MARK RICHARD

SEMANTIC COMPETENCE AND DISQUOTATIONAL KNOWLEDGE*

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Many have thought that some sort of disquotational knowledge is central to semantic competence. For example, some have said that knowing (what's said by)

(1) A use of 'some roses are red' is true iff some roses are, at the time of the use, red.

constitutes understanding 'some roses are red.' Others have focused on propositions or what is said. They suggest that knowing (what's said by)

(2) A use of 'some roses are red' at time *t* says that (or: expresses the proposition that) some roses are, at *t*, red.

constitutes understanding the sentence.

Both Higginbotham and Soames discount the importance of disquotational knowledge to semantic competence. Higginbotham allows that knowing what (1) says is necessary for understanding 'some roses are red.' But to have disquotational knowledge, he says, is not to know very much: To know general syntactic facts and that 'red' is an adjective suffices to know that 'red' refers to the red things. But knowing syntax and knowing that 'red' is an adjective is not understanding 'red'. In a forerunner to his contribution to this symposium,[1] Soames argues (roughly put) that all that is needed for the truth of

(3) Benji knows that 'mathematics reduces to logic' expresses the proposition that mathematics reduces to logic.

is that Benji know *of* the sentence and the proposition that the one expresses the other. But knowing this does not require understanding the sentence.

I think disquotational knowledge to be an achievement, one intimately related to semantic competence. I will defend the significance of

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disquotational knowledge against Higginbotham and Soames. Along the way I'll say some things that bear on their positive proposals about the nature of semantic competence.

1. Higginbotham holds that linguistic competence consists in having propositional knowledge of three sorts. [A] Knowledge of syntactic facts. Such knowledge includes (among English speakers) knowledge of such things as that 'red' is an adjective, and 'rose' is a noun, as well as a more general knowledge of syntax. According to Higginbotham, someone who has a general knowledge of English syntax and knows that 'red' is an adjective knows a lot about the word 'red'. He knows, for instance, where it can and cannot appear in sentences, and knows many of its broadly logical properties. Indeed,

> if I merely know that 'red' is an ordinary adjective, I know that it is true of the red things (whatever they are) and nothing else.[2]

[B] Knowledge of facts that elucidate or describe the meanings of lexical items. [C] Knowledge that the facts alluded to in [A] and [B] are things that "other people know and are expected to know", as well as knowledge that there is a general expectation that all have such general expectations, and so forth.

Earlier work suggests an argument for Higginbotham's view of disquotational knowledge. [KR, 154—7] As I reconstruct it, its critical premisses are two:

SK: Suppose someone is led to accept a disquotational claim about reference, say

(4) 'gamboge' names the gamboge things,

on the basis of general knowledge of syntax and knowledge about syntactic categorization — here, that 'gamboge' is an adjective. Then this person's acceptance of (4) constitutes a state of propositional knowledge.

ARC: Those with incomplete understanding of an expression *e*, even those with only the sort of knowledge of *e* alluded to in SK, can use *e* to refer to its conventional referent and have the concept conventionally associated with *e*.

It is not hard to see how one might conclude that knowing that 'gamboge' is an adjective suffices for knowing that 'gamboge' refers to the gamboge things, given SK and ARC. For the first makes it plausible that the learner expresses something known with (4), while the second makes it plausible to say that the knowledge thus expressed is the knowledge that would be conventionally expressed with the sentence.

SK, I take it, is justified in terms of the etiology of the acceptance as well as by the role the acceptance in reasoning and the production of behavior. The learner comes to accept (4) when (and only when) she knows that 'gamboge' is an an adjective — so she knows that it is (4) that should be accepted, not one of

(5) 'gamoboge' names the gamboges

(6) 'gamboge' is true of the things that gamboge.

Her acceptance will have a causal role that makes it a state of belief. It is thus caused by states that count as knowledge in a knowledge making way; it has the psychological role that a state of belief or knowledge ought to have. So we should say it is knowledge, even if we differ as to what it's knowledge of.

ARC, I take it, is defended by appeal to our intuitions about the ability to refer and our practices of ascribing beliefs and the possession of concepts:

> Our words do refer . . . even when our knowledge of reference is incomplete. Moreover . . . incomplete understanding does not even prevent attribution of the same *concept* to the ignorant as to the learned. [KR, 155]

Higginbotham offers as example poor Putnam, whose "lexical entries for 'elm' and 'beech' do not discriminate their reference," but who can refer to and think about the trees nonetheless. Analagous is the learner who knows syntactic facts, but has gotten only to the stage of syntactic categorization with 'gamboge'. Certainly she *says* that Daddy's tie is gamboge when she utters 'Daddy's tie is gamboge', she *wonders* whether the dog is gamboge when she asks 'Is the dog gamboge?'.

So I imagine Higginbotham to have arrived at his view. I think something has gone awry. What is known by someone who knows that many orchids are gamboge is not trivial. Someone who knows only

syntactical facts and what we might call facts of co-application — that in population *P*, expression *a* is true of such and such a quantity (some, many, most, all, . . .) of the things of which expression b is — does not thereby know that most orchids are gamboge. Someone who knows what's said by

(7) 'gamboge' is an adjective

(8) 'orchid' is a noun

(9) Many of the things of which 'orchid' is true are things of which 'gamboge' is true.

and the facts of English syntax does not thereby know that

(10) Many orchids are gamboge.

Consider however,

(7′) 'gamboge' refers to the gamboge things

(8′) 'orchid' refers to the orchids

(9) many of the things of which 'orchid' is true are things of which 'gamboge' is true.

The inference from (7′), (8′), (9) to (10) is valid. So there is a road from the knowledge expressed by (7), (8), and (9) to that expressed by (10), if Higginbotham's view is correct. One infers the primed sentences from the unprimed sentences, and then infers (10). Appeal to SK makes it plausible that the state achieved is knowledge; ARC tells us that one has the concepts associated with the vocabulary in one's inferences. We conclude that in virtue of one's reasoning one knows that many orchids are gamboge.

Higginbotham will not disavow the consequence. He will repeat that we unhesitatingly say that the child just learning 'gamboge' *says* that Daddy's tie is gamboge, and *wonders* if the car is gamboge, given that the child uses sentences involving the word appropriately and with syntactic knowledge. So why shouldn't the child, if she knows her parents speak truly when they utter 'most orchids are gamboge', be said to express knowledge herself, when she apes their speech?

Confronted with such an argument, we should first note that we can coherently give different answers to the questions

Are the naive able to refer with expression '*e*'?
Are the naive in possession of the concept *e* — that is, do they have beliefs ascribable using '*e*'?

One can coherently say that reference is thoroughly unindividualistic, while the possession of concepts is not so thoroughly unindividualistic.

Suppose that we accept the familiar picture of reference as being determined by historical connections and by the theories held and tests acknowledged by a linguistic community. The contribution of the individual to the reference of his terms in the first instance need not extend too much further than whatever it is that makes him a participant in the community of speakers. Someone who acknowledges, explictly or otherwise, the community's authority with regard to what the orchids and the gambogia are — which is what we would expect to be true of he who recognizes 'orchid' and 'gamboge' to be noun and adjective of the ambient language — is thus connected to the society's linguistic support system. And thus the naive can refer.

But even if content and thought are socially determined, and determined by many of the same things that determine reference, it doesn't follow that they are determined in just the same way, or that the individual makes no more contribution to her possession of a concept that she does to her ability to refer. To admit that the child *said* that the tie is gamboge, when she assertively uttered 'the tie is gamboge' is not the admit that she *thought* that the tie was gamboge; to admit that she asked whether the flower was gamboge in uttering 'is the flower gamboge?' is not the commit oneself to the ability of the naif to hold the full range of attitudes involving the concept *gamboge*. I suggest that nothing forces us to accept ARC, and that we have good reason to reject it, since it threatens to trivialize ascriptions of knowledge.

What of the claim that ARC is supported by common usage, by the way we actually go about ascribing concepts, beliefs, and knowledge to people? Isn't ARC supported by the fact that we are willing to ascribe knowledge to a person like Putnam about beeches, though he has an absurdly impoverished concept of the beech?

I think not. Among the things Putnam knows is that 'beech' names a tree. Putnam's knowledge about trees goes far beyond the knowledge that 'tree' is a noun. Presumably he can individuate trees, and has linked that ability to the word 'tree'. If you say to Putnam 'Bring me a tree', he will (if he is willing and so forth) almost surely bring you a *tree*, not a tiger, or a lemon, or a slab. He can describe typical trees and presumably has a fair amount of general tree theory under his belt.

This bears on Putnam's *beech* concept, and on ARC, as follows. If we were told that Putnam had none of the abilities or knowledge of trees I just mentioned, and we had no picture of some other tree-relevant knowledge or abilities of his, we would reject the claim that he had the concept *tree*, or that he had any beliefs involving it. And if we rejected *that*, then, I think, we would reject that claim that he had the concept *beech* or any beliefs involving it. More broadly, even though Putnam does not have anything that resembles an ability to individuate or define beeches or 'beech', his beech-relevant knowledge and abilities transcend — and transcend by a lot — mere syntactic knowledge. I think this sort of story is quite generally true, and thus I think that common usage gives no comfort to ARC.

A possible fallback position for Higginbotham is one on which (a) while accepting (4) constitutes having a belief, given that one accepts it as a result of syntactic knowledge, (b) such acceptance does not constitute having the belief that 'gamboge' refers to the gamboge things; one must also accept enough sentences expressing ambient stereotypical beliefs about gamboge things, or enough sentences elucidating the meaning of 'gamboge'.

If the fallback insists that this could suffice for knowledge independently of *any* "hands on" ability to come up with referents for any of the vocabulary in the sentences accepted, then, I think, the view is liable to the line of objection lodged above. If, on the other hand, it is acceded that beyond accepting the sentences, one needs to have some of the sorts of abilities mentioned above in connection with 'tree', I am not sure I have a serious objection to the view. But now disquotational knowledge is not at all trivial; in fact, it begins to seem plausible that it is central to semantic competence.

I am also not sure that I see the "real clash" with Soames' view that Higginbotham claims, given that Higginbotham adopts a reasonable

fallback position. Higginbotham's view is that satisfying conventional standards of use (for expression *e*) depends upon and is posterior to knowledge of (*e*'s) reference. Soames' view is that knowledge of reference often arises only concurrently with or after linguistic understanding, which itself requires that one satisfy conventional standards of use. These standards typically involve identificatory and other practical abilities of the sort alluded to above.[3] Suppose Higginbotham accedes that knowledge of reference generally requires knowledge that itself requires practical abilities central to conventional standards of use. The clash evaporates, for now both agree that a fair amount of the time knowledge of reference and semantic competence depend upon satisfying conventional standards of use.

I end this section with a comment on Higginbotham's account of semantic competence. He argues that it satisfies what we might call the Forster-Soames criterion for propositional accounts of semantic competence: If a correct account says that knowing *p* suffices for understanding *L*, then a rational, careful knower of *p* will not be such that for some sentence *s* of *L*, he has beliefs, but not true beliefs, as to the (exact) meaning of *s*.

Higginbotham grounds linguistic competence in common knowledge about common knowledge about reference; he holds that this allows his view to past the test. Thus consider the Italian Gianni. His competence is partially constituted by his knowing

(11) One is expected to know that 'Firenze è una bella città' is true for one iff Florence is a beautiful city.

Further:

> To complete the picture, we have to add that Gianni knows that one is not in general expected to know about the incompleteness of arithmetic. Thus [(11)] is the strongest thing that one is expected to know about the truth conditions of the sentence in question.[4]

The extra knowledge Higginbotham would add to (11) is not specifically about incompleteness. Gianni could be completely competent in Italian without knowing that people in general do not believe there is a connection between the truth of a sentence about Florence and arithmetic's incompleteness. The extra knowledge is quantificational, along the lines suggested by

(12) The proposition that Florence is a beautiful city is the one and only proposition one is generally expected to know is true iff 'Firenze è una bella città' is true.

where 'one is generally expected to know *S*' is here understood as 'any competent Italian speaker expects (and knows) that all competent Italian speakers know that *S*.' The reference to competent speakers is necessary: No one expects *everybody* to have the sort of knowledge in question.

The strategy is to claim that (11) and something like (12) are known by competent speakers of Italian, that such speakers have a general knowledge and expectation that other competent Italian speakers will know these things, etc. Presumably, someone who knows these things and is rational and careful won't think that the Italian sentence means that Florence is pretty and arithmentic is incomplete, because one is supposed to know, if one knows anything at all about meaning, things of the form of

(S) if '*S*' means that *T* in the language of a population, then it is common knowledge in the population that '*S*' is true iff it is the case that *T*.

You might think this proposal will not work because one could know things like (12) but still think that perhaps the Italian sentence said something about arithmetic. If I have interpreted Higginbotham aright, this objection can be met. However, Higginbotham's view requires that we ascribe to competent speakers beliefs that they do not have to have in order to be competent speakers. As I understand the position, it is the addition of the following to what Gianni knows (and thus believes) that insures passing the Forster-Soames test:

(12′) The proposition that Florence is a beautiful city (Flo, call it) and it alone is such that for any competent Italian speaker *x*, *x* expects and knows that every competent Italian speaker knows that Flo is true just in case 'Firenze è una bella città' is true.

I think a competent Italian speaker could disbelieve this. In fact, I think a competent Italian speaker could think that all competent Italian

speakers knew that propositions other than Flo were correlated with the truth of the Italian sentence. If I am right, then (12′) need not even be true, though there are plenty of competent speakers of Italian.

In explaining how this might be so, let us switch to examples in English. Suppose Joe has a mildly inflated opinion of the logical abilities of competent English speakers. Joe thinks that every competent speaker knows and knows others know

(13) (All cats have fleas, and Jenny is a cat) iff (all cats have fleas and Jenny is a cat and Jenny has fleas).

Because he believes this, he thinks all speakers fully competent in English know and expect known

(13′) 'All cats have fleas and Jenny is a cat' is true iff all cats have fleas, Jenny is a cat and Jenny has fleas.

But then Joe will deny

(13″) The proposition that all cats have fleas and Jenny is a cat is the one and only proposition such that for any competent English speaker *x*, *x* expects and knows that all competent English speakers know that 'all cats have fleas and Jenny is a cat' is true iff it is true.

If Joe consciously rejects this, then, I would say, Joe does not know that this is true. But rejecting (13″) needn't be coupled with a lack of linguistic competence. As I see it, you could deny (13″) because you thought that English speakers had a modicum of logical acumen, but think nonetheless that 'all cats have fleas and Jenny is a cat' *says* that all cats have fleas and Jenny is a cat. If so, and all else were equal, you would be linguistically competent.[5]

Here is a slightly different point. Joe might hold a false theory about competence, but still himself count as competent. He might, for instance, think that competent speakers were supposed to know that if *p* is true, then the conjunction of *p* and the proposition that 1 = 1 is true. Thinking that competent speakers are supposed to know this, he might come to think that all competent speakers knew and expected known that all competent speakers know that 'roses are red' is true iff the proposition that roses are red and 1 = 1 is true. While Joe's

opinions should, perhaps, bar him from teaching a course about linguistic competence, they should not, I think, bar him from being held to be competent.

Higginbotham's view is one that requires that competent *L*-speakers in effect know a theory about *L*-competence. The point behind the objections I made is that a comptent speaker does not have to know such a theory, a theory about his own competence, in order to be competent. In fact, it seems a competent speaker could have false beliefs about competence. If so, then Higginbotham's account of competence fails.

2. I turn to Soames. I agree with much of what Soames says about the connections between knowing an extensional truth theory and linguistic competence. I agree that a semantic theory ought to pair meanings, as determinants of what sentences say, with sentences. Where I disagree with Soames is on the relation between knowing a semantic theory for a language and understanding it. Soames' contribution to this symposium understates his scepticism about this. In [SSC] he argues that even knowing the proposition

p1. 'mathematics reduces to logic' says that mathematics reduces to logic.

does not suffice for understanding the sentence

(15) Mathematics reduces to logic.

His argument raises important questions about what it is one knows, when one has disquotational knowledge; I propose to discuss it.

Soames begins with the observation that one can name propositions. For example, we call the proposition expressed by (15) 'Logicism'. Novices can come to have beliefs about propositions using their names without understanding any sentence that expresses them. Thus

> . . . a student . . . may be told that logicism is a proposition about the relationship between mathematics and logic, that formalism is a doctrine about the the interpretation of logic, and so on. At this stage, the student may not be able to distinguish logicism from other propositions . . . or to describe it in any informative way. Nevertheless, he may acquire beliefs about logicism . . . he may be told, "Russell was a defender to logicism", and thereby come to believe that Russell defended logicism. He might even be told, "Logicism is expressed by sentence *s*", and thereby come to believe that

logicism is expressed by sentence *s*. . . . it is not necessary that he understand *s*. It might, for example, . . . contain unfamiliar terminology. [SSC, 586]

If all this is correct, then

(16) Benji knows that 'mathematics reduces to logic' expresses logicism.

may be true without Benji's understanding (15). But, Soames says, both 'Logicism' and '[the proposition] that mathematics reduces to logic' are directly referential terms. Soames' understanding of the notion of direct reference is that

(a) a directly referential term is one "whose semantic content . . . is its referent", the semantic content of an expression being what it contributes to a proposition. [SSC, 594, n. 6];

(b) since directly referential terms naming the same thing make the same contribution to a proposition, when two such terms are coreferential, they are intersubstitutable, outside of quotational contexts, *salva veritate*.

From all this it follows that

(3) Benji knows that 'mathematics reduces to logic' expresses the proposition that mathematics reduces to logic.

is true, though Benji doesn't understand (15). Q.E.D.

Although they aren't featured in the argument, Soames makes some assumptions about propositions relevant to its evaluation. He assumes that propositions are structured entitites with parts ("constituents") among which may be individuals, properties, relations, and propositions. He also assumes that there is a cognitive relation, apprehension, that one must have to a proposition to believe, doubt, or know it, and that apprehending a proposition requires standing in appropriate, non-trivial, cognitive relations to the constituents of the proposition.

Appealing to such assumptions, it's possible to give different assessments of the significance of the argument's conclusion. Note that in having beliefs about *p* and *s*, Benji can have a number of different cognitive relations to them. For instance, we may distinguish:

Level 1: Benji believes, of *p* and *s*, that the first is expressed by the second.

Level 2: Benji apprehends *p*, in part by apprehending its constituents, and believes ["using the mode of apprehension in question"] that *p* is expressed by *s*.

Level 3: as at level 2, along with knowledge of what the contents of *s*'s parts contribute to *p* and perhaps some grip of how *s*'s syntax helps determine what's said.

Call what one knows, when one knows a proposition like p1, Propositional DisQuotational knowledge — PDQ knowledge for short. Different accounts of what is necessary and sufficient for such knowledge are possible. Each of the levels of knowledge just mentioned might be offered as a sufficient, or a necessary and sufficient, condition for PDQ knowledge. And so each level might be appealed to in articulating a version of a traditional account of semantic competence, on which PDQ knowledge suffices for semantic competence. I think it is quite plausible that those who wished to defend such an account of semantic competence assumed that PDQ knowledge was to be explained at level 2 or 3.

It is not completely clear what relation the student has to Logicism in Soames' story. A natural understanding of the example is that the student doesn't understand the word 'reduces', in part because he does not "have a cognitive grasp" of the relation of reducing. I believe Soames' intention is that his argument should go through on this understanding. If so, then in arguing that knowledge of p1 and its ilk is not sufficient for linguistic competence, Soames is not so much challenging the view that level 2 or level 3 knowledge is sufficient for competence, as he is challenging the idea that level 2 or 3 knowledge is necessary for knowing p1.[6]

One *could* object to Soames' argument by saying that English does not contain terms that are directly referential in the sense characterized by (a). I shall not make such an objection. One could object that (16) is true only if

(17) The student believes, of logicism, that 'mathematics reduces to logic' expresses it.

is true; however, one must apprehend all of the constituents of a proposition before one has beliefs about or of it. I expect Soames to concede that (16) implies (17), but deny that knowing something about a proposition requires apprehending all its constituents. I think he would be correct on both counts.

Where Soames' argument is really questionable is at its assumption that '[the proposition] that mathematics reduces to logic' is a directly referential term in both sense (a) and (b). I grant, for argument's sake, that a 'that'-term's referent and its contribution to proposition expressed co-incide. Such terms satisfy (a). But it does not follow, from the fact that a term satisfies (a) that it is intersubstitutable with every other term that satisfies (a) and refers to the same thing. Consider

(18) The semantic content of the subject term of the displayed sentence numbered '(18)' in Richard's comments is a complex.

The subject term of (18) names the contribution it makes to the proposition expressed by (18). But this term is a paradigm of the sort of expression that does not satisfy (b). It is a paradigm of what partisans of direct reference wanted to rule out when calling an expression directly referential. The proposition expressed by (18) can't be apprehend without apprehending the relations picked out in the subject term — *being the semantic content of, occurring in the subject position of*, etc. Thus the proposition (18) expresses is quite unlike the proposition I would express, if I were to say: Call the semantic content of the subject of (18), as it occurs there, 'Sammy':

(19) Sammy is a complex.[7]

Soames' argument loses much of its force if terms that are directly referential in sense (a) are not thereby directly referential in sense (b). For once this is conceded, there is no reason to suppose that the truth of (16) insures the truth of (3), just as there is no reason to believe that she who believes what (19) says must believe what (18) does.

I envision a response on Soames' part. Say (roughly) that an occurrence *o* of an expression in a sentence *s* is *propositionally relevant* if the semantic rules which determine what proposition a sentence expresses imply that *o*'s semantic content is invariably a constituent of

the proposition *s* expresses. If an occurrence is not propositionally relevant — it is propositionally inert — then it has no, or at best an indirect, influence on what is said. The paradigm of an inert occurrence is that inside quotation marks. Another sort of inert occurrence is occurrence within Kaplan's 'dthat' operator. In

(20) dthat [the male master of Millie] is Republican

the dthatted description does not contribute its semantic content to what is said. (20) expresses a proposition whose constituents are George Bush and being a Republican. Neither Millie, maleness, nor mastery enter into the proposition. Someone who knows this proposition does NOT know thereby something which, given normal or extranormal logical ability, would allow him to come to know what is said by

(21) Millie is such that dthat [the male master of her] is Republican

(with 'her' anaphoric on 'Millie'). Knowing what (20) says is just knowing that Bush is a republican. Such knowledge does not suffice for knowing any proposition of which Millie is a constituent, as she is of the proposition expressed by (21).

Soames assumes that expressions within the scope of '[the proposition] that' are propositionally inert. He assumes that '[the proposition] that' is to be conceptualized along the lines of the 'dthat' operator. If so, knowing p1 requires having a cognitive grip on the proposition Logicism, but doesn't require having a cognitive grip on all its constituents. Soames' view is that while the reduction relation is a constituent of Logicism, it is not a constituent of p1, nor of the proposition, say, that Russell believed that mathematics reduces to logic.

If 'that'-terms are like 'dthat'-terms, they may be directly referential is Soames' sense (b). If so, Soames can reply to the objection I raised above. But Soames hasn't given us a reason for thinking that they do function in this way. And surely they don't so function. Suppose that Jane knows

p2. Russell believed that Frege was a logician.

Then Jane knows something that will suffice, if she reflects on it, for her coming to know

p3. Frege is such that Russell believed he was a logician.

Soames can't accept this claim, for he can't allow that Jane's knowledge must put her in touch with what Russell believed in any "deep" sense. I am not sure that on Soames' view there is anything about the proposition that Frege was a logician that Jane *must* know, to know p2 — save that it was believed by Russell. Likewise, one thinks that one who knew that Sidney thinks that some slugs are slimy and that he thinks that it's not the case that some slugs are slimy knows enough to figure out that Sidney has inconsistent beliefs. Soames must deny this.

I leave many questions about disquotational claims unanswered here.[8] I hope that what I've said makes plausible the claim that knowing p1 requires more than just the ability to refer to Logicism — it requires what we might call "a cannonical grip" on the relation between sentence (15) and Logicism. Soames notwithstanding, it is plausible that such knowledge suffices for, or is even identical with, understanding the sentence.[9]

NOTES

* This is a condensed version of comments on papers of Jim Higginbotham and Scott Soames. It was read at an APA symposimum, "Truth and Understanding", held in March 1991.

[1] "Semantics and Semantic Competence", in J. Tomberlin, ed. *Philosophical Perspective 3* (Ridgeview, 1989). Subsequent references are indicated in the text, flagged with 'SSC'.

[2] "Knowledge of Reference" in A. George, ed., *Reflections on Chomsky* (Blackwell, 1989), p. 157. Subsequent references are indicated in the text, flagged 'KR'.

[3] See the penultimate section of SSC.

[4] "Truth and Understanding", *Philosophical Studies* this issue, p. 9.

[5] Other interpretations of Higginbotham's position are possible. They are subject to similar criticisms. Space limitations prohibit discussion.

[6] Soames' argument is not interesting on other interpretations. If the student has level 2 knowledge of p1 and sentence (15), it is very plausible that he understands (15), for he "grasps" the proposition that mathematics reduces to logic and associates it, in a straightforward way, with the sentence. So if the student has level 2 knowledge, the argument can't be used to establish what Soames wants to establish.

[7] It is perhaps worth recalling that Kaplan introduced the notion of a directly referential term not as a notion of a term satisfying either (a) or (b), but rather as the notion of a term that did not designate its designatum in the way in which a description does.

The example in the text is not of a description which names, *on every use*, its semantic content on that use. But such examples are not difficult to dream up. 'The semantic content of this very ten word noun phrase' is perhaps an example.

I am not suggesting that 'that mathematics reduces to logic' is a description of Logicism. Roughly, the difference between this term and 'Logicism' is that the former introduces its referent into what is said by introducing the constituents of its referent; 'Logicism' simply introduces its referent into the proposition, without introducing its constituents. I discuss the difference between these two sorts of terms, as well as a number of related issues in "Articulated Terms", to appear in a forthcoming volume of *Philosophical Perspective.*

[8] I attend to some of them in "Articulated Terms", *op. cit.*

[9] I'm grateful to Jody Azzouni and especially Martin Davies for comments on an earlier draft.

Department of Philosophy
Tufts University
Medford, MA 02155-7068
USA