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 have seen 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. 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 conception of meaning I am going to present. Sense and force are two ingredients of the meaning of a linguistic act.

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.

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 (cf. also chapter 1, section 4).

Moreover, 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 each ingredient 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 have seen 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 steps (for a detailed description of argumentation steps see the next section) is a practical ability. According to my view, a speaker knows the sense of a sentence if, and only if, he or 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 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 a reduction of the general notion of understanding to non-semantic notions.

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. First, I define the notion of ‘argumentation step’, which is a generalization of the notion of inference. An argumentation step $P$ is the particular act of justifying a token sentence, called conclusion (possibly depending on certain hypotheses).
An argumentation step $P$ is determined by a list of seven finite items
\[ P = \langle C, NL, PR, AR, H, VAR, S \rangle. \]

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 of 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 abnormality, and the result is our failure, which counts as defeasible evidence for the sentence "Titi is not abnormal".\(^1\) 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, but it can 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 assumption\(^2\)).

\(^1\) Probably the reader has recognized the usual example in the literature concerning non-monotonic reasoning; cf. 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).

\(^2\) According to the explanation (given below in this section) of what an axiom is, an axiom is an argumentation step without premisses (and thus without arguments for premisses), the conclusion is asserted unconditionally. On the other hand, an assumption can be viewed as an argumentation step $P$ with conclusion $C$, with only one premiss $I$ supported by an argument $A$, such that in $P$ argument $A$, premiss $I$ and conclusion $C$ coincide. The difference between an axiom and an assumption, therefore, is that the conclusion $C$ in the former case is asserted
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 concluded $A \rightarrow B$ in getting rid of the assumption $A$. $D^2$ can be represented as follows:

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

(the square brackets indicate the discharged assumption).

Arguments in AR may also contain free variables in a finite set $\text{VAR}$, 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 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.

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

unconditionally, in the latter case is advanced only under the condition of its premiss $I$, which is $C$ itself.
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. On the contrary, if from a mathematical 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. 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 theory described 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. It is necessary to stress that non-linguistic evidence plays a role in argumentation. 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. 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 have already given 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 or 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 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

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3 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 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. 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 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 or 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. 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 how language functions. 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 has 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".⁴ John McDowell has described this idea as the idea "that a proper theory of meaning for a language would be formulated 'as from outside' content altogether".⁵ I agree with McDowell and with Peter Pagin⁶ 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'⁷

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

⁴ Dummett (1977) p. 376.
same can be said of an homophonic formulation of the truth conditions of "NN".\(^8\)

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 an aim, it can satisfy our need of philosophical clarification of the linguistic activity in which we and our fellow speakers are already engaged, though the theory is elaborated ‘from inside language’.

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 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 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

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\(^8\) 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 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.
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 "\( \neg s \to (q \land r) \)" (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) \( q \land r \) from 3, 4;
6) \( \neg s \to (q \land r) \) from 1–5, discharging 1.

Argument 1–6 depends only on the hypothesis 2, because 1 has been discharged. 1–6 consists of 4 consecutive argumentation steps:

- \( P_1 \): from 1 and 2 to 3;
- \( P_2 \): from 1 and 2 to 4;
- \( P_3 \): from 3 and 4 to 5;
- \( P_4 \): from argument \( P_1–P_3 \) 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 "\( \neg s \to (q \land r) \)" of \( P \) and consists of four different argumentation steps.

Now, suppose the opponent is not satisfied and challenges the last argumentation step, \( P_4 \), (which is an instance of the argumentation rule of implication introduction, like the first boxed example given in section 2). In this case, suppose that the speaker does not give another argument to justify the argumentation step \( P_4 \), but only shows the structure of \( P_4 \) to the opponent, either by describing it explicitly or indirectly, by comparing \( P_4 \) with other argumentation steps with the same structure and by manifesting that he or she considers correct all the argumentation steps sharing the characteristic structure of \( P_4 \), just because they have that structure. If the opponent insists that \( P_4 \) is not correct, the speaker retorts that the opponent does not understand the word for implication "\( \to \)" or somehow manifests the conviction that the opponent is the victim of some linguistic misunderstanding. Well, in this case the argumentation
step $P_4$ 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 possibility, nor the need of giving any further justification 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 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 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.$^9$

$iv$ An argumentation rule $R$ is determined by a characteristic structure $\Sigma$ 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 $\Sigma$.

$^9$ The following explanation $iv$ does not exclude that also non-immediate argumentation steps be instances of argumentation rules. In that case the 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.
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.10 Moreover, it seems to me that, given any 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 ∧ F", "(C → D) ∧ F" and "E ∧ ∀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 or she recognizes the structure Σ and 3) if the person were challenged, he or 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

10 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?).
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 "→"). 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:

\[ \Delta \text{ is an adequate description of } R \text{ if and only if } \]

a) \( \Delta \) refers to individual words W by quotational names "W"

b) \( \Delta \) 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 \( \Sigma \) only if every argumentation step in which the speaker can recognize the structure \( \Sigma \) 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 could 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 could conclude that in the conception of meaning here described 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. It is also a fact (if meaning is public) 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 that 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 the 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. In order to account for the 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. A 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 has said if it were shown that the utterance is in conflict with the socially accepted meanings.11 3) As Hilary Putnam has emphasized in his paper "The Meaning of ‘Meaning’"12, 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 or she does not know and each speaker uses words the meanings of which he or 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.

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".13 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

12 In Putnam (1975b).
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".14 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 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 ought to be revised if a conflict with the common language is discovered. Dummett has insisted in many places on this point15: 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 has called them16, 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 sentences 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 has written

The linking principles for a theory of meaning [for a common language] will be very complex, since they have to describe an 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.17

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 change and that the speakers know that they may change. 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.18

18 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
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 an actual construction of such a theory, 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 a theory of meaning for a common language centred upon immediate argumental role 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 or 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 theory of meaning centred on immediate argumental role 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

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"La première chose qui frappe quand on etudié les faits de langue ces 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 det tout ce qui l'a produit et ignorer la diachronie", Saussure (1916), crit. ed. by R.Engler, p.181.
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 devided into meaningful parts, thus they usually don't
coincide with typographical words).

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$vi$ $L$ 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 \( \Delta \) 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 \( \Delta \) 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 \( \Delta \) 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 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.

It might be objected that 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 a fellow speaker. But, though we assume that the linguist has become a member of the linguistic community, we obviously cannot assume that the linguist possesses only notions shared by the community (and thus possessed by the ideal speaker). The latter assumption 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 notions introduced in this book\(^{19}\), 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 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.

\[ \text{An argumentation rule } R \text{ immediately-touches a word } W \text{ if, and only if, every adequate description of } R \text{ contains a quotational name of } W. \]

\(^{19}\) But some of such notions are present also in other works by the same author, the first of which (a very embryonic formulation of the ideas of this book) dates back to 1989. Cf. Cozzo (1989) and Cozzo (1994).
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, "→" and B in this order. In schematic form:

\[
\begin{array}{c}
A \\
\rightarrow \quad B
\end{array}
\]

\[ \text{MP} = \quad \begin{array}{c}
A \\
\rightarrow \quad B
\end{array} \]

Furthermore, consider the rule R#, according to which from "oboex(x)" we may infer "musical-instrument(x)".

\[
\begin{array}{c}
\text{oobex (x)} \\
\text{musical-instrument (x)}
\end{array}
\]

\[ \text{R#} = \quad \begin{array}{c}
oobex (x) \\
\text{musical-instrument (x)}
\end{array} \]

According to *vii*, *modus ponens* immediately-touches "→", and the rule R# immediately-touches the words "oboex" 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 "oboex", 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 "oboex". If two persons accept completely different rules of the latter kind, should we say that they understand "oboex" 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's 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 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.

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 vice versa, "clarinet" presupposes "music", but not vice versa, "hymenopteron" presupposes "ant", "bee" and "wasp", but not vice versa.

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" shows\(^\text{20}\)). Moreover, the presupposed word U serves as a basis upon which to learn the presupposing word W; U must be learned before 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 vice versa.

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. A similar 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 vice versa, that it is possible to understand "father-in-law" without understanding "music", and vice versa.

In conclusion: 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 not sufficient 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

\(^{20}\) Similarly, for an English speaker "houseware" presupposes "pot", but the extension of "houseware" is wider than the extension of "pot".
understanding of W, if W does not presuppose U (as the example about disjunction and "sibling" indicates).

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 who tries to construct a theory of meaning for the speaker's language must try to exploit those aspects of the speaker's practice in which such pretheoretical intuitions manifest themselves in order to fix the relation of presupposition for the words of the language.

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 ≥ 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≈W j". "W i≈W j" means that W i and W j presuppose each other (thus, it is an abbreviation of "W i ≥ W j & W j ≥ 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.presentsupposes W j non reciprocally). Thus, the formula "W i > W j" is an abbreviation of the conjunction "W i ≥ W j & ¬(W j ≥ W i)".

In section 7 we have seen 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 ≥ 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 "≥" for the language in question?

First of all the linguist has to assume some theoretical constraints on presupposition. The relation expressed by "≥" 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.
IMMEDIATE ARGUMENTAL ROLE

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 \( \geq_{imm} \).

A word \( W_i \) immediately presupposes another word \( W_j \), (in symbols \( W_i \geq_{imm} W_j \)) 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 \( \Sigma \) characteristic of the rule and that, since the argumentation steps are immediate, \( \Sigma \) 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. 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 \( \Sigma \) a reason for accepting an argumentation step? Why is the rule \( R \) with characteristic structure \( \Sigma \) accepted by \( S \)? According to the view of meaning centred upon immediate argumental role, 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 \( W \) (this notion corresponds to the notion of ‘immediately
concerning’ which will be defined in the sequel). So, one of the heuristic
principles which guides the linguist’s investigation is the following:

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

In other words, if an argumentation rule \( R \) is in \( A \) and immediately-touches the
words \( W_1, \ldots, W_n \), 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 \( W_1, \ldots, W_n \) is \( W_i \). But, if \( R \) is constitutive of the understanding of \( W_i \), 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 \( W_1, \ldots, W_n \). Hence \( W_i \) must immediately
presuppose \( W_1, \ldots, W_n \). The linguist shoud thus check whether this is the case, as
the following principle says.

\textbf{x} If \( R \) is immediately constitutive of the understanding of a word \( W_i \) and \( R \)
immediately-touches a word \( W_j \), then \( W_i \gEimm W_j \). If you suppose that \( R \) is
constitutive of the understanding of \( W_i \), check whether \( W_i \gEimm W_j \).

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 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 \( W_i \), the linguist
knows only that \( R \) belongs to \( A \) and that \( R \) immediately-touches \( W_i \). The relation
of presupposition must be fixed by the linguist just in order to settle the question
whether \( R \) concerns \( W_i \) (i.e. whether \( R \) is constitutive of the understanding of \( W_i \)).
Principle \( x \), in so far as it states what the relations of immediate presupposition
have to be, plays a regulative and heuristic role for the linguist who is trying to
compile the basic list of statements of immediate presupposition.

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, \( W \), implies that \( W \) immediately presupposes
the other word. But there is an analogous connection in the other direction, which
is stated by principle \( xi \)

\textbf{xi} If \( W_i \gEimm W_j \), 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 "\( W_i \gEimm W_j \)" 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 \( Wi \geq \text{imm} Wj \) holds, except that \( S \) accepts a rule \( R \) which immediately-touches both words \( Wi \) and \( Wj \) and that there is reason to suppose that \( R \) is constitutive of the understanding of \( Wi \). \( x \) 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 \text{ If } Wi \geq \text{imm} Wj \text{, then there is at least one rule } R \text{ in } A \text{ (called } "Wi-Wj \text{ connection rule}\) with the following properties:} \]

1) \( R \) immediately-touches both \( Wi \) and \( Wj \);
2) for every word \( Wk \) such that \( R \) immediately touches \( Wk \), \( Wi \geq \text{imm} Wk \).

Do not accept the statement "\( Wi \geq \text{imm} Wj \)" if there is no such a rule \( R \).

11. Presuppositional data.

The heuristic principles \( ix-xii \) play a \textit{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 \textit{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.\(^{21}\)

**EXAMPLE 1**

\[
\begin{array}{c}
\text{lieutenant ( x )} \\
R1= \overbrace{-} \\
\text{soldier( x )}
\end{array}
\]

\(^{21}\) I give here schematic descriptions of argumentation rules instead of adequate descriptions in the sense of definition \( v \) because schematic descriptions are easier to grasp. But it is straightforward to transform a schematic description into an adequate description.
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"!". 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 ix 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) \( \text{"lieutenant"} \geq \text{imm."soldier"} \).

A second kind of presuppositional data can be achieved by asking the speaker questions like: "is it necessary to understand Wi in order to understand Wj?" for any pair \(<Wi,Wj>\) such that Wi and Wj 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:
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Is it necessary to understand &quot;soldier&quot; in order to understand &quot;army&quot;?</td>
<td>1') Yes.</td>
</tr>
<tr>
<td>2) Is it necessary to understand &quot;soldier&quot; in order to understand &quot;member&quot;?</td>
<td>2') No.</td>
</tr>
<tr>
<td>3) Is it necessary to understand &quot;member&quot; in order to understand &quot;army&quot;?</td>
<td>3') Yes.</td>
</tr>
<tr>
<td>4) Is it necessary to understand &quot;member&quot; in order to understand &quot;soldier&quot;?</td>
<td>4') Yes.</td>
</tr>
<tr>
<td>5) Is it necessary to understand &quot;army&quot; in order to understand &quot;member&quot;?</td>
<td>5') No.</td>
</tr>
<tr>
<td>6) Is it necessary to understand &quot;army&quot; in order to understand &quot;soldier&quot;?</td>
<td>6') Yes.</td>
</tr>
</tbody>
</table>

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 "$\approx$" in section 10) the following conclusions.

$\alpha$) "lieutenant" > "soldier";
$\beta$) "army" $\approx$ "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 \( \xi \) and \( \chi \), 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. 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 such knowledge explicit and to force 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 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 \( W_1, ..., W_n \) 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 \( W_1, ..., W_n \). But the fact that many argumentations rules immediately-touch \( W_i \), specially 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 \( W_i \) non 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 Wi. In such a case there is no other argumentation rule which can give meaning to Wi and thus R must be constitutive of the understanding of Wi, and (for x) Wi 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 presuppositional data of the three kinds the linguist can pursue the dialogue with the speaker until they find an agreement about the dependence of some words on other words corresponding with a list of positive statements of immediate presupposition (and of negative statements of presupposition) which conforms to the heuristic principles \textit{ix-xii}. By the transitivity of presupposition this is sufficient to fix the relation of presupposition for the words of the language.

\section*{12. Theoretical representation of a meaningful language as a triple \(<L, A, \geq\)>}

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 have been fixed. A description of the form of such a theory requires that we represent the object language by the triple \(<L, A, \geq\)>\). 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.

\section*{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 \textit{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.
A sequence of words $W_1,...W_n$, 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 $i$ $(1 \leq i < n)$, $W_i \geq \text{imm} W_{i+1}$.

From \textit{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:

\textbf{Observation 1.} $W \geq U$ in $< L,A,\geq >$, if, and only if there exists a presupposition sequence from $W$ to $U$.

From a presupposition sequence $W_1,...W_n$ from $W$ to $U$ one can 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"."

A sequence of argumentation rules $R_1,...R_k$ is a chain of rules from $W$ to $U$ in $< L,A,\geq >$ 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 $W_1,...W_n$ it is sufficient to take for each pair $<W_i,W_{i+1}>$ such that $W_i \geq \text{imm} W_{i+1}$ a corresponding $W_i-W_{i+1}$ connection rule (as defined in \textit{xii}). So one can build the sequence of argumentation rules $R_1,...R_{n-1}$ according to the following diagram
Line I in the diagram above is the presupposition sequence $W_1,...,W_n$ from $W$ to $U$, line II is the corresponding chain of rules $R_1,...,R_k$ ($k=n-1$), and line III shows that the chain $R_1,...,R_k$ 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 $<L,A,\geq>$, if, and only if, there exists a chain of argumentation rules from $W$ to $U$ in $<L,A,\geq>$

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)v sister(x, y)". Let us call $R^*$ this rule. In section 10 it was maintained that $R^*$ does not concern disjunction (i.e. "v"), 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 or 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
A rule which immediately-touches W and also concerns W may be called a rule \textit{immediately-concerning} W.

An argumentation rule R \textit{immediately-concerns} a word W in a language $< L, A, \geq >$ 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 $W_1, \ldots, W_k$ 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.

\textbf{15 Argumentation rules concerning a word.}

A rule R may concern a word W even though R does not concern W \textit{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.

\begin{example}
\begin{center}
\begin{tabular}{l l l l l}
lieutenant ( x ) & & & & _ \\
R1= & & & & \\
soldier( x ) & & & & \\
\hline
member( x, y) & army(y) & & & _ \\
R2= & & & & \\
soldier ( x ) & & & & \\
\end{tabular}
\end{center}
\end{example}

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".22

A speaker of <L,A,≥> 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 <L,A,≥> 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 <L,A,≥> if, and only if, there is a word W* in <L,A,≥> such that
1) R immediately-concerns W*;
2) W ≥ 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.

**Observation 3.**  W ≥ U if, and only if,
if R concerns U, then R concerns W, for every argumentation rule R in A.23

22 Remember that "W > U" is an abbreviation of "W ≥ U & ¬(U ≥ W)" and "W≈U" an abbreviation of "W≥U & U≥W".

23 Here is the proof of observation 3: the only-if side is obvious: suppose that W ≥ U and R concerns U, then by the transitivity of ≥ 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 ≥ immU (by definition xv). If R concerns W, but not immediately, there must be a W* such that R immediately-concerns W* and W ≥ W*. But since R immediately-concerns U too, W* ≥ immU. By transitivity, W ≥ U.

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

\textit{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 \textit{lexical fragment presupposed by} E.

\textit{xviii} The \textit{lexical fragment} \( \Lambda^E \) 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.

However, in order to understand an expression E in \langle L,A,\geq \rangle, it is not sufficient to know the lexical fragment \( \Lambda^E \) presupposed by E: it is also necessary to know (implicitly) the argumentation rules which give sense to the words in \( \Lambda^E \), the presupposition relation for \( \Lambda^E \) 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 \textit{sublanguage}\textsuperscript{24} of \langle L,A,\geq \rangle which can be called the \textit{language fragment presupposed by} E.

\textit{xix} The \textit{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

\begin{itemize}
  \item[i)] \( L^E \) is the smallest subset of L which contains \( \Lambda^E \) and all the syntactic rules which are necessary to generate all the expressions containing only words in \( \Lambda^E \);
  \item[ii)] \( A^E \) is the subset of A which contains exactly all the argumentation rules R which concern the expression E;
  \item[iii)] \( \geq^E \) is the subrelation of \( \geq \) on \( \Lambda^E \).
\end{itemize}

\textsuperscript{24} \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 \( \geq \).
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.

**EXAMPLE 2**

\[
R_3 = \text{the speaker asserts "green (there)" correctly, if he/she points to a place } x \text{ and at the same time it is seen by those present that } x \text{ is green.}
\]

\[
R_4 = \text{the speaker asserts "red (there)" correctly, if he/she points to a place } x \text{ and at the same time it is seen by those present that } x \text{ is red.}
\]

\[
\begin{align*}
green(x) & \quad \neg \red(x) \\
R_5 & \quad \neg \red(x) \\
R_6 & \quad \neg \green(x)
\end{align*}
\]

\[
\begin{align*}
P & \quad \neg P \\
R_7 & \quad \neg P \\
R_8 & \quad \neg \neg P
\end{align*}
\]

Suppose that \( L^* \) is a language containing only the words "there" "red", "green" and "\(\neg\)". \( A^* = \{ R_3, R_4, R_5, R_6, R_7, R_8 \} \), 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" \( \succ^* \) "\(\neg\)"

v) "red" \( \succ^* \) "\(\neg\)".
\(<L^*,A^*,\geq*>\) is a very simple artificial language, a little language-game which can be used only in order to assert or to deny ostensively that the places which are pointed to are red or green. In \(<L^*,A^*,\geq*>\) 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 \(\Omega^W\) 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 \(\Omega^W\). Accordingly, the speaker's knowledge of the sense of a word \(W\) in a language can be represented by the pair \(<W,\Omega^W>\). This representation means that the argumentation rules in \(\Omega^W\) 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 \(<W,\Omega^W>\), and a knowledge of the sense of \(U\), represented by \(<U,\Omega^U>\), because \(W\) is different from \(U\), even if \(\Omega^W\) is equal to \(\Omega^U\).

A speaker's knowledge of the sense of a word \(W\) in a language \(<L,A,\geq>\) is represented by the ordered pair \(<W,\Omega^W>\), where \(\Omega^W\) is the set of all argumentation rules concerning \(W\) in \(<L,A,\geq>\).

Thus, the specific knowledge which is necessary in order to understand a word \(W\) in a language \(<L,A,\geq>\) consists in knowing the argumentation rules concerning \(W\) in \(<L,A,\geq>\), i.e. the rules in the set \(\Omega^W\), and in associating \(\Omega^W\) 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 $\Omega^W$, in order to understand W one has to understand also all the other words W’ immediately-concerned by the rules in $\Omega^W$, that is all the words in the lexical fragment presupposed by W. These are the only words a specific 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 "$\rightarrow" 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.


If W and U are two different word-types, then the pair $<W, \Omega^W>$ is obviously different from the pair $<U, \Omega^U>$. Thus, if the theoretical representation of the knowledge of the sense of a word W as a pair $<W, \Omega^W>$ 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 or 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 all. It is clear that senses cannot be known or considered separately from all linguistic expressions with which they are associated: there is no epistemic access to senses except through the association with a particular sign or combination of signs.

The 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”\(^\text{25}\) 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”\(^\text{26}\). A functional classification has the following form:

\[ t \in L_1 \text{ is an } f \]

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”\(^\text{27}\), 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

\(^{25}\) Cf. Sellars (1974), p.427; see also chapter 2 of the present study, section 3.1.


\(^{27}\) Ibidem, p.437.
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 'E$_1$ is used in the same way as E$_2$'. A possible line of thought is to say that E$_1$ is used in the same way as E$_2$ if there is a certain isomorphism between the language fragment presupposed by E$_1$ and the language fragment presupposed by E$_2$. Such an isomorphism would be a translation from the language fragment presupposed by E$_1$ to the language fragment presupposed by E$_2$.

A translation from $<$L$_1$,A$_1$,≥$_1$> to $<$L$_2$,A$_2$,≥$_2$> is a pair of functions $<$τ , τ*> 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 τ(W) of L$_2$,
1.3) τ assigns each rule ε for forming a compound expression of L$_1$ a rule τ(ε) for forming a compound expression of L$_2$,
1.4) W$_i$≥$_1$W$_j$ if, and only if, τ(W$_i$)≥$_2$τ(W$_j$) (where ≥$_1$ is the presupposition relation for L$_1$ and ≥$_2$ is the presupposition relation for L$_2$ ),
1.5) ε(W$_1$...W$_n$) is an expression of syntactic category C in L$_1$ if and only if τ(ε)(τ(W$_1$)...τ(W$_n$))) is an expression of the same category C in L$_2$;

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 τ*(R) in A$_2$ such that:
if a) R immediately-touches exactly W$_1$...W$_k$, b) Δ is an adequate description of R which contains only quotational names of W$_1$...W$_k$ and c) Δτ is the description obtained from Δ by substituting quotational names of τ(W$_1$)...τ(W$_k$) for quotational names of W$_1$...W$_k$ respectively, then Δτ is an adequate description of τ*(R),
2.3) R concerns W in $<$L$_1$,A$_1$,≥$_1$> if, and only if, τ*(R) concerns τ(W) in $<$L$_2$,A$_2$,≥$_2$>.

Observe that the language fragments $<$L$_1$,A$_1$,≥$_1$> and $<$L$_2$,A$_2$,≥$_2$> may be sublanguages of different languages or sublanguages of the same language. A translation from $<$L$_1$,A$_1$,≥$_1$> to $<$L$_2$,A$_2$,≥$_2$> can also correlate two parts of the same language.
EXAMPLE 3.
Consider the language \(<L*,A*,\geq*>\) of example 2 in section 18. We can easily describe a different language which functions in the same way. Let \(L^\circ\) be a language containing only the words "\textit{li}" "rosso", "verde" and "\~\"; let the relation of presupposition \(\geq^\circ\) for \(L^\circ\) be such that

i)"verde"\(\approx^\circ\)"\textit{li}"
ii)"rosso"\(\approx^\circ\)"\textit{li}"
iii) "verde"\(\approx^\circ\)"rosso",
iv)"verde" \(\geq^\circ\) "\~\"
v) "rosso" \(\geq^\circ\) "\~\".

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

\begin{align*}
R3^\circ &= \text{the speaker asserts "verde (\textit{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 &= \text{the speaker asserts "rosso (\textit{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.} \\
R5^\circ &= \text{the sentence forming operations of } L^*\text{ analogous sentence forming operations for } L^\circ, \text{then } <\tau, \tau^*> \text{ is a translation from } <L^*,A^*,\geq*> \text{ to } <L^\circ,A^\circ,\geq^\circ>. \text{ Clearly, } \tau^*(R3)=R3^\circ, \tau^*(R4)=R4^\circ, \tau^*(R5)=R5^\circ, \text{ and so on. Indeed the two languages are used in the same way. } <L^\circ,A^\circ,\geq^\circ> \text{ is a language game which can be used as } <L^*,A^*,\geq*> \text{ 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.}
\end{align*}
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 $\langle L_2, A_2, \geq_2 \rangle$’.

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 from the language fragment presupposed by $E_1$ to the language fragment presupposed by $E_2$.

$E_1$ 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 $\tau$ and $\tau^*$ 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 $\langle L_2, A_2, \geq_2 \rangle$, $\tau^{-1}$ is the inverse function of $\tau$ and $\tau^*-1$ is the inverse of $\tau^*$ 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.

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 $\Omega^W$, 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, by a systematic representation, 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 have seen 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 \(<L,A,\geq>\) are made explicit and for each word \( W \), by virtue of definition xvi, the set \( \Omega^W \) 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 \(<W,\Omega^W>\) where \( \Omega^W \) is the set of all the argumentation rules in \( A \) concerning \( W \). 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 \( <x, \Omega^x> \) the second item of which, \( \Omega^x \), 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 \( \lambda \)-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 role of sentences.

\textit{xxiv Knowledge of the sense of a compound term and knowledge of the immediate argumental role of a sentence in} \( <L,A,\geq> \):

\textbf{a}) A knowledge of the sense of an atomic individual or predicate term or functional symbol \( W \) is represented by the pair \( <W,\Omega^W> \), where \( \Omega^W \) is the set of all argumentation rules concerning \( W \) in \( <L,A,\geq> \).

\textbf{b}) The knowledge of the sense of a \textit{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 $<\phi, \tau^1, \ldots, \tau^n>$, where $\phi$ represents the knowledge of the sense of $f$ and $\tau^i$ 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 $R(t_1 \ldots t_n)$ built up by applying the n-ary predicate term $R$ to the individual terms $t_1 \ldots t_n$ is represented by the n+1-tuple $<\rho, \tau^1, \ldots, \tau^n>$, where $\rho$ represents the knowledge of the sense of $R$ and $\tau^i$ 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 $x_1, \ldots, x_m$ and $k$ predicate variables $Y_1, \ldots, Y_k$ ($m \geq 0, k \geq 0$), and by means of $\oplus$ one can build up a formula $\oplus Y_1 \ldots Y_k x_1 \ldots x_m F_1 \ldots F_n$ out of the formulas $F_1, \ldots, F_n$, then the knowledge of the immediate argumental role of $\oplus Y_1 \ldots Y_k x_1 \ldots x_m F_1 \ldots F_n$ is represented by the n+1-tuple $<\chi, <Y_1 \ldots Y_k x_1 \ldots x_m>> \alpha_1, \ldots, \alpha_n>$, where $\chi$ represents a knowledge of the sense of $\oplus$ and $\alpha_i$ 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 $x_1, \ldots, x_m$ and $k$ predicate variables $Y_1, \ldots, Y_k$ ($m \geq 0, k \geq 0$), and by means of $\oplus$ one can build a compound term $\oplus Y_1 \ldots Y_k x_1 \ldots x_m F_1 \ldots F_n$ out of the formulas $F_1, \ldots, F_n$, then the knowledge of the sense of $\oplus Y_1 \ldots Y_k x_1 \ldots x_m F_1 \ldots F_n$ is represented by the n+1-tuple $<\chi, <Y_1 \ldots Y_k x_1 \ldots x_m>> \alpha_1, \ldots, \alpha_n>$, where $\chi$ represents a knowledge of the sense of $\oplus$ and $\alpha_i$ 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 "$\exists^2 YF(Y)$" in $<L, A, \geq>$ is represented by the ordered pair $<\varepsilon, <Y>>, \beta>$, where $\beta$ represents a knowledge of the immediate argumental role of "$F(Y)$", $\varepsilon = <\exists^2, \Omega^{\exists^2}>$, 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.28

28 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
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 a knowledge of the sense of a sentence (i.e. its immediate argumental role) should be acquired on the basis of a knowledge of the senses of the component words and of the syntactic structure of the sentence. In the foregoing section I have shown that the theory centred on immediate argumental role fulfils this condition.

Secondly, compositionality demands that a 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 have seen that in order to understand an expression E in a language \(<L,A,\geq>\), a speaker must know only a sublanguage of \(<L,A,\geq>\), the language-fragment \(<LE,AE,\geqE>\) presupposed by E. This is also true, in particular, if E is a sentence. The language fragment \(<LE,AE,\geqE>\) presupposed by E will normally be a proper sublanguage of \(<L,A,\geq>\). Admittedly, in a very simple artificial language like \(<L*,A*,\geq*>\) in example 2 of section 18 the language fragment presupposed by a sentence like "red(there)" is the whole language \(<L*,A*,\geq*>\) 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 specially if \(<L,A,\geq>\) is a natural language, like English, the language fragment presupposed by a sentence will be a proper sublanguage of \(<L,A,\geq>\). 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 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 in order to understand $S^1$ it is necessary to 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’ defined in section 17 (definition xix) 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) $<L^E,A^E,\geq E>$ is a sublanguage of $<L^S,A^S,\geq S>$

(i.e. the language fragment presupposed by $E$ is a sublanguage of the language fragment presupposed by $S$) and

2) $LC(E) \leq LC(S)$.\(^{29}\)

\(^{29}\) In 2, as usual, the symbol "$\leq$" expresses the relation "smaller than or equal to" between natural numbers.
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 $E$ presupposes $F$, $S$ 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 theory of meaning here described a knowledge of the immediate argumental role of a sentence $S$ in a language $<L,A,≥>$ 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.