

PRAGMATISM & SEMANTICS

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1. Two paradigms for a theory of semantics

Theories of language in the twentieth century tend towards one of two radically different models. One paradigm holds that *expressions 'stand for' entities and their meanings are the entities stood for by them*. According to the other, *expressions are rather tools of interaction and their meanings are their functions within the interaction, their aptitudes to serve it in their distinctive ways*.

The first paradigm was elaborated especially by Russell and the young Wittgenstein; and reached blossomed especially in the hands of Rudolf Carnap and his followers, 'formal semanticists', represented most famously by Richard Montague. Russell analyzed the ways our names come to represent objects, and attempted to generalize his findings to the whole of language: we get acquainted with entities of our world and we let our expressions represent them, and it is in this way that our expressions come to have their meanings. As Russell (1912, Chapter V) puts it:

We must attach some meaning to the words we use, if we are to speak significantly and not utter mere noise; and the meaning we attach to our words must be something with which we are acquainted.

This idea was seductively perfected in Wittgenstein's *Tractatus*, where language is portrayed as representing the world by means of sharing its form:

In propositions thoughts can be so expressed that to the objects of the thoughts correspond the elements of the propositional sign. ... In the proposition the name represents the object. ... The proposition is a picture of reality. (Wittgenstein, 1922, §§ 3.2, 3.22, 4.01)

This prompted Carnap to isolate semantics as that part of the theory of language which has to do with expressions' denoting objects:

When we observe an application of language, we observe an organism, usually a human being, producing a sound, mark, gesture, or the like as an expression in order to refer by it to something, e.g. an object. Thus we may distinguish three factors involved: the speaker, the expression and what is referred to, which we shall call the *designatum* of the expression. ... If we abstract from the user of the language and analyze only the expressions and their designata, we are in the field of *semantics*. ... *Semantics* contains

* Work on this paper has been supported by a research grant of the Grant Agency of the Czech Republic No. 401/99/0619.

the theory of what is usually called the meaning of expressions ... (Carnap, 1942, pp. 8-10)

In the concise formulation of Reichenbach (1947, p. 4):

Language consists of *signs*. ... What makes them signs is the intermediary position they occupy between an object and a sign user, i.e., a person. The person, in the presence of a sign, takes account of an object; the sign therefore appears as the substitute for the object with respect to the sign user.

However, in parallel to this, also the other paradigm flourished. At the beginning of the century, it pervaded especially the philosophy of language of the American pragmatists. Thus, Dewey (1925, p. 179) famously claimed that “meaning ... is not a psychic existence, it is primarily a property of behavior”; but a more representative articulation of this paradigm is offered, e.g., by the social anthropologist G.H. Mead (1934, p. 75-76):

Meaning arises and lies within the field of the relation between the gesture of a given human organism and the subsequent behavior of this organism as indicated to another human organism by that gesture. If that gesture does so indicate to another organism the subsequent (or resultant) behavior of the given organism, then it has meaning. ... Meaning is thus a development of something objectively there as a relation between certain phases of the social act; it is not a physical addition to that act and it is not an “idea” as traditionally conceived.

This is, needless to say, a very different conception of language and consequently a very different concept of meaning. Language is not conceived of as a set of substitutes for entities and meanings are not the entities substituted; language is rather a means of interaction and meaning is the ability to bring the interaction to a kind of ‘resonance’.

Also the later Wittgenstein rejected his earlier ‘picture theory’ of language in favor of such ‘pragmatist’ view of language. Within his post-*tractarian* writings, language ceases to be seen as a set of pictures, and starts to be conceived of as “a collection of very various tools”:

Language is like a collection of very various tools. In the tool box there is a hammer, a saw, a rule, a lead, a glue pot and glue. Many of the tools are akin to each other in form and use, and the tools can be roughly divided into groups according to their relationships; but the boundaries between these groups will often be more or less arbitrary and there are various types of relationship that cut across one another. (Wittgenstein, 1969, p. 67)

It follows that the meaning of an expression is not a thing pictured by it, but rather a kind of usefulness of the expression, its aptitude to serve our ends:

A meaning of a word is a kind of employment of it. Compare the meaning of a word with the ‘function’ of an official. And ‘different meanings’ with ‘different functions’ (Wittgenstein, 1984, §64)

Let me call these two paradigms of approaching language the *Carnapian* and the *Deweyan* paradigms, respectively. *Prima facie* it seems that these two approaches are exemplary antipodes: while the former is based on the assumption that language is primarily a system of *names* or *representations* of things, the latter assumes that it is a collection of *means for doing* ‘things’ – and these two conceptions of language do not appear to be compatible. The Carnapian picture has, ultimately, led to the mathematical reconstruction of language as a system of expressions homomorphically mapped on a system of denotations (Montague, 1970); whereas the Deweyan stance seems to lead to the lore of evasive ‘language games’, thought experiments with ‘radical translation’ and ‘interpretation’, and to an overall ‘pragmatization of semantics’ (Peregrin, 1999), which does not seem to lend itself to any such mathematization.

However, in this paper I would like to propose that the gap between these two views of language need not be totally unbridgeable. True, the two conceptions of language apparently underlying them are hardly reconcilable – but what I am suggesting is that the technical apparatus engendered by the Carnapian approach, with its wealth of results, can be put into the service of the Deweyan paradigm – if we liberate it from the Carnapian representationalist ideology. Therefore I will argue that subscribing to the Deweyan paradigm need not divorce us from Carnapian and Montagovian formal semantics.

2. Meaning and Rules

Assuming the Deweyan or the late Wittgensteinian view of language, we see the meaning of an expression as first and foremost a semantically relevant role or function of the expression. But what is ‘the semantically relevant function’ of an expression?

We may start by considering the function of a non-linguistic item we employ, e.g. a hammer. Generally speaking, it is employed in various ways, some of which we see as a matter of the function of the hammer *qua* hammer, while others we see as casual and not really related to its being a hammer. A paradigm example of the former kind of things we do with the hammer is driving nails; a paradigm example of those of the latter kind might be, e.g., using it as a paperweight. We can clearly draw no sharp boundary between these two kinds of hammer-employing activities (their relationship resembles that between the center and the periphery of a town) – this, nevertheless does not prevent us from thinking that there *is* a function characteristic of a hammer.

The fact that the employment of an expression represents a similar continuum of cases spanning from those which are felt as clearly central for the expression – *qua* the expression meaning what it does – to those which are held to be peripheral has led some thinkers to a chain of conclusions which appear to be destructive of the Carnapian paradigm: *We cannot separate semantics from pragmatics. Therefore we cannot delimit the boundaries of meaning. Therefore there is no meaning worth its name. Therefore there is nothing to investigate for semantics.*

I think that somewhere along this line of argumentation we start to throw the baby out with the bathing water. After all, there are no ‘pure’ triangles in our real world; and despite this, geometry, which deals exclusively with such ‘pure’ shapes, is undoubtedly an enterprise

which is not only respectful, but also useful for our understanding of the real world and for our dealing with it. And in a similar way semantic theory dealing with crisply delimited meanings can be quite useful in the world where we can encounter only fuzzy ones.

However, how to get a grip on the fuzzy meanings to reconstruct? Meanings are not visible like shapes of things; so where can we encounter them? It was the late Wittgenstein who urged that there is no other way to approach them than via the *rules governing their expressions*. There is, Wittgenstein noticed, a characteristic difference between the way we use a thing like a hammer and the way we use an expression: the point is that the usage of the expression is ‘rule-governed’ in a sense in which that of the hammer is not. There *are*, to be sure, rules for using hammers – but they differ intrinsically from those which govern the usage of linguistic expressions. The rules for using hammers simply spell out how to use them to achieve the end to which hammers are supposed to be a means; whereas the rules of language are of a different ilk: they do not spell out an efficient usage of language, they are rather *constitutive* of language.

This brought Wittgenstein (1969, 184-5) to the conclusion that using language is more like playing a game such as chess than like using a hammer or, for that matter, cooking:

Why don't I call cookery rules arbitrary, and why am I tempted to call the rules of grammar arbitrary? Because I think of the concept ‘cookery’ as defined by the end of cookery, and I don't think of the concept ‘language’ as defined by the end of language. You cook badly if you are guided in your cooking by rules other than the right ones; but if you follow other rules than those of chess you are playing another game; and if you follow grammatical rules other than such and such ones, that does not mean you say something wrong, no, you are speaking of something else.

Hence the parallel between the function of the hammer and the meaning of an expression is limited: meaning is not *that* kind of function which characterizes the hammer. It is a function which an item acquires by being subordinated to rules of the kind games have. Thus the meaning of an expression can be compared to the role of a chess piece, which acquires its role of, say, a ‘knight’ by being handled according to the rules of chess (Wittgenstein as quoted by Waisman, 1967, p. 105):

For Frege, the choice was as follows: either we are dealing with ink marks on paper or else these marks are signs of *something*, and what they represent is their meaning. That these alternatives are wrongly conceived is shown by the game of chess: here we are not dealing with the wooden pieces, and yet these pieces do not represent anything – in Frege's sense they have no meaning. There is still a third possibility; the signs can be used as in a game.

All in all this resulted into the conclusion that if we are to understand the semantics of our language, we have to concentrate on its *rules*, and we also have to explicate what it means to ‘follow a rule’ of the kind language has. This was the problem to which Wittgenstein famously devoted most of his *Philosophical Investigations* (and which was later revived

within the discussion initiated by Kripke, 1982¹). However, despite this being an important step on the way towards isolating the semantically relevant function of an expressions, it still does not provide us with any definite lead: the problem of finding a criterion for distinguishing semantically relevant rules from other rules governing our language (such as rules of syntax, rules of social conduct etc.) is still far from trivial.

2. Meaning and Inference

If Wittgenstein is right, the meaning of an expression is to be sought via the investigation of the rules which govern the ‘semantically relevant’ usage of the expression. However, is there a *non-circular* way of specifying what kind of rules they are? Or do we end up with a kind of ‘semantic agnosticism’?

The approach to answering these questions which we would like to follow here is due to another recent philosopher who stressed the key role of rules within human linguistic conduct, namely Willfrid Sellars. Operating in the intersection of the influences of Viennese logical empiricism and American pragmatism, he developed his own theory of the constitutive role of rules with respect to language and meaning². Moreover, he managed to be more explicit about the nature of linguistic rules which are constitutive of semantics, locating them as the rules of (broadly conceived) *inference*.

Prima facie, this may seem strange: why inference? Do we not employ language for many other important purposes other than drawing inferences? Does this not lead to an over-intellectualized conception of language? Well, the Sellarsian claim is not that drawing inference is the most frequent activity for which we need our language – the claim is just that inference is the activity which *confers content* on our expressions. Why? We can reach the conclusion in three steps. First, we realize the semantic primacy of sentences over the meanings of sub-sentential expressions, and hence of the meanings of sentences, *propositions*, over meanings of other expressions: *the meaning of any expression is derived from the meanings of sentences*. Second, we realize that that to be a proposition is to be located within a logical space, i.e. to entail other propositions and to be entailed by them: *the meaning of a sentence is an inhabitant of a logical space*. Third, we realize that a proposition can acquire these properties only in force of the rules which we let govern a sentence which expresses it: *to make a sentence acquire such meaning, it must be embedded into a network of inferences*. Let us consider these three steps in sequence.

1. The semantic primacy of a sentence over its parts has been urged by a number of philosophers, including Frege (“It is only in the context of a proposition that words have any meaning”³) and Wittgenstein (“Only propositions have sense; only in the nexus of a proposition does a name have meaning.”⁴). The reason is clear: it is only a sentence which can serve a self-standing communication purpose and which is in this sense independently

¹ See Baker & Hacker (1984) for a different perspective on the problem.

² See Sellars (1963; 1974); and see Marras (1978) for an overview.

³ Frege (1884, p. 73).

⁴ Wittgenstein (1922, §3.3).

significant (and hence it is also only a sentence which can be true or false) – sub-sentential expressions gain significance only via their acting within sentences.

There is an obvious counterargument to this: basic units of language must be finite in number, and this is the case of words, not of sentences. However, the list of sentences we really encounter during our acquisition of language is in fact also finite. True, we learn to decompose sentences into words, which we then use as our basic linguistic building blocks – as we learn, in the inverse process, to recompose the words to produce new sentences⁵. And once we start to compose complex sentences, there is no upper limit – the class of sentences becomes (potentially) infinite. However, this does not contradict the assumption of the primacy of the basic sentences – no more than the fact that we can use the roles of *mother*, *uncle* etc. to put together an unlimited number of potential family structures contradicts the fact that we have abstracted the roles from the structures of some already existing families⁶.

2. What, if anything, is a proposition? It is not easy to say; but if there be anything essential to propositions, then it would seem to be the fact that a proposition must have a negation, be conjoinable with other propositions, and especially entail and be entailed by other propositions. This indicates that just as the *modus vivendi* of physical objects is their causal interaction within physical space (and time), the *modus vivendi* of propositions should be their logical interrelationships. Thus, propositions appear to exist in a logical space structured by logical relationships, especially by the relation of entailment⁷, which finds its expression in inferential rules.

3. However, unless we wish to subscribe to an unwieldy metaphysics, we must take the talk about propositions as more of a *façon de parler* than of a description of a platonist realm. (The problem is not the platonism itself, but the assumption that our sentences gained their inferential properties via a process of naming of entities from such a realm – how could we have achieved this?) And this leads us to the conclusion that our sentences do not have the inferential properties they have because we have used them to christen some ever-existing propositions with ever-existing entailment relations, but rather that we caused the sentences to express the propositions they express (or perhaps better: made them describable as expressing the propositions) via letting them be governed by inferential rules, which establish a certain network providing for the needed logical space.

This idea of Sellars has been picked up and elaborated by Brandom (1994, 2000). For him, rules of inference are crucial because the principal, ‘content-conferring’ enterprise giving the point to our language is the enterprise of *giving and asking for reasons*. Thus something is a language worth the name only insofar as it can provide for this enterprise; and hence something can be said to be a truly meaningful expression only insofar as it participates in it. As Brandom (1994, p. 144) puts it: “It is only insofar as it is appealed to in explaining the circumstances under which judgments and inferences are properly made and the proper consequences of doing so that something associated by the theorist with interpreted states or

⁵ See Quine (1960, p. 9).

⁶ See Peregrin (2001, Section 4.4.) for a more extensive discussion.

⁷ The relations usually seen as engendered by the logical operators – negation, conjunction etc. – can be seen as reducible to the entailment structure, which turns out to be a Boolean algebra. They can be seen as the algebraic relationships of complement, join etc.

expressions qualifies as a *semantic* interpretant, or deserves to be called a theoretical concept of a *content*.”

This means that to get a grip on semantics is to get a grip on the inferential structure; and thus a grip on the meaning of a particular expression is a grip on the inferential rules governing the particular expression. Hence the ‘inferentialist’ semantic explanations: “beginning with properties of inference, they explain propositional content, and in terms of both go on to explain the conceptual content expressed by subsentential expressions such as singular terms and predicates” (Brandom, 2000, p. 30).

3. Meaning as an inferential role

How can we see meaning as a matter of inferential role? Let us first consider an inferentialistically simple expression, the logical connective ‘and’. It is clear that its semantics can be characterized in either of the following alternative ways:

(i) in terms of *denotation*: ‘And’ denotes the function f_{\wedge} mapping pairs of truth-values on truth-values in such a way that $f_{\wedge}(T,T)=T$, while $f_{\wedge}(F,T)=f_{\wedge}(T,F)=f_{\wedge}(F,F)=F$.

(ii) in terms of inferences: ‘And’ joins sentences A and B into the complex sentence $A \wedge B$ such that the following inferences hold:

$$(\wedge_1) A, B \Rightarrow A \wedge B$$

$$(\wedge_2) A \wedge B \Rightarrow A$$

$$(\wedge_3) A \wedge B \Rightarrow B$$

The following two obvious facts show that these two articulations are really equivalent:

Fact 1. If “ \wedge ” denotes f_{\wedge} , (\wedge_1) - (\wedge_3) are correct (truth-preserving)

Fact 2. If (\wedge_1) - (\wedge_3) hold, then “ \wedge ” can be correctly treated as denoting f_{\wedge} . ((\wedge_1) says that if A and B are true, $A \wedge B$ is bound to be true too; whereas (\wedge_2) and (\wedge_3) state that $A \wedge B$ is false if either A , or B is – and f_{\wedge} correctly recapitulates this.)

Now given the nature of language, is one of the two facts somehow primary to the other? Should we reduce the holding of the inferences to the presence of the denotation (“conjunction sustains (\wedge_1) - (\wedge_3) *because* it denotes f_{\wedge} ”) or rather the other way around (“we can explicate the meaning of conjunction as f_{\wedge} , *because* it is governed by (\wedge_1) - (\wedge_3) ”)?

While in a formal language the former may be the case (for we may *define* conjunction by means of denotation assignment), for natural language the claim “‘and’ denotes such and such entity” is clearly in need of further clarification. (It is obviously not to be taken to mean that we sometimes in the past introduced ‘and’ into our language by means of christening f_{\wedge} . But if not this, then *what* is it supposed to mean?). In contrast to this, the claim “to assert two sentences joined by means of ‘and’ is correct iff it is correct to assert each of the two individually” is entirely perspicuous.

I think that even many philosophers not generally sympathetic with inferentialism may be willing to grant that the meaning of a logical particle like ‘and’ may consist in its inferential

role. (A well-known opponent of this possibility is Prior, 1960/61, with his **tonk**⁸. But even granted that not every set of inference rule can be reasonably seen as constitutive of a meaning, it is not clear why this should be incompatible with the claim that *the particular set of rules* listed above *does* constitute the meaning of ‘and’.) However, they would insist that this cannot be generalized to a substantial part of our language.

Admittedly, the situation is less favorable for the inferentialist when we pass over from logical vocabulary to empirical terms. However, there still remains a sense in which inferentialism is viable even here. Take the term ‘rabbit’. Does it not mean what it does solely in force of its having come to *refer to rabbits*? Well, what does it mean “to refer to rabbits”? To utter “rabbit” in the presence of rabbits? But why, then, do we not say that a particular kind of dog bark, ejaculated by a dog on scenting a rabbit, *refers to rabbits*?

There appear to be two kinds of answers to the question what distinguishes an expression *referring* to a thing from a mere reaction prompted by the thing (which can be displayed by non-human animals or even inanimate things⁹). The first of them is that it is our *mind* which makes the magic, by somehow accompanying the word with a ‘homing in’ on rabbit(hood), or by summoning the idea of rabbit. This is the answer which has been put forward, in different guises, by philosophers so different as John Locke, Edmund Husserl, or John Searle; and which also appears to concur with common sense.

The trouble with this answer, as Blackburn (1984, §II.3) puts it, is that it is a “dog-legged theory”: a theory which instead of solving the problem merely shifts it at one remove. Its answer to the question *how do our expressions manage to refer?* is *by expressing mental contents which refer*; which, of course, immediately invites the follow-up question *well, but how do they manage it?*. The last question, then, is held by this theory as being somehow self-answering.

Hence, if we are not content with this kind of answer, we may consider the alternative; a kind which is *prima facie* less appealing and far less popular, but which, I suggest, is worth pursuing, especially for the pragmatist. The answer is that an expression comes to *refer* by being employed in a certain way within a specific kind of human (normative) practice. Variants of this answer were tabled by Immanuel Kant, Ludwig Wittgenstein, and recently by Robert Brandom. Brandom, in particular, suggested that even in the case of empirical terms and their referential capacities, it is still the *inferential articulation* which is crucial.

Hence the idea is that even the content of empirical expressions is in some important sense conferred on them by inferential rules governing their usage. Of course, in such cases we cannot restrict ourselves to inferences in the standard, narrow sense – i.e. moves from assertions to assertions –, because we have to admit also ‘inferences’ from situations to assertions and vice versa. Anyway, the idea is that even for empirical terms we still have the two possibilities of characterizing their semantics:

(i) in terms of *denotation*: ‘Rabbit’ denotes some kind of ‘rabbithood’, explicated perhaps as a functions mapping possible worlds on the classes of their rabbits

(ii) in terms of *inference*: ‘Rabbit’ constitutes a part of sentences so that the following inferences hold:

⁸ See Peregrin (2001, Chapter 8) for a discussion of Prior’s attitude.

⁹ Consider, for example, a piece of metal reacting to water by rusting, or a thermometer reacting to the temperature of its environment.

- (r₁) X is a rabbit $\Rightarrow X$ is a mammal
- (r₂) X is a rabbit $\Rightarrow X$ is not an elephant
- ...

The equivalence of these two articulations would now be seen as a matter of the following two facts:

Fact 1. If “rabbit” denotes ‘rabbithood’, then (r₁), ... are correct (for rabbithood is supposed to include mammalhood, to be incompatible with elephanthood ...)

Fact 2. If (r₁), ... hold *and if* it is appropriate to assert “This is a rabbit” when pointing at a rabbit, then “rabbit” can be correctly treated as denoting ‘rabbithood’.

It is clear that here the situation is incomparably more problematic than in the case of a logical connective. For one thing, the collection of inferences is too complex to be easily specifiable. (It is this very complexity, as Sellars argues, which prevents us from being able to give the inferences constituting the inferential role of such an expression explicitly. Therefore we usually only illustrate the role with the help of a known word having the same or similar role – which is what usually happens in radical translation¹⁰.) For another thing, the inferential roles must involve not only the inferences in the narrow sense (listed as our (r1) ...), but also what Sellars called ‘world-language transitions’ (together, as the case may be, with ‘language-world’ ones).

This last point might engender the suspicion that the inferential standpoint is only much ado about nothing. Do not the ‘inferences in the wide sense’, which we claim to co-constitute the meaning of an empirical word like ‘rabbit’, amount to the relation of reference? And are we thus not returned to the denotational paradigm which we wanted to circumscribe? Not really. The ‘world-language transitions’ do not amount to a relation between things and words, but rather to ones between facts and statements. Moreover, and this is crucial, they can never exhaust an expression’s inferential role: according to the inferentialist, nothing can be contentful without being capable of occurring both in the premises and in the conclusions of inferences. Thus a sentence ‘This is a rabbit’ (and consequently the term ‘rabbit’) cannot be contentful solely in force in its being a correct response to the presence of a rabbit; it must moreover, be capable of serving as a premise of further inferences (*viz.* ‘Hence, it is not an elephant’, ‘Hence, it is a mammal’ etc.).

5. The circularity of explanations provided by formal semantics

All of this seems to suggest that we should abandon the Carnapian paradigm in favor of the Deweyan one; that we should turn our backs on the denotational view of semantics and on its outgrowth, formal semantics. And indeed, there has been much criticism of formal semantics

¹⁰ Thus although it is not difficult to specify the role, and hence the meaning, of the aliens’ equivalent of our ‘and’ without invoking our own word, when we want to specify the role, and hence the meaning of their equivalent of our ‘rabbit’, we can hardly do it otherwise than by pointing out that the word means what our ‘rabbit’ does.

from philosophers of language (myself included). However, from the viewpoint of this paper it is crucial to distinguish between the (substantiated) criticism of formal semantics' aspirations to become itself a philosophy of language, and the (less substantiated) criticism of formal semantics as a technical tool. As an example of the criticism of the first kind, consider Davidson's (1999, p. 689) objection to Barwise and Perry's (1983) situation semantics. We cannot, Davidson claims, reduce "is true" to "expresses an actual situation", for we cannot specify which situations are actual otherwise than via specifying what is true:

Barwise and Perry's situations are set-theoretical constructs. Called "abstract situations", they are defined in terms of (real) objects and properties and relations. Truth can't be explained by reference to abstract situations, for abstract situations correspond to false sentences as well as true. Among the abstract situations are "actual" situations, which do correspond in some sense to true sentences. So far this defines actual situations in terms of truth and not vice versa. Actual situations, however, "represent" real situations, which are said to be "parts" of the world. Barwise and Perry never try to define "real situation"; they say that if you don't think there are such things, they admit they don't see how to persuade you. It is easy to specify when a particular abstract situation is actual: the abstract situation that I will call "Sam, mortality" is actual if and only if Sam is mortal (that is, Sam instantiates mortality). Having determined what makes [Sam, mortality] actual, we can now "explain" what makes the sentence "Sam is mortal" true by saying it is true because "Sam is mortal" corresponds to an actual situation. That situation is actual because Sam is mortal. It is obvious that we can retain the contents of this explanation, everything that "relates language to the real world", by saying "Sam is mortal" is true if and only if Sam is mortal; the apparatus of situations has done no work. The reason it has done no work is that truth must be brought in to explain the relation between Sam and mortality, something the semantics of situations fails to do.

Myself I raised a similar kind of objection (Peregrin, 1995; 2000): we cannot reduce "is necessary" to "holds in every possible world", for we cannot specify which worlds are possible otherwise than via specifying what is necessary. For suppose somebody wants to know why a statement such as $\neg(P(a) \wedge \neg P(a))$ is logically true. We can hardly answer 'It holds in all (the model structures capturing) the possible states of the world – I have inspected them carefully and have not encountered a single one in which it does *not* hold'. Our answer would have to be something akin to 'nothing can be P and simultaneously not-P', or perhaps '[“]to be P and not-P[”] makes no intelligible sense'. This indicates that it is hard to maintain that a logical truth is true *because* it is valid in all possible structures – instead it is much more adequate to view the situation the other way around: *because* something is a logical truth, there cannot be a structure in which it does not hold¹¹.

Such objections point out that if we start to treat formal semantics as the basis for a philosophy of language, we are likely to run into a vicious circle: we reduce philosophically

¹¹ We can, to be sure, sometimes *discover* that something holds in all structures of a certain class – but unless the class is finite, we can hardly do so by going through all the structures; we have to somehow deduce it from various properties constitutive of the class.

problematical concepts to the seemingly perspicuous formal semantic concepts, which, however, ultimately rest on the obscure concepts to be explicated. Thus, if we want to clarify the concept of truth by the notion of actuality of situations, we face the fact that the latter notion cannot be made intelligible other than via direct or indirect recourse to the concept of truth; and if we want to reduce necessity to holding in every model or every possible world, we must see that the delimitation of the relevant space of models or possible worlds must ultimately rest on the concept of necessity.

Hence formal semantics, by itself, is not usable as formal metaphysics, it is not a means of achieving a correspondence theory of truth, nor any other philosophical goals. However, I do not think that it follows that to try to explicate meanings in terms of possible worlds and situations is futile, nor that formal semantics is a misguided enterprise. In particular, I do not think that any kind of employment of the apparatus of formal semantics presupposes the subscription to the denotational approach to meaning, or to the correspondence theory of truth with a ‘formal metaphysics’, or to any other ‘ideology’. I think that the results of formal semantics can be well put into the services of the inferentialist philosophy of language.

6. Formal semantics as envisaging inferential roles

Consider possible worlds, the probably most discussed creatures of formal semantics. What are they? There exists what we could possibly call the ‘stock answer’: Possible worlds are entities whose existence is to be established, and whose nature is to be reported, by a theory independent of a theory of language (‘metaphysics’); and formal semantics then can build on this, i.e. explicate meanings of statements by pointing out that they denote sets of such worlds¹². However, we have also an inferentialist alternative which runs as follows: Due to the presence of the standard logical operators (negation, conjunction, ...) with their inferential properties the statements of our language are inferentially structured into a Boolean algebra. Hence they can be represented as denoting subsets of a certain set (in force of Stone’s representation theorem¹³). Moreover, due to the presence of modal and counterfactual operators and locutions, the underlying set cannot be the most trivial, one-element one¹⁴. Hence statements denote subsets of a *nontrivial* set – and as elements of this sets can be seen as “what truth is relative to”¹⁵, it is plausible to call them *possible worlds*.

In this way, we can say that possible worlds – just like other entities entertained by formal semanticists – can be seen as *means of envisaging inferential patterns*. It seems that for some peculiar reasons having to do with the way our minds have developed, the relation of containment is somehow more perspicuous for us than relations of other kinds. And possible

¹² Elsewhere (Peregrin, 1998) I have pointed out how this answer may lead to a philosophical deadlock: while linguists would like to leave the explanation of the nature of possible worlds to philosophers, philosophers having undergone the *linguistic turn* tend to think that the way to the explanation of the nature of such ‘metaphysical’ entities is in the linguistic analyses of our talk which invokes them (explicitly or implicitly).

¹³ The theorem states that every Boolean algebra is isomorphic to the algebra of subsets of a set.

¹⁴ The powerset of which has two elements identifiable with the two truth values.

¹⁵ Cf. Stalnaker (1986).

worlds allow us to turn inference precisely into containment: namely the containment of the intersection of the classes of possible worlds denoted by the sentences in the antecedent of the inference within the class of worlds denoted by that in the consequent.

Moreover, inferential patterns usually involve more than one expression, whereas in semantics we are often interested in the meaning of a single one, i.e. the very contribution this single expression brings to the patterns which govern it. And explicating this contribution as an abstract, typically set-theoretical, object appears to be a good way to make it intelligible. Remember, as a paradigmatic example, the logical conjunction: the inferential pattern governing it is fairly simple and perspicuous, but nevertheless it is still helpful to encapsulate it as the truth-function.

Thus, I suggest, formal semantics *can* be of some help even for the inferentialist. The inferentialist denial of the claim that meanings are essentially objects which have come to be stood for by expressions is not incompatible with the claim that meanings *can be accounted for* or *modeled* - as objects. And I think that the inferentialist should realize that such modeling is a very useful thing. Thus I think that although language is not literally a nomenclature or a code (as the Carnapian paradigm has it) it remains useful, at times, to *see* it as a code, just as it is often useful to see atoms as cores orbited by electrons.

Of course that viewed from this angle, denotation ceases to be a *subject matter* of semantic theory, and rather becomes its *tool*. The object which an expression is envisaged as denoting is not to be taken as a (reconstruction of a) real entity denoted by the expression in the real world, but rather as an encapsulation of the expression's inferential role. (One important consequence of this is that there is no *one correct* semantics, just as there is no one correct model of the inside of an atom, nor one correct plan of an unknown city.)

Sellars (1992, p. 109n.) comes to the following verdict:

[Carnap's formalization of semantic theory in terms of a primitive relation of designation which holds between words and *extralinguistic* entities] commits one to the idea that if a language is meaningful, there exists a domain of entities (the *designata* of its names and predicates) which exist independently of any human concept formation

From the perspective entertained here, we have to disagree: what Sellars disregards here is the possibility of understanding the Carnapian "formalization of semantic theory" not as a straightforward description, but rather as a 'creative' kind of an explication of the semantic aspect of language. What we thus suggest is that buying technologies of formal semantics need not necessitate buying the ideology of those who take formal semantics for a self-standing philosophy of language¹⁶. The moral, then, for the inferentialist, is that *the Carnapian way of reconstructing the semantic aspect of language should not be despised, but rather understood in the Deweyan way: as a way to single out and materialize each expression's contribution to the inferences in which it occurs.*

¹⁶ See Peregrin (2001, Chapter 8).

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