

sense-data term but always a theoretical construct, representing, it was hoped, some objective aspect of the state of physical things, and there is no reason for not associating hot-feelings as intimately with  $Temp_K$ . What can it be to understand the theoretical construct  $Temp_H$ ? Only, it would seem, to be able to use it correctly, the use being governed by test or measurement procedures which now, according to our assumption, have found mechanical interpretations but which were originally understood in a similar loose way. There is no reason why we should assume that practical understanding of a theoretical term (i.e. just about any term) requires the ability to define it or to know in any exact way its meaning, i.e. the "external" reality, if any, it is assumed to refer to. In using such words as "crystal", "cancer", "salt", we have the *words* in mind and are familiar with *them* and with many aspects of, and facts about, what they designate and this constitutes our understanding. It should come as no surprise if these terms are defined in terms unfamiliar to us. We must not assume that just because we use a word successfully we have some neat, fixed mental something that corresponds to it and that we merely need to sit down and analyze to arrive at a full definition. Professor Nagel has scoffed at the notion that the mechanical concept of temperature could be arrived at by analyzing the meaning of the thermodynamical concept of temperature but I say that this is because we have never fully known what that concept was.

This brief discussion indicates, I believe, an adequate answer to the view that reductive definitions constitute a challenge to the analytic-synthetic distinction. The position taken here is, to summarize, that reductive definitions are purely abbreviatory and analytic (though they may be instructive in the way that the analytic sentences of mathematics are instructive, or the definitions of family-relationship words are instructive to a child); they do not define the primitives of another theory but a set of terms whose designata are operationally indistinguishable, on the basis of laws independently established in the reducing theory and on the basis of vocabulary already included in, or needed for the interpretation of, the reduced theory. This allows a genuine reduction of primitive vocabulary (through disuse of the superfluous reduced theory).

Unsolved problems admittedly remain. I have dealt only with those charges which seem most clearly based on misunderstandings and which have not been treated elsewhere. Whatever the outcome, I can see no worthwhile alternative to the use of "Carnap-like" formalized constructions in the continued exploration of systematic ways of speaking about the world. It seems a permanent advance in philosophic method.

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## EMPIRICISM AND ABSTRACT ENTITIES

IF our language did not contain the words 'particular,' 'quality,' 'relation,' 'universal,' 'proposition,' and 'entity,' we could not make such statements as 'There are particulars,' 'There are universals,' and 'There are entities.' For that matter, if our language didn't contain the word 'river,' we couldn't say 'There are rivers.' In the latter case, however, we know that even if our language happened not to contain the word 'river,' it does contain resources which permit the formulation of *There are rivers* in other terms. The question thus arises, What are the resources which are tapped by the former, and philosophically more exciting, statements?

In his important essay, "Empiricism, Semantics and Ontology,"<sup>1</sup> Carnap poses essentially the same question when he asks (in effect) what resources would have to be added to a language which did not enable one to say, e.g. "There are propositions," in order for this to become possible. He writes (p. 25)

New variables "p" "q", etc., are introduced with a rule to the effect that any (declarative) sentence may be substituted for a variable of this kind; . . . Further, the general term "proposition" is introduced. "p is a proposition" may be defined by "p or not p" (or by any other sentence form yielding only analytic sentences). Therefore, every sentence of the form ". . . is a proposition" (where any sentence may stand in place of the dots) is analytic . . . With the help of the new variables, general sentences may be formed, e.g. . . . "there is a p such that p is a proposition."

Carnap calls the introduction of these resources the "construction" of "the framework of propositions." It is essential, however, to note that the resources *introduced* (i.e. the variables and the term "proposition") can do their job only because the language already contains the sentential connectives with their characteristic syntax by virtue of which such sentences as "Either Chicago is large or Chicago is not large" are analytic. In other words, the introduced *nominal* resources mobilize existing *syntactical* resources of the language to make possible the statement "There are propositions."

<sup>1</sup>Revue Internationale de Philosophie, XI (1950), 20-40.

In a more general formulation of his thesis, Carnap writes (p. 30) that the acceptance of a framework of new entities is represented in the language by the introduction of new forms of expression to be used according to a new set of rules. . . . the two essential steps are. . . . First the introduction of a general term, a predicate of higher level, for the new kind of entities, permitting us to say of any particular entity that it belongs to this kind (e.g. "red is a *property*," "five is a *number*"). Second, the introduction of variables of the new type . . . With the help of the variables, general sentences concerning the new entities can be formulated.

Now it is indeed clear that unless a language contains nominal resources having the force of (a) the word "proposition" and (b) a variable—say "v"—for which sentences are substituends, the language does not permit the formulation of a sentence having the force of " $(\exists v) v$  is a proposition." But, as Quine has pointed out,<sup>2</sup> it is just a mistake to suppose that the variable in " $(\exists v) v$  is a proposition" must be one for which *only* sentences are substitutable. The use of differently designed sets of variables for syntactically different sets of substituends is indeed one way of avoiding logical nonsense. However, the same results can be achieved with a single set of variables by specifying the necessary restrictions in terms of context.<sup>3</sup> In such a language, individual constants, one-place predicates, multi-place predicates, class terms, class of classes terms, sentences, etc. would all be substitutable for, say, the familiar "x," "y," "z," etc. Given suitable conventions (which I shall not attempt to specify) "x is a proposition" might be defined as "either x or not x;" "x is a property" as "y is x or not (y is x);" "x is a dyadic relation" as "yz is x or not (yz is x)," etc. These omnivorous variables would enable us to give a simple sense to "There are universals," "There are abstract entities," and even "There are entities," the least informative answer to Quine's question "What is there?"<sup>4</sup> The first of these becomes " $(\exists x) x$  is a property or x is a relation;" the second, " $(\exists x) x$  is a universal or x is a proposition;" the third, " $(\exists x) x$  is a particular or x is an abstract entity."<sup>5</sup>

To accept a framework of entities, then, is to adopt a certain form of language. Within this language the question "Are there E's?" where

<sup>2</sup>Carnap's Views on Ontology," *Philosophical Studies*, II (1951), 65-72.

<sup>3</sup>Of course, as Quine points out (p. 69), it would always be possible to introduce special variables into such a language as notational conveniences.

<sup>4</sup>It is interesting to note that Carnap, discussing as he is the problem of abstract entities, does not explore the linguistic framework required for saying "There are abstract entities," and hence for asking the question "Are there abstract entities?"

<sup>5</sup>These definitions are proposed by way of illustrations; the task of providing illuminating definitions of these terms is an enterprise of great difficulty, the most important part of which would be the philosophical commentary in which the definitions were justified.

"E" is the term for the relevant kind of entity, receives an analytic answer, while questions of the form "Are there E's conforming to such and such conditions?" receive answers which are "either factually true or analytic" (p. 31). Thus, in the appropriate linguistic framework, "Are there numbers?" is answered by the analytic sentence, "There are numbers;" "Are there numbers greater than 100?" is answered by the analytic sentence "There are numbers greater than 100;" while the question "Are there numbers less than 1,000,000 which have not turned up in the numbers game?" is answered (let us suppose) by the factually true sentence "There are numbers less than 1,000,000 which have not turned up in the numbers game." These questions, asked in the language of the framework, Carnap calls "internal questions."<sup>6</sup> From them, he tells us (p. 31)

we must clearly distinguish external questions, i.e. philosophical questions concerning the existence or reality of the framework itself. Many philosophers regard a question of this kind as an ontological question which must be raised and answered before the introduction of the new language form. In contrast to this view, we take the position that the introduction of the new ways of speaking does not need any theoretical justification, because it does not imply any assertion of reality. . . . To be sure we have to face . . . an important question; but it is a practical, not a theoretical question; it is the question whether or not to accept the new linguistic forms.

The external question, "Shall I accept such and such a form of language?" is, as Carnap points out, a practical question in that it calls for "decision rather than an assertion" (p. 29). But although a question of the form "Shall I . . .?" calls indeed for decision, it is generally sensible to ask of a decision "Is it reasonable?" or "Can it be justified?" and *these* questions call for assertion rather than a decision. Thus, the question inevitably arises, Is it proper to ask of a decision to accept a framework of entities, "Is it reasonable?" "Can this decision be justified, and if so, how?" This is the crux of the matter, and on this point, it must be remarked, Carnap's discussion is less incisive. At times, as in the passage quoted immediately above, he seems to tell us that the demand for a justification is improper. On the other hand, only a few sentences further on he writes that "the acceptance . . . can only be judged as being more or less expedient, fruitful, conducive to the aims for which the language is intended." Here, as on several other occasions, he implies that such a decision can be justified, that is, shown to be reasonable. As to the nature of such justification, however, he gives no more than a few obscure hints. One looks in vain for an unpacking of "expediency," "fruitfulness,"

<sup>6</sup>*Ibid.*, 21.

and "conduciveness to the aims for which the language is intended."<sup>7</sup>

Carnap, as one would expect, is particularly concerned to emphasize that "the acceptance of a framework must not be regarded as implying a metaphysical doctrine concerning the reality of the entities in question." (p. 32). But just *why* is the *internal* assertion "there are propositions," to which we are committed by the acceptance of the framework of propositions, not a metaphysical one? Carnap's answer, is, in effect, "because it is *analytic*." And, indeed, it is certainly true that if you mean by a metaphysical statement, a statement which is neither analytic nor empirical, then this internal statement is not a metaphysical one. I doubt, however, that many philosophers with a background in the history of the subject would take this to be an adequate analysis of the term 'metaphysics' as a working term in philosophy.

Carnap also tells us (p. 35) that metaphysicians

believe that only after making sure that there really are entities of the kind in question, are we justified in accepting the framework by incorporating the linguistic forms into our language.

In other words, the metaphysician appeals to a *bogus* method of justifying the acceptance of a framework of entities. Carnap is, in effect, comparing the metaphysician to a scientist who tells us that before we adopt the language in which we can say "There are molecules," we should first make sure that there really are molecules. Here empirically oriented philosophers would all agree that the scientific justification of the acceptance of the language of molecules does not involve the premise *There are molecules*.

Now, I can conceive of two by no means foolish lines that Metaphysicus Platonius might take by way of reply. In the first place, he might deny that he employs the above bogus method of justifying the acceptance of a framework of abstract entities. He might insist that the parallel of abstract entities with molecules is a good one, and that the framework of abstract entities is a sound theoretical language, the acceptance of which, like the acceptance of the framework of molecules, is justified by its power to "save the appearances." Abstract entities would be "metaphysical" not because experience provides no reason for putting them into our intellectual picture of the world, but because they are neither mental nor physical, nor, as is shown by their pervasive role, a third class of entities coordinate with these. A nominalistic metaphysician (pace Quine) on the other hand, would com-

<sup>7</sup>See Warner Wick's discussion of this point in "The 'Political' Philosophy of Logical Empiricism," *Philosophical Studies* (June, 1951). Herbert Feigl has made a detailed exploration of puzzles relating to the justifiability of conceptual frameworks in his essay "De Principiis . . ." which appeared in *Philosophical Analysis* (ed.) Max Black (New York: Cornell University Press, 1950).

pare the framework of abstract entities to the framework of caloric or phlogiston.

Is the Carnap of the semantical period a realistic metaphysician who introduces abstract entities as theoretical objects to "save the appearances"? One might think that to decide this question one way or the other, one would have to know more (as in any case we should like to) about the way in which, as he sees it, the acceptance of a framework of abstract entities is to be justified. But Carnap can be expected to reply that no such additional information is necessary as internal assertions of the existence of abstract entities spring from analytic sentence forms, and analytic sentence forms can never formulate a hypothesis which saves appearances. Our evaluation of this reply will be determined by the outcome of our discussion of Quine's critique of Carnap's "ontology."

The second line our metaphysician might take is to admit that, as he sees it, we are justified in adopting the language of abstract entities "because we know that *there really are* abstract entities." He might, in effect, deny that abstract entities are *theoretical* entities introduced to save appearances, and insist that we have an immediate awareness of abstract entities, an awareness which does not involve a covert use of the linguistic framework of abstract entities. Indeed, he might enter a *tu quoque*; for Metaphysicus is not alone in suspecting that if Carnap had once been asked, How is the acceptance of the framework of sense-data to be justified? he would, in effect, have replied "because colors, sounds, etc. are *given*," where further questioning would have made it clear that this *givenness* did not involve a covert use of a (however rudimentary) symbolic framework of sense-data. I think it is obvious that many empiricists have taken this line. Whether or not Carnap still does (or has ever done) it is not easy to say. Certainly he has, on many occasions, availed himself of the philosophical jargon of givenness, and nowhere he has explicitly discussed and rejected the epistemological views it embodies.

I have spoken here of two lines that Metaphysicus Platonius might take. Actually these two lines turn out to be different parts of one and the same line. For the appearances which M. P. believes to be saved by the 'hypothesis' of abstract entities, and the saving of which he believes to justify the acceptance of the framework of abstract entities, are such characteristically mental phenomena as thought and desire. He argues that to explain (indeed even to describe) these phenomena we need the concept of a relation of awareness which holds between minds and such abstract entities as universals and propositions. And it is to exactly such an awareness M.P. appeals when he takes the second of the two lines distinguished above. One is reminded

of the view that sensations, images, etc. are data to the psychologist as self-observer, but also, in the psychology of the other one, theoretical objects necessary to save the behavioral appearances.

## II

Is a framework of abstract entities to be justified as a device for saving appearances? We shall discuss this question on two levels. First, from a logical point of view, in terms of such abstract issues as the analytic-synthetic distinction, and (phoenix!) the comparative statuses of logico-mathematical propositions and the assertions of empirical science; later in terms of the more concrete issues raised by the persistent (if currently repressed) notion that relations between minds and abstract entities must be invoked by an adequate psychological theory of the 'higher processes.'

Is there a parallel between the manner in which the acceptance of the framework of, say, propositions and the acceptance of the framework of, say, molecules, is to be justified? One philosopher who thinks so is W. V. Quine. He writes

Within natural science there is a continuum of gradations, from the statements which report observations to those which reflect basic features say of quantum theory or the theory of relativity. The view which I end up with . . . is that statements of ontology or even of mathematics and logic form a continuation of this continuum, a continuation which is perhaps more remote from observation than are the central principles of quantum theory or relativity. The differences here are in my view differences only in degree and not in kind. Science is a unified structure, and in principle it is the structure as a whole, and not its component statements one by one that experience confirms or shows to be imperfect. Carnap maintains that ontological questions and likewise questions of logical or mathematical principle, are questions not of fact but of choosing a convenient conceptual scheme or framework for science; and with this I agree only if the same be conceded for every scientific hypothesis.<sup>8</sup>

In this passage Quine puts the question "Are there propositions?" in a continuum with "Are there molecules?" But his reason for doing so is not that there is a certain set of appearances which is saved by the 'propositional hypothesis' as another set is saved by the 'molecular hypothesis.' It springs rather from his rejection of a logical distinction, the dichotomy analytic-synthetic which lies at the heart of the traditional "dogma" of a chasm between *verités de fait* (factual science) and *verités de raison* (formal science).

I have already followed Quine's lead in emphasizing that the crux of Carnap's treatment of abstract entities is the distinction, within a form of language, between existence statements which are analytic, and those which are synthetic. As Quine points out, both kinds of

existence statements are answers to what Carnap calls *internal* questions. Now, if a statement of the form "There are  $\Phi$ 's" in a certain language framework, is analytic, let us say that " $\Phi$ " is a category of that framework. Clearly, the categories of a framework would form a classificatory system. Thus, in the framework we were adumbrating above, "entity" would be the most inclusive category, "abstract entity" a proximate sub-category, and "universal" a sub-category of "abstract entity." Also, if the language form were of a familiar kind, "number" would be a sub-category under "class of classes," and "even number" under "number." Indeed, unless a reasonable way were found of restricting the term "category" to the more inclusive pigeon holes, there would be such categories as "Even number greater than 100." However this may be, the aspect of this conception of a category which is of primary concern to us is the fact that the categories of a given language stem from the analytic sentence forms of a language.

But just what *are* the analytic sentence forms of a language? And just how are they to be distinguished from its synthetic forms? These are crucial questions which must be faced by anyone who seeks to defend the above conception of a category—for, as Quine points out (p. 71),

If there is no proper distinction between the analytic and the synthetic, then no basis at all remains for the contrast which Carnap urges between analytical and empirical statements of existence. Ontological questions then end up on a par with questions of natural science.

Now, a rounded and systematic discussion of the analytic-synthetic distinction would at the very least consume the space allotted to this essay, leaving none for other equally important aspects of the problem of abstract entities. I have, however, dealt extensively with this topic in other papers<sup>9</sup> to which the reader is referred for the broader background of the following remarks. The nub of the matter is that in the literature of modern philosophy, the *verbal* dichotomy 'analytic-synthetic' conceals two conceptual dichotomies, the lumping together of which has been, and continues to be, responsible for serious philosophical confusions. In other words, the term 'analytic' (and its correlative 'synthetic') have been used in two different—though related—senses. In one of these senses, which I shall represent by the subscript "1," the term 'analytic' has a much wider scope than in the other ("analytic<sub>2</sub>"). In particular, all statements which are analytic<sub>2</sub> are also analytic<sub>1</sub>, but by no means vice versa. For this reason "analytic<sub>2</sub>" will be said to be the narrower, "analytic<sub>1</sub>" the broader, sense.

Let us now turn to a brief explication of the two dichotomies. But first a general remark. I shall not argue the question whether the

<sup>9</sup>Most recently in "Is There a Synthetic A Priori?" *Philosophy of Science* (1953), and "Some Reflections on Language Games," *Philosophy of Science* (1954).

<sup>8</sup>*Op. cit.*, pp. 71-2.

dichotomies analytic-synthetic apply to natural languages. I shall merely assume that they are no worse off in this respect than other distinctions which are acknowledged to have a proper place in the logician's tool box.<sup>10</sup> With this in mind, we shall say that a statement is analytic<sub>1</sub>—analytic in the broad sense—if it is “true (or false) *ex vi terminorum*,” if, that is to say, *given that the reasonableness of using the language to which it belongs is not in question*, the statement does not require, indeed it would be a mistake to give, a justification in terms of observation. In this sense both “ $2 + 2 = 4$ ” and the fundamental principles of, say, molecular theory are analytic. Correspondingly, a statement is synthetic<sub>1</sub> if—*again given that the reasonableness of using the language to which it belongs is not being challenged*—it is appropriate to justify the statement by an appeal to observational evidence. In this sense neither arithmetical statements nor the fundamental principles of molecular theory are synthetic. On the other hand, “There are  $10^6$  molecules on the point of this pin” is synthetic<sub>1</sub>. I have italicized the qualifying clause in these explications, for while, *given that the reasonableness of using molecule language is not in question*, we can distinguish between those molecule statements which do, and those which do not, require (or permit of) observational backing, there is a distinguishable mode of ‘observational backing’ in which the decision to use molecule language at all, and hence the assertion of any molecule sentence, can be justified only by an appeal to observational backing.

Let us distinguish between the two modes of ‘appeal to observation’ as, respectively, the *internal* and the *external*.<sup>11</sup> And let us say, with a justification which will grow with our discussion, that a statement is an *empirical* statement if it requires (or permits of) justification by either an internal or an external appeal to observation. In this sense of the term, even the most fundamental principles relating to molecules are empirical; and since they are also analytic<sub>1</sub>, it follows that a statement can be *both analytic<sub>1</sub> and empirical*.

The second, or narrow, sense of “analytic” can (for our purposes) be more briefly characterized. A statement is analytic<sub>2</sub> if it is analytic<sub>1</sub> and if the non-logical or descriptive terms it contains either occur vacuously,

<sup>10</sup>There are, indeed, statements to which the analytic-synthetic dichotomies with which we are concerned do not apply. These statements involve predicates for the application of which there is no neat set of separately necessary and jointly sufficient criteria. But while statements of this kind are much more prevalent than logicians have hitherto realized, it would be a mistake to suppose *either* that all statements in natural languages have this character, *or*, that the (more complex) logical properties of even these statements cannot be captured by a “formal reconstruction.”

<sup>11</sup>For a sketch of the role of this distinction in an empiricist philosophy of inductive logic, see the concluding sentences of “Some Reflections on Language Games,” *Philosophy of Science* (1954).

or if they occur vacuously in the statement one gets by replacing definable terms by their definitions.<sup>12</sup> In this second sense of “analytic,” “ $2 + 2 = 4$ ” is analytic, but the fundamental principles of molecular theory are not. Indeed, these principles (which are analytic<sub>1</sub>) and “There are  $10^6$  molecules on the point of this pin” are alike synthetic<sub>2</sub>. And surely the coincidence of the *empirical* with the *synthetic<sub>2</sub>* yields a sense of closure. For it is exactly those statements in which descriptive concepts have essential occurrence, and which therefore commit one to a distinction between this and other possible worlds, which one would expect to require justification by some form of appeal to experience.

It should be clear by now whither my argument is tending. For if we take seriously the idea that the analytic<sub>1</sub> sentence forms of the language of science (and of everyday life) include far more than the sentence forms studied by formal logicians, and, in particular, that they include sentence forms in which there is an essential occurrence of descriptive terms, *and* if we use the term “category” for expressions which could be introduced in terms of sentence forms which are analytic in the broad sense in ways analogous to that in which

v is a proposition

was introduced in terms of the analytic<sub>2</sub> sentence form

v or not v

then we should not be surprised if certain descriptive terms (in that broad—if unfortunate—use of “descriptive” which occurs in the technical literature of logic and is bound up with the dichotomy “descriptive-logical”) both in theoretical languages and in everyday discourse turn out to be *in this sense* categories. As examples from ordinary language we may take “thing,” “material object,” “person,”<sup>13</sup> “event,”<sup>14</sup> “cause,” “action” and perhaps even “color” and “shape;”<sup>15</sup> from theoretical discourse

<sup>12</sup>I am assuming, of course, that such terms as “definiens” and “definiendum” are applicable to natural languages. I am well aware that this assumption will be regarded by many as question-begging. I can only say that this paper as a whole is, in a sense, a justification of the assumptions which are operative in the present section. For it is my conviction that the current “nominalistic” campaign against “synonymy” and the “analytic-synthetic dichotomy” is motivated, at bottom, by a desire to avoid a metaphysics of meanings. If sound, however, my argument will show that one can avoid both Plato's beard and Quine's band-aids and yet make full use of these traditional categories, purged of philosophical misconceptions.

<sup>13</sup>An illuminating discussion of this category is to be found in P. F. Strawson's essay, “Persons,” *Minnesota Studies in the Philosophy of Science II* (Minneapolis: University of Minnesota Press, forthcoming).

<sup>14</sup>For a defense of the idea that material things, Space and Time, rather than spatially and temporally related events (let alone sense-data) are, among other items, the particulars of the framework of ordinary discourse, see my essay “Empiricism and the Philosophy of Mind,” *Minnesota Studies in the Philosophy of Science I* (Minneapolis: University of Minnesota Press, forthcoming).

<sup>15</sup>Cf. A. N. Prior, “Determinables and Determinates,” *Mind*, LVIII (1949).

"particle," "stimulus," "field," "space-time interval," "force," "event."<sup>16</sup>

Now there is nothing outlandish in the idea that the above expressions stand for categories of entity. Indeed, this broad use of category is backed by a venerable tradition. And once it is recognized that an expression is a category by virtue of its status in a specific framework of discourse, there is nothing in this usage at which an empiricist need boggle.

But if in an alphabetized list of the categories—thus construed—of the language of science, "particle" might be cheek by jowl with "proposition" and "quantum" with "quality," we could nevertheless distinguish a subset which mobilizes sentence forms which are analytic<sub>2</sub>—analytic, that is, in the narrower sense. These might be called the "formal" or "logical"<sup>17</sup> in contrast to the "material" or "descriptive" categories which make up the remainder. This time "proposition" will be on one side of the ledger and "particle" on the other. Thus, when the necessary distinctions are drawn, the exciting idea that "There are propositions" belongs in a "continuum" with "There are particles" is seen to be a dangerous half-truth.<sup>18</sup>

But is the matter really so simple? No. The essential points have been made, but we must cut a bit deeper to defend the argument against a plausible counter-thrust. Let us take another look at a passage we have already quoted.

... Science is a unified structure, and in principle it is the structure as a whole, and not its component statements one by one, that experience confirms or shows to be imperfect. Carnap maintains that ontological questions and like-

<sup>16</sup>Here I have in mind that use of "event" in which events are the particulars of a framework, and not the ordinary use of "event" in which discourse about events rests on discourse about things and persons. See Reichenbach's discussion of the relation between "George VI was crowned at Westminster Abbey" and "The Coronation of George VI took place at Westminster Abbey" in *Elements of Symbolic Logic*, 266 ff.

<sup>17</sup>As we have used the term "category" above, it is *expressions* which are categories; thus the expression "proposition" rather than the abstract entity *proposition* (the character of being a proposition). The issues involved in the question whether to speak of 'proposition' or *proposition* as the category echo at a higher level those involved in interpreting the difference between the use of such category words as proposition in connection with (a) quoted, and (b) unquoted, expressions. That category words used in connection with unquoted expressions (ontological categories) are the equivalents in the 'material mode' of category words used in connection with quoted expressions (syntactical categories) was argued by Carnap in *The Logical Syntax of Language*.

<sup>18</sup>I am well aware that ever so much more would have to be said to make the above analysis secure. The following remarks may serve to indicate certain additional distinctions which would have to be drawn in a more complete account. I pointed out above that the particulars of the commonsense framework include, among other items, material things, the Space in which they move and the Time by virtue of which their states are temporally related. Now material things are not particulars which, so to speak, *happen* to have the distinguishing traits of material thinghood. They are *essentially* material things. "Particular" is a category which transcends the specific conceptual frameworks in which it nevertheless rightly appears. In the material mode,

wise questions of logical and mathematical principle, are questions not of fact but of choosing a convenient conceptual scheme or framework for science; and with this I agree only if the same be conceded for every scientific hypothesis.

This passage is a distillation of many insights. But in the present context it blurs a vital distinction. It would be an over-simplification, however, to put this distinction by saying that the adoption of the analytic<sub>1</sub> sentence forms of scientific theory calls for observational justification, whereas observational justification is *irrelevant* to the adoption of analytic<sub>2</sub> sentence forms. For there is a sense in which even the adoption of analytic<sub>2</sub> sentence forms can be justified by an appeal to experience. This, however, is not as exciting as it seems, for it amounts to pointing out that scientific hypotheses cannot be formulated in a language unless that language has a certain formal richness in available analytic<sub>2</sub> sentence forms. And it would be a mistake to suppose that the use of the necessary analytic<sub>2</sub> sentence forms is subject to justification by experience in the sense in which the use of the analytic<sub>1</sub> (but not analytic<sub>2</sub>) sentence forms of the theory is subject to justification. For a moment's reflection reveals that the justification of the scientific hypothesis involves syntactical relations between the descriptive terms of the hypothesis and the vocabulary of observation. And, of course, no *additional* machinery of this kind is involved in the justification of the use of the analytic<sub>2</sub> sentence forms. The latter are not, so to speak, theories within theories. Thus, the fact that there are, in a perfectly legitimate sense, scientific reasons for using certain analytic<sub>2</sub> sentence forms, when examined, lends no aid or comfort to Quine's continuum.

A framework of abstract entities is not a super theory to be justified (or the contrary) in terms of its power to save appearances. If we are justified in accepting certain resources in the way of analytic<sub>2</sub> sentence forms, then we can mobilize these resources, by purely nominal means,

*things* (substances, continuants) are the particulars of one framework; momentary-punctiform-events the particulars of another. And each of these categories ("thing," "event") is the category it is because of certain analytic<sub>1</sub>-but-not-analytic<sub>2</sub> sentences in the framework to which it belongs. Otherwise put, "thing" is the category it is because of the "axiomatics" which connects thing words with such other fundamental terms as "Space," "Time," "process words," etc. And what is true of "particular" is true of the other categories which, as we have put it, mobilize the analytic<sub>2</sub> resources of a framework. In short, we must distinguish between those categories which are independent of the analytic<sub>1</sub>-but-not-analytic<sub>2</sub> resources of a framework because they have their roots in a general syntactical theory of frameworks (e.g. "particular," "universal," "relation," "proposition") from these categories in which those more general distinctions find expression in the context of a specific framework (e.g., "thing" "dispositional property"). The latter are *not* independent of the analytic<sub>1</sub>-but-not-analytic<sub>2</sub> resources of the framework to which they belong. The fact that general syntax, apart from Carnap's pioneering (and monumental) effort exists only in the material mode of speech of traditional metaphysics has made more difficult the task of coping with the philosophical perplexities which surround the topic of *categories*.

into a corresponding framework of abstract entities. It is the acceptance of the analytic<sub>2</sub> resources, rather than the acceptance of the framework, which requires justification. And, as we have seen, the acceptance of the resources is justified by pointing out that without them certain *empirical* statements cannot be made.

### III

I have no reason to believe that Carnap would take serious exception to the main lines of the first two sections. They are intended to provide a background of agreement for the sections to follow. In the middle sections, my purpose will be to establish the following points: (1) The core of the Platonic tradition lies in a blurring of the distinction between empirical and ontological categories. It denies their mutual exclusiveness on the ground that the phenomena of *meaning* (aboutness or reference) involves some sort of commerce (usually spoken of in terms of 'intuition,' 'apprehension' or 'awareness') between persons and abstract entities. Platonism, therefore, is, in essence, a thesis in the psychology of the higher processes; and to reject it—which by no means involves a rejection of the linguistic framework of abstract entities—is to be what I shall call a 'psychological nominalist.' (2) The key to the clarification of the "relation between thought and its objects" (and hence of the Platonism issue) is the correct analysis of the semantical form " (in L) '—' means \*\*\*" (thus, "(in German) 'rot' means red.")

In the concluding sections, therefore, I shall be concerned with the light thrown on descriptive semantical statements in actual usage by Carnap's studies in pure semantics. Do they point to a conception of these statements which safeguards psychological nominalism? Or do they leave the door open to Platonistic metaphysics? My answer will be that they provide the essential materials for a non-metaphysical account of abstract entities, but that, by failing to examine in more detail the relation between pure and descriptive semantics, they leave dark corners where metaphysical views can find sanctuary.

We have seen that the ontological categories of a language spring from analytic<sub>2</sub> sentence forms of the language. We should therefore expect to find the ontological categories of a language paralleled by syntactical categories of the metalanguage in which the syntax of the language is formulated. And, of course, this is indeed the case, as Carnap pointed out some twenty years ago in his monumental *Logical Syntax of Language*. Thus, "*It is raining* is a proposition" said in L, corresponds to " 'It is raining' is a sentence of L" said in a syntactical metalanguage of L. Again, "There are propositions" said in L, corresponds to the syntactical sentence "L contains (in the appropriate sense) at least one sentence"; and similarly in the case of the pairs "quality" and "one-place predicate,"

"relation" and "multi-place predicate," "universal" and "predicate," and so on. Now, having called attention to this parallelism, Carnap coined a terminology ("pseudo-object sentence," "quasi-syntactical sentence," "material mode of speech") which gave expression to his philosophical conviction that this parallelism of quasi-syntactical (ontological) and syntactical categories reinforces and illuminates the contention of the Vienna Circle that the traditional problems of ontology are pseudo-problems. But clearly this parallelism seemed to Carnap to have this consequence only because he viewed it against the background of other commitments which were scarcely shared by his realistic opponents. And while his conclusions were, on the whole, welcomed by nominalistically minded philosophers, there were many who felt, with some justification, as we shall see, that there are genuine issues between nominalism and realism which Carnap did not adequately discuss, even though nominalists could feel confident that his heart was in the right place.

If we lay aside Carnap's terminology on the ground that it begs the questions in which we are interested, and ask Why did Carnap think that the parallelism of ontological and syntactical categories illuminates the traditional "problem" of universals: the answer is surely that he believed himself to have shown that ontological categories are the *shadows*, so to speak, of syntactical distinctions. But why not apply the metaphor in the opposite direction? Why not join the realist in claiming that ontological categories are the substance and syntactical distinctions the shadow? How is one to decide which way the sun lies, or even whether the metaphor is appropriate in either direction? The fact of the matter is that Carnap and his realistic opponents have approached this parallelism with different commitments concerning what is involved in learning and using a meaningful language. Thus, the next step in the clarification of the controversy over universals takes us to certain philosophical problems of psychology and semantics.

When the nominalist looks at Carnap's new account, he notices that even though "There are propositions" said in L does not *mention* a sentence of L, nevertheless all a user of L needs to know in order to assert "There are propositions" (given that his language has the machinery necessary to the formulation of this sentence) is that his language contains at least one sentence. This warms his nominalistic heart. The realist, however, counters with the claim that since a sentence isn't a sentence unless it is meaningful, and since it isn't meaningful unless there is a proposition which it means, one couldn't know that one's language contains a sentence without knowing that there is at least one proposition. Thus, whereas the nominalist moves the spotlight from "There are propositions" said *in* L to "There are sentences" said *about* L, the realist moves it right back. He argues that in order to give an account of what a lan-

guage is, that is, to explain the meaningful use of counters, we *must* make use of such statements as "There are propositions," "There are qualities," "There are particulars," "There are abstract entities," and "There are entities." And clearly there is *something* to this claim.

We have already seen that as *internal* questions, "Are there qualities?" "Are there universals?" etc. if they can be asked at all, can be answered a priori. As *external* questions they are properly formulated as practical questions of the form "Shall we use a language framework the resources of which permit the introduction of such and such a category?" And we have found Carnap to be tantalizingly vague as to the circumstances in which it would be reasonable to decide such questions in the affirmative. But on this same point the realist is the opposite of vague. While he does not deny that there may be other reasons for adopting a given framework of entities, he insists that unless we adopt the traditional apparatus of abstract entities, we can neither characterize nor account for two (related) classes of facts: (a) *mental* facts, (b) *semantical* facts.

By "mental fact" I mean such facts as that *John believes that it is raining, John hopes to go downtown, John realizes that if it continues to rain, the busses will be late, John wishes it would stop raining.* Realists from the time of Plato on have claimed that facts such as these involve a mental "perception" of abstract entities, traditionally universals, more recently propositions as well. Thus, in a passage from the *Sophist* (248A) in which the stranger from Elea is summing up certain strands of the theory of Ideas as it is found in the earlier dialogues (e.g. the *Phaedo*), Plato writes

*Stranger.* Let us turn, then, to the opposite party, the friends of Forms. Once more you shall act as their spokesman.

*Theaetetus.* I will.

*Stranger.* We understand that you make a distinction between 'Becoming' and 'Real being' and speak of them as separate. Is that so?

*Theaetetus.* Yes.

*Stranger.* And you say that we have intercourse with Becoming by means of the body through sense, whereas we have intercourse with Real being by means of the soul through reflection.

....

*Theaetetus.* We do.<sup>19</sup>

Diogenes of Sinope is reported (by Diogenes Laertius) to have reacted to such notions with the scoffing remark "Table and cup I see; but your tablehood and cuphood, Plato, I nowhere see."

"That's readily accounted for," said Plato, "for you have the eyes to see the visible table and cup; but not the understanding by which ideal tablehood and cuphood are discerned."<sup>20</sup>

<sup>19</sup>Quoted from F. M. Cornford's translation in *Plato's Theory of Knowledge*, 239.

<sup>20</sup>Diogenes Laertius, *Lives and Opinions of Eminent Philosophers*, trans. R. D. Hicks (Loeb Classical Library, 1925), 55.

And a recent formulation of the Platonic thesis which is the more valuable in that it is taken from a paper by one of the central figures in the current controversy over abstract entities, is as explicit as one could wish.

The extreme demand for a simple prohibition of abstract entities under all circumstances perhaps arises from a desire to maintain the connection between theory and observation. But the preference of (say) *seeing over understanding* as a method of observation seems to me capricious. For just as an opaque body may be seen, so a concept may be understood or grasped. And the parallel between the two cases is indeed rather close. In both cases the observation is not direct but through intermediaries—light, lens of eye or optical instrument, and retina in the case of the visible body, linguistic expressions in the case of the concept.<sup>21</sup>

Now, it is certainly true that mentalistic discourse makes full and essential use of the framework of abstract entities. Only the most specific statements about what a person believes, desires, expects, etc. can be made without using the common sense equivalents of "There is a proposition such that . . .," "There is a quality such that . . .," etc. Does it follow that abstract entities must be evoked by psychological theory to account for mental phenomena?

I shall use the term "Psychological Nominalism" to stand for the denial of the claim, characteristic of the realistic tradition, that a "perception" or "awareness" of abstract entities is the root mental ingredient of mental acts and dispositions.<sup>22</sup> In other words, the psychological nominalist argues that it is in principle possible to describe and causally account for the episodes and dispositions singled out by such sentences as "John believes that it is raining," without positing a "perception" or "awareness" of abstract entities. Anyone who is at all familiar with modern academic psychology, particularly in the United States and Great Britain, will recognize that it is thoroughly committed to psychological nominalism. And it has not been without its proponents in philosophical circles. Unfortunately, the philosophers who have viewed this *scientific*

<sup>21</sup>Alonzo Church, in "The Need for Abstract Entities in Semantic Analysis," *Proceedings of the American Academy of Arts and Sciences*, LXXX (1951), 104.

<sup>22</sup>I use the phrase "psychological nominalism" to distinguish this dimension of the nominalistic tradition from (a) the peculiar idea that puzzles about abstract entities can be resolved by dispensing with *properties* in favor of *classes* and/or by taking "resemblance" to be the "ontological fundamentum of class and property talk"; (b) nominalism as the claim that everything we need to say can be said without quantifying predicate and class-term variables. Needless to say, I am contending that nominalists in the latter sense are desperately sharpening their razor because they (mistakenly) believe that if it *should* prove necessary to quantify predicate variables in order to say something that needs to be said, this fact would give aid and comfort to Plato's beard.

A more adequate conception of psychological nominalism as the rejection of any *factual relation*, indeed any *relation*, between minds and abstract entities will emerge at the final stage of our argument.



program with sympathy have tangled it up, at least in their own minds, with bad philosophy in one or both of the following ways. On the one hand, they have tended to confuse psychological nominalism with the claim that commonsense mentalistic discourse can be *translated* into a vocabulary congenial to the psychological nominalist. But while it is indeed the case that something which could without too much of a stretch be called a "translation" of mentalistic language is indeed the distant goal of empirical psychology, such a "translation" must not be confused with an *analysis* or *explication* of mentalistic discourse. Empirical psychology is scarcely an application of logical analysis. The latter is rather the method of what used to be called "rational psychology," or, more recently, the "phenomenology of mind." In short, it must not be supposed that the goal of the empirical psychologist is a list of defined terms which can be *equated in meaning* with mentalistic expressions in ordinary discourse.

Certainly, the psychologist hopes to end up with *equivalences* of the form

$$x \text{ believes } y \equiv \Phi x$$

where the left hand side is in ordinary mentalistic discourse, while the " $\Phi$ " of the right hand side is a function defined in terms of a basic vocabulary congenial to psychological nominalism. But these hoped-for equivalences must not be confused with identities of meaning, even though, once these equivalences are secured, the psychologist may *borrow* mentalistic words and stipulate that *in his science* they are to have the sense of the right hand sides. This stipulated identity of meaning could not create an identity of meaning of these mentalistic words *in their ordinary usage* with expressions occurring on the right hand sides of the equivalences.

Yet the fact that these hoped-for equivalences would not be identities of meaning should not be taken to imply that psychological nominalism is committed to dualism in its epiphenomenalistic form. And the task of showing that it is not so committed is identical with the task of exploding the platonistic conception of abstract entities as *scientific* objects, that is to say, as playing an appearance-saving role in psychological theory.

Nor, on the other hand, would the success of the program of psychological nominalism entail that there was no point in saying "There are universals," "There are propositions," etc. The most one would be entitled to conclude is that psychology does not need universals and propositions as scientific objects, as objects belonging in Quine's continuum. Yet philosophers have tended to suppose that if psychological nominalism were successful, there would be no point in making these statements, and have even tended to suppose that on this assumption we could safely say, "There are no universals," etc. Why? Partly because "There are no

universals," has come to be used by many philosophers as though it were just another formulation of psychological nominalism. But primarily because nominalists have tended to assume that, if it were true to say "There are universals," this fact would give aid and comfort to the denial of psychological nominalism. For presumably, as they see it these entities," unless they were quite superfluous, would play some role in the economy of the universe, and what role more plausible than that of being involved in the description and explanation of the facts singled out by mentalistic discourse. Consequently, to make the psychological nominalist happy about saying "There are universals," we must make clear to him just why the truth of this statement does not, indeed could not, have this consequence. And while we have made some progress in this direction, more remains to be done.

We saw above that only the most specific statements about what a person believes, desires, expects, etc., can be made without using the common sense equivalents of "There is a proposition such that . . ." "There is a quality such that . . .," etc.

Now the *mind*-body problem (as distinguished from such problems relating to sensory consciousness as (a) the *analytic* or *phenomenological* task of clarifying the logical grammar of ordinary talk about seeing colors and having images, and its relation to ordinary talk about the body; and (b) the *scientific* task of giving a theoretical account of what transpires in Jones when we can correctly say, at the common sense level that Jones saw a certain color, or has a certain image) is essentially the problem of clarifying the relation between what can be said about a person by the use of mentalistic language, and what can, in principle, be said about him without the use of this language.<sup>23</sup> I am not going to attempt to untie this venerable knot on the present occasion. Rather I am going to cut it by assuming the correctness of an approach the general lines of which can, I believe, be justified by careful argument. The effect of this approach will be to turn our attention directly to the second class of facts to which the realist or platonist appeals in his defense of abstract entities—namely *semantical facts*.

As we introduced the phrase "psychological nominalism," it is not quite an analytic proposition to say that psychological nominalists have

<sup>23</sup>I have offered what I believe to be the broad lines of such a clarification in "A Semantical Solution of the Mind-Body Problem," *Methodos* (1953).

For an abbreviated account, see "Mind, Meaning and Behavior," *Philosophical Studies*, III (1952). This clarification is carried one step further in my essay "Empiricism and the Philosophy of Mind" (see f.n. 14 above). It contains an interpretation of the relation between the framework of mental entities and the framework of semiotic discourse about linguistic entities which pins down the claim, central to the argument of these earlier papers, that mental entities are, *in an extended sense*, linguistic entities.

tended to interpret the processes singled out by mentalistic expressions as *linguistic* phenomena. Yet it must be admitted that where psychological nominalists have not built their account solely in terms of the use of *verbal* symbols, the other items they have introduced (e.g. images) have been attributed, explicitly or implicitly, roles characteristic of verbal symbols. And, for the purposes of the present argument, it is this thesis in its narrower form which I shall assume to be correct; the thesis, that is to say, that the conceptual element in all the phenomena singled out by mentalistic expressions is a matter of the use of verbal symbols.

The philosophical opponents of the claim that the processes singled out by mentalistic expressions can, in principle, be described and explained in accordance with the program of psychological nominalism, thus understood, immediately retort that unless we can correctly say of the counters of a language that they *mean* such and such, then it is not a *language*. They proceed to speak of the "meaning relation" and to argue that the analysis of this relation takes us back to minds and their "perceptions" of abstract entities. And indeed, realistically inclined philosophers are not alone in the conviction that the business of sentences of the form "'——' means \*\*\*" is to speak of a relation between "——" and \*\*\*, the analysis of which would require a mention of the users of the language to which "——" belongs. For this reason, philosophers of a nominalistic bent are notoriously reluctant to admit sentences of this form where the supposed relatum, †††, has the *prima facie* appearance of an abstract entity (e.g. "'rot' means red" as opposed to "'Fido' means Fido") unless they can show either that in these cases the form "'——' means \*\*\*" has a Pickwickian use, or that the relation in question can be analysed into relations between terms more congenial to nominalistic sentiments. If neither of the latter expedients were available, they would believe themselves forced to choose between the Scylla of refusing to talk semantically, that is, use the above sentence-form, about expressions which, in everyday life we find it quite proper to discuss in these terms, and the Charybdis of recognizing mental "perceptions" of abstract entities. Thus, in his paper on "Semantics and Abstract Objects," read at the same symposium as the paper by Church quoted above, Quine distinguishes between two "provinces" of semantics: *theory of reference*, which deals with semantical material of a kind which can be handled, as he sees it, without too seriously offending nominalistic sensibilities, and *theory of meaning* which, at least in its contemporary form, not only affronts nominalistic sensibilities, but raises all sorts of obscure and metaphysical perplexities. And if one examines his paper for clues as to *which* characteristics of this second "province," as currently expounded, offend nominalistic sensibilities, one finds that at bottom it is the fact that it takes seriously those semantical statements which, *given that one thinks*

*of semantical statements as relational statements*, appear to assert a relation between expressions and abstract entities, and, therefore, between minds and abstract entities.

The theory of meaning is not troubled by paradox, but it has troubles of a different order. The most conspicuous question is as to the nature of its objects: what sort of things are meanings? They are evidently intended to be ideas, somehow—mental ideas for some semanticists, Platonic ideas for others. Objects of either sort are so elusive, not to say debatable, that there seems to be little hope of erecting a significant science about them.<sup>24</sup>

And although for reasons some of which have already been given, while others are yet to come, I disagree radically with Quine's whole treatment of abstract entities, I must confess that when I juxtapose this statement with the passage previously quoted from Church, my sympathies lie with Quine.

Quine concludes that the future of the theory of meaning lies in the direction of a use of Ockham's Razor to cut away the distinctively semantical aspects of its apparent subject matter. For, in effect, he proposes that in approaching this subject matter, logicians limit themselves to what can be said in fundamentally syntactical terms, supplemented by the theory of reference, and, perhaps, by "pragmatic," (i.e. psychological) considerations.

Once the theory of meaning is sharply separated from the theory of reference, it is a short step to recognizing as the business of theory of meaning simply the synonymy of expressions, and the analyticity and entailment of statements; meanings themselves, as obscure intermediary entities may well be abandoned . . . Predicates are synonymous if, when they are applied to variables, their universally quantified biconditional is analytic. An expression is meaningful if synonymous with itself. . . . But there is great difficulty in tying this well knit group of concepts to terms that we really understand. The theory of meaning, even with the elimination of the mysterious meant entities, strikes me as in a comparable state to theology—but with the difference that its notions are blithely used in the supposedly most scientific and hard-headed brands of philosophy.<sup>25</sup>

#### IV

What, then, is the sense of such statements as

- (1) "Rot" (in German) means *red*
- (2) "Es regnet" (in German) means *it is raining*

from which, availing ourselves of our framework of abstract entities, we can go smoothly to

- (3) There is a quality which "Rot" (in German) means
- (4) There is a proposition which "Es regnet" (in German) means.

<sup>24</sup>Semantics and Abstract Objects," *Proceedings of the American Academy of Arts and Sciences*, LXXX (1951), 91.

<sup>25</sup>*Ibid.*, 91-2.

Do these statements commit us to relations between minds and abstract entities? To answer this question we must clarify the role of meaning talk, in other words, we must turn to philosophical semantics.

Now, a careful distinction must be drawn between two aspects of "semantical theory." (1) There is the business of making explicit and systematizing the grammar of meaning and truth talk. This involves, among other things, distinguishing between various semantical concepts, and showing that some can be defined in terms of others. (2) There is the business of sizing up the point of meaning talk, of locating semantical discourse in the intellectual economy. And while the distinction between these tasks can be pressed too far, it is abundantly clear that a person may make significant contributions to the former, while bringing darkness rather than light to the latter. A similar situation obtains in the field of ethics. A person may achieve wonders in the way of disentangling the internal syntax of obligation talk, and yet be hopelessly confused when it comes to seeing what obligation talk is all about.

Before we can hope to cope successfully with the more characteristically philosophical aspects of semantical theory, we must first look at meaning talk through logician's eyes. And let us begin by examining the distinction Carnap draws between *descriptive* and *pure* semantics. His initial statement of this distinction, in his *Introduction to Semantics*, reads as follows:

By descriptive semantics we mean the description and analysis of the semantical features either of some particular historically given language, e.g. French, or of all historically given languages in general. . . . Thus, descriptive semantics describes facts; it is an empirical science. On the other hand, we may set up a system of semantical rules, whether in close connection with a historically given language or freely invented; we call this a *semantical system*. The construction and analysis of semantical systems is called *pure semantics*. The rules of a semantical system S constitute, as we shall see, nothing else than a definition of certain semantical concepts with respect to S, e.g. 'designation in S' or 'true in S.' Pure semantics consists of definitions of this kind and their consequences; therefore in contradistinction to descriptive semantics, it is entirely analytic and without *factual content*.<sup>26</sup>

But before we attempt to interpret this conception of descriptive semantics, it is essential to draw a distinction between a broader and a narrower sense of "empirical." A statement is empirical in the broad sense if it is properly supported by reasons of an empirical, and, ultimately, of an observational character. A statement is empirical in the narrow sense, if it is empirical in the broad sense and, apart from logical terms in a suitably narrow sense, contains no concepts which could not, in

principle, be constructed out of descriptive primitives. To illustrate:

- (5) In Borneo young men believe themselves obligated to hunt heads.

is empirical in the broad, but not the narrow sense.

Now the concept of a descriptive term is itself by no means intuitively clear. It is easier to specify kinds of terms which are *not* descriptive, than to single out what it is that descriptive terms have in common. Thus, I think it would be generally agreed that the class of non-descriptive terms includes, besides logical terms in a suitably narrow sense, *prescriptive* terms, and the logical and causal modalities.<sup>27</sup> Indeed, if we include in the class of non-descriptive terms those terms (they might be called "mixed") which even though they have a rich descriptive content require for their explication the use of at least one nondescriptive term other than the purely logical notions which are necessary to structure a complex meaning, then the class of non-descriptive terms is inclusive indeed. For, in this sense, such concepts as *pawn* and *Prime Minister* would be non-descriptive.

It might be thought that, in the last analysis, a descriptive term is one that is used, in its typical sentences, to describe. But what is to describe? Must one be describing an object if one says something about it that is either true or false? Scarcely, for modal and even prescriptive statements (e.g. "Jones ought to make amends") can be correctly said to be either true or false. Perhaps to describe an object is to specify some of its qualities and/or relations. Unfortunately, the terms "quality" and "relation" raise parallel difficulties. Is it absurd to speak of goodness as a *prescriptive quality*? Indeed, one use of the terms "property" and "relation" is such that it is correct to say of any meaningful expression which has the grammatical characteristics of a predicate that it means a quality or relation. And in this usage it is correct to say that "good" means a quality. On the other hand, there is a usage which ties the terms "quality" and "relation" to *describing* as opposed to *prescribing*.

We are back with the question, What is to describe? In my opinion, the key to the answer is the realization that *describing* is internally related to *explaining*, in that sense of "explanation" which comes to full flower in scientific explanation—in short, *casual* explanation. A descriptive term is one which, in its *basic use*, properly replaces one of the variables in the dialogue schema

What brought it about that x is  $\Phi$ ?

The fact that y is  $\Psi$ .

<sup>27</sup>Logicians, including Carnap, have used the phrase 'descriptive sign' in such a broad sense that 'descriptive sign' and 'logical sign' are jointly exhaustive as well as mutually exclusive. This usage reflects the Procrustean convictions of early logical positivism, when the modalities were in eclipse, and emotivism rampant.

where what is requested is a causal explanation. I say "in its basic use" to exclude the use of a term in mentalistic and semantical contexts. For since it is proper to ask "What brought it about that Jones believes he ought to go downtown?" and "What brought it about that the German word "gut" means good?" even prescriptive terms would be descriptive, on the above account, were we to admit these contexts.

But what about "believes" and "means" themselves? Are they descriptive terms? Our discussion of mentalistic discourse has placed the burden of this question on the term "means." What kind of a term is it? To ask this question is to ask what is the role of sentences of the form

(6) "—" (in German) means \*\*\*

It is also to ask, granted that the sentence

(7) "Rot" (in German) means *red*

is empirical in the broad sense, is it also empirical in the narrow sense? For to ask this is to ask whether "means" is a descriptive term.

With these (adumbrated) distinctions in mind let us examine Carnap's elaboration of the initial characterization of descriptive semantics quoted above.

Sometimes the question is discussed whether semantics and syntax are dependent upon pragmatics or not. The answer is that in one sense they are but in another they are not. Descriptive semantics and syntax are indeed based on pragmatics. . . . Only after finding by observation the the pragmatical fact that [Eskimos] have the habit of using the word 'igloo' when they intend to refer to a house are we in a position to make the semantical statement "'igloo' means (designates) house" and the syntactical statement "'igloo' is a predicate." In this way all knowledge in the field of descriptive semantics and descriptive syntax is based upon previous knowledge in pragmatics. *Linguistics* . . . is the descriptive, empirical part of semiotic . . . hence it consists of pragmatics, descriptive semantics and descriptive syntax. But these three parts are not on the same level; *pragmatics is the basis for all of linguistics*. However, this does not mean that, within linguistics, we must always explicitly refer to the users of the language in question. Once the semantical and syntactical features of a language have been found by way of pragmatics, we may turn our attention away from the users and restrict it to those semantical and syntactical features. Thus, e.g. the two statements mentioned before no longer contain explicit pragmatical references. In this way, descriptive semantics and syntax are, strictly speaking, parts of pragmatics.<sup>28</sup>

Now, if one takes the pragmatical study of an historical language (L) to eventuate in statements which are empirical in the *narrow* sense—if, for example, one takes it to be the behavioristic socio-psychology of language habits in a certain community—then no process of 'abstraction' will result in semantical or syntactical statements about L, or

even in pragmatical statements about L in that sense of "pragmatical" in which

(8) "red" is an observation predicate of L

(9) "There is a unicorn in the garden" is an (empirically) confirmable sentence of L

are characteristically pragmatical sentences.<sup>29</sup> The point is most obvious in the case of syntactical statements about L, for even if these latter are not prescriptive statements, they involve prescriptive concepts. Analogy: although (5) above is not a prescriptive statement, it involves the prescriptive concept of obligation. And even if (5) can in principle be correlated with a gapless description and explanation of the Borneo social scene in behavioristic terms, and therefore in which no prescriptive term occurs, the latter would not constitute the *analysis* of (5). On the other hand, if one means by the pragmatical study of an historical language, the attempt to arrive at conclusions about it on the basis of empirical evidence, then, indeed, these conclusions will include syntactical statements, and may include semantical statements provided that the language is translatable into the language in which the study is made. The point at which I am driving is that the fact that empirical evidence is relevant to the statements of descriptive semantics no more entails that characteristically semantical concepts are *descriptive*, than the fact that empirical evidence is relevant to the statements of descriptive syntax entails that characteristically syntactical concepts are descriptive, or the fact that empirical evidence is relevant to the statements of comparative ethics entails that characteristically ethical concepts are descriptive.

## V

Now, before we consider what light is thrown on the nature of semantical statements by Carnap's semantical writings, let us digress for a moment on a topic which *prima facie*, has little to do with the case. We have seen that statements of the form

(10) (In English) '—' is derivable from '\*\*\*'

are clearly, in the broad sense, empirical. Now,

(11) In the most popular Russian game, each side has 16 pieces

is also an empirical statement. But here it could be argued that once I know that the most popular game in Russia is chess, the next step in

<sup>29</sup>In the remainder of this paper I shall drop this use of "pragmatical" (on which I have insisted in earlier publications) and, to avoid confusion, follow current practice by using the term "semantical" in a broad sense such that "observation predicate" and "confirmable" can be said to be *semantical predicates*.

verifying (11) is no longer empirical. Surely, it *might* be said, to know what chess is, is to know that it is played with 16 pieces on a side. After all, it is an empirical matter that the number of planets is nine, but once I know that the number of planets is nine, the next step in verifying the statement

(12) The number of planets is odd

is no longer empirical.

The success of this gambit clearly depends on just how the word "chess" is related to the rules of chess. For, if the word "chess" were shorthand for something like "the game which was invented in China, etc.,"<sup>80</sup> it would be an empirical fact that chess is played with 16 pieces on a side. It is only if the criterion for the applicability of the label "chess" to a performance is that the performance be governed by the rules of chess, that statements of the form

(13) (In chess) — may (or may not) be done in circumstances \*\*\*

are a priori. And it is clear that these a priori and non-prescriptive statements presuppose the prescriptive form

(14) — may (or may not) be done in circumstances \*\*\*.

Let us call the name of the game a "rule-bound name" if it functions as we have just supposed "chess" to do. And let us ask "What are the presuppositions of the truth-or-falsity of statements of the form

(15) (In G) — may (or may not) be done in circumstances \*\*\*

where 'G' is such a rule-bound name?"

The answer I wish to propose is that even though statements of this form *when true* are true a priori they are nevertheless neither-true-nor-false *unless there is such a game as G*, where the fact that there is such a game is an empirical fact. In short, I wish to argue that in such cases at least an a priori statement can have an empirical presupposition.

But what can it mean to say "G exists?" At this stage an analogy (which will turn out to be more than a mere analogy) will help. It is plausible to say that the statement

(16) Oliver Twist is a male

if true, is a priori. And it is surely sound doctrine to say that this statement is neither-true-nor-false unless there is (was) such a person as Oliver Twist. And that there is no such person as Oliver Twist is a matter of empirical fact. To say that there is such a person as Oliver Twist is, in effect, to claim that the masculine name "Oliver Twist" as

<sup>80</sup>I shall not explore the more plausible idea that it is a "vague" or "open" concept for the application of which there is a set of relevant criteria, but no neat, necessary and sufficient condition.

it occurs in Dickens' book refers to somebody in the world around us. This claim would, of course, be false. Dickens makes a *fictional* use of this name, and in this use, the presupposition of the truth-or-falsity of (16) does not obtain. We can indeed say that there *could be* such a person as Oliver Twist. This we should back up by pointing to the logical and nomological consistency of what Dickens tells us about Oliver Twist.

Now the situation is quite the same in the case of (15). There *could be* such a game as G if the system of prescriptive sentences to which "G" is bound is a consistent one (and if the performances they enjoin have a gamelike character). But to say that G exists is to say more than this. It is to say that the (rule-bound) name "G" applies to something in the actual world. And this something could only be the circumstance that G is played. (The *esse* of games is *ludi*.) More accurately, for G to exist is for there to be people who *know how* to play it.

## VI

Let us now examine Carnap's account of the relation between pure and descriptive semantics, in the hope that it will throw light on the nature of semantical concepts, particularly the concept 'means' or 'designates.' Fortunately, however, we can simplify our task by first examining his distinction between pure and descriptive syntax, thus availing ourselves of the less problematic character of syntactical concepts. That the two cases are parallel is asserted by Carnap in a passage which immediately follows our first quotation from the Introduction to Semantics.

We make an analogous distinction between *descriptive* and *pure* syntax. . . . Descriptive syntax is an empirical investigation of the syntactical features of given languages. Pure syntax deals with syntactical systems. A syntactical system (or calculus) K consists of rules which define syntactical concepts, e.g. 'sentence in K,' 'provable in K,' 'derivable in K.' Pure syntax contains the analytic sentences of the metalanguage which follows from these definitions.<sup>81</sup>

Carnap thus traces the *ex vi terminorum* character of the sentences of a pure syntactical system to the fact that the syntactical predicates of the system are defined in terms of the sign designs of the object calculus. Thus, the *ex vi terminorum* character of

(17) (in K) 'Φ' is a predicate  
would be traced to the definition

(18) x is a predicate-of-K =<sub>df</sub> x = 'Φ' or x = 'Ψ' or . . .

But clearly, without serious qualifications—to be discussed in a moment—such a definition won't do at all. 'Predicate' is a role word, and to

<sup>81</sup>*Op. cit.*, 12.

specify the counters which are to play a role is not to define the role word. Let me be quite clear about the point I am making. I am *not* saying that by defining syntactical words in terms of sign designs, Carnap has been led to mistaken syntactical theorems. The crux of a formally developed syntax of a calculus is, indeed, a matter of combinatorial mathematics. And to set it up, one must indeed specify various categories of expressions, pairs of expressions, and so on. But the same results could be attained by using *non-syntactical* words for these categories, e.g.

(19)  $x$  is a P-expression-of-K  $\equiv_{Df}$   $x = \Phi'$  or  $= \Psi'$  or . . .  
and, after developing the formal structure in these terms, by *adding* a set of sentences of the form

(20-1)  $x$  is a predicate of K *if and only if*  $x$  is a P-expression-of-K

(20-2)  $x$  is a sentence of K *if and only if*  $x$  is an S-expression-of-K

(20-3)  $x$  is derivable from  $y$  in K *if and only if*  $x$  is an  $\alpha$ -expression of K and  $y$  is a  $\beta$ -expression-of-K

and so on. But although this is what ought, *in principle*, to be done, in practice it is certainly convenient to use the syntactical role words for the defined categories of sign designs which play these roles in the calculus. And this need have no untoward consequences, provided that one realizes what is being done. The danger is that the uncritical reader may draw the inference that syntactical words in actual use ('sentence,' 'predicate,' etc.) are definable in terms of sign designs. And this, as we have seen, is just not the case.<sup>82</sup>

Carnap, on occasion, formulates the difference between descriptive and pure syntax as the difference between syntactical sentences about an historical language, and syntactical sentences about a "constructed" language—whether modeled on an historical language or "freely" invented.<sup>83</sup> We are now, however, in a position to make clear just how misleading this formulation is. For actually we have a four-fold classification based on *two* dichotomies: (1) the dichotomy historical-fictitious; (2) the dichotomy (in which the latter item is a proper part of the former) *syntactical characterization of a calculus—combinatorial analysis of categories of expressions belonging to the calculus.*

<sup>82</sup>One queer consequence of the supposition that such definitions can be given is that 'predicate' as applied to German words would not mean the same as 'predicate' applied to English words.

<sup>83</sup>See, for example, *Introduction to Semantics*, 11-12.

In effect, then, we must contrast (A) a system of syntactical statements claiming to be about an historical language *with* the combinatorial analysis of the categories of expressions playing a role in the language; (B) a system of syntactical statements *not* claiming to be about an historical language, but occurring within the rubric "Suppose a language L . . .," *with* the combinatorial analysis of the categories of expressions playing syntactical roles in the language. And what I have been trying to make clear is that a statement is not, properly speaking, a *syntactical* statement unless it uses syntactical predicates in their ordinary (though 'tidied up') sense, and is either about an historical language (past, present or future) or involves the fictional rubric. Or, to put the matter in the manner most pertinent to our purpose, if by 'pure syntactical system' is meant the combinatorial analysis of the expression-categories which play certain syntactical roles in an historical or fictitious language, but are not asserted by the system to do so, then syntactical predicates, properly so-called, do not occur in the system. If, however, by a 'pure syntactical system' is meant a mathematically elaborated set of syntactical statements governed by the rubric "Suppose a calculus K . . .," then syntactical predicates do occur in pure syntax, but as so occurring they have exactly the same sense as in descriptive syntactical statements about an historical language. In particular, they are not defined in *logical* terms, as they would be if it were correct to define the syntactical expression "predicate of K" in terms of *disjunction* and *identity* (as in (18) above), nor, *a fortiori*, would the non-empirical character of a 'pure syntactical system' in this sense, hinge on such definitions. Fictional statements are already, in a sense, non-empirical. And, which is more important, if 'K' is construed as a rule-bound name,

(21)  $x$  is a predicate of K if and only if  $x = \Phi'$  or  
 $x = \Psi'$  or . . .

would be true *ex vi terminorum!*

## VII

My aim in the preceding section has been to show that the status of pure syntax is obscured, and its philosophical fruitfulness jeopardized, when it is supposed that any of the technical manoeuvres which have revolutionized the formal study of calculi, in general, and of languages, in particular, rest on definitions of *syntactical* expressions, properly so called, in *logical* terms. I shall now argue that the same is true in the case of semantics.

The descriptive semantics of a language differs from its descriptive

syntax by being more inclusive, and, in particular, by including statements of the form,

(22) (in L) '——' means \*\*\*

(23) (in L) '——' is true if and only if \*\*\*

These, of course, are only the more familiar of a long list of statement forms which involve semantical concepts. Now, just as we have subdivided descriptive syntax into (a) historical descriptive syntax, and (b) fictional or suppositional descriptive syntax, and contrasted both with pure syntax, so we must make a corresponding set of distinctions in the case of semantics. And just as the syntactical predicate 'predicate' which occurs in the descriptive syntactical statement

(24) 'Ψ' is a predicate of L

must be carefully distinguished from the defined expression 'predicate-of-L' belonging to the corresponding pure or mathematical syntactical system, the relation between them being that

(25) x is a predicate of L if and only if x is a predicate-of-L<sup>34</sup>

so the semantical term 'means' which occurs in the descriptive semantical statement

(26) (in German) 'Blau' designates blue

must be distinguished from the expression 'designates-in-G' as a defined expression in the corresponding pure semantical system. The definition of the latter expression will look somewhat as follows:<sup>35</sup>

(27) x designates-in-G y =<sub>Dt</sub> x = 'Φ' and y = red  
 or x = 'Ψ' and y = blue  
 or.....

In setting up a system of descriptive semantical statements about the suppositional or fictitious language L, we may properly say

(28) (in L) x designates y if and only if x designates-in-L y

<sup>34</sup>Note that whereas the pure syntactical sentence "'Ψ' is a predicate-of-L" is analytic as being true by definition, the descriptive syntactical sentence "'Ψ' is a predicate of L" holds *ex vi terminorum*, though not "by definition" if 'L' is construed as a rule-bound name. The *ex vi terminorum* character of descriptive syntactical statements about a fictional language L, thus construed, makes it easy to confuse properly syntactical statements about a fictional language with the analytic statement of pure syntax which are, properly speaking, their correlates.

<sup>35</sup>Compare Carnap's definition of 'x designates t in S<sub>2</sub>' on page 25 of *Introduction to Semantics*.

but it is essential to realize the radical difference in the role of the two occurrences of designates in this sentence. The pure semantical sentence

(29) 'Ψ' designates-in-L blue

is an analytic sentence which is true by definition. The corresponding properly semantical sentence about the supposed language L is *not* true by definition, though it holds *ex vi terminorum* if 'L' is construed as a rule-bound name. The specification of what (in L) designates what ('where designates' is a properly semantical concept) must no more be confused with the definition of 'designates-in-L,' the corresponding expression in pure semantics, in terms of a disjunction of conjunctions of identities, as in (27) above than the specification of what (in K) is derivable from what (where derivable is a properly syntactical concept) with a definition of 'derivable-in-K, as an expression in pure syntax.

To use an analogy, we can readily appreciate that it would be incorrect to propose the following definition of '(action) A ought to be done in (circumstances) C':

(30) A ought to be done in C	= <sub>Df</sub>	A = paying n to y and C = having borrowed n from y or A = telling the truth to y and C = having been asked a question by y or
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.....

We see clearly that instead of '=<sub>Df</sub>' we should put 'if and only if' even though we can appreciate that in making a logical analysis of a moral system (M) it might be useful to introduce a defined expression for the disjunction of conjunctions of identities on the right hand side of (3), and convenient to use the expression 'x ought to be done in C (in M)' for this purpose.

Characteristically semantical words have a conceptual role which is no more reducible to non-semantical roles than the role of prescriptive terms is reducible to non-prescriptive roles. And just as the empirical (in the broad sense) character of statements in descriptive (historical) syntax was seen not to entail that syntactical concepts, properly so-called, are descriptive, so the empirical (in the broad sense) character of statements in descriptive (historical) semantics does not entail that semantical concepts, properly so-called, are descriptive. Reichenbach was

just plain wrong, as will become clear shortly, if it is not so already, when he wrote

The ink marks "Kt c 3" stand in a certain relation to the pieces on the chess board; therefore these marks form a true sentence. *Truth therefore is a physical property of physical things, called symbols; it consists in a relation between these things, the symbols, and other things, the objects.*<sup>36</sup>

What, then, is the sense of "means" or its technical equivalent "designates" in semantical sentences properly so-called?<sup>37</sup> It is immediately clear that "means" is not a *prescriptive* term. Whereas

(31) (in German) '——' is derivable from '\*\*\*'

is the form of a rule,

(32) (in German) '——' means \*\*\*

is not. But if "means" is not a *prescriptive* term, and if it is not a *logical* term, is it then a *descriptive* term? No! The Procrustean urge must be suppressed. It is none of these. It is a *semantical* term.

What, then, is the function of sentences of form (32) said about "——" as an expression belonging to a certain language L?<sup>38</sup>

Surely it is to give information about the role played by "——" (in L). One might try to put this by claiming that sentences of this form "are just another way of saying "what is said by sentences of the form

(33) '——' plays in German the role played in our language by '\*\*\*'

And, indeed, sentences of form (32) would not be true unless of form (33) were also true. But it is a far cry from this to the claim that (32) is just another way of saying what is said by (33).

Suppose we were asked What is the role played in German by "rot" and in our language by "red"? Isn't it just the role of *meaning red*? of *standing in the meaning relation to red*? These questions bring us at once to the heart of the matter. For the expression "the role of '——'" is ambiguous. If it is being used in a context of interest in which *expressions* are *predicates*, which *logical constants*, etc. etc. then of

<sup>36</sup>*Experience and Prediction*, 32 (my italics).

<sup>37</sup>The distinction between various "designation relations" as drawn in the technical literature of semantics is not germane to our present discussion, although certain other distinctions, to be drawn towards the close of this paper, are, indeed, the *essence* of the matter. Compare Carnap, "Empiricism, Semantics and Ontology," 33, f.n.2.

<sup>38</sup>I do not wish to imply that the only everyday use of "means" is in sentences of the form "'——' means \*\*\*." I am deliberately focussing my attention on those elements of everyday usage which are reconstructed by the semantics of Carnap and Tarski, for it is the misunderstanding of these elements that has, over the centuries, generated the puzzles about abstract entities.

course *the role of "——"* cannot be specified without using the categories of syntax and semantics. A *semiotic* question is appropriately given a *semiotic answer*; just as *prescriptive* question is given a *prescriptive answer*. And part of the answer to the semiotic question "What is the role in German by 'rot,' and in our language by 'red'?" is "They both mean *red*."

But "the role of '——'" can also be understood in another sense. In this sense, to ask What is the role of "——"? is not to ask about the role of an *expression*. It is to ask about the *causes* and *effects* of a certain empirically definable stimulus configurations. Here the word "role" is used as in What is the role of HCL in the electrolysis of H<sub>2</sub>O? And it is the thesis of psychological nominalism that the questions as to the role of "——" *thus understood* requires no use of *semantical* or *syntactical* terms in the answer.

We have already seen that many philosophers who are sympathetic to psychological nominalism find a stumbling block in statements of the form "'——' means \*\*\*" where "\*\*\*\*" is a predicate or class term or sentence. As Carnap points out

As long as physical things or events (e.g. Chicago or Caesar's) death are taken as designata . . . , no serious doubts arise. But strong objections have been raised, especially by some empiricists against abstract entities as designata, e.g. against semantical statements of the following kind:

(1) "The word 'red' designates a property of things"

(3) "The word 'five' designates a number"

. . . they reject the belief, which they regard as implicitly presupposed by semantical statements, that to each expression of the types in question (adjectives like 'red', numerals like 'five', etc.) there is a particular real entity to which the expression in question stands in the relation of designation.<sup>39</sup>

In his reply, Carnap points out that if we accept a framework of abstract entities, so that we can say (analytically)

(34) Five is a number

and if we are prepared to say

(35) 'Fünf' designates five

then we are committed to

(36) 'Fünf' designates a number

He concludes (p. 35) that "the question of the admissability of entities as designata is reduced to the question of the acceptability of the en-

<sup>39</sup>"Empiricism, Semantics and Ontology," 33-4.



tities." Carnap is quite willing to say that the descriptive semantical statement "'fünf' means a number" asserts that 'fünf' stands in the designation relation to a number. He emphasizes that the fact that a number stands in the designation relation no more implies that the number is a *datum* than facts about electrons imply that electrons are data (pp. 38-9). But he tells us little if anything positive about the status of this designation relation.

This brings me to the heart of the matter. The emphasis of Carnap's studies in semantics is on the formal manipulation of semantical words as defined expressions in pure semantical systems. He deals in much too cavalier a fashion with semantical words as they function in the assertions of descriptive semantics, that is to say, with semantical words functioning as such. The latter, however, is the essential concern of a *philosophical* semantics. For it, the primary value of formally elaborated semantical systems lies in their contribution to the analysis of semantical concepts in actual usage. Now Carnap is, of course, aware that a pure semantical theory is a *semantical* theory only if it relates its vocabulary to semantical expressions in actual usage. And he undoubtedly thinks of his semantical studies as providing an explication (in his sense) of semantical discourse. My complaint is that his treatment of the relation between pure and descriptive semantics is much too perfunctory. It leaves important and relevant things unsaid, and what he does say is, by its over-simplification, misleading where it is not downright mistaken.

The burden of Carnap's account rests on a comparison of descriptive semantics with physical geometry. Thus he writes,

Both in semantics and in syntax, the relation between the descriptive and the pure field is perfectly analogous to the relation between pure or mathematical geometry, which is a part of mathematics and hence analytic, and physical geometry, which is a part of physics, and hence empirical.<sup>40</sup>

Let us examine this parallel. Are we to infer that just as the mathematician constructs calculi such that when their primitive signs, e.g. 'points,' 'line,' etc., are given a physical interpretation, the formulae of the calculus become propositions in physical geometry; so the mathematician as semanticist constructs calculi such that when their primitive signs are given a certain interpretation, the formulae of the calculi become descriptive semantical propositions? But notice that whereas a sub-set of the expressions which, when a pure geometrical calculus is interpreted become geometrical expressions in a physical geometry are primitive signs of the calculus, if one of Carnap's pure semantical systems is construed as a calculus, the expressions which, when the cal-

<sup>40</sup>Introduction to Semantics, 12.

culus is appropriately interpreted, would, as he apparently sees it, become semantical expressions of descriptive semantics, *are without exception defined expressions of the calculus*. The *undefined* expressions of the system construed as a calculus would be on the one hand, expressions, e.g. "'Φ'," "'Ψ'," "'a'" etc., which, when interpreted become the names of sign designs, and on the other, expressions, e.g. 'red,' 'blue,' 'Chicago,' etc. which, interpreted, mention non-linguistic entities (individuals, properties and relations). Consequently, this account of the relation between pure and descriptive semantics presupposes that semantical expressions in actual usage are definable in terms of sign designs and non-linguistic entities, thus

(37)  $x$  means  $y$   
 (in German)  $\Rightarrow_{Dt}$   $x = \text{'Rot'}$  and  $y = \text{red or}$   
 $x = \text{'Blau'}$  and  $y = \text{blue or}$   
 .....

Nowhere, however, does Carnap give an *independent* defense of the idea that semantical expressions in ordinary usage are thus definable (or explicable). Indeed, it clearly has not occurred to him that the relation between the semantical words of a pure semantical system and the semantical words of the corresponding set of descriptive semantical sentences could be other than that of 'interpretation.' He rather *infers* the logical status of semantical words in descriptive semantics from the logical status of semantical words in pure semantics together with the premise that the relation between the two is one of interpretation.

Now, an interpretation of the expression 'straight line' as it occurs in a pure geometrical calculus can, indeed, be formulated by means of an 'if and only if' sentence, thus

(38)  $x$  is a straight line *if and only if*  $x$  is the path of a light ray.

And, in semantics, we can correctly assert such 'if and only if' sentences as

(39)  $x$  means  $y$  (in German) *if and only if*  $x$  Des-in-G  $y$

where to the left of 'if and only if' is a sentential function in descriptive semantics, and to the right a sentential function in the combinatorics of sign designs and non-linguistic entities. But here the resemblance ceases. For, as I have been arguing, (39) is to be compared, not with (38) but with

(40)  $x$  is right *if and only if*  $x$  maximizes general welfare

To make the same point in a somewhat different way, if we take the pure semantical function ' $x$  Des-in-G  $y$ ' to be an uninterpreted

(though defined) expression in a pure semantical system construed as a calculus, then its interpretation would be, *not* the descriptive semantical function 'x means y (in German)' but rather a sentential function which simply expresses a *listing* of what designates what in German. And, of course, *this* sentential function *can* be defined—as in (37)—in terms of sign designs and non-linguistic entities.

Now the philosophical consequences of supposing that such a descriptive semantical term as 'means' as applied, say, to German, is definable in terms of a list of German sign designs and a list of things qualities and relations, are relatively innocuous. This supposition has the essential virtue of preserving the core of psychological nominalism; on the other hand, it generates a feeling of uneasiness concerning the whole semantical approach to meaning and truth. For it appears to commit semantical theory to "definitions by disappearance" of semantical words,<sup>41</sup> and makes it difficult to understand how semantical words can have the same meaning when applied to different languages, which they obviously do.<sup>42</sup>

We begin by thinking of *meaning* as a relation between signs and entities, and when we are offered such a definition as (37), we tend to react to it as we would to

- (41)  $x$  is the uncle of  $y =_{Dt} x = \text{Tom and } y = \text{Bill or}$   
 $x = \text{Dick and } y = \text{John or}$

$x$ .....

But the magnitude of the philosophical stakes on the table—as we have seen, the problem of meaning is not only the problem of abstract entities, but the mind-body problem as well—makes us leery of first impressions. At this point there are, *prima facie*, two courses a naturalistic empiricist may follow. (a) He may seek to secure psychological nominalism at the expense of swallowing such definitions as (37). (b) He may insist that meaning is a relation over and above the logical correlation of two lists (thus replacing the ' $=_{Dt}$ ' in (37) by 'if and only if'), and seek to preserve psychological nominalism by restricting the non-linguistic *relata* to such nominalistically congenial entities as particulars. My aim in this paper has been to make it clear that (a) and (b) do not exhaust the alternatives open to the psychological nominalist, and, indeed, to establish that the correct alternative is to combine the thesis that the ' $=_{Dt}$ ' in (37) should be replaced by 'if and only if' with the denial that meaning is, in any but the the most superficial sense, a *relation*.

It is the idea that the 'means' or 'designates' of semantical sentences

in a framework of abstract entities is a descriptive or factual relation such that (39) is true, but (37) false, which leads the tender-minded to Platonism, and the tough-minded to a rejection (or attempted Pickwickian interpretation) of these sentences, of semantics or the 'theory of meaning,' and of the framework of abstract entities. It is this idea, rather than any simple identification of designation with *givenness*, which is the source of nominalistic anxieties. For if an adequate theory of language required us to hold that linguistic expressions stand in such a relation to abstract entities, how could psychological nominalism, the thesis that linguistic phenomena can, in principle, be described and causally accounted for without using semantical or prescriptive expressions, be true?

Thus, the nominalist balks, as we have seen, already at "'Fünf' means five," and would continue to do so even if he had succeeded in showing that not even classical mathematics requires us to quantify predicate or class-term variables, let alone sentential variables. He does so because, sensing the incorrectness of the *definition* (37), which, if sound, would preserve the discontinuity between protons and propositions, he infers that to take semantics (or the 'theory of meaning') seriously is to introduce abstract entities as a queer kind of pseudo-scientific object.

But why should it be thought that sentences of the form "'——' means \*\*\*" assert a relation between "——" and \*\*\*? Partly because these sentences have a grammatical form which puts one in mind of statements in which we *are* asserting that two items stand in a certain relation. And, indeed, if all that one meant by saying that a sentence asserts a relation between two items were that the sentence can be represented by the grammatical form '(a) R (b),' then both "(Jones) ought (to run)" and "('rot') means (red)" would assert relations. Yet philosophers today know how misleading such appearances can be, and the primary source of this error lies elsewhere. Consider the following three sentences:

- (42) (In German) 'Aachen' means *Aix-la-Chapelle*  
 (43) (In German) 'rot' means *red*  
 (44) (In German) 'und' means *and*

Now (42) clearly wouldn't be true unless some empirically definable situation involving Germans, Aix-la-Chapelle and the vocable "Aachen" had taken place. To take a more familiar example, the previous occurrence of some situation involving my old dog, Rover, his new master and the vocable "Fido" makes it correct for me to say

- (45) 'Fido' means *Rover*.

<sup>41</sup>P. F. Strawson, "Truth," *Analysis*, XIX.

<sup>42</sup>Max Black, "The Semantical Definition of Truth," *Analysis* (1948).

But we must beware of supposing that (42) *says* that a certain descriptive or factual relation<sup>48</sup> has been established between Germans the vocable "Aachen" and Aix-la-Chapelle. For if one does, then one is bound to suppose that other semantical statements, (e.g. (43) and (44)) assert that relations have been established between words and entities.

Again, unless certain empirically definable relations had been established between Germans, the vocable "rot" and red things (*not* redness!) it would not be true to say "(In German) 'rot' means *red*." But the latter does not assert these relations to obtain, let alone that as used by Germans, "rot" stands in a relation to *red* or *redness*. And it is only a person who was handcuffed by a theory who would suppose that "(in German) 'und' means *and*" asserts a descriptive or factual relation between "und" and *and* or *Conjunction*.

The term "means" as it occurs in (42), (43), and (44) communicates the information that the words "Aachen," "rot" and "und" respectively play the same roles in German that "Aix-la-Chapelle," "red" and "and" play in English. It does not, however, specify what this role is, *nor in particular, does it claim that it is the same role in the case of all three pairs*. Clearly in each case the role is a different one.

Now it is important to see that there are correct *semiotic* ways of distinguishing these roles. Thus, (42), (43) and (44) must be distinguished from

(42') (In German) 'Aachen' is the *name* of Aix-la-Chapelle.

(43') (In German) 'rot' means the *observable property red*  
or

(In German) 'rot' is an *observation predicate* meaning  
*red*

(44') (In German) 'und' means the *propositional connective*  
*and*

or

(In German) 'und' is a *sentential connective* meaning *and*.

Clearly the notions of a *name* and of an *observation predicate* are "pragmatical" notions, in that their analysis requires a mention of relations between language users, the vocables in question, and objects. But, as was pointed out above, the relations by virtue of which "rot" is a German observation predicate involve not *red* or *redness*, but *red things*.

Thus, the root mistake of Platonism, that is, the idea that "(In

<sup>48</sup>In these concluding remarks, the phrase 'designates (in German) is a descriptive or factual relation' is shorthand for the idea that *x designates y* (in German) is a descriptive or factual relation such that (39) is true, but (37) false.

German) 'rot' means *red*" asserts a descriptive relation to obtain between "rot" and redness, is the assumption that the "man of all work" semantical term "means" always has the specialized sense of "names." For when correctly used, sentences of the form

(46) (In L '—' names \*\*\*

in addition to asserting that (in L) '—' means "\*\*\*\*" and thus conveying the information that "—" is used in L as "\*\*\*\*" is used in the speaker's language, do assert those factual relations to obtain the vocable '—' and the object \*\*\* which must be brought about for the vocable to serve the purpose of a name.

The same mistake also lies at the heart of traditional nominalism, leading nominalists to boggle at such an innocent sentence as "(In German) 'rot' means *red*." Thus, the distinctions we have been drawing undercut this venerable controversy, and make it clear that there is nothing in such sentences as

(43) (In German) 'rot' means *red*

(47) (In German) 'rot' means a *quality*

(48) (In German) 'rot' means a *universal*

(49) (In German) 'rot' means *something*, and does not mean a particular

(50) (In German) 'rot' means *something*

which should disturb the scientific and empiricist sensibilities of the most tough-minded philosopher. Though, if (49) and (50) are formulated in a familiar jargon as

(49') (In German) 'rot' means an *entity* which is not a particular—an *abstract entity*

(50') (In German) 'rot' means an *entity*

we are, unless we are careful, likely to read "means" as "names" and be off on the old merry-go-round.

## VIII

The linguistic framework of abstract entities, which is such an indispensable part of human discourse, not only semantical discourse, but mentalistic discourse and scientific discourse generally, as well, does not involve a commitment to Platonism. It is a misinterpretation of semantical sentences, a 'category mistake,' which has generated the contrary supposition. Let us be clearly understood that I am not attributing this misinterpretation to Carnap. My thesis, so far as it

concerns him, amounts rather to the wish that he had devoted more of his time and energies to bringing out the full philosophical significance of his syntactical and semantical studies, and less to the technical elaboration of lemmas and corollaries. Today, for the first time, the naturalistic-empiricist tradition has the fundamentals of an adequate philosophy of mind. To the creation of this truly revolutionary situation, which is just beginning to make itself felt, Carnap's *Logical Syntax of Language* and *Introduction to Semantics* have contributed at least as much as any other single source.

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15

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CARNAP'S VIEWS ON THE ADVANTAGES OF  
CONSTRUCTED SYSTEMS OVER NATURAL  
LANGUAGES IN THE PHILOSOPHY OF SCIENCE

*I. A Guide in Life*

I may be allowed to open this contribution with a few personal recollections from the later years of my life as a student. In 1932, I completed my studies in mathematics at the State University of Utrecht, and I started working in the fields of foundations of mathematics and philosophy of science, especially on the theory of space; these studies finally resulted in a thesis for the doctor's degree.<sup>1</sup> During this more or less uncertain period in my career—I was compelled to switch over from the Faculty of Science to the Faculty of Letters—I had the good luck of becoming a member of a group of mostly younger philosophers in which, together with P. G. J. Vredenduin, I represented the philosophy of mathematics and physical science.<sup>2</sup> The preceding years had been particularly uneventful for philosophical life in the Netherlands. The influence of Bolland's Hegelianism was fading, that of Neo-Kantianism was past its culmination, while phenomenology was not yet in vogue. In addition, the Amsterdam Schools of Intuitionism and Significs were—temporarily—less active than they had been before, as was the case with the School of Groningen. Therefore, most of us were looking for new directives, and it will be understood that the new philosophy of the Vienna Circle was given great attention.<sup>3</sup> Especially Carnap's work, as far as it was available—and understandable—to us, met with keen interest, if not always with approval. This preference must be explained by reference to various factors; in the first place, Vredenduin and I found in his writings<sup>4</sup> on logic and

<sup>1</sup>*Rede en Aanschouwing in de Wiskunde* (Groningen, 1935).

<sup>2</sup>*Aspecten van de Tijd*. Een bundel wijsgerige studies, ter gelegenheid van zijn 25-jarig bestaan uitgegeven door het Genootschap voor Wetenschappelijke Philosophie, waaraan is toegevoegd een Overzicht van zijn Geschiedenis (Assen, 1950).

<sup>3</sup>There is sufficient evidence to show that interest in the work of the Vienna School and of related groups was also present outside Utrecht. But our contact with other groups in our country was slight.

<sup>4</sup>*Der Raum* (Berlin, 1922); *Abriss der Logistik* (Vienna, 1929).