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Some Methodological Remarks on Semantics*

1. Semantics isn't exclusive territory for philosophers; it also has achieved the status of a respectable discipline, at least in the sense that—despite the fact that philosophers still write papers with titles like "Is semantics possible?"—you can actually get money from the NSF for semantic projects in areas like Anthropology, Information Science, Linguistics, Psychology, HPS, and Mathematics. So if you're a philosopher you can either treat it as something to study from the inside or the outside. I mean to do the latter—something which is rather less usual than the former.

2. A note, to clear the ground. I think there may be something to the skepticism you often find regarding the viability of semantics as a discipline. The main problem with semantics, it seems to me, is that there isn't a fully healthy give-and-take between theory and data—at least, not in the areas of semantics that I know well. You can find only a handful of people who are capable of really doing justice to both, and are trying to do so—and I think most of them find it difficult (just for the reason that they are trying to do justice to both)— to get anything done. On the other hand you find a lot of people—typically, linguists—who dwell on data at the expense of theory, and many others—typically philosophers— who do the reverse.

I'm not going to tackle this important problem. In fact, it seems to me that if headway is to be made in improving the relationship of data to theory in semantics it has to be done at the level of "science" not at that of "philosophy of science." What is needed is a working methodology that can be imparted to colleagues and taught to students, and it's one thing to evolve such a methodology, while grappling directly with linguistic problems, and quite another to come up with an *account* of the methodology.

3. Instead, I want to take semantics as a discipline for granted, and to explore a thesis about it that I'm disposed to defend, or at least to entertain:

(3.1) Semantic truths are true *a priori*.

I think my use of the term '*a priori*' may cause difficulties, but I will use it anyway. I think it suggests the right things, even if it has to be used with caution. Some remarks on the thesis: (a) I would call many of the truths of semantics *analytic*, but I have used what many people take to be a

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more general term in stating the thesis because many truths of semantics are not independent of rather strong mathematical assumptions. I'm not sure myself how to draw a nice boundary between what is analytic and what is a priori, and I certainly don't want to entangle myself in the issue on this occasion. (b) I mean the thesis to suggest a similarity between semantics and "usual" sciences such as mathematics. (c) I mean the thesis to suggest that semantic truths are like logical truths: e.g., logical truths having to do with conjunction and negation. I do take these to be semantic truths, and not atypical ones, except in the simplicity of the underlying theory they require: the theory of truth functions.

In the remainder of this talk, I will take up two objections to my thesis. The defense, I hope, will help to clarify its content.

4. The first objection is that some semantic truths are surely contingent truths about languages. It's a contingent fact about English that 'and' means what it does. If 'and' had a different meaning (significantly different) the truth-functional interpretation would be wrong. Hence this interpretation, and the semantic truths that follow nontrivially from it, are contingent.

5. In reply, I grant the whole of the objection: yes, the truths of semantics can be contingent (at any rate, many of the semantic truths about English are contingent). But nevertheless, they're a priori.

Now, the contingent a priori has recently become a respectable category in the wake of philosophical and technical work by Hilary Putnam, Hans Kamp, Bob Stalnaker, Saul Kripke, and David Kaplan. (I have tried to put this list in chronological order.) So my reply is a conceivable one; it's on the map of positions. More than this, though, I think I can show it to be a plausible reply.

In doing this—and throughout this paper—I will assume a picture of semantics in which you have an object language (OL) under investigation, containing its own syntax and some mathematics among other things, and a metalanguage (ML) that is an extension of the OL, having a truth predicate for the OL, maybe a satisfaction relation and a denotation relation, maybe some theoretical machinery involving models, possible worlds and such—whatever is thought to be required. [Note: the case in which the OL is not contained in the ML but you need a translation of the OL into the ML does involve postulation of non a priori truths. In explicitly excluding this case I don't think I'm losing any real generality, because I would not want to call the additional problems it raises semantical.]

As a typical truth of such a semantic theory, take

(5.1) $T(\ulcorner \underline{A} \urcorner) \leftrightarrow \underline{A}$

e.g., (5.2) '2+2 = 4' is true iff 2+2 = 4.

Clearly, (5.2 is a contingent truth; '4' might have meant what '5' means. But though the proposition (5.2) expresses is contingent it is true in virtue of its form.

If you look at the literature on such sentences before the development of pragmatics made the contingent *a priori* thinkable, you find a good deal of sporadic confusion over how to classify them. Since the matter is crucial, I believe, to a proper understanding of semantics let me pause for a bit to show how to give a semantic interpretation of such sentences. I will be exploiting ideas from formal semantics here to clarify a philosophical account of semantics itself.*

6. Take a different example:

(6.1) I am here.

(6.1) is true in virtue of its forms, but contingent. (Consider 'I might not have been here'. To interpret (6.1) you distinguish two coordinates in the interpretation of a sentence *A*: the *possible world coordinate*, representing the facts and the *context of utterance coordinate*, representing the contextual information that must be supplied to determine what *A* says. In the case of (6.1) you can think of a possible world as an assignment of a position to each object, and a context of utterance as a pair consisting of an object (the speaker) and a position. Where i is a possible world and c a context of utterance, $\langle i,c \rangle$ is called an *index* and $\mathrm{Ext}_{\langle i,c \rangle}(A)$ is the truth value of *A* at the index $\langle i,c \rangle$.

To define validity you need to characterize the set of *normal indices*; intuitively, an index is *normal* if an utterance can take place at it. In the case of (6.1), you want to stipulate that an index $\langle i,c \rangle$ is normal only if in i the speaker of c occupies the position of c. Though abnormal indices represent points at which no utterance can occur, they are needed in calculating the truth values of certain utterances at normal indices, e.g., those of

(6.2) Necessarily, I am here,

whose truth value at $\langle i,c \rangle$, $\mathrm{Ext}_{\langle i,c \rangle}$('Necessarily I am here'), depends on $\mathrm{Ext}_{\langle i',c \rangle}$('I am here') for i' other than i. So clearly we have the result that though (6.1) is valid, (6.2) is not; a simple instance of a contingent *a priori* truth.

In the case of (5.1), we need only realize that the interpretation of a language (for simplicity think of this as the meanings of its words) as part of the context of utterance. This could be dramatized by considering a signaling system that can be set to a variety of codes; to know what a message says you need to know what code is being employed, just as you need to know who is speaking, and where, to know what is said by (6.1), 'I am here'. Now, the interpretation of a language is also a matter of fact, fixed by the possible world; in *this* world, for example, 'and' expresses a certain truth function. So we get a condition for normality: an index $\langle i,c \rangle$ is normal only if the interpretation that c gives to expressions is the one that these receive in i.

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*What I am about to say has appeared in print: see "Necessity, quotation and truth: an indexical theory," in *Language in Focus*, A. Kasher, ed., Dordrecht, 1976.

Now, compare

(6.3) $Ext_{<i,c>}(\underline{A})$

and (6.4) $Ext_{<i,c>}(T(\ulcorner \underline{A} \urcorner))$.

The former, in which A is used, gives a truth value in which what A says, relative to c, is held up against the facts in i. In (6.4) though, A is mentioned, treated as an object like any other rather than being used as a vehicle of communication. So (6.4) isn't really an indexical case at all—it takes the interpretation that A receives in i and holds this up against the facts in i. If <i.c> is normal, these truth values will be the same; but they needn't if <i,c> is abnormal. Hence, $Ext_{<i,c>}(\Box[T(\ulcorner \underline{A} \urcorner) \leftrightarrow \underline{A}])$ can be F, so (5.1) can be contingently true.

One upshot of this is that we must distinguish between those sentences that are formally valid and those that express necessary propositions. To change the example,

(6.5) '2+2 = 4' means that 2+2 = 4

expresses a contingent proposition, one that we may have to learn.

Nevertheless we can tell that this sentence is true merely in virtue of its form: it is formally valid. Knowing it is true doesn't help us to know what '2+2 = 4' means, however. It is just like knowing that 'I am here' is true without knowing where I am.

Concluding remark: I leave it as an exercise to apply this apparatus to Buridan's example, in the folowing form: "If 'leg' meant 'leg or tail', how many legs would a donkey have?"

7. So much for the first objection. The second is this: if truths of semantics are a priori, how can we have more information about a language than we began with, after we've constructed a semantic theory about it?

Here's a possible response: we don't have more information when we have a semantic theory, or at least such a theory doesn't provide new information about language and languages in any way that is different from the way geometry provides us with more information about space and spaces.

I think this reaction is a bit superficial, so as a start let me reformulate the objection, so as to focus it on a kind of new information that semantics can give us. In proposing the OL-ML setup I have been assuming, I suggested that the ML could contain theoretical machinery useful in semantics. If this machinery is actually used in the theory you can get semantic theses of the sort.

(7.1) $\ulcorner \underline{X} \urcorner$ denotes d, where d is a φ

where 'φ' can be some sortal term of the theory. Some examples of this are the following.

(7.2) ⌜the boys⌝ denotes d, where d is a set.

(7.3) ⌜the claim that snow is white⌝ denotes d, where d is a set of possible worlds.

(7.4) ⌜sixty pounds⌝ denotes d, where d is something.

(7.5) ⌜sixty pounds⌝ denotes d, where d is a region of logical space.

Now, (7.2)-(7.5) have the following consequences, respectively.

(7.6) The boys are a certain set.

(7.7) The claim that snow is white is a certain set of possible worlds.

(7.8) Sixty pounds is something.

(7.9) Sixty pounds is a certain region of logical space.

But (7.6)-(7.9) are very strange claims; some might even (incautiously) say they are false. Certainly, they can't be regarded as truths (if they *are* true) that are inherent in the makeup of the language prior to its interpretation by the semantic theory. So the theory precipitates some consequences in the OL that were not true to begin with. And so the theory *can* be *a priori*.

This is the objection, put as forcefully as I can put it.

By the way, the answer to this objection has to show how nontrivial theories can be deployed in semantics. Any semantic theory that resorts to explanations like (7.1)-(7.5) is liable to be assaulted by such an argument. And this assault has to be taken seriously, in view of the similarity it has to *proper* criticisms of semantic theories. These have the form: the theory predicts that certain sentences of the OL will be true if other sentences are true. But the latter sentences are (or can be) true while the former is false. For instance, take a theory of English that makes subject position extensional in sentences without modals or adverbs, in present tense. This theory will have trouble with a sentence like 'The number of the planets is believed to be seven' which is true at one point of time when (as far as we know) 'The number of the planets is nine' was true; but 'Nine is believed to be seven' was false at that time. In a formally analogous way you say to the theoretician who espouses (7.2): "Your theory predicts that 'The boys are a set' is true; but this is evidently false, so your theory is wrong."

8. One response to this would be to deny that consequences like (7.6)-(7.9) are true in the OL, because—properly speaking—they aren't contained in the OL. They contain notions like *set*, *possible world*, quantification over certain theoretical entities, *logical space*, that are part of the theoretical apparatus of the ML. This response is—at least in some cases—a copout. Often the usefulness of certain theoretical notions—especially, in these cases, that of a set—comes from their being available *before* we want to put them to work for some semantic purpose. Sometimes in constructing a semantic theory, we might make its notions up out of whole cloth—in effect, adding them to the OL. (Tarski has shown that under certain very general conditions we *have* to do this with truth.) But often, we may want to take some notion we already can talk about and apply it in semantics. I certainly don't want to rule this out.

9. I will make my answer here brief. Intuitively, the idea is that the semantic rules of a language (*to the extent they have been regimented*) give a

certain looseness of fit. Vagueness —e.g., that of 'bald' or 'mountain peak' —is one product of this.

I prefer (like Hans Kamp and Kit Fine, unlike some others) a model of vagueness that allows you to talk about degrees of truth, and to say that sentences can be neither true nor false, without giving up the validities of classical logic. There's a nice analogy to probability here. You find yourself with a language, and a sample space representing various possible combinations of sentences, and a measure on this space. To get the probability of a sentence $\underline{A}$ you look at the region $|A|$ of the sample space in which $\underline{A}$ is true and measure it getting $\mu(|\underline{A}|)$. Here you don't expect $\mu(|\underline{A} \vee \underline{B}|)$ to be a function of $\mu(|\underline{A}|)$ and $\mu(|\underline{B}|)$—on the contrary, if $\mu(|\underline{A}|) = \mu(|{\sim}\underline{A}|) = 1/2$, we have $\mu(|\underline{A} \vee {\sim}\underline{A}|) = 1/2$ and $\mu(|\underline{A} \vee \underline{A}|) = 1/2$.

Now, replace the sample space in your imagination with a space of delineations or regimentations—ways of filling in the truth value gaps without violating any semantic rules of the language. The measure on this space reflects preferences you may wish to give to certain delineations. For instance, you'd want to prefer delineations that draw the line between baldness and unbaldness at people that are sort of bald. This gives us a nice, van Fraassenish theory of vagueness. I won't go into details, but will simply say it's a nice theory.

The next point is simply that we shouldn't regard the semantic rules of a language as wholly determining the semantic theory that is to be given of them. If together with the facts they make a sentence A true [or false] the semantic theory must also make A true [false], if we are to keep (5.1), $T(\ulcorner \underline{A} \urcorner) \leftrightarrow \underline{A}$, valid. But if A is neither true nor false we can either leave A as it is in adopting our semantic theory or we can provide it with a truth value. In other words, a semantic theory can regiment an OL, but can do so only within boundaries set by the sentences of the OL that have a truth value before the semantic theory is adjoined to the OL.

Consider (7.6) again, 'The boys are a certain set'. In this case I want to say that at a stage where we have the concept of a set but have not chosen a particular semantic theory of the plural, (7.6) is neither true nor false. Like many such sentences it sounds peculiar, but this doesn't mean it's false. In a semantic theory of semantic regimentation, we have to take into account the possibility of alternative semantic theories. In the example at hand there will be various semantic theories of the plural, some of which will make (7.6) true while some make it false. From a neutral perspective all these regimentations are possible, though some may be more plausible than others.

I want to claim that you can't accept a semantic theory without adopting it, without speaking in accordance with it, just as you can't adopt a convention that a certain bar is the standard of length for one meter and then deny that this bar is one meter long. The difference in the semantic case is that the consequence of accepting the theory can include peculiar-sounding sentences—their peculiarity, however, can be ascribed to differences between garden-variety and ontological valueness. Making statements like (7.6), that are ontologically vague, is in many ways more like saying that a point in the

Euclidean plane is an ordered pair, or that a natural number is a set than like saying that Sam is bald. I would want to use the same formal treatment, in terms of delineations and truth value gaps, to represent all three of these cases, and common to all of them is the fact that after a certain decision has been made, something (a sentence, not a proposition) is then true _a priori_ that was not true _a priori_ before the decision was taken. But (if I may predict a bit sloppily in concluding) it didn't fail to be _a priori_ true because it wasn't _a priori_, or because it was false, but just because it wasn't true.