PHILOSOPHICAL TOPICS
Volume XV, No. 1, Spring 1987

Semantics for Belief[1]

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When we attribute a belief by saying something of the form *x believes that P*, we say that a certain relation, expressed by *believes*, holds between *x* and an object of belief — something denoted by the sentential complement, *that P*. There are lots of theories about what these objects of belief are: some say they are structured complexes made up of senses or concepts; others argue that they are sentences themselves, or sets of sentences; they have been held to be sui generis primitive objects — unanalyzed propositions. Perhaps they are sets of possible worlds, or possible and impossible worlds, or sets of situations or partial worlds. A defense of any such account of the object of belief should be motivated by a general theoretical account of the nature of the belief relation — one that can contribute both to a philosophical explanation of intentionality, and to empirical accounts of cognitive states and processes. It must also be able to contribute to an explanation of the semantic facts about belief attribution. There is some tension between these two requirements for an adequate account of the object of belief. The facts about belief attributions suggest that the objects of belief should be individuated very finely: for almost any two distinct sentential clauses, *that P* and *that Q*, one can find a context where it seems plausible to say that someone believes that *P*, but disbelieves that *Q*. Such facts tend to push one to take the objects of belief to be sentences, or close copies of sentences. But any theoretical account that tries to explain belief and other cognitive states as capacities and dispositions to interact with the extra-linguistic world will tend to motivate a more coarse-grained conception of content. Whatever the details of such an account, belief will relate a believer, not to a sentence, but to the information that a sentence conveys; it may be difficult to come up with a conception of information or informational content that distinguishes sentences that the facts of belief attribution seem to distinguish.

The account of the object of belief that I want to defend faces this tension in a particularly acute form. Theoretical considerations, I have argued, motivate a coarse-grained conception of informational content, a conception that individuates contents in terms of their truth conditions.[2] Such a conception of content is appropriate both to solve philosophical problems about the nature of intentionality, and to give an adequate characterization of the capacities that a science of cognitive processes seeks to explain. But the assumption that sentential clauses in belief attributions refer to coarse-grained informational contents — contents that are identical if they are necessarily equivalent — seems to have consequences that are obviously false. It is obvious that anyone who is less than deductively omniscient will fail to believe everything necessarily equivalent to what he believes.

We need three assumptions to get a particular case of this kind of conflict: first, we need to assume the general account of objects of belief that says that necessarily equivalent objects of belief are identical. Second, we need to assume that some specific sentences P and Q are necessarily equivalent. Third, we need the intuitive judgment that it is possible to believe that P while disbelieving that Q. The most common response is to take the examples to refute the general account. The main burden of this response is to give and motivate some alternative theoretical account. A second more heroic response is to reject the intuitive judgments about beliefs, arguing that we don't really believe what we seem to believe. The main burden of this response is to explain away the appearances. My strategy will be different from both of these. I will question the second assumption, that sentences that appear to be necessarily equivalent really are, in the relevant context, equivalent. There is, I will suggest, more complexity and flexibility — and more context-dependence — in the relationship between sentences or sentential complements and the propositions they express or denote. Sentences necessarily equivalent in one context may be only contingently equivalent in another.

The task of defending the coarse-grained conception of informational content is a large one; in this paper I will concentrate on only a small part of it. I will adopt, as a working hypothesis, the hypothesis that objects of belief are individuated by their truth conditions, as represented in the possible worlds framework, taking for granted the theoretical considerations that motivate this conception of content. Thoughts or propositions, I will hypothesize, are functions from possible worlds into truth-values. My task will be to sketch a general strategy, and some particular devices,

for reconciling this conception of content with the phenomena concerning belief attribution.

The examples I will focus on will be examples of necessary and impossible propositions, since this is where the apparent divergence between theory and fact becomes most dramatic. That is, I will focus on examples of statements of the form *x believes that P* or *x wonders whether P* that are problematic in the following way: on the one hand, straightforward and well-motivated semantical rules imply that the complement, *that P*, denotes a necessary truth or a necessary falsehood; on the other hand, the complement seems intuitively to denote a possible object of belief or doubt. Given our working hypothesis, necessary truths and falsehoods are not possible non-trivial objects of belief or doubt, so there is a prima facie conflict in such an example. My strategy for discovering a resolution of the conflict will be this: first, ignoring the semantical rules for a moment, try to characterize a context for the belief statement and a *contingent* possible-worlds proposition defined on that context that seems intuitively to be what the statement says that the believer believes. If one can do this, it is plausible to conclude (given our working hypothesis) that that proposition is the one denoted by the sentential complement. Now comes the second and the harder part of the problem: to find a systematic way of connecting the proposition that the belief statement seems to be saying the agent believes with the semantical rules for the sentential complement that seems to be expressing that proposition; that is, to find a systematic explanation for the fact that the complement denotes, in that context, that proposition.

For example, suppose we begin with the statement *O'Leary believes that Hesperus is Mars*. Our semantical theory tells us that the proposition *that Hesperus is Mars* is necessarily false — true in no possible world. Yet clearly we can easily imagine a story in which the belief attribution seems intuitively to be true. The first task, according to the strategy I will follow, is to try to tell such a story in the language of the possible worlds framework. To do this, we ask, is there a way the world might be such that to believe that Hesperus is Mars is to believe that the world is that way? If so, then we can characterize a contingent proposition — the one that would be true if and only if the world were the way O'Leary thinks it is — that seems to be the content of O'Leary's belief. Then we can go on to attack the second, harder question: how is it possible for the expression, *that Hesperus is Mars* to denote the contingent proposition that our intuitive inquiry tells us it must denote? If we can show how to provide

answers to these two kinds of questions — answers that generalize to cover all the standard problematic examples — then, I think, we will have reconciled our working hypothesis with the phenomena concerning attributions of belief.

The same strategy can be applied to a simpler but parallel problem. Consider, not belief attributions, but simple assertions; not *O'Leary believes that Hesperus is Mars*, but O'Leary's assertion, *Hesperus is Mars*. The problem, in the case of this example at least, is essentially the same: given our hypothesis, there is a conflict between the theoretical conclusion that the assertion expresses a necessary falsehood and the intuitive judgment that the assertion conveys a coherent, if incorrect, piece of information. To resolve the conflict, we need to answer two questions corresponding to the two questions asked about the belief example: first, what contingent proposition seems to represent the information conveyed? Second, how can that sentence convey that information?

I will look first at the assertion question, which I have discussed in more detail elsewhere,[3] since it is easier, and it should help answer the question about belief. It should help because it is natural to assume that the information O'Leary conveys when he says *Hesperus is Mars* is the same as the information that is the belief content reported in the statement *O'Leary believes that Hesperus is Mars*. And it is also natural to assume that the explanation of how that assertion can convey that information will correspond to an explanation of how the belief attribution can attribute that belief. But the parallel is not perfect; there are some additional problematic features of belief contexts, and a solution to the assertion problem will take us only part of the way toward a solution to the problem about belief.

To help characterize assertions and their contexts, I will need to introduce and explain a piece of descriptive apparatus: the notion of a *propositional concept*. I will first define this notion in the abstract; second, I will say how I want to apply this notion to the description of assertions in context; third, I will contrast the notion of propositional concept with a different semantical notion with which it has been sometimes confused. This contrasting notion is formally somewhat similar, but plays a quite different role in the explanation of linguistic phenomena.

A propositional concept is a function from possible worlds into propositions. Since, on our working hypothesis, propositions are themselves functions from a domain of possible worlds, a propositional concept may be thought of as a two-dimensional proposition. If, for purposes of exposition, we assume a small finite number of possible worlds, we can

represent propositions by simply enumerating the truth values for the different possible worlds. For example, if i, j, and k are the relevant possible worlds, the following represents a proposition:

i	j	k
T	F	T

To represent a propositional concept in an analogous way, just write a line of truth values like this for each possible world as follows:

	i	j	k
i	T	F	T
j	F	T	T
k	F	T	F

Each horizontal line represents the value of the propositional concept for the argument written to the left of that line.

To see how propositional concepts are applied to the description of assertions in context, recall two simple and, I hope, uncontroversial facts. First, acts of assertion (and all other speech acts) are performed in a context in which certain information is taken for granted as the presumed common background against which the speech act is interpreted. Second, among the items of information taken for granted or presupposed in this way by the speaker will be the proposition that the act of assertion itself is taking place. Now we can represent the presumed background information as a set of possible worlds — the possible worlds compatible with the background information. This set of alternative possibilities is the set of possible situations between which the speaker intends to distinguish with his speech acts.

In terms of this representation of the presumed background information, the second of the uncontroversial facts mentioned above comes to something like this: in every possible world that is compatible with the background information the assertion in question is taking place. When O'Leary says *the cat is on the mat*, he is speaking not only in the actual world but also in all the other possible worlds compatible with the beliefs, presumptions and presuppositions of those who believe, presume, or presuppose that O'Leary is speaking. In particular, he is speaking in all those possible worlds compatible with the background presuppositions that O'Leary himself is making as he speaks.

Given these facts, it follows that when someone makes an assertion, his words determine not only a proposition, but a propositional concept, rel-

ative to the possible worlds compatible with the speaker's presumed background information. We can describe various features of the speech situation, and state various constraints on the relation between assertions and their contexts, in terms of the properties of the propositional concept determined in this way. For example, some propositional concepts will be constant relative to the context, and others will not be. If the point of an assertion is to convey the information contained in the proposition expressed, then it is clear that an appropriate assertion will determine a constant propositional concept.

Now let me contrast propositional concepts with a different two-dimensional semantical object: what David Kaplan, in his work on demonstratives, has called *character*.[4] Characters are like propositional concepts in that they are functions from something into content, where content is, or determines, a function from possible worlds into truth values. Thus character, like propositional concept, suggests a two stage process of semantic evaluation. But the arguments of Kaplan's character functions are (or may be) different from the arguments of propositional concepts, and they play a different role in semantic description and explanation.

In Kaplan's theory of demonstratives, a *context* is represented by an index — an n-tuple that specifies all the features of the situation in which a discourse takes place on which the content of the expression of some specific pragmatic language might depend. For example, if the language contains tenses, the content of some sentences will depend on time of utterance, and so one element of the index must be a time; if the language contains first and second person pronouns, the content of some sentences will depend on who is speaking, and to whom, so the index must have places specifying a speaker and an addressee. The semantical rules for such a language will assign to the sentences a function from indices into propositions; these functions are the characters of the sentences to which they are assigned. So, for example, the character of *I love you* might be a function taking an index, $\langle a,b,t \rangle$ into the proposition that is true (in a given possible world) if and only if a loves b at time t in that world.

So a character is a kind of meaning: it is associated by the semantic theory of a specific language with expression *types*. Sentences have the content they have, in a given context, *because* they have the character they have. In contrast, a propositional concept is not a kind of meaning, and is not associated with expression types of a language by the semantic theory for that language. Propositional concepts are determined by particular utterance *tokens* and their contexts. The same sentence type, with the

same meaning, used in different contexts may determine different propositional concepts. And utterances don't have the content they have *because* they determine a certain propositional concept. This gets things backwards. Rather, an utterance determines a certain propositional concept because it has the content it has in the various possible worlds in which that particular concrete utterance token exists.

Not only is a propositional concept not a meaning, it is not even a function of the meaning of the sentence whose utterance determines it. To determine the relevant propositional concept, one needs to know, not only what the sentence used in fact means — what it means in the actual world — but also what it means in the various alternative possible worlds in which the utterance takes place. Since meaning may vary from world to world, an eternal sentence (a sentence that, in Kaplan's terminology, has constant character) may determine a variable propositional concept, and may determine different propositional concepts on different occasions of use.

So, despite some superficial similarities, character and propositional concept are quite different notions. They belong to different theories — theories that are applied at different stages in the explanation of speech. And they are not competing notions: neither can do the job that the other was designed to do.

Now with the notion of a propositional concept at hand to help us describe the situation, let us apply the strategy outlined above to the assertion problem. Consider O'Leary's assertion, *Hesperus is Mars*. If we approach the question, "What is O'Leary saying?" not by asking about the semantical rules for the sentence O'Leary is using, but instead by asking what the world would be like if what O'Leary seems intuitively to be saying were true, then an answer is not hard to find. There are possible worlds that resemble the actual world with respect to the way the heavens appear to the untrained eye, but in which the solar system is quite differently arranged. The solar system in these worlds has the same planets as our world has, and they have the same names. But in these counterfactual worlds, Mars appears in the evening at the very place where Venus in fact appears, and it has quite the same appearance as Venus in fact has (at least to the untrained eye). Ancient astronomers in these worlds called this planet that appears in the evening (not of course knowing that it was a planet) by a name from which descends the name *Hesperus* — a name used by the modern English speakers of these counterfactual worlds to refer to that planet.

Now a man like O'Leary, who has the superficial knowledge of the solar system that most of us have, and who is inclined sometimes to misremember what he has read or heard, might well believe that a world of the kind I have described is the actual world. If he did believe this, he might express his belief by saying "Hesperus is Mars." And if he did say this, I think we would all conclude that he was saying that the world was something like the world I have described.

Call the actual world *i* and some representative from the class of counterfactual worlds I have described *j*. The conclusion I am claiming we all should reach is that the content of O'Leary's assertion seems to be the contingent proposition that is false at *i* and true at *j*.

Now let us look at the semantical rules for the sentence *Hesperus is Mars*. Both *Hesperus* and *Mars* are proper names. Suppose Kripke has convinced us all that proper names are rigid designators — singular terms that refer to the same individual relative to all possible worlds. Assume also that *is* expresses identity in this context. From these assumptions, together with the assumption that Hesperus is, in fact, distinct from Mars, it follows that the content of O'Leary's assertion is the proposition that is necessarily false — false even at *j*, the possible world that is the way O'Leary seems to be saying that the world is. So the results of applying otherwise well motivated semantical rules conflict with our holistic intuitive judgment.

To resolve the conflict, let us look not just at the proposition determined, but at the whole propositional concept: ask not just, what does *Hesperus is Mars* say (according to the semantical rules) — what is its truth value at various alternative possible worlds — but also what *would* it say if it were said in various alternative possible worlds. If we consider just the two possible worlds I have labeled *i* and *j*, the propositional concept is this one:

	i	*j*
i	F	F
j	T	T

In *j*, "Hesperus" rigidly designates Mars, and so the sentence *Hesperus is Mars* expresses (according to the semantical rules we are assuming) the necessary truth.

Note that while neither of the horizontal propositions that make up this propositional concept is the contingent proposition that O'Leary seems to be expressing, there is a proposition determined by the propositional con-

cept that is the intuitively right one: this is the *diagonal proposition* — the one that for each possible world is true if and only if the horizontal proposition expressed in that world is true at that world. This suggests the following hypothesis: *Under certain conditions, the content of an assertion is not the proposition determined by the ordinary semantical rules, but instead the diagonal proposition of the propositional concept determined.* To make this hypothesis precise, we need only spell out the conditions under which the operation is to be performed. I have tried to go some way toward doing this in the paper referred to in note 3. The general strategy is a Gricean one:[5] there are various independently motivated pragmatic maxims governing discourse. When a speaker seems to be violating one of these in a blatant way, a cooperative conversational strategy may require that the addressee reinterpret what is said in a way that makes it conform to the maxims. One way to reinterpret — a way that is appropriate to the violation of a particular pragmatic maxim — is to diagonalize: to take the assertion to express the diagonal proposition of the propositional concept determined by the utterance and its context. This operation yields intuitively plausible results, and it helps to reconcile semantical rules that work well in most contexts with apparently recalcitrant phenomena.

I want to turn now from the assertion problem to the problem about belief. The main problem concerns the way beliefs are attributed to others: that is, it concerns the relationship between the sentential complement used by a speaker to attribute a belief to someone and the proposition that the subject of the attribution is said to believe. But let us look first at belief from the believer's point of view. Propositional concepts can help us to understand the relationship between the content of a belief and the way that a believer might represent his belief to himself. Imagine O'Leary, not asserting anything about the solar system, but just thinking about it. He might be out on a clear evening, looking up at that so-called star he has seen so often, thinking to himself, *that's Mars*. The content of that thought is obviously something like the contingently false proposition described above. An hypothesis similar to the one sketched above for the assertion example will explain how that mental event — that act of thought — can have that content.[6]

Finally, let us look at belief attribution: statements of the form *x believes that P*. There is an additional problem that arises here, a problem that prevents us from simply generalizing, in a mechanical way, the explanation of the problematic assertions to an explanation of problematic attributions of belief. The problem arises from the following difference between the

assertion case and the belief attribution case: in the case of assertion, the speaker — the person who chooses the words to be uttered — is the same person as the one whose attitudes the words are chosen to express. We have only one point of view to contend with — that of the speaker. But in the belief case, the speaker's point of view will normally be different from that of the subject to whom the attitude is attributed. The subject's language, if any, may be different from the speaker's; the background information against which the speaker's utterance is to be evaluated may be very different from the information that might be exploited by the subject whose belief is described in the utterance. So the means available to the subject for putting his belief into words might be very different from the means available to the speaker.

This contrast between the points of view of speaker and subject affects the possibility of the diagonalization explanation in belief attribution cases because it makes it difficult to construct an appropriate propositional concept, and difficult to generalize about when a sentential complement should be interpreted by a diagonal proposition. In the assertion case, it is relatively clear how a sentence determines a propositional concept, relative to the possible worlds compatible with the presuppositions of the speaker. It is clear because of the fact that it will be presupposed by the speaker (that is, it will be true in all possible worlds compatible with the speaker's context) that the utterance event is taking place. But to extend the kind of explanation I am proposing to the belief attribution case, we need to define a propositional concept not just for the possible worlds compatible with the presuppositions of the speaker, but also for the possible worlds that are, or might be, compatible with the beliefs of the subject of the attribution.[7] When the beliefs of the subject are very different from the presuppositions of the speaker, it is not always obvious how this is to be done.

Consider the example with which we began: *O'Leary believes that Hesperus is Mars*. Suppose this is said by Daniels to me. Of course Daniels and I both know that Hesperus is Venus, and not Mars. There are no possible worlds compatible with the background presuppositions of *our* conversation in which the solar system is arranged so that Mars appears where Venus in fact appears in the evening. And O'Leary — the subject — is not participating in our conversation, and does not know about it. We cannot ask, what proposition the complement of Daniels' statement about O'Leary expresses in each of the possible worlds compatible with O'Leary's beliefs. We cannot ask this since that statement does not exist

in all of those possible worlds. Nevertheless, if required to extend the propositional concept, to define it for those possible worlds, it is intuitively pretty clear, at least for this example, how we should do it. We ask something like the following question: If Daniels were to utter the sounds he is uttering in a possible world compatible with O'Leary's beliefs, what would the content of those sounds be? If the solar system were arranged so that Mars appears in the evening where Venus in fact does, then Daniels and I, as well as O'Leary, would use the name *Hesperus* to refer to Mars. And so, according to the semantical rules in that world, Daniels' sentential complement, *that Hesperus is Mars*, expresses a necessary truth. If we extend the propositional concept in this way, defining it for the situations that might, for all Daniels and I are presupposing, be compatible with O'Leary's beliefs, then the diagonal of that propositional concept will be the proposition that seems, intuitively, to be the one O'Leary is said to believe.

What if O'Leary speaks some language other than English? That will make no difference to the explanation, so long as he has some acquaintance with Venus as it appears in the evening, either through having seen it, or through having acquired some name that denotes Venus because Venus appears where it does in the evening. The propositional concept we construct is the one not for the sentence as O'Leary would use or understand it, but for the sentence as the speaker and addressee would use and understand it if they were in the possible worlds relative to which the propositional concept is being defined. Because *our* name *Hesperus* would denote Mars if the solar system had been differently arranged in a certain way, *we* can use the clause *that Hesperus is Mars* to refer to the proposition that the solar system is differently arranged in that way.

O'Leary's belief about Hesperus and Mars is a belief about the solar system, and not a belief about the English language. But the diagonalization explanation will also work for cases where the belief in question is a linguistic belief, expressed in the material mode. Consider this example, adapted from an argument of Alonzo Church and discussed by Tyler Burge[8] *Alfred believes that a fortnight is a period of ten days*. It is intuitively clear that if what this statement says is true, then in possible worlds compatible with Alfred's beliefs, *fortnight*, in English, means *period of ten days*. The proposition Alfred is said to believe, it seems plausible to suppose, is the one that is true in possible worlds with that rule of English, and false in others. That proposition is the diagonal of the appropriate propositional concept.

Church, in his discussion of a related example, notes the failure of a translation test.[9] Whatever the example sentence says, it is clear that its translation into German cannot say the same thing. German has no word for *fortnight*, so the German translation of that word would have to be the same as the translation of the phrase *period of fourteen days*. Church, as I understand him, uses this failure to argue for the conclusion that the example sentence does not succeed in saying what it seems to be saying. It ought, Church suggests, to be reformulated in explicitly metalinguistic terms. But we can explain the failure of the translation test without drawing this conclusion. According to the kind of account I am suggesting, belief attributions are, in cases requiring diagonalization, highly context dependent. Translation into another language will alter the possible contexts of use for a sentence, and may do so in ways that affect the possible interpretations of the sentence. In the example sentence, it is essential to the context of use that the language being spoken be English, and this is why translation into German yields a sentence that cannot be used to say what the English sentence says.

Of course we do not always diagonalize, and where we do not, we can use language and concepts not available to the subject to attribute belief. If Alfred believes that Bernard will be gone for fourteen days, we can truly say *Alfred believes that Bernard will be gone for a fortnight*, whatever Alfred's beliefs about the word *fortnight*. We can also, in *de re* or relational belief attributions, use referring expressions not available to the subject. So, for example, if O'Leary and I can see that there is one and only one man in the room wearing a faded denim leisure suit, and if that man is in fact van Fraassen, and if Daniels believes that van Fraassen is a spy, then I can truly say to O'Leary, *Daniels believes that the man in the faded denim leisure suit is a spy*, even if Daniels is not present, and does not know that van Fraassen even owns a faded denim leisure suit.

The situation gets slightly more complicated with examples that are *de re* belief attributions, but that also require diagonalization. Consider the following examples borrowed and adapted from a paper by Bas van Fraassen.[10] *Daniels believes that the man in the faded denim leisure suit is Kaplan* (said by me to O'Leary in circumstances like those described above), and *Daniels believes that I am Kaplan* (said by van Fraassen). What would the world be like if the belief that these statements seem to attribute to Daniels were true? (I assume that both statements attribute the same belief to him.) It would be a world in which Daniels' use of the name *Kaplan* — the particular use that in fact refers to David Kaplan,

Professor of Philosophy at UCLA and author of a monumental but still unpublished manuscript on demonstratives — referred instead to Bas van Fraassen. That is, it would be a possible world in which the correct historical explanation of Daniels' use of the name *Kaplan* (in cases where *in fact* it refers to David Kaplan) involves, in the relevant way, van Fraassen instead of Kaplan. We will get the proposition that is true in just those possible worlds if we diagonalize the propositional *function* concept for the predicate *being Kaplan*, and then predicate the result of van Fraassen. In this way, we can apply the diagonalization strategy to *de re* or relational belief attributions as well as to *de dicto* or notional attributions.

It is interesting to compare these last two examples with examples obtained by reversing subject and predicate in the complements. *Daniels believes that Kaplan is the man in the faded denim leisure suit*, and *Daniels believes that Kaplan is I*. Despite the symmetry of identity, these sentences seem clearly to say something different from the ones they were derived from. I think the first would normally be appropriate only if Daniels were present, and true only if he were aware of someone wearing the outfit described. I am not sure what the second sentence would be trying to say.

The procedure I am proposing for extending propositional concepts so that the diagonalization strategy can be applied to problematic belief attributions takes examples case by case. It is not, as yet, very satisfactory if we are looking for a systematic way to explain why the complements of belief attributions denote the propositions that they seem to denote. But if, using this procedure, we can find a possible worlds proposition that is a plausible candidate to be the object of belief being attributed in the various problematic examples, then we will at least have a good way of answering the first of the questions that our working hypothesis suggested that we ask. That is, if we can do this, we will be able to reconcile the hypothesis with the phenomena by finding possible worlds propositions for the recalcitrant examples. And it will not be completely mysterious how these propositions can be expressed by the sentences that seem to express them.

NOTES

1. An earlier version of this paper was written while I was a National Endowment of the Humanities Fellow at the Center for Advanced Study in the Behavioral Sciences in Stanford. I am grateful to both institutions for support.
2. In *Inquiry* (Cambridge, MA, Bradford Books, 1984).
3. "Assertion," in Peter Cole (ed.), *Syntax and Semantics* 9 (New York, 1978), 315-332.

4. David Kaplan, *Demonstratives: An Essay on the Semantics, Logic, Metaphysics and Epistemology of Demonstratives and Other Indexicals* (privately circulated manuscript, draft #2, 1977), 24-27. For a briefer but published discussion, see David Kaplan, "On the Logic of Demonstratives," *The Journal of Philosophical Logic*, 8 (1979), 81-98.
5. See for example, H.P. Grice, "Logic and Conversation," in D. Davidson and G. Harman (eds.), *The Logic of Grammar* (Dickenson: Encino, CA, 1975).
6. In "Indexical Belief," *Synthese*, 49 (1981), 129-151, I consider in more detail some now familiar problems concerning belief from the believer's point of view, applying the diagonalization strategy to them.
7. The possible worlds compatible with what the speaker presupposes define the basic context for the interpretation of the speaker's speech act. In the case of a belief attribution, the possible worlds that may, for all the speaker presupposes, be compatible with what the subject of the attribution believes define what I have called the *derived context*. This is the context relative to which the sentential complement is interpreted. In "Belief Attribution and Context" (forthcoming in the proceedings of the 1985 Oberlin Colloquium) I argue that some of the same pragmatic maxims that constrain the relation between speech acts and basic contexts will constrain the relation between content attribution clauses and derived contexts.
8. Tyler Burge, "Belief and Synonymy," *Journal of Philosophy*, 75 (1978), 119-138.
9. Alonzo Church, "Intensional Isomorphism and Identity of Belief," *Philosophical Studies*, 5 (1954), 65-73.
10. See B.C. van Fraassen, "Propositional Attitudes in Weak Pragmatics," *Studia Logica*, 38, 365-374. This is a descendant of an unpublished paper that suggested these examples.