notion of an argument which does not depend on any assumption, and which is correct *relatively to the language* $\langle L, A, \geq \rangle$ in which the assertion is made, in the sense of definition **xxviii**.⁴⁵ Such an argument – by an appropriate articulation of its non-immediate argumentation steps – could be transformed into another argument for the same conclusion which is also independent of assumptions, and *consists only of applications of argumentation rules in* $\langle L, A, \geq \rangle$, i.e. is correct and fully articulated relatively to $\langle L, A, \geq \rangle$.⁴⁶

A sentence *S* is *assertable in* $\langle L, A, \geq \rangle$ *independently of assumptions*⁴⁷ if, and only if, there exists an argument for *S* (possibly starting from some non-linguistic evidence) which does not contain undischarged assumptions, and is correct and fully articulated relatively to $\langle L, A, \geq \rangle$. *The assertion of S on the part of a speaker in a certain circumstance is correct relatively to* $\langle L, A, \geq \rangle$ *if the speaker in that circumstance knows an argument which is correct relatively to* $\langle L, A, \geq \rangle$. According to the interpretation of ‘correct argument’ as ‘argument which is correct relatively to $\langle L, A, \geq \rangle$ ’, a sentence *S* in $\langle L, A, \geq \rangle$ asserted by a speaker in a given circumstance is *true* if, and only if, *S* is assertable in $\langle L, A, \geq \rangle$ independently of assumptions and the assertion is *correct* if it is correct relatively to $\langle L, A, \geq \rangle$.

This view is wrong for at least two reasons. *First*, an argument resulting from applications of the argumentation rules in *A* may turn out to be incorrect because an opponent of the speaker who makes the assertion shows that some of the relevant argumentation rules belong to a *fragment of language which is not correct* – in the sense of chapter 5. For example, the opponent might show that the rules used

⁴⁵ See definition **xxviii** in chapter 4, section 1.

⁴⁶ See definition **xxvii** in chapter 4, section 1.

⁴⁷ See definition **xxix** in chapter 4, section 1.

by the speaker are paradoxical and that by applying those rules in a similar way one could equally prove any other sentence. In this case, the rational speaker would withdraw his/her argument and his/her assertion. *Secondly*, the speaker may extend the language by adding some new word W not belonging to L , and some new argumentation rule R not belonging to A . R may concern the new word W without concerning the asserted sentence S , so that the immediate argumental role, i.e. the sense, of S remains the same. Let us suppose that S is *not* assertable in $\langle L, A, \geq \rangle$: by exploiting the new rule R , the speaker could nevertheless be able to give an argument for S (we saw that this is possible in chapter 4, section 2, through the example of Peirce's law). Moreover the speaker could show that the extended language $\langle L \cup \{W\}, A \cup \{R\}, \geq^W \rangle$ ⁴⁸ is correct in that epistemic situation. In this case, even if the opponent insisted that the speaker's argument employs a rule that does not belong to A , this criticism would not do, because the new language would be correct in that epistemic situation. Therefore, the speaker would be entitled to make his/her assertion.

The foregoing considerations show that one should distinguish between the notions of correctness of an argument and of an assertion *relatively to a language* $\langle L, A, \geq \rangle$, and the notions of argument-correctness and assertion-correctness *in a non-relativistic sense*. A proper account of our practice of accepting and rejecting arguments and assertions requires the non-relativistic notions of correctness. The non-relativistic notions of correctness for arguments and assertions involve the idea that we should try to improve the languages in which arguments are constructed and assertions are made, in order to attain to an ideal balance between the different criteria of language-correctness mentioned in chapter 5. Rational inquiry passes through many modifications of the languages in which the investigation is carried on. These modifications will involve modifications of the accepted argumentation rules and therefore changes in the set of assertions which are considered correct in the different resulting epistemic situations. Following Peirce,⁴⁹ we might say that *an ideal*

⁴⁸ Where \geq^W is an extension of the presupposition relation \geq preserving the presuppositions between words of L which hold according to \geq , but involving new statements of presupposition about the new word W .

⁴⁹ Cf. Peirce (1931-35) 5.405-5.410.

epistemic situation for S is a situation which *would be reached in the long run* if an inquiry concerning S were to be pursued in the best way, by employing enough time, collecting all relevant information, exerting enough thought, performing enough experiments etc., so that after having reached such an epistemic situation no further investigation concerning S could bring about a rational change of our attitude towards S.⁵⁰

An ideal argument for S can be defined as an argument for S on the basis of which we would accept S in an ideal epistemic situation for S. For example, a mathematical proof (if it is really a proof, i.e. if it is not mistaken) is an ideal argument for its conclusion. "Ideal" is here meant in the same sense in which we say that the weather to day is the ideal weather for a holiday: it is not contrasted with "real". The ideal weather is often real. Ideal arguments are often found (though we cannot be *absolutely certain* that they are ideal), and when they are found, they are real arguments.

The practice of accepting and rejecting arguments and assertions described above shows that *an argument for S* is considered correct only to the extent that it is *considered* an ideal argument for S (even if the course of future investigation can subsequently show that the epistemic situation in which we are is not really an ideal epistemic situation for the asserted sentence). Moreover, *an assertion* is considered correct only to the extent that the argument which is given to justify that assertion (given directly or indirectly, by hinting how to find such an argument) is considered an ideal argument.

This leads to the conclusion that the notion of truth involved in the assertoric force is the following: a sentence *S is true* if, and only if, *there exists an ideal argument for S*.⁵¹ To some extent, this is a generalization of Prawitz's idea that mathematical truth consists in the existence of a proof (in an abstract sense of "existence"),⁵² even if an

⁵⁰ However, from the paradox of knowability we learnt that some ideal epistemic situations (though they are clearly describable) cannot be reached by us. See subsection 2.2, pp. 155-156.

⁵¹ Cf. Putnam (1981) p.55, where Putnam identifies truth with justifiability in ideal epistemic conditions.

⁵² Cf. Prawitz (1980) and Prawitz (1987). In the latter essay (pp. 153-154) Prawitz observes that "there exists" in this context "is not to be understood as a quantification over a domain that is well defined in the same way as that of the natural numbers".

ideal argument in my sense is not necessarily reducible to a canonical or direct argument in Prawitz's sense. That there exists an ideal argument does not mean that such an argument has been or will be constructed, but only that if we could carry the investigation far enough, without obstacles depending e. g. on the time at our disposal, on the lack of perseverance and intelligence, or on the size of the physical universe, then, by pursuing the investigation, we would reach an ideal epistemic situation where we would accept some argumentation rules and our argument would be a finite concatenation of applications of such rules.

Such a notion of truth is explained in terms of the notion of ideal argument, which, as the name suggests, is an idealization of the ways in which we justify assertions in our everyday cognitive practice; therefore it is *an epistemic notion of truth*. By asserting a sentence S a speaker raises *the claim* that there is an ideal argument for S , and the speaker's assertion is *correct* (in a non-relativistic sense) if, and only if, the speaker, in that circumstance, if requested and well disposed would give an ideal argument for S . Thus the appropriate qualification of the notion of 'correct argument' that we need for an explication of truth is the notion of 'ideal argument'.

In terms of the same notion we can explicate the notion of knowledge: p *knows that* X if, and only if, *i*) if requested and well disposed p would give an argument A in order to support an assertion that X (sincerely thinking that it supports the assertion in question) and *ii*) A is an ideal argument for the asserted sentence. Knowledge implies truth.

The epistemic conception of truth which turns on the concepts of ideal epistemic situation and ideal argument is – I think – the most appealing. Now I shall try to make it a little more precise by connecting it with the conception of understanding centred upon immediate argumental role.

If S is a sentence belonging to a language $\langle L, A, \geq \rangle$ and $\langle L^S, A^S, \geq^S \rangle$ is the language fragment presupposed by the immediate argumental role of S in $\langle L, A, \geq \rangle$ (as defined in chapter 3, section 17), we can call *a language which preserves the immediate argumental role of S in $\langle L, A, \geq \rangle$* a language $\langle L^*, A^*, \geq^* \rangle$ such that: (1) $L^S \subseteq L^*$ and $A^S \subseteq A^*$; (2) A^* does not contain any new argumentation rule concerning S which is not already in A^S ; (3) \geq^* is an extension of the

presupposition relation \geq^S which preserves the presuppositions between words of L^S . If $\langle L^*, A^*, \geq^* \rangle$ satisfies (1)–(3), the immediate argumental role of S in $\langle L^*, A^*, \geq^* \rangle$ is equal to the immediate argumental role of S in $\langle L, A, \geq \rangle$. In accordance with the view of assertion delineated above, a theory of meaning centred on immediate argumental role can explain assertoric force as follows: to assert a sentence S in a language $\langle L, A, \geq \rangle$ is to claim that there is a language $\langle L^*, A^*, \geq^* \rangle$ which preserves the immediate argumental role of S in $\langle L, A, \geq \rangle$ such that $\langle L^*, A^*, \geq^* \rangle$ is accepted in an ideal epistemic situation E^* for S , and S is assertable in $\langle L^*, A^*, \geq^* \rangle$ independently of assumptions.⁵³

This is right if the sentence-type S does not contain indexical expressions. But, of course, the ideal epistemic situation E^* for S can be different from the situation E in which S is asserted, and this possible difference gives rise to some complication in the case of indexical sentences. Some aspects of the circumstances of utterance (the speaker, the hearer, the time, the place etc.) are relevant to the argumentation rules concerning indexicals. In the ideal epistemic situation E^* such aspects may be different from the corresponding aspects of the situation E in which S is asserted. Thus, if S contains indexical expressions, the truth-claim which is raised by asserting S does not amount to the simple claim that S is assertable in an ideal epistemic situation E^* , but to the claim that *Some appropriate reformulation in E^* of S* – a reformulation S^* – is assertable in E^* . S^* may contain an explicit description of the indexically relevant aspects of the situation E in which S is asserted. For example, in the situation E (today August 15th 1994) I may assert "I have measles", but, though I have noticed some spots on my skin, I am not a doctor and have only very vague ideas on the symptoms of measles; so, I am not in an ideal epistemic situation for the sentence "I have measles". If it is true that I have measles, in an ideal epistemic situation somebody who knows enough about measles could correctly assert "Cesare Cozzo has measles on August 15th 1994", which would be an appropriate reformulation of the sentence that I have asserted. Admittedly, this is far from being a detailed account of the

⁵³ In the sequel I shall often omit the words "independently of assumptions": " S is assertable in $\langle L, A, \geq \rangle$ " will be an abbreviation of " S is assertable in $\langle L, A, \geq \rangle$ independently of assumptions".

phenomenon of indexicality from the point of view of the epistemic conception of truth. The reader is invited to regard it as a hint, which could be developed in some other work.

The foregoing considerations, in conclusion, suggest the following general explanation of assertoric force in the framework of the argumental conception of meaning:

xxxv ASSERTORIC FORCE

To assert a sentence S in a language $\langle L, A, \geq \rangle$ is to raise the claim that there is an ideal epistemic situation E^* for S , and there is a language $\langle L^*, A^*, \geq^* \rangle$ which preserves the immediate argumental role of S in $\langle L, A, \geq \rangle$ such that:

- 1) the language accepted in E^* is $\langle L^*, A^*, \geq^* \rangle$;
- 2) S (or an appropriate reformulation S^* of S , if S is indexical) is assertable in $\langle L^*, A^*, \geq^* \rangle$, i.e. there is an argument I^* for S (or for S^*) according to the argumentation rules in A^* , which does not contain undischarged assumptions.

The above mentioned I^* is *an ideal argument* for S (for S^*). Thus, the corresponding explication of the notion of truth is the following:

xxxvi A sentence S is true if, and only if, there are E^* , $\langle L^*, A^*, \geq^* \rangle$ and I^* as described in **xxxv** above.

4. Understanding assertoric force.

If the explication **xxxv** of assertoric force is right, our implicit understanding of assertoric force – which manifests itself in our practice of accepting and rejecting arguments and assertions – contains *an anticipation of possible rational extensions and revisions of the language we are presently using*. Such an explication also shows that the description of a meaningful language as an ordered triple $\langle L, A, \geq \rangle$ given in chapter 3 is – as we already hinted there⁵⁴ – incomplete. An understanding of the syntactic rules of a language, of the argumentation rules which give sense to words and sentences of the language, and of the presuppositions between those words and

⁵⁴ Cf. chapter 3, section 7.

sentences is not the whole understanding. An other essential component of our understanding of the language is the understanding of the assertoric force. Without assertoric force, a language would be something static, like a formal system, a closed set of fixed rules. On the contrary, the assertoric force that we attach to the asserted sentences makes our language open and dynamic, it drives us beyond the set of rules that we presently accept, towards possible rational changes of those rules.

5. An objection.

The outcome of section 3 is that a sentence S in a language $\langle L, A, \geq \rangle$ is true if, and only if, there is an ideal epistemic situation E^* for S where a language $\langle L^*, A^*, \geq^* \rangle$ is accepted in which the immediate argumental role of S is preserved and S is assertable. Let us call such a language $\langle L^*, A^*, \geq^* \rangle$ *an ideal development of $\langle L, A, \geq \rangle$ for S* . In short, S is true in $\langle L, A, \geq \rangle$ if, and only if, there is an ideal development of $\langle L, A, \geq \rangle$ for S .

One might object that if neither S nor $\neg S$ are already assertable in $\langle L, A, \geq \rangle$ independently of assumptions, which is of course often the case, there could be two alternative possible courses of rational inquiry leading to two different ideal epistemic situations E_1 for S and E_2 for $\neg S$ in which the language fragment presupposed by S is extended in two different ways, $\langle L_1, A_1, \geq_1 \rangle$ and $\langle L_2, A_2, \geq_2 \rangle$ respectively, so that in E_1 one can correctly assert S , and in E_2 one can correctly assert $\neg S$. There is no way – the objector says – of ruling out such a possibility, but if there could be two courses of rational inquiry of this kind, there would be an ideal development $\langle L_1, A_1, \geq_1 \rangle$ of $\langle L, A, \geq \rangle$ for S and an ideal development $\langle L_2, A_2, \geq_2 \rangle$ of $\langle L, A, \geq \rangle$ for $\neg S$. This would lead to the absurdity that S in $\langle L, A, \geq \rangle$ is at the same time true and false (because also its negation is true).

There are two possible ways of meeting this objection. One possibility is to change the definitions of assertoric force and truth. We could say that S is true if, and only if, *there is an ideal development of $\langle L, A, \geq \rangle$ for S and there is no ideal development of $\langle L, A, \geq \rangle$ for $\neg S$* . The truth-claim involved in an assertion could be correspondingly reinterpreted: by asserting S in $\langle L, A, \geq \rangle$ it is implicitly claimed that there is an ideal development of $\langle L, A, \geq \rangle$ for

S, and there is no ideal development of $\langle L, A, \geq \rangle$ for $\neg S$. A consequence of such an adjustment of the epistemic conception of truth is that – in the situation described by the objector – S would be neither true nor false (because $\neg S$ is not true). This should not strike us as an extreme novelty because also according to definition *xxxvi* given in section 3 there are sentences which are neither true nor false. In the course of inquiry concerning E the language fragment presupposed by E, $\langle L^E, A^E, \geq^E \rangle$, might be rejected as an incorrect language, for example because it is paradoxical, so that there is no ideal development of $\langle L, A, \geq \rangle$ for E and there is no ideal development of $\langle L, A, \geq \rangle$ for $\neg E$. In this case E is neither true nor false also according to *xxxvi*.

Another possible way of countering the objection is to stick to the definitions of truth and assertoric force given in the preceding section, and to argue that the predicament delineated in the objection is impossible, because at least one of the two epistemic situations E_1 and E_2 described by the objector would not be an ideal epistemic situation. An argument to this effect could be the following. Let us call Ξ_1 the possible course of inquiry leading to E_1 and Ξ_2 the possible course of inquiry leading to E_2 . If Ξ_1 and Ξ_2 are both possible courses of inquiry, then it is always possible to pursue them further so as to develop a possible course of inquiry Ξ_3 which contains both Ξ_1 and Ξ_2 as parts. For example we could pursue Ξ_1 first, and then Ξ_2 . By pursuing Ξ_3 we would reach an epistemic situation E_3 in which we have both a development $\langle L_1, A_1, \geq_1 \rangle$ of $\langle L, A, \geq \rangle$ in which S is assertable and a development $\langle L_2, A_2, \geq_2 \rangle$ of $\langle L, A, \geq \rangle$ in which $\neg S$ is assertable. What would be reasonable to do in E_3 ? In E_3 we would know that the language fragment $\langle L^S, A^S, \geq^S \rangle$ presupposed by S, not only is ‘incomplete’ – because in it neither S nor $\neg S$ is assertable – but also can be extended in two opposite ways, $\langle L_1, A_1, \geq_1 \rangle$, where S is assertable, and $\langle L_2, A_2, \geq_2 \rangle$, where the negation of S is assertable, and – since the objector maintains that they are ideal developments – we would also know that both ways of extending $\langle L^S, A^S, \geq^S \rangle$ present some epistemic advantages which give good grounds for accepting them in E_3 according to the various criteria of language correctness mentioned in chapter 5. Thus in E_3 we would face the dilemma: *i*) to accept both extensions $\langle L_1, A_1, \geq_1 \rangle$ and $\langle L_2, A_2, \geq_2 \rangle$ of $\langle L^S, A^S, \geq^S \rangle$ and to be forced to admit the absurdity that both S and $\neg S$ are

assertable or *ii*) to renounce the epistemic advantages offered by $\langle L_1, A_1, \geq_1 \rangle$ or the epistemic advantages offered by $\langle L_2, A_2, \geq_2 \rangle$ by rejecting one of the two languages, and in this way to eliminate the absurdity. If we opted for (*ii*), we would reject one of the two developments $\langle L_i, A_i, \geq_i \rangle$ (where $i=1$ or $i=2$) and this would show that *one of the two epistemic situations described by the objector, E_i , would not be an ideal epistemic situation for the relevant sentence*, because by pursuing inquiry far enough we would finally come to a rational change of our attitude towards the sentence. Thus, in this case, the objector's description of E_i as an ideal epistemic situation would be wrong. However in E_3 we might not be willing to opt for (*ii*) because we might neither be willing to renounce the epistemic advantages offered by $\langle L_1, A_1, \geq_1 \rangle$, nor those offered by $\langle L_2, A_2, \geq_2 \rangle$. What should we do in such a case? Option (*i*), as it stands, would not be an acceptable option, because it would be absurd – in so far as "¬" has its usual sense – that both S and $\neg S$ be assertable. However, a reasonable solution of the problem would be to say that the situation in E_3 shows that the meaning given to S by the argumentation rules in the language fragment $\langle L^S, A^S, \geq^S \rangle$ presupposed by S is too highly indetermined – since it admits to opposite valuable developments, one leading to an assertion of S and the other leading to an assertion of $\neg S$ –. Therefore such a meaning ought to be changed and rendered more determined without losing the epistemic advantages acquired in E_3 : the unacceptable indeterminacy ought to be eliminated by adopting instead of $\langle L^S, A^S, \geq^S \rangle$ two different language fragments $\langle L^{S^1}, A^{S^1}, \geq^{S^1} \rangle$ and $\langle L^{S^2}, A^{S^2}, \geq^{S^2} \rangle$ obtained by adding to $\langle L^S, A^S, \geq^S \rangle$ two different sets of new argumentation rules, J_1 and J_2 , concerning the words in S . The new language fragments $\langle L^{S^1}, A^{S^1}, \geq^{S^1} \rangle$ and $\langle L^{S^2}, A^{S^2}, \geq^{S^2} \rangle$ ought to be such that a counterpart of S , S^1 , would be assertable in $\langle L^{S^1}, A^{S^1}, \geq^{S^1} \rangle$ by exploiting J_1 and a counterpart of $\neg S$, $\neg S^2$, would be assertable in $\langle L^{S^2}, A^{S^2}, \geq^{S^2} \rangle$ by exploiting J_2 . (A very rough way to do that would be to set $J_1 = \{S^1\}$ and $J_2 = \{\neg S^2\}$ which would amount to turning S and $\neg S$ into two axioms, S^1 of $\langle L^{S^1}, A^{S^1}, \geq^{S^1} \rangle$ and $\neg S^2$ of $\langle L^{S^2}, A^{S^2}, \geq^{S^2} \rangle$, respectively). The immediate argumental role of S^1 would presuppose the language fragment $\langle L^{S^1}, A^{S^1}, \geq^{S^1} \rangle$, and the immediate argumental role of S^2 would presuppose the language fragment $\langle L^{S^2}, A^{S^2}, \geq^{S^2} \rangle$. So the senses of S^1 and S^2 would be two alternative more determined

improvements of the sense of S . In such a case the absurdity would be eliminated, because the sentence S^2 negated in $\neg S^2$ would not have the same sense as S^1 . But if we opted for this tactic, we would reject the original language fragment $\langle L^S, A^S, \geq S \rangle$ presupposed by S , and thereby our inquiry would lead us to reject both S and $\neg S$. Hence *both E_1 and E_2 would not be ideal epistemic situations for S or $\neg S$, respectively*. Thus, also in this case, the objector's description would be wrong and the supposed difficulty dissolves.

Which of the two responses I have just delineated is the best way of meeting the objection – to adjust the explication of truth or to argue that the difficulty envisaged by the objector does not arise because at least one of the two epistemic situations would not be ideal – should be decided by examining the practice of rational investigation, also by considering historical cases. I don't want to take a stand about this issue here. But I think that in one of these two ways the objection can be satisfactorily met.

Rejection of Analytic Truth

1. Logical pluralism with respect to understandability, neutrality with respect to the correctness of a logic.

The argumental conception of meaning is *pluralistic with respect to the understandability of different logics*. In order to understand a logic we need only to know the argumentation rules concerning the logical constants, i.e. to know some relevant logical rules. In order to give meaning to a logical constant, it is sufficient to accept the logical rules concerning it.

However, it should be clear that the logical pluralism which characterizes the conception of meaning here described is not the same pluralism that Rudolf Carnap embraced in *The Logical Syntax of Language*.¹ Carnap was a pluralist because he thought that there are many understandable languages and many possible logics corresponding to these different languages. But he also thought that we are completely free to choose which language to adopt. He explicitly denied that there be any rationally acceptable and clear notion of correctness with respect to which the choice of a language and the choice of a logic could be considered right or wrong. The famous Principle of Tolerance expresses this view with Carnap's characteristic clarity.

In logic there are no morals. Everyone is at liberty to build up his own logic, i.e. his own form of language as he wishes. All that is required of him is that [...] he must state his methods clearly, and give syntactical rules instead of philosophical arguments.²

Here Carnap meant *explicitly stated rules*, while we maintained in chapter 3 that the argumentation rules neither are nor have to be always explicitly stated by the speakers who follow them. But the latter, though important, is a comparatively minor point. The most important difference between Carnap's view and the argumental

¹ Carnap (1934).

² Carnap (1934) §17, Engl. translation, p. 52.

conception of meaning proposed in this book is that according to the latter conception a fundamental aspect of rational inquiry consists in criticizing and improving the languages in which arguments are constructed and assertions are made in order to attain to an ideal balance between various *criteria of language-correctness*. The view I defend involves the tenet that the adoption of a language in a given epistemic situation can be right or wrong and that inquiry passes through many *rational* modifications of the languages in which the investigation is carried on, whereas Carnap maintained that rational inquiry takes place only *within a fixed language* and that the adoption of one rather than another language is a matter *beyond rationality*, and does not belong to rational inquiry. According to *The Logical Syntax of Language*, a language is *a formal system*, a closed set of fixed rules. For Carnap, to understand a language is just to master the rules of a formal system, while the supporter of the argumental conception of meaning – according to chapter 6 – maintains that an understanding of the syntactic rules and of the argumentation rules of a language is only a part of our understanding, and that another essential part is the assertoric force which drives us beyond the set of rules that we presently accept, towards possible rational changes of those rules. Different languages – according to *The Logical Syntax of Language* – can only be compared like formal systems by a purely ‘syntactical’ examination which should be “nothing more than *combinatorial analysis*, or, in other words, the *geometry* of finite, discrete serial structures of a particular kind”³. But ‘syntactical’ analysis in Carnap's sense is simply a metalinguistic description of the properties of the languages, and it does not provide any rational criterion for choosing, criticizing or improving them. In sum, Carnap not only was a pluralist with respect to the understandability of different logics, but also *rejected any non-relativistic notion of correctness for a logic*: if we choose to adopt a language, then a

³ Carnap (1934), §2, Engl. transl. p. 7. However, Carnap did not remain faithful to this characterization of syntactical analysis, because in his definition of consequence and analyticity he availed himself of *semantic* techniques requiring strong metalanguages, cf. Carnap (1934), §§ 34a-34d. For different interpretations of Carnap's approach, cf. Friedman (1988), and Goldfarb and Ricketts (1993).

certain logic will be correct for us, relatively to the language we have chosen. But we are completely free to choose as we wish.

The argumental conception which has been described in this study, differently from Carnap's view, accepts the idea that a language can be rationally considered correct or incorrect. Moreover, as we saw in chapter 5, *the understandability of a language and of a logic does not guarantee their correctness*. The correctness of a logic in an epistemic situation depends on the correctness of the language in which it is framed, and the correctness of the language, as we saw, depends on many conflicting factors which should be evaluated in the given epistemic situation. Such an evaluation may change in a subsequent epistemic situation until an ideal epistemic situation is reached where the attitude towards that logic becomes stable. Even if there are changes, and for example a logic is first considered correct and then incorrect, that logic remains always understandable.

A theory of meaning centred on immediate argumental role answers the question about the nature of the *understandability* of a logic. But the theory of meaning cannot answer the question whether a logic is *correct* or not, because the latter question must be decided in concrete epistemic situations which the theory of meaning cannot describe *in advance*. Therefore the argumental conception of meaning is *neutral with respect to the correctness of a logic*.

2. There are relatively *a priori* sentences, but no sentence is absolutely *a priori*.

In chapter 4 we saw that a sentence can be *a priori* assertable relatively to a language $\langle L, A, \geq \rangle$.⁴ In $\langle L, A, \geq \rangle$ one can construct arguments which do not contain any undischarged assumption and do not employ any non-linguistic evidence. If S is the conclusion of such an argument, then S is a *a priori assertable relatively to $\langle L, A, \geq \rangle$* . In other words:

⁴ Cf. chapter 4, section 1.

xxxvii *S* is *a priori* assertable relatively to $\langle L, A, \geq \rangle$ if, and only if, the empty pair $\langle \emptyset, \emptyset \rangle$ is a global assertability condition of *S* in $\langle L, A, \geq \rangle$.⁵

If *S* is *a priori* assertable relatively to $\langle L, A, \geq \rangle$, once one has accepted the language $\langle L, A, \geq \rangle$ and its argumentation rules, one can find an argument for *S* without resorting to experience. That is why *S* is *a priori* relative to $\langle L, A, \geq \rangle$. However this does not mean that *S* is *absolutely a priori*, nor does it mean that *S* is true.

It does not mean that *S* is true, because the truth of a sentence *S* is the assertability of *S* in an ideal epistemic situation, which depends on the possibility to accept a language preserving the immediate argumental role of *S* in an ideal epistemic situation and on the existence in that language of an argument for *S* independent of assumptions. The mere fact that *S* is *a priori* assertable relatively to $\langle L, A, \geq \rangle$ does not guarantee that $\langle L, A, \geq \rangle$ is acceptable in an ideal epistemic situation for *S*, hence *it does not guarantee that S is true*.

Moreover the acceptability of a language $\langle L, A, \geq \rangle$ in an epistemic situation, as we have often repeated, depends on many contextual factors, including also characteristics of $\langle L, A, \geq \rangle$ which make such a language a better apparatus for dealing with empirical evidence. Thus, even if *S* is *a priori* assertable relatively to $\langle L, A, \geq \rangle$, the acceptability of $\langle L, A, \geq \rangle$ is not *a priori*. A piece of knowledge is *absolutely a priori* only if it is independent of *all* experience.⁶ Since the acceptability of *S* depends on the acceptability of $\langle L, A, \geq \rangle$, which in turn depends on experience, *S* is not *absolutely a priori*.⁷

In particular, *logical truths* – i.e. truths in which only logical constants occur essentially⁸ – are not *absolutely a priori*.

⁵ The notion of a global assertability condition of a sentence *S* in a language $\langle L, A, \geq \rangle$ was introduced in chapter 4, section 1, by definition **xxxi**, p. 126.

⁶ Cf. Kant (1787) B3: "Wir werden also im Verfolg unter Erkenntnissen *a priori* nicht solche verstehen, die von dieser oder jener, sondern die *schlechterdings* von aller Erfahrung unabhängig stattfinden".

⁷ The thesis that some sentences are *a priori* "relative to a particular body of knowledge", but no sentence is *absolutely a priori*, was defended by Putnam; cf. for example Putnam (1975a) pp. viii-x.

⁸ This is Quine's well known definition of logical truth in Quine (1936). Quine's notion of 'essential occurrence' is defined as follows: 1) an expression occurs *vacuously* in a sentence *S* if, and only if, by replacing it with other syntactically

3. There are not analytic truths.

The argumental conception of meaning expounded in this book leads us not only to reject the idea that some sentences are absolutely *a priori*, but also the idea that some sentences are true only in virtue of their meaning, i.e. analytically true.⁹

According to the argumental conception, as we saw in chapter 5, a language can be incorrect. Thus, meanings *by themselves* cannot make a sentence true. A sentence *S* can be a *a priori* assertable relatively to the language fragment $\langle L^S, A^S, \geq^S \rangle$ presupposed by its immediate argumental role. In such a case, *S* is a *a priori* assertable relatively to any language $\langle L, A, \geq \rangle$ which preserves the immediate argumental role – i.e. the sense – of *S*. Thus, we can say that *S* is *assertable relatively to* $\langle L, A, \geq \rangle$ only in virtue of its meaning. But the choice whether or not such a language $\langle L, A, \geq \rangle$ and its sublanguge $\langle L^S, A^S, \geq^S \rangle$ are acceptable in an epistemic situation depends on considerations which go beyond the meaning of *S*.

If *S* is true, its truth, according to the epistemic conception of truth described in chapter 6, depends on the acceptability in an ideal epistemic situation of a language $\langle L, A, \geq \rangle$ which preserves the immediate argumental role of *S*. But this acceptability, again, does not depend only on the meaning of *S*, i.e. it does not depend only on what we have to know in order to understand *S*. It depends on the evaluation of $\langle L, A, \geq \rangle$ guided by the various criteria mentioned in chapter 5: non-paradoxicality, simplicity, epistemic fruitfulness etc. The course of inquiry leading to an ideal epistemic situation for *S*

admissible expressions the truth or the falsity of *S* remains always unaltered in the resulting sentence *S**; 2) a sentence *S** obtained by replacing an expression occurring *vacuously* in *S* is a *vacuous variant* of *S* (all vacuous variants of *S* have in common "a certain skeleton of symbolic make-up" but differ "in exhibiting all grammatically possible variations upon the vacuous constituents" of *S*); 3) an expression occurs *essentially* in a sentence *S* if, and only if, "it occurs in all the vacuous variants" of *S*, "i.e. if it forms part of the aforementioned skeleton". Cf. Quine (1976) pp. 80-81.

⁹ Though there are other definitions of 'analytic', the widest sense given to 'analytically true' is that a sentence is analytically true if, and only if, it is true only in virtue of its meaning; cf. Quinton (1964).

may consist of many epistemic transitions which involve modifications of the accepted languages according to the aforementioned criteria. And also in the ideal epistemic situation the evaluation of $\langle L, A, \geq \rangle$ has to do with *the whole language*, not only with the fragment $\langle L^S, A^S, \geq^S \rangle$ presupposed by the meaning of *S*. Moreover the epistemic fruitfulness of $\langle L, A, \geq \rangle$ ultimately depends on *experience*. Therefore, even if a sentence *S* is true and *a priori* assertable relatively to $\langle L^S, A^S, \geq^S \rangle$, *S* is *not* true *only* in virtue of its meaning, i.e. it is not analytically true.

In "Two Dogmas of Empiricism"¹⁰ Quine denied that there are analytically true sentences. But Quine denied also that it is possible to make a legitimate distinction between knowledge of language – constitutive of linguistic understanding – and further knowledge which is not constitutive of linguistic understanding. Thus Quine, in rejecting analyticity, rejected also the genuine notion of meaning. On the contrary, the argumental conception of meaning denies that there are analytical truths without abandoning the notion of meaning and without eliminating the distinction between knowledge of a language and non-linguistic knowledge.

In particular, logical truths are not true in virtue of the meanings of logical constants. An explanation of the meanings of a given set of logical constants explains only in what an understanding of those logical constants consists by describing the logical rules concerning them. But since understandability does not guarantee correctness ("tonk"¹¹ is understandable, but wrong), an explanation of the meanings of those logical constants does not decide whether the resulting logic is acceptable. This can be decided only within concrete epistemic situations which are to a great extent unforeseeable. The idea that a meaning-theoretical investigation should decide whether a logic is valid, depends on the idea that a theory of meaning should at the same time explain what it is to *understand* a language and give a guarantee of the *correctness* of the language. My point is that these two tasks cannot be performed simultaneously.

¹⁰ Quine (1951).

¹¹ Cf. chapter 5, section 1.

4. Dummett's requirements on a theory of meaning are not sufficient for rejecting classical logic.

Dummett thinks that a theory of meaning should be a theory of understanding and should satisfy the requirements of compositionality and manifestability. On the basis of these requirements, Dummett has proposed an argument against classical logic and in favour of intuitionistic logic, which, differently from Brouwer's original criticism of classical logic, involves only general considerations within the theory of meaning. Dummett seems to think that it is not possible to devise any theory of meaning and understanding in accordance with these requirements which gives meaning to the classical logical constants. Dummett's conclusion is that the classical logical constants are unintelligible. Therefore he has advocated a revision of logical practice: classical logic should be abandoned and replaced with intuitionistic logic (which is justified by a verificationist theory of meaning).¹²

But a theory of meaning centred on immediate argumental role is a compositional theory of understanding which satisfies the requirement of manifestability and according to which classical logical constants are perfectly understood, because we all know argumentation rules for some version of classical logic. Thus Dummett's requirements on a theory of meaning don't imply that classical logic is unintelligible, and are not sufficient for rejecting classical logic.

It can be objected that if we accept the equivalence thesis:

$$1) (\text{it is true that } S) \leftrightarrow S,$$

then, by classical logic, from the classical law of excluded middle:

$$2) S \vee \neg S,$$

we can derive the principle of bivalence:

¹² Cf. Dummett (1975a). See also chapter 2, section 2, of this book.

3) (it is true that S) \vee (it is true that $\neg S$).

The principle of bivalence, even if it cannot be denied without contradiction, seems unwarranted if we adopt an epistemic conception of truth like the one described in chapter 6 and the sentence substituted for S is a still undecided sentence (e.g. Goldbach's conjecture) such that we do not know any effective method for deciding it. In this case, we now have no argument for the thesis that there is an ideal epistemic situation in which it is decided whether such a sentence is assertable or its negation is, except the extrinsic argument based on the excluded middle. In other words, we don't know whether we can solve the problem whether S or $\neg S$, but classical logic, if we endorse the epistemic conception of truth, forces us to conclude that we (at least in principle) can.

This objection shows that classical logic – as Brouwer stressed in 1908¹³ – involves an unwarranted assumption: the assumption that we can in principle solve any given problem. The controversial character of such an assumption may be an argument against classical logic, but it does not show that classical logic is unintelligible. Moreover such an argument against classical logic can be outweighed by other advantageous properties of classical logic. Quine, for example, has maintained that classical logic should be preferred to other logics for "the convenience, the simplicity and the beauty" that it affords.¹⁴ John Burgess has argued that the price of replacing classical mathematics with intuitionistic mathematics would be too high, especially if one considers the consequences of such a revision for the applications of mathematics to physics, and in general to the empirical sciences.¹⁵ Whether these arguments in favour of classical logic are decisive is a difficult question that I am not competent to answer. My point here is

¹³ Cf. Brouwer (1908).

¹⁴ Quine (1970) p. 87. Cf. also Quine (1981).

¹⁵ Cf. Burgess (1984) pp. 191-192. Geoffrey Hellman's recent proof that Gleason's Theorem is not constructively provable supports Burgess' claim (Gleason's Theorem is a fundamental theorem for the foundations of quantum mechanics). Cf. Hellman (1993a). Moreover in Hellman (1993b) it is argued that "central results of functional analysis for Quantum Mechanics involving *unbounded* linear Hermitian operators in Hilbert space, especially the Spectral Theorem [...] not only can [...] not be constructively *proved*, [...but] cannot even be constructively *stated*!".

only that classical logic is perfectly intelligible. Dummett himself, to some extent, seems to grant that even Brouwer understood classical logic and classical mathematics:

Brouwer made himself famous with his great series of discoveries in classical topology. His principal motive for doing so was to obtain the chair of mathematics at Amsterdam, from which he could preach the necessity of replacing classical by intuitionistic mathematics; *but by proving these classical theorems, he demonstrated that he had a profound grasp of classical mathematics*. He could play the game of classical mathematics as skilfully as any classical mathematician, and more skilfully than most. [...] How, then, *could* he maintain that classical mathematics is meaningless?¹⁶

The answer, in my opinion, is that Brouwer's views about mathematical meaning and mathematical understanding – centred upon the psychologistic and solipsistic notion of ‘languageless mental construction’ – did not aim at explaining linguistic practice in accordance with the thesis that meaning is public and with the requirement of manifestability. For Brouwer, mathematical understanding depends on the mental constructions which are performed in the mind of a mathematician. Mental constructions are “languageless”¹⁷, and thus independent of linguistic practice. Linguistic practice is necessary for communication, but it is also the main source of error and misunderstanding in mathematics, because it is not always accompanied by corresponding mental constructions.¹⁸ That is why the possession of the linguistic practical ability to use logical constants classically – according to Brouwer – is compatible with a complete lack of real understanding.

But if we don't want to leave linguistic practice unexplained, and if we accept the Wittgensteinian view that meaning is use and Dummett's requirement of manifestability – which is a development

¹⁶ Dummett (1991a) p. 239 (my italics).

¹⁷ Cf. Brouwer (1933), Engl. transl p. 443.

¹⁸ Cf. *ibidem*: “for a human mind equipped with an unlimited memory pure mathematics, practised in solitude and without using linguistic signs, would be exact, but the exactness would be lost in mathematical communication *between* human beings with an unlimited memory, because they would still be thrown upon language as their means of understanding”. Cf. also Brouwer (1908) pp. 107-108.

of the Wittgensteinian view – , we have to admit that if one is able to share the common practice of classical logic, then one understands the relevant logical words. Since I do think that a theory of understanding ought to explain linguistic practice in accordance with the requirement of manifestability, the intelligibility of classical logic seems to me a clear fact.

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