ON THE SEMANTICAL VALUATION OF SENTENCES

Marc De Rouck

INTRODUCTION — To valuate a sentence is to assign to it one and only one of n mutually exclusive values (where $n \geqslant 2$) (1). The assignment of a value to a sentence S is to rest upon S's possessing a certain characteristic or property. For any sentence S, every set of n properties ($n \geqslant 2$) such that (i) no object (and in particular no sentence) can possibly possess more than one of these properties, and (ii) S possesses one of these properties—, every suchlike set (and only suchlike sets) can be used to valuate S. That is why every such set (and only such sets) will be called a set (sets) of *value determining properties* for S.

By calling a set of properties a set of value determining properties for sentences *tout court,* we mean that there is a (possibly empty) set of sentences, such that each element of this set is a sentence the set of properties is a set of value determining properties for. Hence, a set of properties is a set of value determining properties for sentences, if and only if (i) no object (and in particular no sentence) can possibly possess more than one of these properties, and (ii) there is a (possibly

(1) Throughout this paper sentences are assumed to be a kind of *constant* expressions. This is in agreement, I think, with the common acceptation of the term «sentence», acceptation found in both ordinary language and linguistics. Logicians sometimes apply the word to what I would call sentence *schemata.* (On the notion of a schema: see Section Two.)

empty) set of sentences such that each element of this set possesses one of these properties. Let $\langle V_1, V_2, ..., V_n\rangle$ be a set of value determining properties for sentences. The largest set such that each element of this set is a sentence for which $\langle V_1, V_2, ..., V_n\rangle$ is a set of value determining properties—, the largest suchlike set constitutes the (possibly empty) *range of applicability* of $\langle V_1, V_2, ..., V_n\rangle$.

In this paper I am interested in a particular kind of sentence valuation. I propose to call it *semantical* sentence valuation, or sentence valuation in terms of *semantical* values. My interest will take the form of a stipulation of what is necessary and sufficient in order for a set of properties to be a set of *semantical* value determining properties for sentences. The stipulation will be given in Section Two. By using the term «semantical» as a qualifier of «value determining property» I naturally mean to indicate from the very outset that, somehow, the properties in question will concern sentences *in their meaning*.

In Section Three I shall define an even more particular kind of sets of value determining properties for sentences, by explaining what is necessary and sufficient in order for a set of properties to be a set of semantical value determining properties having as its range of applicability what I propose to call a *perfect semantical kind of sentences*. The notion of a perfect semantical kind of sentences will also be explained. Suffice it to say at this point that, with a perfect semantical kind of sentences, whether a sentence is that kind or not depends in a quite particular way («perfect») upon the meaning of the sentence («semantical»). The best known example of a set of semantical value determining properties for a perfect semantical kind of sentences is the pair truth/falsity.

Before dealing with the true topic of this paper, I will devote a first section to the explanation of certain presuppositions I shall make concerning the way to specify meanings of expressions in general and of sentences in particular.

SECTION ONE — There are several ways one can specify the meanings of an expression. First, one might give a definition of the expression in terms of other expressions. But to define is only to affirm synonymy. By defining an expression E_1 in terms of an expression E_2 one is merely saying that E_1 has or is conventionally taken to have the same meanings as E_2. By themselves, then, definitions do not provide a final or complete specification of the meanings of an expression. For what specification shall we give of the meanings of the *definiens*? Developing a chain of definitions will not help. Either the chain will go on forever, or it will stop at some undefinable *definiens*. But this primitive expression also has a meaning.

It is generally assumed that the meanings of an expression are determined by rules of a specific kind, so-called semantical rules. I will not embark on a discussion of the question what kind of rules these so-called semantical or meaning determining rules are. The answer to this question does not affect what I wish to stress at this point, namely the fact that the assumption mentioned definitely suggests a certain way of specifying the meanings of given expressions. If every meaning an expression can take is determined by certain rules, it seems natural enough to specify that meaning by describing these rules.

In this paper I shall presuppose yet another way of specifying meanings. For every meaning an expression can take, one may also try to describe the set of conditions that is necessary and sufficient in order for that expression to be *used in accordance with* that meaning. A description of this set of conditions can count as an indirect or, if you wish, contextual specification of that meaning. Assuming that meanings are determined by rules, this indirect specification will take the form of a description of the set of conditions that is necessary and sufficient in order for the expression to be used in accordance with the semantical rules determining the meaning in question, and will also be an indirect description of these rules. For every meaning an expression can take, instead of speaking of the set of conditions that is necessary and sufficient in order for that expression to be used in accordance with (the semantical rules determining) that meaning, I shall speak of the set of conditions *under which* that expression is used in accordance with (the semantical rules determining) that meaning.

If I suppose in this paper that meanings are specified in the kind of indirect way mentioned, it is only because it seemed to me that by making that supposition I could frame the materials of my paper more easily. I have no intrinsic preference for that way of specifying meanings.

Here is a list of a few more special assumptions made throughout the following text.

1. For every meaning an expression can take, the set of conditions under which the expression is used in accordance with (the semantical rules determining) that meaning is a *well-determinate* set, i.e. there is a way of deciding what belongs to it, and what does not (which does not mean, of course, that it is actually known what conditions make up that set). The assumption may be expressed more accurately as follows. For every meaning an expression can take, there is a way to decide, about every element that could logically be a condition necessary in order for the expression to be used in accordance with (the semantical rules determining) that meaning, whether it actually is such a condition or not. (Remeber that the sets of conditions we are talking about are necessary and sufficient sets of conditions. In other terms: for any of these sets, each element of the set is a necessary condition for whatever the set is a set of conditions for, and each such necessary condition is an element of the set.)
2. For any two meanings an expression can take, the set of conditions under which the expression is used in accordance with (the semantical rules determining) the first meaning and the set of conditions under which the expression is used in accordance with (the semantical rules determining) the second meaning are *identical,* in the sense that one of these sets obtains, if and only if the other one obtains.
3. For any meaning an expression can take, the conditions under which the expression is used in accordance with (the semantical rules determining) that meaning form a *finite* set. Consequently, they are specifiable by enumeration.

The first and second assumption may seem to imply that the constructions I shall make in this paper can scarcely be applicable to ordinary language. The first assumption excludes vagueness in expressions. For by calling an expression vague in one of its meanings, we mean that that meaning is to a certain extent indefinite. The second assumption excludes ambiguity in expressions. For by calling an expression ambiguous we mean that it can take several different meanings. Now, many expressions of ordinary language *are* vague (in some of their meanings) and/or ambiguous. However, we can partly fill the gap between the assumptions made in this context and «the facts of ordinary language».

First, let E be a certain expression satisfying our first special assumption, but not the second one. C^1_E, C^2_E, ..., C^n_E are *n* different well-determinate sets. For each of these sets, one of the meanings of E is such that that set is the set of conditions under which E is used in accordance with (the semantical rules determining) that meaning. Here we can fill the gap completely by using a simple trick· Instead of speaking of *the* expression E, it is always possible to speak of *n* unambiguous homonymous expressions E_1, E_2, ..., E_n, such that C^1_E is the set of conditions under which E_1 is used in accordance with (the semantical rules determining) any one of its meanings, C^2_E is the set of conditions under which E_2 is used in accordance with (the semantical rules determining) any one of its meanings etc.

On the other hand, let E' be a certain expression that is vague in one of its meanings. Here the situation is more complicate. Let me first make a digression on synonymy. The simplest way to explain synonymy is, of course, by saying that two expressions E_1 and E_2, each expression taken in a certain meaning, are synonymous, if and only if the meaning in which E_1 is taken is the same as the meaning in which E_2 is taken. One might perhaps be inclined to conclude from this that the following account must be equally acceptable: «Two expressions E_1 and E_2, each expression taken in a certain meaning, are synonymous, if and only if the set of conditions under which E_1 is used in accordance with (the semantical rules determining) the meaning in which it is taken and the set of conditions under which E_2 is used in accordance with (the semantical rules determining) the meaning in which it is taken—, if and only if these two sets are identical». However, if, by calling two sets of conditions identical, we mean, as we did before, that one of the sets obtains, if and only if the other one obtains (see p. 66), this explanation has absurd consequences. Let E_1 and E_2, each expression taken in a certain meaning, be synonymous. On the account of synonymy under discussion, it would follow that E_1 is used in accordance with (the semantical rules determining) the meaning in which it is taken, if and only if E_2 is used in accordance with (the semantical rules determining) the meaning in which it is taken. But the synonymy of E_1 and E_2 does not imply anything of the kind. It will suffice to call attention to one aspect of the implication. In order for E_2 to be used in accordance with (the semantical rules determining)the meaning in which it is taken, E_2 must at least be *used*. So the synonymy of E_1 and E_2 would imply, among other things, that E_1 can not be used in accordance with (the semantical rules determining) the meaning in which it is taken, unless E_2 is also used.

As an alternative explanation of synonymy I propose: «Two expressions E_1 and E_2, each expression taken in a certain meaning, are synonymous, if and only if, by substituting an occurrence of «E_2» for every occurrence of «E_1» in any description of the set of conditions under which E_1 is used in accordance with (the semantical rules determining) the meaning in which it is taken, one obtains a description of the set of conditions under which E_2 is used in accordance with (the semantical rules determining) the meaning in which it is taken, and *vice versa*» (2).

We can see, then, that, if we speak in terms of the sets of conditions under which expressions are used in accordance with (the semantical rules determining) their meanings, the identity of two meanings must be explained differently, according as the meanings are meanings of the same expression or of

(2) For a given expression E, «E» is here taken to be any expression denoting E or also E itself, taken in the special kind of use J. R. Searle and other philosophers of language have called «mention» (cfr. J. R. SEARLE, *Speech Acts. An Essay in the Philosophy of Language*, University Press, Cambridge, 1969, p. 73-76). More generally, for a given object O, «O» will be an expression (any expression) denoting O.

different (synonymous) expressions. For in case the meanings are meanings of the same expression, their identity *is* paralleled by the identity of the sets of conditions under which the expression is used in accordance with (the semantical rules determining) those meanings (cfr. our second special assumption on p. 66).

Let us return to our main problem. E' is an expression that is vague in one of its meanings. The conditions under which E' is used in accordance with (the semantical rules determining) that meaning do not form a well-determinate set. About some elements that could logically be necessary conditions for E' being used that way, there is no way to decide whether they actually are such conditions or not. However, there will also be many elements about which the decision *is* feasible. Let $D_{E'}$ be the set of all and only those conditions that are *determinably* necessary in order for E' to be used in accordance with (the semantical rules determining) the meaning in question. $D_{E'}$ will not be an empty set. For however indefinite a meaning an expression may have, that meaning can never be completely indefinite. Now we can introduce an expression E'' satisfying our first special assumption (p. 66) and having a meaning such that (i) by substituting an occurrence of «E''» for every occurrence of «E'» in any description of $D_{E'}$, one obtains a description of the set of conditions under which E'' is used in accordance with (the semantical rules determining) that meaning, and (ii) by substituting an occurrence of «E'» for every occurrence of «E''» in any description of the set of conditions under which E'' is used in accordance with (the semantical rules determining) that meaning, one obtains a description of $D_{E'}$. E'' and E' (each expression taken in that meaning in which we are considering it !) will then be *approximately synonymous*, and we can be quite sure that no non-vague expression could be closer in meaning to E' than E''. The degree to which E'' will approximate E' in meaning will naturally depend on the degree of definiteness of the meaning of E'. It will now be clear to the reader how we can *partly* overcome the discrepancy between the natural vagueness of many expressions of ordinary language and the assumption of non-vagueness made in this paper: we just switch from a consideration of the vague expression to the consideration of a non-vague expression that is as close in meaning to the original expression as a non-vague expression could possibly be.

Henceforth, as I assume expressions to be unambiguous, I shall speak of *the* meaning of an expression. Instead of saying that an expression is used in accordance with (the semantical rules determining) its meaning, I shall say that the expression is used in a *semantically correct* way, or even simply that it is used *correctly*. (It will be clear from the context what kind of correctness is meant.)

A last remark may be added to this account of my assumptions concerning the specification of meanings in general. I have been talking all along about meanings. I have even quantified over them, speaking about *all* the meanings of a certain expression, etc. Hence, according to W.V.O. Quine's famous criterion of ontological commitment, I seem to commit myself to the existence of such entities as meanings. Some philosophers believe that a commitment to this effect should be avoided. One should not include meanings in one's universe of discourse: we have no reason to believe that there are such things as meanings, and so one should not speak as if there were. I do not think I have an argument with these philosophers. It might very well be the case that, upon a proper analysis of the phenomenon of meaning, all utterances about meanings ought to be «translated» into utterances not mentioning meanings. But it is one thing to clarify what it means for an expression to have a meaning, and another to specify the meanings given expressions can take. What has been said in the foregoing paragraphs had to do with the second problem, not the first one; and what I had to say about that problem, I could say without presupposing a particular analysis of meaning. That is why I kept to the common way of speaking, which does as if meanings were entities of some sort. The only presupposition I have to make is that, however superficial or even misleading this common way of speaking may be, it is a meaningful way of speaking. But then, this must also be presupposed by those who want to explain meanings away. For if it does not make sense to say about an expression that it has a meaning, there is no point in trying to explain what it is for an expression to have a meaning.

The expressions I shall have to deal with in this paper are *sentences*. In general, the correct use of any sentence consists in performing a speech act of a certain (so-called) illocutionary type. I am not claiming that the only way to describe the set of conditions of semantically correct use of a sentence is in terms of the performance of a speech act of a certain illocutionary type; but I do claim that one of the ways to do so is in such terms. (Alternatively, one may interpret the second sentence of this paragraph as being nothing but a partial delimitation of the extension given to the class of sentences in this paper.)

A more detailed specification of what is meant, when it is said that the correct use of a given sentence consists in performing a speech act of a certain illocutionary type (e.g. a speech act of asserting, about a certain state of affairs, that it is a fact), may be given along the following lines. In order for a speech act of a certain type (whether illocutionary or not) to be performed in the use of an expression E, a finite number of conditions must obtain. One of these conditions will be that E is used in a semantically correct way, if and only if it is used under fulfillment of all the other necessary conditions for performing such a speech act in using E. Let us call this condition the *semantical* condition for performing such a speech act in using E (3). When we say of an expression (e.g. a sentence) that

(3) Examples of semantical conditions can be found in: J. R. SEARLE, *o.c.*, pp. 61; 95; 127. My general account of semantical conditions has been modelled after these examples. (Searle does not present any such general account himself; nor does he use any special term to denote semantical conditions.) To preclude misunderstanding I will also remark that Searle usually speaks of *uttering* expressions, not of using them, and that, instead of saying that an expression is used in accordance with (the semantical rules determining) its meaning under this or that set of conditions, he says that the semantical rules governing the expression are such that the expression is uttered correctly under this or that set of conditions. All this seems to me to be merely a matter of terminology.

it is used correctly, if and only if it is used to perform a speech act of a given type (in the case of sentences: a given illocutionary type), we mean that the semantical condition for performing a speech act of that type in using that expression (e.g. that sentence) obtains.

SECTION TWO — The purpose of this section is to state what, by definition, we consider to be necessary and sufficient in order for a set of properties to be a set of semantical value determining properties for some set of sentences at all. But first, certain terminological matters must be settled.

1. An expression is a *schema*, if and only if it contains at least one symbol functioning as a blank where each element of a certain (possibly infinite) set of constant expressions may be filled in. In terms of what logicians call variables, a schema is an expression containing at least one free or unbound variable-occurrence. (A variable occurs in free or unbound position, if and only if it does not occur within the scope of a quantifier.)

It is supposed that, within one and the same context of expressions, whenever the *same* variable occurs in free position in an expression belonging to that context, it functions as a blank for elements of the *same* set of constant expressions. This set of constant expressions constitutes the set of variations of the variable within that context. In other words: the set of *variations of a variable* within a certain context of expressions is the smallest set containing each constant expression that may be filled in at the open place marked by the variable, whenever it occurs in free position in an expression belonging to that context. A variable is said to *vary* over the set of its variations.

A *variation of a schema* is a constant expression resulting from filling in (i), for each free variable-occurrence in the schema, a variation of the variable the occurrence is an occurrence of, and (ii) the same variation for each occurrence in the schema of the same variable. Each schema may be said to be a representation of the *form* common to all its variations. A schema is a schema for expressions of a certain kind, if and only if all its variations are expressions of that kind. E.g. a schema is a sentence schema, if and only if all its variations are sentences.

An example of a (sentence) schema is «Fx», taken as an expression of the formal language of first order predicate logic. Two variables occur in the schema, both in free position: «F» and «x». Within the context of the formal language mentioned, «x» varies over names of individuals, «F» over predicates that can logically apply to individuals. In the expression «Fx», any name of an individual may be filled in at the open place indicated by «x», and any predicate that can logically apply to individuals at the open place indicated by «F». By filling in a certain variation for the free occurrence of «x» and «F» in «Fx», one obtains a variation of the schema «Fx». An example of such a variation is the sentence «Tennessee Williams is a playwright». (We suppose against Russell and others that proper names like «Tennessee Williams» may be reckoned among the variations of «x».)

In some expressions variables occur in bound position. By binding a variable we enable ourselves to speak about all or some of the objects of a certain set. (The objects may be expressions.) It is supposed that ,within one and the same context of expressions, whenever the *same* variable occurs in bound position in an expression belonging to that context, the set of objects about all (some) of which the variable enables us to speak is the *same* set of objects. This set of objects constitutes the set of values of the variable within that context. Hence, the set of *values of a variable* within a certain context of expressions is the set of objects about all (some) of which the variable enables us to speak, whenever it occurs in bound position in an expression belonging to that context. A variable is said to *range* over its values.

As W.V.O. Quine has pointed out with vigour (4): within a

(4) See: W. V. O. QUINE, *Logic and the Reification of Universals*, in: *From a Logical Point of View*, Harper and Row, New York, 1963, p. 102-129, in particular p. 107-112. (The paper itself dates from 1953.)

certain context of expressions, we have to assume a set of values for a given variable, if and only if the variable can occur in bound position within that context (if and only if the variable occurs in bound position in some expressions belonging to that context). An analogous point can be made with respect to variations. Within a certain context of expressions, we have to assume a set of variations for a given variable, if and only if the variable can occur in free position within that context (if and only if the variable occurs in free position in some expressions belonging to that context). The first of these assertions follows from the explanation of what we mean by the set of values of a variable within a certain context, the second one follows from the explanation of what we mean by the set of variations of a variable within a certain context. Of course, within a certain context, we might *actually* assume a set of values (variations) for a given variable, even though there is no need to do so. But such an assumption would be quite pointless: within that context, one simply has no use for values (variations) of that variable.

It may so happen that, within a certain context, a variable can occur in free *and* in bound position. The variables for individuals («x», «y», etc.) of the formal language of lower predicate logic are examples of this. In such cases we must assume a set of values *and* a set of variations for the variable; and the two sets must never be confused. But after all, it is not too difficult to avoid confusing them, for in most cases the set of values and the set of variations of a variable consist of different objects. In general the values of a variable are objects *referred to* (named, denoted, designated) by the variations of the variable. Only in case the values of a variable are themselves expressions, it is possible that the same object (*in casu:* the same expression) constitutes a value *and* a variation of the variable. Suppose e.g. one introduces a variable ranging over a certain set of sentences. These same sentences — taken in the special kind of use called «mention»—may also occur among the variations of the variable.

Let Σ be a schema. For the variables occurring in Σ in free position we must at least assume a set of variations. But it may very well be the case that, within the context to which Σ belongs, these variables can also occur in bound position. If so, they must be given a set of values, too.

Most of the schemata made use of in this paper are of the kind described in the foregoing paragraph. Now, if for a certain variable a set of values is assumed at all, it is customary to characterize the variable in terms of this set of values, even if a set of variations is also assumed. That is why most of the variables occurring freely in the schemata made use of in this paper are characterized in terms of a set of *values*. I thought it worthwhile to stress this point, because at first sight there might seem to be a contradiction here with the idea that variables in free position function essentially as blanks (which way of functioning is connected with a set of *variations*). It will now be clear that there is no contradiction at all.

The term «schema» has been borrowed from W.V.O. Quine's *Logic and the Reification of Universals* (see note 4), but the meaning of the term has been changed. Quine's notion may be expressed as follows: a schema is an expression containing at least one occurrence of an unbindable variable (unbindable, that is, within the context the expression belongs to). Whatever is a schema according to Quine's definition of the term is also a schema according to the definition given above; but the converse does not hold good. Thus, the expression resulting from filling in the predicate «is a man» for «F» in «Fx» is still a schema according to the definition used here, whereas it is no longer a schema with Quine. (It is called an open sentence instead.)

2. Let us use E and E' as variables ranging over expressions in general. Let C_E be the set of conditions under which an expression E is used in a semantically correct way. For an expression E, let A_E be the expression resulting from filling in «E» (i.e. an expression denoting E or E itself taken in mention: cfr. note 2) at the open place in «E' is used in a semantically correct way». For every expression E, A_E, such as it stands, is a constant expression, and a statement in particular. Hence it would seem that, for every expression E, the expressions by

means of which we describe C_E are also statements: they are the statements equivalent to A_E.

However, for every expression E, A_E, *such as it is understood, when we speak of the conditions under which E is used in a semantically correct way,* is really an elliptic expression of a statement *schema,* viz. the schema resulting from filling in «E» at the open place marked by «E'» in «E' is used in a semantically correct way by Sp in the presence of H at t», where Sp is an arbitrary speaker (i.e. an arbitrary agent capable of producing language), H an arbitrary hearer (i.e. an arbitrary agent capable of understanding language) and t an arbitrary moment of time (whereby moments of time are taken to be short stretches of time, and not time-points, since it always takes a certain time to use an expression E, i.e. to produce an E-token in the sense of Peirce). Accordingly, for every expression E, descriptions of C_E in unelliptic form will also be statement *schemata.* For an expression E, let Σ_E be the schema resulting from filling in «E» at the open place marked by «E'» in «E' is used in a semantically correct way by Sp in the presence of H at t». For every expression E, a statement schema Σ^α will be a description of C_E, if and only if every variation of the equivalence schema having Σ_E as its first equivalent and Σ^α as its second equivalent is true.

Until now I have always used the elliptic way of speaking, and I intend to continue to do so. In particular, I shall speak as if, for every sentence S (sentences are the only expressions I shall have to deal with), C_S is described by statements, not by statement schemata. Considering the ambiguity of expressions of the form «E' is used in a semantically correct way», such policy seems unjustified. Let E_0 be a particular expression. (Hence, «E_0» is a constant.) By itself, the statement «E_0 is used in a semantically correct way» might also be an elliptic expression of the statement (not: statement schema) «E_0 is used in a semantically correct way by *some* speaker Sp in the presence of *some* hearer H at *some* time t»; or in a context in which a particular speaker Sp_0, a particular hearer H_0 and a particular time t_0 are presupposed, it might be an elliptic expression of the statement «E_0 is used in a semantically correct way by Sp_0

in the presence of H_0 at time t_0». However, the elliptic way of speaking enables me to render the formulation of certain parts of this paper less cumbersome. The explanation in Section Three of the criterion for perfect semantical kinds of sentences is a case in point. And as I have explained in this preliminary remark what expressions of the form «E' is used in a semantically correct way» (and the corresponding descriptions of sets of conditions of semantically correct use) amount to in the context of this paper, I prefer to persist in using the elliptic way of speaking after all.

3. In my stipulation of what it is for a set of properties to be a set of semantical value determining properties for sentences, I shall impose certain requirements upon the *definitions* of these properties. Now usually we speak of defining *expressions*. So it may not be amiss to explain what a definition of a property will here be supposed to be. To define a property P is to establish a definitory connexion between two schemata. The first schema, the *definiendum* schema, is the schema «x possesses property P» (or something comparable), where «x» ranges over whatever one takes as one's universe of discourse, or in other words: where «x» ranges over the set of objects about which one wishes to know if they possess property P. Concerning the second schema, the *definiens* schema, we decree in anticipation that it shall be a statement schema containing the same variable «x» and no other variables in free position. So in order to define a property P we construct a schema of the following kind:

(1) «x possesses property P $\overset{\text{Df}}{\longleftrightarrow}$ (...x...)»

In this context it will suffice to consider properties, in so far as they are defined with respect to *sentences*. The definitions of properties we shall deal with are of the form:

(2) «S possesses property P $\overset{\text{Df}}{\longleftrightarrow}$ (...S...)»

where S is any sentence ([5]).

After these preliminaries let us pass on to the real subject of this section. We were to state what, by definition, we consider to be necessary and sufficient in order for a set of properties to be a set of semantical value determining properties for sentences. Let me first introduce the notion of a special kind of sentence schemata. To have a name for it, I shall call it the kind M of sentence schemata. A schema is an M-schema, if and only if:

(i) it contains free occurrences of a variable «S^M» ranging over sentences in general, and of no other variables;
(ii) every variation of the schema is a statement (true or false) about the set of conditions of semantically correct use of one and only one sentence, and what is stated about that set is such that the statement provides *some* information as to *what* conditions make up that set;
(iii) for every sentence, some variation of the schema is a statement about the set of conditions of semantically correct use of that sentence, and more in particular a statement providing some information as to what conditions make up that set ([6]).

([5]) Expressions (1) and (2) are really *metaschemata*, and the symbols «(...x...)» and (...S...)» can be considered as *metavariables*. The difference between a variable and a meta-variable is that, whereas a variable takes as its variations a set of *constant* expressions (see above), metavariables vary over a set of *schemata*, taken in their ordinary use, *not* in the special kind of use called «mention». (An expression in mention always functions as a constant, even if it is a schema.) The symbol «(...x...)» occurring in (1) can be considered as a metavariable varying over statement schemata in which «x» and «x» only occurs in free position. And analogously for the symbol «(...S...)» occurring in (2). A metaschema may be defined as an expression containing at least one (free) occurrence of a metavariable. The word «free» has been bracketed, because in general metavariables are not quantified over: there are usually no objects the variations of metavariables are considered to be names of. Note that the symbol «Σ» used on p. 74 is a variable, not a metavariable.

([6]) In the formulation of (i), (ii) and (iii), as an explanation of the notion

The word «some» in (ii) has been italicized for the following reason. It should not be supposed that every variation of an M-schema provides a *complete* answer to the question, about some sentence or other (one and only one), exactly what conditions the set of conditions of semantically correct use of that sentence is made up of. Nothing else is required from a variation of an M-schema but that it shall provide an *element* of the answer to such a question, nothing else but that the information provided shall be *relevant* to the answer to such a question.

For a given sentence S, let C_S be the set of conditions of semantically correct use of S, and let Q_S be the question: «What are the conditions of semantically correct use of S ?». The information provided by a statement A (in particular: a statement about C_S) is *relevant* to the answer to Q_S, if and only if there is at least one object (the «object» in question will be a set of states of affairs) that could logically be identical to C_S, and that, according to the information provided by A, is not identical to C_S, or to speak more accurately: if and only if there is a non-empty set of objects (of sets of states of affairs) such that (i) each of the elements of this set could logically be identical to C_S, and (ii) the information provided by A implies that no element of this set is identical to C_S (whereby the concept of implication is understood in the strict, logical sense). Comparably, the information provided by a statement A (in particular: a statement about C_S) constitutes a complete answer to Q_S, if and only if there is an object (a set of states of affairs) such that the information provided by A logically implies that that object *is* C_S.

What precedes may suffice as an explanation of the notion of an M-schema. A set of properties $\langle P_1, P_2, \ldots, P_n \rangle$ is a set of semantical value determining properties for sentences, if and only if there is an M-schema about which the following is the case:

of an M-schema, we have one of the cases in which the elliptic way of speaking about sets of conditions of semantically correct use (see the second preliminary of this section) proves to be most profitable.

(R—1) the definition of P_1 (P_2/.../P_n) is such that, for every sentence S', if S' possesses property P_1 (P_2/.../P_n), S' satisfies that M-schema;

(R—2) the definitions of P_1, P_2, ... and P_n are such that, for every sentence S', if S' satisfies that M-schema, then S' possesses one and only one of the properties P_1, P_2, ..., P_n;

(R—3) the definition of P_1 (P_2/.../P_n) is (i) *not* such that, for every sentence S', if S' satisfies that M-schema, S' possesses property P_1 (P_2/.../P_n); (ii) *not* such that, for every sentence S', if S' possesses property P_1 (P_2/.../P_n), S' does not satisfy that M-schema.

A sentence S' satisfies an M-schema, if and only if the statement resulting from filling in «S'» (i.e. any expression denoting S' or S' itself taken in mention: cfr. note 2) for every free occurrence of the variable «S^M» in that schema is true. A sentence S' does not satisfy a certain M-schema, if and only if the statement resulting from filling in «S'» for every free occurrence of «S^M» in that schema is false.

For a given set of properties $\langle P_1, P_2, \ldots, P_n \rangle$, every M-schema about which (R—1), (R—2) and (R—3) are the case, and no other schema, will be called a *$\overline{V}$-schema relative to* that set of properties. Hence, a set of properties is a set of semantical value determining properties for sentences, if and only if there is a $\overline{V}$-schema relative to that set.

To conclude this section, I will comment on a few details of the definition of the notion of a set of semantical value determining properties for sentences.

1. (R—1) is really a set of *n* requirements, and so is (R—3). That is to say: (R—1) is to be understood as reading that the definition of *each* of the properties P_1, P_2, ..., P_n is such that, for every sentence S', if S' possesses that property, S' satisfies that M-schema; and similarly for (R—3). On the other hand, (R—2) constitutes *one* requirement only. It is to be understood as reading that the definitions of the several properties consti-

tuting the elements of $\langle P_1, P_2, \ldots, P_n \rangle$ *relate to each other* in a very particular way, namely in such a way that, for every sentence S', if S' satisfies that M-schema, S' possesses one and only one of those properties.

2. Let $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ be an arbitrary set of semantical value determining properties for sentences. There is at least one $\overline{V}$-schema relative to that set. There can be several different $\overline{V}$-schemata relative to that set. However, all $\overline{V}$-schemata relative to that set will be satisfied by exactly the *same* set of sentences, or more circumstantially: for any two $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the smallest set containing each sentence satisfying the first $\overline{V}$-schema and the smallest set containing each sentence satisfying the second $\overline{V}$-schema are identical. For it is obvious that, for every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the set of sentences satisfying that $\overline{V}$-schema (i.e. the smallest set containing each sentence satisfying that $\overline{V}$-schema) needs must be identical to the *range of applicability* of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ (cfr. Introduction). To state the matter negatively: if the $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ were not, all of them, satisfied by the same set of sentences, $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ would have several different ranges of applicability. Hence, $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ would not be *one* set of semantical value determining properties for sentences, but a multiplicity of several different such sets. For in general we may put down as a necessary condition of the identity of two sets of value determining properties for sentences that their range of applicability shall be the same.

3. In the definition of the notion of a set of semantical value determining properties for sentences, such as it has been presented above, (R—3) is less important than (R—1) and (R—2).

For, strictly speaking, it would be better to call that definition a definition of the notion of a *non-trivial* set of semantical value determining properties for sentences. Now the exclusion of what I would call trivial cases of sets of semantical value determining properties for sentences is wholly attributable to the inclusion of (R—3) in the definition; and on the other hand, the inclusion of (R—3) in the definition serves no other purpose but to exclude those cases.

Strictly speaking, then, in order to get hold of the notion of a set of semantical value determining properties for sentences in all its purity, we ought to drop (R—3) from the definition given above. For a given set of properties $\langle P_1, P_2, \ldots, P_n \rangle$, every M-schema such that (R—1) and (R—2) obtain, and no other schema, may be called a $\overline{V}^U$-schema relative to $\langle P_1, P_2, \ldots, P_n \rangle$. Hence, a set of properties is a set, trivial or non-trivial, of semantical value determining properties for sentences, if and only if there is a $\overline{V}^U$-schema relative to that set. Now, it is noteworthy that our second comment on the definition of the notion of a set of semantical value determining properties for sentences (I mean the definition including (R—3): see above) can be extended, so as to include *all cases*, trivial and non-trivial, of such sets. Let $\langle \overline{V}^U_1, \overline{V}^U_2, \ldots, \overline{V}^U_n \rangle$ be an arbitrary set, trivial or non-trivial, of semantical value determining properties for sentences. There is at least one $\overline{V}^U$-schema relative to that set. There can be several different $\overline{V}^U$-schemata relative to that set; but all $\overline{V}^U$-schemata relative to $\langle \overline{V}^U_1, \overline{V}^U_2, \ldots, \overline{V}^U_n \rangle$ are satisfied by exactly the same set of sentences, namely the range of applicability of $\langle \overline{V}^U_1, \overline{V}^U_2, \ldots, \overline{V}^U_n \rangle$.

However, I suppose that no one is interested in trivial sets of semantical value determining properties for sentences. That is why, in Section Three, I shall continue to handle the more special definition including (R—3), and to take the phrase «set of semantical value determining properties for sentences» in the sense of «non-trivial set of semantical value determining properties for sentences». If one wanted to develop the argument of Section Three in such a way as to encompass trivial cases, one would find it easy enough to do so, especially if one remembered what has been said in the foregoing paragraph.

SECTION THREE — We saw earlier that all $\overline{V}$-schemata relative to an arbitrary set $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ of semantical value determining properties for sentences are satisfied by the *same* set of sentences, namely the range of applicability of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$. Hence, if we want to know the range of applicability of a set $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ of semantical value determining properties for sentences, all we have to do is pick out one of the $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$—*any* schema of the kind will do—and see what sentences that schema is satisfied by; the smallest set containing each sentence satisfying that schema is the range of applicability of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$.

Suppose e.g. that one of the $\overline{V}$-schemata relative to a particular set of semantical value determining properties for sentences—I shall represent the set by «$\langle \overline{V}^1_1, \overline{V}^1_2, \ldots, \overline{V}^1_n \rangle$»—is the schema:

($\Sigma_o^{\overline{V}1}$) «C_{SM} is the condition that S_o is used to perform a speech act of asserting the state of affairs that the author of *Small Craft Warnings* was born in 1911»,

where the expression «C_{SM}» is the schema «the set of conditions under which S^M is used in a semantically correct way», and the expression «S_o» a constant denoting a particular sentence. (For the sake of argument we may presuppose the availability of an analysis of what it is to perform an act of asserting a certain state of affairs.) The range of applicability of $\langle \overline{V}^1_1, \overline{V}^1_2,$

..., $\overline{V}^1_n\rangle$ is a set containing *one* element *at most* namely S_0 Let S_x be an arbitrary sentence different from S_0. (S_x may be a part of S_0, or *vice versa*.) If S_x is an element of the range of applicability of the set $\langle\overline{V}^1_1, \overline{V}^1_2, ..., \overline{V}^1_n\rangle$, then C_{S_x} is the condition that S_0 is used to perform a speech act of asserting the state of affairs that the author of *Small Craft Warnings* was born in 1911. In other words: if S_x is an element of the range of applicability of $\langle\overline{V}^1_1, \overline{V}^1_2, ..., \overline{V}^1_n\rangle$, then S_x is used in a semantically correct way, *if and only if* S_0 is used to perform a speech act of asserting the state of affairs that the author of *Small Craft Warnings* was born in 1911. Since S_x is supposed to be different from S_0, the *consequens* of these two implicative statements is false, whatever S_x may be. So, no sentence other than S_0 belongs to the range of applicability of $\langle\overline{V}^1_1, \overline{V}^1_2, ..., \overline{V}^1_n\rangle$. But does S_0 belong to it ? This will depend upon whether S_0 satisfies $(\Sigma^{\overline{V}1}_0)$ or not. If it does, it belongs to the range of applicability of $\langle\overline{V}^1_1, \overline{V}^1_2, ..., \overline{V}^1_n\rangle$. If it does not (e.g. because it is the sentence «The author of *Small Craft Warnings* was born in 1914»), the range of applicability of the set $\langle\overline{V}^1_1, \overline{V}^1_2, ..., \overline{V}^1_n\rangle$ is empty.

Consider the example of another set of semantical value determining properties for sentences: $\langle\overline{V}^2_1, \overline{V}^2_2, ..., \overline{V}^2_n\rangle$. Suppose that one of the V-schemata relative to this set is:

$(\Sigma^{\overline{V}2}_0)$ «C_{S^M} is the condition that S^M is used to perform a speech act of asserting the state of affairs that the author of *Small Craft Warnings* was born in 1911».

The range of applicability of $\langle\overline{V}^2_1, \overline{V}^2_2 ..., \overline{V}^2_n\rangle$ is a set of *synonymous* sentences, i.e. a set of sentences such that any two elements of that set are synonymous. The notion of synonymy itself has been explained in Section One. However, we should adapt the explanation to our assumption that expressions are unambiguous. The result will be as follows: «Two expressions E_1 and E_2 are synonymous, if and only if, by substituting an occurrence of «E_2» for every occurrence of «E_1» in a description of C_{E_1}, one obtains a description of C_{E_2}, and *vice versa*».

The range of applicability of $\langle \overline{V}^2_1, \overline{V}^2_2, \ldots, \overline{V}^2_n \rangle$ is not just a set of synonymous sentences, it is a *closed* set of synonymous sentences, i.e. a set of synonymous sentences such that every sentence that is synonymous with some element of that set is itself an element of that set. Clearly, the range of applicability of $\langle \overline{V}^2_1, \overline{V}^2_2, \ldots, \overline{V}^2_n \rangle$ is not empty. E.g. it contains the sentence «The author of *Small Craft Warnings* was born in 1911». Hence, the range of applicability of $\langle \overline{V}^2_1, \overline{V}^2_2, \ldots, \overline{V}^2_n \rangle$ is the smallest set containing the sentence «The author of *Small Craft Warnings* was born in 1911» and each synonym of that sentence.

From a practical point of view, we are probably not interested in sets of semantical value determining properties for sentences that are applicable only to a set, even a closed set, of synonyms, let alone to one single sentence. We do not wish to be obliged to look for a new set of semantical value determining properties for every sentence with a new meaning, let alone for every new sentence. So let us turn our attention to a third example: $\langle \overline{V}^3_1, \overline{V}^3_2, \ldots, \overline{V}^3_n \rangle$. Suppose that one of the $\overline{V}$-schemata relative to $\langle \overline{V}^3_1, \overline{V}^3_2, \ldots, \overline{V}^3_n \rangle$ is:

($\Sigma^{\overline{V}3}_{o}$) «$C_{S^M}$ contains the condition that one of the speech acts performed in the use of S^M is a speech act of referring to Tennessee Williams».

The range of applicability of $\langle \overline{V}^3_1, \overline{V}^3_2, \ldots, \overline{V}^3_n \rangle$ includes all statements, questions, etc. about Tennessee Williams. Obviously, it is not a set of synonymous sentences ,that is to say: it contains a pair of elements that are not synonymous. (Actually, it contains myriad such pairs.) Thus, both «The author of *Small Craft Warnings* was born in 1911» and «Was the author of *Small Craft Warnings* born in 1911 ?» belong to the range of applicability of $\langle \overline{V}^3_1, \overline{V}^3_2, \ldots, \overline{V}^3_n \rangle$. This does not exclude, of course, that the range of applicability of $\langle \overline{V}^3_1, \overline{V}^3_2, \ldots, \overline{V}^3_n \rangle$ also comprises pairs of elements that *are synonymous*. Thus, both «The author of *Small Craft Warnings* was born in 1911» and «L'auteur de *Small Craft Warnings* naquit en 1911» belong to it.

The examples elaborated in the foregoing paragraphs may suffice as an illustration of the fact that we can discover the range of applicability of a set of semantical value determining properties for sentences by considering any of the $\overline{V}$-schemata relative to that set and asking what sentences the schema is satisfied by. But instead of starting with a given set of semantical value determining properties, and tracing the range of applicability it happens to have, one may also take the opposite course (so to speak) and, given a certain set of sentences, ask under what conditions a set of properties will be a set of semantical value determining properties having that set of sentences as its range of applicability. In the remaining part of this section I wish to ask some such question. In particular, I will try to determine under what conditions a set of properties is a set of value determining properties having a perfect semantical kind of sentences as its range of applicability.

The reader will object that questions of the kind mentioned are hardly worth considering: they are so easily answered. E.g. if we presuppose the notion of a set of semantical value determining properties for sentences, *plus* what has been said about the range of applicability of such a set, the following can obviously be deduced, whatever definition may be given of the notion of a perfect semantical kind of sentences:

(D) A set of properties $\langle P_1, P_2, \ldots, P_n \rangle$ is a set of semantical value determining properties having a perfect semantical kind $\overline{K}$ of sentences as its range of applicability, if and only if there is an M-schema about which the following is the case:

(R—1)
(R—2) } See above (p. 80)
(R—3)

(R—4) for every sentence S', S' satisfies that M-schema, if and only if S' is of kind $\overline{K}$.

As an abbreviated version of (D) we may propose:

(D') A set of properties $\langle P_1, P_2, \ldots, P_n \rangle$ is a set of semantical value determining properties having a perfect semantical kind $\overline{K}$ of sentences as its range of applicability, if and only if there is a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n \rangle$, a $\overline{V}$-schema such that:

(R'—4) for every sentence S', S' satisfies that $\overline{V}$-schema, if and only if S' is of kind $\overline{K}$.

The objection is valid, as far as it goes. But my point is that, because of the peculiar sense in which the phrase «perfect semantical kind of sentences» is understood in the context of this paper, it is possible to construct a simpler and certainly much more illuminating definition than (D) or (D')· To this alternative definition the following pages will be devoted.

What is a perfect semantical kind of sentences ? Let me first introduce the notion of an M^+-schema. M^+-schemata form a kind of statement schemata. A schema is an M^+-schema, if and only if:

(i) it contains free occurrences of a variable «S^{M^+}» ranging over sentences in general;
(ii) every variation of the schema is (equivalent to) a statement about one and only one sentence S and about one

and only one illocutionary type of speech acts IT, a statement to the effect that S is used to perform a speech act of type IT;

(iii) for every sentence S, some variation of the schema is (equivalent to) a statement about S and about one and only one illocutionary type of speech acts IT, a statement to the effect that S is used to perform a speech act of type IT;

(iv) there is an illocutionary type of speech acts IT, such that every variation of the schema logically implies a statement about IT and about one and only one sentence S, a statement to the effect that S is used to perform a speech act of type IT.

When I say, about a statement, that it is a statement *to the effect that* this or that is the case, I intend to give a *complete* specification of what the statement amounts to. (This will be explained more fully in note 7.)

Like before, C_S is the set of conditions under which a given sentence S is used in a semantically correct way. A (finite or infinite, but denumerable) set $\langle \ldots S_j \ldots S_n \ldots \rangle$ of sentences is a *perfect semantical kind of sentences,* if and only if there is an M^+-schema such that (i) for every sentence S belonging to $\langle \ldots S_j \ldots S_n \ldots \rangle$, at least one of the statements describing C_S is a variation of that M^+-schema, and (ii) no variation of that M^+-schema is a statement describing, for some sentence S not belonging to $\langle \ldots S_j \ldots S_n \ldots \rangle$, C_S. For a given set of sentences, every M^+-schema with respect to which (i) and (ii) obtain, and no other schema, will be called a $\overline{K}$*-schema relative to* that set. Hence, a set of sentences is a perfect semantical kind of sentences, if and only if there is a $\overline{K}$-schema relative to that set.

For every sentence S, the smallest set containing S and each synonym of S constitutes a perfect semantical kind of sentences. A $\overline{K}$-schema relative to that set can be constructed by substituting a free occurrence of the variable «S^M » for every occurrence of «S» (i.e. any expression denoting S or S itself taken in mention: cfr. note 2) in a description of C_S. (Remember the adapted definition of synonymy given on p. 85). It may also be noted that, if a perfect semantical kind of sentences is a set of synonyms, it is a closed set of synonyms.

However, in connexion with sets of semantical value determining properties for sentences, we are probably not interested in those perfect semantical kinds of sentences that are (closed) sets of synonyms. For, as I said before: practically speaking, we are probably not interested in having sets of *synonyms* function as the range of applicability of sets of semantical value determining properties for sentences. So, the question is: are there perfect semantical kinds of sentences that are not sets of synonyms ? The answer is affirmative. (By the bye, $\overline{K}$-schemata relative to a set of sentences that is not a set of synonyms always contain free occurrences of other variables than «S^{M^+}».)

Statements form a well-known example of a perfect semantical kind of sentences that is not a set of synonyms. A statement is a sentence the semantically correct use of which consists in asserting, about a certain state of affairs, that it is a fact, or to express ourselves less emphatically: a sentence the semantically correct use of which consists in asserting a certain state of affairs. Of course, I presuppose the availability of an analysis of what it is to assert (that) a state of affairs p (is a fact) (7). Upon this definition it will be clear that statements form a perfect semantical kind of sentences. For every statement, the set of conditions of semantically correct use is described by a variation of the M^+-schema «S^{M^+} is used to

(7) In connection with the notion of an M+-schema (see p. 88); I explained what I mean, when I say about a statement that it is a statement *to the effect that* this or that is the case. I am now in a position to give a better explanation of the locution in question. When I say about a statement that it is a statement to the effect that this or that is the case, I intend to give a complete specification of what is asserted by some one using that statement in a semantically correct way (of what the statement is used to assert, if and only if it is used in a semantically correct way).

assert (that) p (is a fact)», where «p» ranges over states of affairs in general. And no variation of that M^+-schema constitutes a description of the set of conditions of semantically correct use of any non-statement. Note that I do not say that each variation of that M^+-schema constitutes a description of the set of conditions of semantically correct use of some sentence or other, let alone of some statement or other. This is clearly not the case. A perfectly respectable variation of the schema is: «The sentence 'In London, the rôle of Blanche Dubois was created by Vivien Leigh' is used to assert the state of affairs that, in New York, the rôle of Lady Torrance was created by Maureen Stapleton». This variation of «S^{M^+} is used to assert (that) p (is a fact)» does not describe the set of conditions of semantically correct use of any sentence whatsoever.

To conclude this explanation of what perfect semantical kinds of sentences are, here is a list of a few tautologies concerning such kinds. Let $\overline{K}$ be an arbitrary perfect semantical kind of sentences. Then:

(1) For every $\overline{K}$-schema relative to $\overline{K}$, $\overline{K}$ is identical to the smallest set containing each sentence S such that C_S is described by a variation of that $\overline{K}$-schema (i.e. each sentence S such that some statement describing C_S is a variation of that $\overline{K}$-schema). In other words: for every $\overline{K}$-schema relative to $\overline{K}$, and for every sentence S, S is of kind $\overline{K}$, if and only if C_S is described by some variation of that $\overline{K}$-schema. (1) follows from the definition of what perfect semantical kinds of sentences and $\overline{K}$-schemata relative to a given set of sentences are.

(2) For any two $\overline{K}$-schemata relative to $\overline{K}$, the smallest set containing each sentence S such that C_S is described by a variation of the first $\overline{K}$-schema and the smallest set containing each sentence S such that C_S is described by a

variation of the second $\overline{K}$-schema—, these two sets are identical. In other words: for any two $\overline{K}$-schemata relative to $\overline{K}$, and for every sentence S, C_S is described by a variation of the first $\overline{K}$-schema, if and only if C_S is described by a variation of the second $\overline{K}$-schema. (2) follows from (1).

(3) For every sentence S, S is of kind $\overline{K}$, if and only if, for every $\overline{K}$-schema relative to $\overline{K}$, C_S is described by some variation of that $\overline{K}$-schema. In other words: for every sentence S, S is of kind $\overline{K}$, if and only if C_S is described by a variation of every $\overline{K}$-schema relative to $\overline{K}$. (3) follows from (1).

(4) For every sentence S, if C_S is described by a variation of every $\overline{K}$-schema relative to $\overline{K}$, C_S is descrived by a variation of *some* $\overline{K}$-schema relative to $\overline{K}$. (4) is a truth of logic, considering that there are $\overline{K}$-schemata relative to $\overline{K}$.

(5) For every sentence S, if C_S is described by a variation of *some* $\overline{K}$-schema relative to $\overline{K}$, C_S is described by a variation of *every* $\overline{K}$-schema relative to $\overline{K}$. (5) follows from (2).

(6) For every sentence S, C_S is described by a variation of every $\overline{K}$-schema relative to $\overline{K}$, if and only if C_S is described by a variation of some $\overline{K}$-schema relative to $\overline{K}$. (6) follows from (4) and (5).

(7) For every sentence S, S is of kind $\overline{K}$, if and only if C_S is described by a variation of some $\overline{K}$-schema relative to $\overline{K}$. (7) follows from (3) and (6).

The upshot of all this for the subsequent part of this section lies in (3) and (7): for every perfect semantical kind $\overline{K}$ of sentences, and for every sentence S, S is of kind $\overline{K}$, if and only if

C_S is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K}$ [8].

What precedes may suffice as an explanation of the notion of a perfect semantical kind of sentences. I now come to the thesis announced earlier. I contend that, given (i) the notion of a set of semantical value determining properties for sentences, (ii) what has been said about the range of applicability of such a set, and (iii) the notion of a perfect semantical kind of sentences—, I contend that, given these elements, the following definition is deducible:

(D'') A set of properties $\langle P_1, P_2, \ldots, P_n \rangle$ is a set of semantical value determining properties having a perfect semantical

[8] Analoga of (1)—(7) hold with respect to the range of applicability of a set of semantical value determining properties for sentences and the $\overline{V}$-schemata relative to that set. The analoga of (1) and (2) have been formulated above (Section Two: second final remark). E.g. the analogon of (1) runned as follows ($\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ is an arbitrarily chosen set of semantical value determining properties for sentences): «For every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the range of applicability of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$ is identical to the smallest set containing each sentence satisfying that $\overline{V}$-schema». I wish to stress that the corresponding analoga of (3)—(7) are equally acceptable. Thus, the analogon of (3) is: «For every sentence S, S belongs to the range of applicability of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_3 \rangle$, if and only if S satisfies every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$»; and the analogon of (7): «For every sentence S, S belongs to the range of applicability of $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, if and only if S satisfies some $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$». The logical connexions between these analoga of (1)—(7) are exactly the same as those between the elements of the series (1)—(7) themselves, except that, in order to prove the analogon of (4), one has to appeal to the fact that there are $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$.

kind $\overline{K}$ of sentences as its range of applicability, if and only if:

(R″—1) the definition of P_1 (P_2/.../P_n) is such that, for every sentence S′, if S′ possesses property P_1 (P_2/.../P_n), S′ is of kind $\overline{K}$;

(R″—2) the definitions of P_1 (P_2/.../P_n) are such that, for every sentence S′, if S′ is of kind $\overline{K}$, then S′ possesses one and only one of the properties P_1, P_2, ..., P_n;

(R″—3) the definition of P_1 (P_2/.../P_n) is (i) not such that, for every sentence S′, if S′ is of kind $\overline{K}$, S′ possesses property P_1 (P_2/.../P_n); (ii) not such that, for every sentence S′, if S′ possesses property P_1 (P_2/.../P_n), S′ is not of kind $\overline{K}$.

Clearly, I can prove my contention by proving that, for every set of properties $\langle P_1, P_2, ..., P_n \rangle$ and for every perfect semantical kind $\overline{K}$ of sentences, the set of conditions $\langle$(R″—1), (R″—2), (R″—3)$\rangle$ obtains, if and only if there is a $\overline{V}$-schema relative to $\langle P_1, P_2, ..., P_n \rangle$, a $\overline{V}$-schema such that (R′—4) obtains. (For (R′—4): see the formulation of (D′) on p. 87.) In the construction of my proof I shall make use of two auxiliary theorems.

(T_1) For every set $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$ of semantical value determining properties for sentences, and for every M-schema, if there is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, a $\overline{V}$-schema such that the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying that M-schema, then that M-schema is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$. (Like before, when I speak of *the* set of sentences satisfying an M-schema, I mean the smallest set containing each sentence satisfying that M-schema.) [9]

(T_2) For every perfect semantical kind $\overline{K}$ of sentences, and for every sentence S, S is (not) of kind $\overline{K}$, if and only if S satisfies (does not satisfy) the M-schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K}^M$» in «C_{SM} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K}^M$».

Proof of (T_1)

Let $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$ be an arbitrary set of semantical value determining properties for sentences, and Σ^M an arbitrary M-

[9] A theorem equivalent to (T_1) but more appealing to the imagination is

(T'_1) For every set $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$ of semantical value determining properties for sentences, and for every M-schema, if the set of sentences satisfying that M-schema is identical to the range of applicability of $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, that M-schema is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$.

That (T_1) and (T'_1) are equivalent follows from the fact that, for every set $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$ of semantical value determining properties for sentences, and for every set $\langle ...S_j...S_n... \rangle$ of sentences, $\langle ...S_j...S_n \rangle$ is identical to the range of applicability of $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, if and only if there is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, a $\overline{V}$-schema such that the set of sentences satisfying that $\overline{V}$-schema is identical to $\langle ...S_j...S_n \rangle$. This, again, follows from (i) the fact that, for every set $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$ is such that the set of sentences satisfying that $\overline{V}$-schema is identical to the range of applicability of $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, and (ii) the fact that, for every set $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$, there are $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, ..., \overline{V}_n \rangle$.

schema. Le $\Sigma_{o}^{\overline{V}}$ be one of the $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$.

(1) If there is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, a $\overline{V}$-schema such that the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying Σ^{M}, then, for *every* $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying Σ^{M}. (1) follows from the fact that, for any two $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the set of sentences satisfying the first $\overline{V}$-schema and the set of sentences satisfying the second $\overline{V}$-schema are identical.

(2) If, for every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying Σ^{M}, then the set of sentences satisfying $\Sigma_{o}^{\overline{V}}$ is identical to the set of sentences satisfying Σ^{M}, in other words: then, for every sentence S', S' satisfies $\Sigma_{o}^{\overline{V}}$, if and only if S' satisfies Σ^{M}. Hence also: if, for every $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences saisfying Σ^{M}, then, for every sentence S', S' does not satisfy $\Sigma_{o}^{\overline{V}}$, if and only if S' does not satisfy Σ^{M}.

Now:

(3) a. the definition of $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$) is such that, for every sentence S', if S' possesses property $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$), *S' satisfies* $\Sigma_{o}^{\overline{V}}$;

b. the definitions of $\overline{V}_1$, $\overline{V}_2$, ... and $\overline{V}_n$ are such that, for every sentence S', if *S' satisfies* $\Sigma_o^{\overline{V}}$, then S' possesses one and only one of the properties $\overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n$;

c. the definition of $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$) is (i) not such that, for every sentence S', if *S' satisfies* $\Sigma_o^{\overline{V}}$, S' possesses property $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$); (ii) not such that, for every sentence S', if S' possesses property $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$), *S' does not satisfy* $\Sigma_o^{\overline{V}}$.

(3) is merely an explication of our supposition that $\Sigma_o^{\overline{V}}$ is one of the $\overline{V}$-schemata relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$. It follows from (1), (2) and (3) [10] that, if there is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$, a $\overline{V}$-schema such that the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying Σ^M, then:

(4) a. the definition of $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$) is such that, for every sentence S', if S' possesses property $\overline{V}_1$ ($\overline{V}_2/\ldots/\overline{V}_n$), *S' satisfies* Σ^M;

b. [similarly]

c. [similarly]

But according to our definition of what it is for an M-schema to be a $\overline{V}$-schema relative to a given set of properties, to affirm (4) is to say that Σ^M is a $\overline{V}$-schema relative to $\langle \overline{V}_1, \overline{V}_2, \ldots, \overline{V}_n \rangle$.

Proof of (T_2)

We have seen earlier that, for every perfect semantical kind

[10] Actually, a further supposition is needed. The phrase «the definition of P *is such that* ...» must be specifiable in a system in which the substitutibility of equivalents holds good. The same supposition is made in the deduction of (D'') below.

$\overline{K}$ of sentences, and for every sentence S, S is of kind $\overline{K}$, if and only if C_S is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K}$. (C_S is the set of conditions of semantically correct use of S.) Hence also: for every perfect semantical kind $\overline{K}$ of sentences, and for every sentence S, S is not of kind $\overline{K}$ (i.e. it is not the case that S is of kind $\overline{K}$), if and only if C_S is not described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K}$.

Now, if we remember our definition of what it is for a sentence (not) to satisfy an M-schema (see p. 80), we shall see that, for every perfect semantical kind $\overline{K}$ of sentences, and for every sentence S, C_S is (not) described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K}$, if and only if S satisfies (does not satisfy) the M-schema resulting from filling in «$\overline{K}$» (i.e. an arbitrarily chosen expression denoting $\overline{K}$: cfr. note 2) at the open place marked by «$\overline{K^M}$» (a variable ranging over perfect semantical kinds of sentences) in «C_{S^M} is described by a variation of some (every) K-schema relative to $\overline{K^M}$». (That, for a given perfect semantical kind $\overline{K}$ of sentences, the schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K^M}$» in «C_{S^M} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K^M}$» is an M-schema, will be clear.)

What precedes implies (T_2).

Deduction of (D'')

As I said before, it will suffice to show that, for every set of properties $\langle P_1, P_2, \ldots, P_n \rangle$, and for every perfect semantical kind $\overline{K}$ of sentences:

1. if $\langle$(R″—1), (R″—2), (R″—3)$\rangle$ obtains, there is a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n\rangle$, a $\overline{V}$-schema such that (R′—4) obtains;
2. [converse of 1.]

As to 1. Let $\langle P_1, P_2, \ldots, P_n\rangle$ be an arbitrary set of properties, and $\overline{K}$ an arbitrary perfect semantical kind of sentences. If $\langle$(R″—1), (R″—2), (R″—3)$\rangle$ obtains, then, because of (T_2):

(R‴ — 1) the definition of P_1 (P_2/.../P_n) is such that, for every sentence S′, if S′ possesses property P_1 (P_2/.../P_n), S′ satisfies the M-schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K^M}$» in «C_{SM} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K^M}$»;

(R‴ —2) [similarly]

(R‴ —3) [similarly]

But if $\langle$(R‴—1), (R‴—2), (R‴—3)$\rangle$ obtains, there *is* a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n\rangle$, a $\overline{V}$-schema such that (R′—4) obtains, namely the schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K^M}$» in «C_{SM} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K^M}$».

As to 2. Once more, let $\langle P_1, P_2, \ldots, P_n\rangle$ be an arbitrary set of properties, and $\overline{K}$ an arbitrary perfect semantical kind of sentences.

— If there is a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n\rangle$, a $\overline{V}$-schema such that (R′—4) obtains, then, because of (T_2):

(1) there is a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n \rangle$, a $\overline{V}$-schema such that the set of sentences satisfying that $\overline{V}$-schema is identical to the set of sentences satisfying the M-schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K^M}$» in «C_{SM} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K^M}$».

— if (1), then, because of (T_1) and the fact that, if (1), then $\langle P_1, P_2, \ldots, P_n \rangle$ is a set of semantical value determining properties for sentences:

(2) the M-schema resulting from filling in «$\overline{K}$» at the open place marked by «$\overline{K^M}$» in «C_{SM} is described by a variation of some (every) $\overline{K}$-schema relative to $\overline{K^M}$»—, that M-schema is a $\overline{V}$-schema relative to $\langle P_1, P_2, \ldots, P_n \rangle$.

— if (2), then:

(3) $\langle (R'''—1), (R'''—2), (R'''—3) \rangle$ obtains.

— If (3), then, because of (T_2), $\langle (R''—1), (R''—2), (R''—3) \rangle$ obtains.

The pair ⟨truth, falsity⟩ is the best-known example of a set of semantical value determining properties for a perfect semantical kind of sentences. Consider the following definitions:

«S is true $\xleftrightarrow{Df}$ the state of affairs which S is used to assert, if and only if S is used in a semantically correct way—, that state of affairs is a fact, i.e. is the case in the standard world (the so-called real world)»

«S is false $\xleftrightarrow{Df}$ the state of affairs which S is used to assert, if and only if S is used correctly, is not a fact»

Upon these definitions, ⟨truth, falsity⟩ is a (non-trivial) set of semantical value determining properties for a certain perfect semantical kind of sentences, namely statements. For upon these definitions (and the notion of a statement): (i) if a sentence is true (false), it is a statement; (ii) if a sentence is a statement, it is either true or false and not both. And on the other hand, it is not the case that, upon these definitions, (i) it is sufficient for a sentence to be a statement in order to be true (false); (ii) it is necessary for a sentence not to be a statement in order to be true (false).

Another perfect semantical kind of sentences than the smallest set containing each statement is the smallest set containing each *elementary imperative*. I define that an elementary imperative is a sentence the semantically correct use of which consists in commanding, about a certain state of affairs that it shall become (be made) a fact, or less emphatically: a sentence the semantically correct use of which consists in commanding a certain state of affairs. Here again, let us presuppose the availability of an analysis of what it is to command (that) a state of affairs p (shall be made/become a fact). Clearly, elementary imperatives constitute a perfect semantical kind of sentences. One of the $\overline{\mathrm{K}}$-schemata relative to elementary imperatives is «S^{M^+} is used to command (that) p (shall become/ be made a fact)», where «p» ranges over states of affairs in general.

Here are a few examples of sets of semantical value determining properties for elementary imperatives. The literature on imperative logic contains several proposals regarding the valuation of imperatives. Each of the examples listed below is actually the result of applying some such proposal to elementary imperatives in the sense defined.

Ex. 1: the pair $\langle P_1^{I-1}, P_2^{I-1} \rangle$

«S possesses $P_1^{I-1} \overset{\mathrm{Df}}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, is a fact»

«S possesses P^{I-1}_{2} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, is not a fact»

Ex. 2: the pair $\langle P^{I-2}_{1}, P^{I-2}_{2}\rangle$

«S possesses P^{I-2}_{1} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, is obligatory (i.e. it ought to be the case that that state of affairs is a fact)»

«S possesses P^{I-2}_{2} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, is not obligatory (i.e. it is not so that it ought to be the case that...)»

Ex. 3: the pair $\langle P^{I-3}_{1}, P^{I-3}_{2}\rangle$

«S possesses P^{I-3}_{1} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, has become (been made) a fact after time t_0 (where t_0 is a particular moment of time at which the state of affairs in question is not a fact)»

«S possesses P^{I-3}_{2} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, has not become (been made) a fact after time t_0»

An infinite number of sets akin to Example 3 can be constructed by choosing another moment of time than t_0 at every turn.

Ex. 4: the triplet $\langle P^{I-4}_{1}, P^{I-4}_{2}, P^{I-4}_{3}\rangle$

«S possesses P^{I-4}_{1} $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, furthers the attainment of E_0 (where E_0 is a particular constellation of ends or purposes)»

«S possesses P^{I-4}_2 $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, furthers the non-attainment of E_0»

«S possesses P^{I-4}_3 $\overset{Df}{\longleftrightarrow}$ the state of affairs which S is used to command, if and only if S is used correctly, furthers neither the attainment nor the non-attainment of E_0»

We may presuppose the availability of an analysis of what it is for a state of affairs to further the attainment (the non-attainment) of a given constellation of ends or purposes. Here again, an infinite number of sets like Example 4 can be constructed by choosing another constellation of ends at every turn.

Example 1 corresponds to the so-called Hofstadter and Mc Kinsey valuation of imperatives in terms of satisfaction and non-satisfaction. Example 2 corresponds to the valuation of imperatives found e.g. in S. Kanger's *New Foundations for Ethical Theory* (11). Example 3 corresponds to N. Rescher's concepts of command termination and non-termination (as of time t_0) (12). Example 4 corresponds to H. N. Castaneda's appropriateness (justifiedness), inappropriateness (unjustifiedness) and nonappropriateness (nonjustifiedness) of imperatives (13).

(11) In: R. HILPINEN (ed.), *Deontic Logic: Introductory and Systematic Readings*, D. Reidel, Dordrecht, 1971, p. 36-58. (Kanger's paper was first published in Stockholm in 1957.)

(12) See: N. RESCHER, *The Logic of Commands* (*Monographs in Modern Logic* Series), Routledge & Kegan Paul / Dover Publications, London / New York, 1966, p. 52-61.

(13) See: H. N. CASTANEDA, *Imperative Reasonings*, in: *Philosophy and Phenomenological Research*, XXI, 1960-61, p. 21-49.

Conclusion

In the foregoing sections I have defined two kinds of sets of value determining properties for sentences (one of them being a subkind of the other one), and hence, indirectly, two kinds of sentence valuation. Thus, Section Two provides an indirect definition of the concept of semantical sentence valuation in general.

When a definition is given, one must try to be clear as to its status. Does the definition count as the construction of a concept (hence as a mere convention), or is it meant to provide an analysis of an *existing* concept ? The question is especially relevant with respect to the (indirect) definition of semantical sentence valuation in Section Two. For philosophers do talk about semantical sentence valuation, particularly in logical contexts. And the properties constituting the examples elaborated at the end of Section Three (truth/falsity, the four examples concerning elementary imperatives) are actually known and commonly designated as «semantical values». (I prefer to call them semantical value determining properties.)

It can be gathered from the Introduction that the definition of Section Two (such as it is expressed on p. 80) may be construed as an explication of the vague idea that a set of semantical value determining properties for sentences is a set of value determining properties *pertaining to sentences in their meaning*. Now it would seem to me that, when philosophers speak of semantical sentence valuation ([14]), the idea of a sentence valuation based on a set of value determining properties pertaining to sentences in their meaning is always present,

([14]) I assume that the term «semantical *sentence* valuation» is not misleadingly used in such a way as to comprehend the semantical valuation of what I would call *sentence schemata* (cfr. note 1). The point is worth stressing. E.g. much of the talk on semantical valuation in logical model theory has to do with sentence schemata. However, the concept of semantical valuation as applied to sentence schemata is more complicated than the concept of semantical sentence valuation, and is not covered by the considerations propounded in this essay.

explicitly or implicitly ([15]). I am not arguing that the concept(s) of semantical sentence valuation actually in use can be reduced to this one idea ([16]). But at least, the idea always seems to be a central part of what is meant. It follows that the definition on p. 77 is not merely conventional. It is an analysis of part (and of a most elementary part, indeed) of the existing concept(s) of semantical sentence valuation. As such it is subpect to the usual conditions of adequacy for definitions of that kind.

Having developed the definition of a set of semantical value determining properties for sentences in general (Section Two), I could not help noticing that it was very general indeed, and that certain properties commonly designated as semantical values (I would call them semantical value determining properties) display some important pecularities not covered by the definition in question. E.g. all the world knows that the pair truth/falsity applies to statements, and to statements only. Now, statements form a kind of sentences. More particularly, they constitute an example of what I have called a perfect semantical kind of sentences. In Section Three I have specified the conditions under which a set of properties will be a set of

([15]) I say «explicitly or implicitly», because in certain contexts (in particular: logical model theory) the value determining properties constituting the basis of the valuation need not be specified, and the semantical values assigned to sentences are represented in an abstract or general way by symbols such as «1» and «0» (in a two-valued system). This does not impair the fact that value determining properties are presupposed.

([16]) E.g. in logical model theory the value determining properties that are supposed to constitute the basis of sentence valuation concern the «referential» connections existing between sentences and so-called possible worlds. Whether this is more specific than the idea that the value determining properties constituting the basis of semantical sentence valuation concern sentences in their meaning depends upon one's views on the relations between meaning and reference. The traditional position is that the referential connections between sentences and worlds exist *in virtue of* the meaning of the sentences, but do not exhaust it. However, some semantically-minded logicians have certainly tended to *reduce* the meaning of a sentence to its connections with possible worlds. (Or are we to construe this reduction as a decision taken for the sake of convenience within the theory constructed ?)

semantical value determining properties having a perfect semantical kind of sentences as its range of applicability.

As to the notion of a perfect semantical kind of sentences itself: such as it has been defined in this paper, it is, for all I know, a new one. So my definition of it is in principle nothing but a convention. Yet, this convention yields a major classification of kinds of sentences, major, that is, from the point of view of the speech act description of language and of the conditions of semantically correct use of sentences in particular. Because of the central role the speech act description assigns to illocutionary acts in the specification of such conditions (see p. 93), the class of perfect semantical kinds of sentences is an important one, or in other terms: to say about a given set of sentences (e.g. statements, elementary imperatives) that it is a perfect semantical kind of sentences is to say something really illuminating about it. In sum, then, the concept of a perfect semantical kind of sentences, though introduced by convention, is a very *natural* one for any one familiar with the speech and description ([17]).

Why did it seem worthwhile to define the class of those sets of semantical value determining properties that have a perfect semantical kind of sentences as their range of applicability? More is needed than the fact that, in the case of this subkind, the definition can be given a non-trivial formulation (non-trivial with respect to the definition of a set of semantical value determining properties for sentences *in general*: see the discussion on pp. 101-102). However, there *is* more. If we will consider what sets of «semantical values» (better: sets of semantical value determining properties) other than truth/falsity philosophers have been looking for — and this search has manifested itself above all in philosophical discussions of non-statement logics —, we shall find that many of those sets are or

([17]) As I said on p. 71, other «Languages» than that of the speech act analysis may be used to specify the conditions of semantically correct use of sentences. It may be possible to construct, in terms of these «languages», a concept extensionally identical to the concept of a perfect semantical kind of sentences, such as it has been developed in Section Three.

can be construed as sets of semantical value determining properties for a perfect semantical kind of sentences (or for a set of such kinds) ([18]).

I am well aware of the sketchiness of this Conclusion. Many of the assertions in it will, no doubt, appear gratuitous. However, a more elaborate account lies outside the scope of this paper.

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Marc De Rouck

([18]) In this connexion it may be noted that the class of elementary imperatives (see p. 100) corresponds to what shows up in the literature on imperative logic as imperatives of the form «!F», where «F» is a metavariable varying over formulae of propositional logic.