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KNOWLEDGE OF MEANING, CONSCIOUS AND UNCONSCIOUS

ABSTRACT: This paper motivates two bases for ascribing propositional semantic knowledge (or something knowledge-like): first, because it's necessary to rationalize linguistic action; and, second, because it's part of an empirical theory that would explain various aspects of linguistic behavior. The semantic knowledge ascribed on these two bases seems to differ in content, epistemic status, and cognitive role. This raises the question: how are they related, if at all? The bulk of the paper addresses this question. It distinguishes a variety of answers and their varying philosophical and empirical commitments.

1. INTRODUCTION

It's uncontroversial that in *some* sense competent speakers possess knowledge of what expressions mean and that this semantic knowledge plays some central role in linguistic production and comprehension. What's less obvious is the nature of this knowledge and how its role should be characterized. One fundamental question is whether and to what extent semantic knowledge is propositional or practical: whether it is knowledge-that, knowledge-how, some combination of the two, or something else altogether.¹

In what follows, I consider two strategies for arguing that the semantic knowledge possessed and deployed by normal mature human speakers of a native language importantly includes propositional knowledge (knowledge-that)—or at least something propositional-attitude-like. The first strategy focuses on language use as *rational* activity. It argues that, in central cases, the *reasons* for which normal mature human language users engage in a speech act include or are based upon propositional semantic beliefs (that typically amount to knowledge). The second focuses on cognitivist *causal* accounts of linguistic behavior. It argues that a leading empirical account of various features of linguistic behavior posits propositional knowledge (or, cognition) of a compositional semantic theory. I elaborate on these strategies presently—just enough to motivate them, not enough fully to defend them. For the *main* purpose of this paper is not to assess these strategies, but to raise a question if it turns out that they succeed.

It is natural to wonder whether the knowledge thereby posited coincides: whether the semantic knowledge that in part rationalizes linguistic activity is or overlaps with the semantic knowledge causally implicated in linguistic behavior according to this leading empirical account. Indeed, it's natural to expect, or at least hope, that they do—especially, though not only, if one maintains that reasons are causes. This expectation might constitute part of a larger hope that, as the sciences of the mind progress, our conception of ourselves as rational agents and our understanding of ourselves as empirical objects will smoothly integrate. Consideration of specific proposals concerning elements of language use and linguistic competence allows us to assess one aspect of one form of this aspiration—though we must then be wary of drawing general conclusions from the particular case.²

In the case at hand, there is an apparent mismatch—in content, epistemic status, and cognitive role—between the semantic knowledge that the two strategies ascribe. The semantic knowledge that rationalizes linguistic behavior can be to a significant extent characterized homophonically, can be warrantably self-ascribed without reliance on 3rd-person evidence, and is—perhaps must be—accessible to consciousness. The semantic knowledge posited by empirically well-grounded cognitivist accounts of semantic competence, on the other hand, is typ-

ically non-homophonic, cannot be warrantedly self-ascribed without reliance on 3rd-person evidence, and seems in large part inaccessible to consciousness. This apparent mismatch might lead one to conclude that we possess two distinct kinds of semantic knowledge, both of which play some role in explaining linguistic behavior. If so, one wants to understand what relation, if any, they have to one another.

The main goal of this paper, then, is to put onto the table this “relation” question. What is the relation between, for example, our potentially rationalizing knowledge that ‘Every person ponders’ means that, and is true if and only if, every person ponders, and our hypothesized (tacit) knowledge that that sentence, or a structure appropriately related to it, is true if and only if the cardinality of the set of persons, once one removes people also in the set of ponderers, equals zero? After sketching the two strategies for ascribing semantic knowledge, I distinguish various answers and outline their varying empirical and philosophical commitments.

One quick preliminary. To simplify exposition, I abstract away from a variety of important aspects of language and language use orthogonal to my topic. In particular, I ignore for the most part context-sensitivity and pragmatically communicated content, and I limit my examples to declarative sentences used to enter assertions. Any plausible account of semantic knowledge would of course have to square itself with the full range of relevant phenomena; and, while there are those who doubt that propositional accounts can be thus squared, there are also well-known (and varying) proposals for doing so. If these complications can’t be accommodated, then the “relation” question is poorly posed. But, assuming they can be, the “relation” question remains; and that’s what I wish to focus on here. It should not be concluded, however, that the “relation” question is thus only of interest to those who maintain that these complications can be accommodated—and, indeed, more generally, accept the ascription of both kinds of semantic knowledge. For of course difficulties addressing the “relation” question might supply further, independent grounds to those who are dubious.³

2. TWO STRATEGIES FOR ASCRIBING PROPOSITIONAL SEMANTIC KNOWLEDGE

2.1. *Rationality and semantic knowledge*

That we possess or can readily acquire homophonic propositional semantic knowledge might seem too obvious to bear discussion. Don’t we know that ‘water’ refers to water and that ‘2+2=4’ means that, and is true if and only if, 2+2=4? It’s a further question, however, whether *this kind* of knowledge plays a central role in the production and comprehension of speech: various thinkers have denied that it does.⁴ Our first strategy counters that such knowledge does play a central role by focusing on language use as rational activity.

Consider, to begin with, the following relatively minimal set of claims. Our language use is typically intentional. What’s more, although it’s of course not intentional under *all* descriptions (e.g., under descriptions of changes in the articulatory system or in the ambient air), it’s typically intentional under some description of the words uttered.⁵ Typical instances of intentional behavior—i.e., actions—are done for reasons. To act for a reason is to have beliefs, desires, and/or perhaps other attitudes that explain, from one’s own perspective, why one so acts. So, when the action is an instance of typical language use and thus intentional under a description of the words uttered, the speaker utters those words for a reason (or reasons). These reasons—again, in the typical case—might include a desire to perform some speech act, typically with some further, non-linguistic end in mind. For example, someone might intentionally utter the sentence ‘There are apples in the fridge’ in order to assert that there are apples in the fridge and to get the hearer to retrieve the apples.⁶

If one grants these claims, one has already committed speakers to rationalizing propositional knowledge concerning the relation of sentences and content.⁷ A further claim is that beliefs concerning what uttering an expression can do (including what speech acts their utterance can be used to effect) are in part grounded in beliefs concerning what expressions *mean*, at least so far as normal mature speakers are concerned. Thus, it’s because the speaker knows that the sentence means *there are apples in the fridge* that she believes uttering ‘There are apples in the fridge’ is a way of asserting that there are apples in the fridge.

Moreover, her belief that her audience *also* knows this in part warrants her belief that uttering the sentence will raise the likelihood of her getting an apple. Propositional semantic knowledge thus provides part of her reason to think that so acting is a good way of achieving her ends.

So one might claim. But someone skeptical of propositional semantic knowledge's role in linguistic behavior might grant that practical reasoning of this sort (perhaps after further articulation) would be sound, and yet deny that it captures the reasons for which normal human speakers in fact act. That there is a reason for acting or for a belief, even one available to an agent, does not entail that the agent in fact acts or believes for that reason. Even if we may justifiably attribute such reasons to a speaker who acts as a result of *explicit* deliberation of this sort, it's a familiar anti-cognitivist (or, anti-intellectualist) charge that *generalizing* from such cases is illicit.⁸

So, how might a proponent of rationalizing semantic knowledge buttress her claims, beyond noting the obvious softening-up point that we often allow that agents who have not engaged in conscious deliberation nonetheless act for reasons? One tack⁹ is to note that there are circumstances in which a speaker, having accepted as reasonable a question of the form 'Why did you utter S in order to A?', would naturally answer with a semantic claim expressive of a semantic belief. But if speakers more-or-less spontaneously *claim* that they act for such-and-such reasons, that's *prima facie* reason to think that they do. Further, it's not hard to construct scenarios in which it would be natural for a speaker to explain why she acted by expressing a semantic belief that exhibits the three features I listed in my introduction. And these scenarios are such that one can indeed justifiably generalize from them to the typical case—as I now explain.

Suppose, for example, X and Y—competent German speakers—are conversing. Listening in is *sub*-competent German speaker SUB. SUB, like X, is a competent *English* speaker; but SUB is still trying to work himself up to an intermediate-level grasp of German. Now, SUB observes X utter 'Es sind Äpfel im Kühlschrank.' SUB asks X why she uttered or said that. X answers: "I wanted to let Y know where she could find a snack." SUB says: "But why did you put it that way? It sounded like you said something about apes. Help me out here; you know I'm trying to improve my German." X answers: "No, 'Äpfel' means apples,

not apes. 'Es sind Äpfel im Kühlschrank' means there are apples in the fridge."

Here it seems we have a circumstance in which it would be quite natural for someone to advert to a rationalizing semantic belief. X needn't be a linguist or philosopher of language or otherwise especially reflective to come up with her explanation—nor need she expend any noticeable effort in arriving at it. Of course, the mere fact that X offers an explanation of her action does not entail that the explanation is correct. Like everyone else, X is no doubt fallible about her beliefs and reasons and potentially subject to *post facto* confabulation. But to the extent that our expressions and self-ascriptions possess a measure of epistemic authority, there's reason to credit X's claims, pending reason to think otherwise. Correlatively, an anti-cognitivism that overrules agents' own explanations is committed to a kind of error theory. In the case at hand, I take it that it's *prima facie* plausible that X indeed knows that 'Es sind Äpfel im Kühlschrank' means there are apples in the fridge and correctly identifies part of her reason for action in expressing this knowledge to SUB. Moreover, this *prima facie* plausibility remains whatever X's attitudes concerning more controversial (possibly also semantic) questions—such as, for example, whether, for her utterance to be true, there must be *more* than one (more-or-less complete and whole) apple in the fridge, or whether *one* would suffice.¹⁰

Now, from such cases, we can generalize to typical cases of language use. We can generalize, first, to otherwise similar cases in which no one like SUB happens to interject. The presence of eavesdropping SUB merely creates a clear circumstance in which X can *informatively articulate* the semantic reason for her action. But had SUB not been around, surely the reason would still have played the same role. After all, for all I've said, X might not even have been *aware* of SUB's presence until SUB jumped in with his question. Second, we can generalize to cases in which the speaker doesn't happen to be bilingual. To be sure, on account of their multi-lingualism, bilinguals may differ from monolinguals in their meta-linguistic capacities.¹¹ But it would be a bold claim to maintain that bilinguals, *on account of their bilingualism*, possess rationalizing semantic knowledge of the sort X articulates whereas normal mature monolingual speakers don't. Granted, if X were not competent also in English, she could not have *expressed*

her semantic belief to SUB as she did. But nonetheless it seems she still would have known that which she in fact did express—viz., that which a monolingual German could express by an utterance of “Es sind Äpfel im Kühlschrank” bedeutet dass es Äpfel im Kühlschrank sind.’ For why should we think that she only knows that which is expressed by this German ‘bedeutet-dass’ sentence because as a matter of fact she also speaks English? If it’s not on account of her bilingualism that she knows it, then there is reason to generalize to monolingual German speakers who happen not to be able to—and also might not have the occasion to—express a semantic belief to someone like SUB in the way X does (i.e., in English).

Finally, these semantic beliefs possess the three characteristics I listed in my introduction. First, they can be characterized homophonically: in SUB-like cases, the expression of semantic belief can be translated by a homophonic meaning-sentence, as with the homophonic German ‘bedeutet-dass’ sentence above. The case was constructed with X expressing her semantic belief *non*-homophonically (in English about German) only so that it could be apparent how, in the right circumstances, its expression can be informative and thus entirely natural. But nonetheless the belief she expressed is also homophonically characterizable.¹²

Second, one doesn’t require third-person evidence (evidence of the sort someone else would need) in order to self-ascribe these semantic beliefs. X’s knowledge of what she believes and its rationalizing role is immediate. She need not advert to behavioral facts available as well to her conversational partners, more subtle psycholinguistic data, acquisition studies, cross-linguistic facts, or what have you.¹³

Third, these semantic beliefs are accessible to consciousness, since, after all, mature speakers are able to articulate them. That some speakers may never find themselves in a position to articulate them informatively, at least using a sentence that can be translated homophonically like X’s, is neither here nor there. Armed with an ancillary premise, one might argue for an even stronger conclusion. For example, some forms of epistemic internalism entail that these beliefs, in order to play their rationalizing role, *must* be accessible to consciousness. (Cf. fn. 22 below.) Be that as it may, the claim advanced here is only that for normal mature human speakers of a native language such rationalizing

knowledge in fact is consciously accessible.

2.2. Cognitivist account of semantic competence

Let’s turn now to the second advertised basis for positing propositional semantic knowledge that plays a central role in linguistic behavior. Here I simply retail and take at face value a well-known empirical strategy (albeit by no means the consensus view)—that of cognitivist truth-theoretic accounts of semantic competence.

It is often noted that human semantic competence, like human syntactic competence, is *productive*, *creative*, and *systematic*: we understand an indefinitely large number of sentences, we readily understand novel sentences, and our understanding in various ways is systematic so that, for example, someone who understands ‘The shoe is behind the book’ will also understand ‘The book is behind the shoe,’ etc. A well-known hypothesis is that the best explanation of these facts is that what speakers know about linguistic meaning exhibits *compositionality*: the meaning of a complex expression is a function of its syntactic structure and the meanings of its constituents. Neo-Davidsonians, for example, hypothesize that mature human speakers of a native language know a Tarski-style truth-theory that generates statements of truth-conditions for each declarative sentence. Such theorists are *neo*-Davidsonians in that they are cognitivists: whereas Davidson merely claimed that knowledge of such a theory *would* enable speakers to understand a language, these theorists hypothesize that we *do* know such theories and that this knowledge is in part causally responsible for our linguistic behavior. As empirical hypotheses, such claims concerning semantic competence—whether of the specifically Davidsonian variety or some other sort—are subject to investigative fortune; and not everyone is sanguine. But my discussion shall proceed from the assumption that there is something to them: we have here an on-going research program whose progress has so far been sufficiently successful to warrant exploration of the consequences should it continue to pan out.¹⁴

Compositionality imposes a considerable constraint. So does the need to mesh with a wide range of *other* hypotheses and data, including—but by no means limited to—hypotheses concerning the representation of the syntactic structure to which semantic values are assigned. As is often remarked, the resulting semantic theories seem

not to possess the properties I singled out above in discussing rationalizing semantic knowledge: it seems that the semantic claims such theories generate often cannot be characterized homophonically, *do* require 3rd-person evidence in order to be self-ascribed, and are not consciously accessible.

Consider, to begin with, even this extremely elementary semantic theory for an extremely elementary fragment of English (adapted from Larson and Segal, 1995, p. 148).¹⁵

Lexical Axioms

- (1) a. Val(x , *Kate*) iff x = Kate
- b. Val(x , *Jill*), iff x = Jill
- c. Val($\langle x$, $y \rangle$, *knows*) iff x knows y
- d. Val(x , *runs*) iff x runs

Phrasal Axioms

- (2) a. Val(t , [_S NP VP]) iff for some x , Val(x , NP) and Val(x , VP)
- b. Val(x , [_{VP} V NP]) iff for some y , Val($\langle x$, $y \rangle$, V) and Val(y , NP)
- c. Val(x , [_Y Z]) iff Val (x , Z), where Y and Z are any nodes

Production Rules

(UI) Universal Instantiation

$$\frac{\text{For any } x, F(x)}{F(\alpha)}$$

(SE) Substitution of equivalents

$$\frac{F(\alpha)}{\alpha \text{ iff } \beta}{F(\beta)}$$

(SI) Substitution of identicals

$$\frac{\phi \text{ iff } F(\alpha) \text{ and } \alpha = \beta}{\phi \text{ iff } F(\beta)}$$

With knowledge of these axioms, using these production schemata, we can generate the claim, for example, that

- (3) Val(t , [_S [_{NP} [_N Jill]] [_{VP} [_V knows] [_{NP} [_N Kate]]]) iff Jill knows Kate.¹⁶

Such a theory seems not to be consciously accessible—at least as judged by some common marks. (These will suffice for our present purpose: providing *prima facie* reason to think the two kinds of semantic knowledge differ. I make a few further remarks below.) To begin with, the theory deploys concepts typical speakers arguably do not possess—for example, the syntactic concepts needed to characterize the structures to which semantic values are assigned.¹⁷ Moreover, its theorems are inferentially encapsulated: one’s knowledge of (2.c), for example, seems for the most part to combine inferentially only with other bits of one’s semantic knowledge, not with one’s propositional attitudes more generally. An aspect of this is that this knowledge seems to some extent cognitively impenetrable—that is, unaffected by (the rest of) our reasoning.¹⁸ For example, changing one’s mind about the proper semantic treatment of some phenomenon, say as one takes successive semantics seminars from linguists with competing views, in no way affects one’s linguistic behavior. Those who explain linguistic behavior by positing knowledge of a compositional semantic theory must therefore also say that these changes of mind do not affect the causally responsible semantic knowledge. This provides reason to think that in learning a semantic theory in a linguistics class or from a textbook—even if the theory happens to be correct—one is not “*bringing* to consciousness” the semantic knowledge causally responsible for one’s linguistic behavior. If the theory happens to be correct, one is merely coming to represent it in a second way. (Cf. (Stich 1978, pp. 508-9), albeit regarding syntax.)

Relatedly, self-ascribing a particular compositional semantic theory requires 3rd-person evidence. To be sure, much semantic research, as is the case elsewhere in linguistics, relies on speakers’ 1st-person judgments—for example, concerning semantic anomaly, the availability of readings, entailment, etc. The theoretical assumption is that such judgments themselves reflect the exercise of speakers’ semantic competence (their knowledge of a compositional semantic theory), together with the exercise of their other linguistic and cognitive competencies. But 1st-person judgments are just one source of data, a source that can be overridden. It’s not assumed, for example, that it is always easy for speakers to tease apart semantic and *pragmatic* contributions to communicated content.¹⁹ Moreover, 1st-person judgments can fall

short in discriminating purely semantic theories that agree in the 1st-person judgments they predict. Ludlow, for example, favors an account of tense that yields theorems such as

- (4) Val(t , [_S Smith swam yesterday]) iff
 { [_{IP} Smith swims] } was true when { [_{IP} something contextually given] } was true yesterday
 (curly brackets indicate Interpreted Logical Forms)

over more standard accounts that yield

- (5) Val(t , [_S Smith swam yesterday]) iff
 for some e , S (the time of utterance) is later than R/E , e culminates at E , e is a swimming by Smith, R is the day before S , e occurs at E , and Smith is the agent of e .

Recognizing that 1st-person judgments alone may not settle the matter, he turns to suggestive data concerning acquisition and acquired deficits that might lend support to his view. But such data are only available from a 3rd-person perspective.²⁰

What of homophony? Arguably, even the toy fragment displays non-homophony: the lexical axioms introduce talk of identity, and the derived T-sentence says, not that ‘Jill knows Kate’ is true iff Jill knows Kate, but that the labeled syntactic structure [_S [_{NP} [_N Jill]] [_{VP} [_V knows] [_{NP} [_N Kate]]] is. Ludlow’s favored treatment of tense provides a perhaps clearer example, as its statement of truth conditions refers to the Interpreted Logical Form of the contextually given sentence. (Some more examples come up below.) Moreover, it’s claimed that knowledge of compositional semantic theories in part explains our ability to assign phonologically (or orthographically) identical expressions distinct meanings—that is, to recognize ambiguities. Non-homophony would seem essential to this explanation. Again, it’s claimed that knowledge of compositional semantic theories in part explains at least certain judgments of validity. Some standard strategies crucially involve departures from homophony, as with the well-known Davidsonian eventish analysis of adverbial modification. (Davidson (1967). Cf. below.) It would thus seem, according to cognitivist accounts of semantic competence, that homophonic semantic claims cannot in general capture the specific content of the semantic knowledge causally implicated in our linguistic behavior.

In sum, our knowledge of compositional semantic theories would seem to exhibit none of the three marks exhibited by the sort of rationalizing semantic knowledge expressed by X to SUB. Now, as is well known, some jib at calling such states *knowledge* or *belief* at all—in part because they exhibit just such features (non-homophony excluded). But that’s not *my* point. Call it *tacit* knowledge or belief—or, adapting Chomsky, use ‘cognition’ to stand for the relation in which the speaker stands to such claims.²¹ To take the cognitivist project at face value is to grant these states at least a causal role in linguistic behavior, however our relation to them is characterized.²² We’ve seen, however, that they seem to differ in kind from X’s rationalizing semantic knowledge. And this leads to my question.

3. WHAT’S THE RELATION?

Let’s be sure that no one thinks I’m trying to motivate a *contradiction*: that semantic knowledge is both homophonically characterizable and not homophonically characterizable; both warrantably ascribable without reliance on 3rd-person evidence and only warrantably ascribable by adverting to 3rd-person evidence; and both consciously accessible and consciously inaccessible. I haven’t said anything that would motivate such claims as made of *one and the same bit* of semantic knowledge; and there’s no contradiction in saying that *some* semantic knowledge has these features, but some doesn’t.

Nor is it obvious that there’s some other sort of *tension* involved in ascribing both sorts of knowledge a central role in linguistic behavior. One might wonder whether explanations adverting to the one might threaten to *exclude* explanations adverting to the other, as it’s argued that physical explanations threaten to exclude intentional explanations of behavior generally. But, whatever the merits of the standard causal/explanatory exclusion arguments, they would not seem to translate to our case (even assuming reasons are causes). Our case involves two kinds of *intentional* state, so there’s no plausible analogue to the causal closure of the physical relied upon in the standard versions. In addition, it’s not clear why overdetermination would be problematic in our case.²³

There needn’t be in this sense a *problem*, however, for us to find

pressing the question: how are these various bits of semantic knowledge related, if at all? Absent some compelling answer, the apparent difference in kind threatens to thwart our unificatory aspirations. The rest of this paper distinguishes and outlines various replies and their varying empirical and philosophical commitments. In this section, I canvass six replies that would claim that the relation is in fact fairly “intimate.” The first three are variations on the suggestion that rationalizing semantic knowledge is *derived* from tacit knowledge of compositional semantic theory. The fourth challenges the semantic hypotheses that underwrite the “relation” question. The fifth adverts to a constraint on successful semantic theorizing that would guarantee identity of content across the two kinds of semantic knowledge. The sixth maintains (through several variations) that we are in fact talking about the very same states—only characterized differently. (Replies two through six build on a reduction of the question effected by the first reply. Otherwise, I treat these replies individually. Another strategy would be to combine some of them in an attempt to divide-and-conquer.) Some may find the various commitments too onerous. In the subsequent section, I conclude by discussing some less “intimate” relations that may nonetheless obtain.

Sketching these replies requires touching upon such large topics as content-individuation, attitude-ascriptions, nominalistic reconstruction, etc. Of necessity the discussion will be incomplete. The aim is just to distinguish the basic options and their differing burdens.

3.1. Inner workings vs. output

If compositional semantic theories were very simple, one might complain that I’ve overstated the range of inaccessibility. Sure, speakers typically don’t *consciously* know (and can’t *bring* to consciousness) such knowledge as that:

(2.c) $\text{Val}(x, [{}_Y Z])$ iff $\text{Val}(x, Z)$, where Y and Z are any nodes.

And this is something they can warrantably self-ascribe only on the basis of 3rd-person evidence. But they *can* consciously know *some* of the knowledge captured in the semantic theory. In particular, they can consciously know the theorems that assign truth-conditions (or meaning) to sentences. For example, they can consciously know such claims as

that:

(6) The sentence ‘Jill knows Kate’ is true if and only if Jill knows Kate.

And *this* is the kind of belief that can rationalize linguistic behavior. So, the relation between these two kinds of knowledge is fairly straightforward after all. For they do coincide in part: although the inner workings of the semantics module (if you will) are *inaccessible* to consciousness, at least its final output (the assignment of meaning) *is* accessible to consciousness and to further reasoning; it is thus poised to play a rationalizing role with respect to action.

This is clearly too simple as it stands. To begin with, as we’ve seen, the semantic theory assigns truth-conditions, not to ‘Jill knows Kate,’ but to the labeled syntactic tree $[{}_S [{}_N \text{ Jill}] [{}_{VP} [{}_V \text{ knows}] [{}_N \text{ Kate}]]]$. However, there is an obvious reply to this first worry: it’s part of the speaker’s *broader* linguistic competence that this syntactic representation is associated with a phonological representation and (if she’s literate) with an orthographic representation. Drawing upon this further linguistic (albeit extra-semantic) tacit knowledge, her tacit knowledge of

(7) $\text{Val}(t, [{}_S [{}_N \text{ Jill}] [{}_{VP} [{}_V \text{ knows}] [{}_N \text{ Kate}]]])$ iff Jill knows Kate

can yield consciously accessible knowledge of (6). What’s needed is just a *little more* processing beyond what the semantic theory delivers.²⁴

But this by itself won’t suffice either, because the problem is not just the syntactic concepts deployed by the semantic theory. Take, for example, quantified sentences. In the standard set-theoretic formulation of Generalized Quantifier Theory, cast truth-theoretically, the lexical axiom for ‘every’ is:

(8) $\text{Val}(\langle X, Y \rangle, \text{every}, \sigma)$ iff $|Y \setminus X| = 0$

yielding such T-theorems as:

(9) $\text{Val}(t, [{}_S \text{ Every person ponders}], \sigma)$ iff $|y: y \text{ is a person} - x: x \text{ ponders}| = 0$.²⁵

Again, tacit extra-semantic knowledge might enable us to relate the assignment of truth-conditions to a consciously accessible representation of the sentence, yielding:

(10) 'Every person ponders' is true iff $|y: y \text{ is a person} - x: x \text{ ponders}| = 0$.

But there remains the right-hand side: the statement of truth-conditions deploys concepts not apparent in the target sentence—in this case, concepts concerning sets and their cardinalities. And these claims about sets, their cardinalities, and their relations to the truth-conditions of mundane sentences arguably can't be brought to consciousness by typical speakers. Distinguishing the inner workings of the semantics module and its outputs (and adverting to extra-semantic knowledge) might *reduce* the distance between knowledge of a compositional semantic theory and rationalizing semantic knowledge. But a substantial distance appears to remain between their respective right-hand-sides. (10) at least certainly seems to differ from:

(11) 'Every person ponders' is true iff every person ponders.

How might one handle this?

3.2. Allow conceptual sophistication

One might suggest that typical speakers in fact *do* possess set-theoretic concepts (similarly for other seemingly sophisticated concepts semantic theories deploy), so that at least this mark of difference is eliminated. Perhaps, then, the derivations described above suffice to relate tacit knowledge of a semantic theory to potentially rationalizing semantic knowledge.

Assessing the ascription of set-theoretic concepts requires a developed account of concept-possession. (Lack of set-theoretic *vocabulary* is irrelevant: lots of concepts are unlexicalized. Might speakers' sensitivity to the truth-conditional differences encoded by semantic hypotheses itself supply grounds for ascription?) But we needn't pursue this issue here. Whatever its prospects, the suggestion would not suffice to address our question. First, consciously inaccessible knowledge (as marked, say, by cognitive impenetrability) can be composed of concepts possessed by the subject. Moreover, even if one could challenge the claim of inaccessibility, there would remain at least an apparent difference in *degree* of accessibility between (10) and (11). Beliefs, including semantic beliefs, can differ in the amount of "priming" necessary for them to become conscious: sometimes significant priming is

required. (Cf. Johnson (2007).) This difference alone would suffice to raise the "relation" question.

3.3. More processing

But even if speakers don't possess set-theoretic concepts, the answer to our question may already lie ready to hand. Perhaps we need only recycle the maneuver used in response to the presence of syntactic representations: add more processing.²⁶ Larson and Segal (1995, p. 278, numbering altered), for instance, note that, with some extra-semantic knowledge, one can derive from (10) something close to being homophonically characterizable. This would also restore accessibility to consciousness. One need only assume speakers (tacitly) know some set theory:

- (12) a. $|Y:X| = 0$ iff Y is a subset of X,
 b. Y is a subset of X iff every element of Y is an element of X,
 c. x is an element of x: x is a person iff x is a person, and
 d. x is an element of x: x ponders iff x ponders.

Then given (10), one can derive:

- (13) 'Every person ponders' is true iff, for every x such that x is a person, x ponders.

One can similarly handle all quantified sentences.²⁷

Now we seem to have a general recipe for addressing our question. Though it was too simple to suggest that the semantic theory *itself* generates the sort of consciously accessible semantic knowledge X used to rationalize her linguistic behavior, it may be the case that the semantic theory *plus some further non-semantic stuff* does. The commitment of this reply—and thus its challenge—is that one would need to concoct and empirically support the attribution of such extra axioms and extra inferential processing for a *wide range* of disparate sentences. For non-homophony and the deployment of concepts not obviously possessed by typical speakers is the rule, not the exception, in extant semantic theories. Consider Tarski's famous 'Snow is white.' This sentence contains a mass term and expresses a generic claim. The proper semantic treatment of both is hotly disputed. But

whatever the sentence's semantics turns out to be, it's doubtful its T-theorem will be homophonic. For example, one treatment of just its generic aspect would yield that the sentence is true iff, for all the ways w things could have been that are within the contextually restricted modal base and are "most normal," all snow in w is white.²⁸ Now, no doubt one could always construct *some* inferential machinery that, from this, yields "Snow is white" is true iff snow is white—similarly for the other non-homophonic, conceptually sophisticated truth-conditions that empirical constraints force upon a compositional account of semantic competence. But it's a further question whether one could render the ascription of all this extra machinery empirically compelling. Absent independent empirical grounds, one would be simply placing a large empirical bet. The 'more processing' reply thus takes on a substantial empirical commitment.

Of course, a large empirical bet is already placed in maintaining that speaker's cognize a Davidsonian truth-theory. But this is a bet that is backed by at least some evidence (albeit in an area rife with disagreement): constructions successfully handled compositionally, subjects' judgments explained, mesh with neighboring hypotheses, etc. The point here is that one commits oneself to a large *further* bet, in advance of any independent grounds, if one answers the "relation" question along these lines. This does not show that the answer is wrong; but it brings out its distinctive burden.

3.4. Replace the conceptually sophisticated semantic hypotheses

A generalizability question arises as well for another reply—a reply that would challenge the specific semantic hypotheses that yield (10) (similarly for other cases that generate the "relation" question). It would not suffice simply to *reject* the semantic hypotheses: we are only concerning ourselves with replies that take extant and on-going semantic theorizing of this sort seriously. The challenge must offer plausible alternatives—in the case of (10), alternative axioms for quantifiers or at least an alternative formulation that reveals set-theoretic concepts to be inessential artifacts of familiar presentations of Generalized Quantifier Theory. Here one might advert to treatments of quantification that dispense with sets in favor of plural variables. Pietroski (2005), for example, develops such a view as part of a larger argument for a "con-

junctivist" eventish semantics, according to which syntactic concatenation always expresses conjunction (a generalization of Davidson's treatment of adverbial modification as conjoining information about an event). Simplifying, Pietroski's approach yields the following assignment of truth-conditions for 'Every person ponders':

(14) $\text{Val}(t, [_s \text{ Every person ponders}], \sigma)$ iff

there are some Os such that:

- all the external participants of the Os are the value t ,
- the internal participants of the Os are all and only the persons, and
- the external participant of an O is t iff the internal participant

of that O ponders.

The eventish complications might seem a distraction from the issue at hand—whether the semantics of quantifiers requires set-theoretic concepts. But in fact they are to the point. For a reply to the "relation" question, again, cannot rest content with having dealt with but one kind of case; it must generalize. Pietroski's semantics, while avoiding set-theoretic concepts, adverts to the technical concept of a participant. Internal and external participants, in the case of at least some events (e.g., Mary's shoving Bill) correspond to the Theme and the Agent of the event, respectively (the shovee and the shover). Restricting ourselves just to these cases, the concepts might not seem particularly sophisticated. But in fact they are already fairly technical: an eight ball can be the Agent of a hitting of the white ball, though it exhibits no agency; and a song can be the Theme of a performing, although it's arguably not affected by the Agent. Moreover, Agent and Theme are just the most intuitive subspecies of external and internal participants. On Pietroski's view, truth-values are the internal and external participants of sentential disjunctions, and they are the external participants of the Os adverted to in the semantics of determiners (as in the example above). Typical speakers would not seem to possess the concept of a genus that has Agents and truth-values as subspecies. And there is more. A less simplified statement of 'Every person ponders's truth-conditions must accommodate its habitual aspect: on the relevant reading, the sentence is about what people tend to do from time

to time under certain conditions, not what all (or all contextually relevant) people are doing now. As with generics, this arguably requires the introduction of ways things could be (perhaps possible worlds) and restricted modal bases.²⁹ Thus, even sticking with our sample sentence, there remains conceptual sophistication apparently separating (11) and the corresponding right-hand-side that semantic theorizing yields. No doubt one could generate the “relation” question in other ways with other sentences as well. We thus have the suggestion of a general strategy combined again with a substantial burden: showing that it does indeed generalize beyond the particular case.

Now, the philosophical literature contains *many* strategies for replacing or analyzing away concepts (in particular those that apparently give rise to problematic ontological commitments). To each, there might correspond an alternative formulation of semantic hypotheses. We cannot consider them all. But we may offer three general remarks and an illustration. First, a reply to the “relation” question that adverts to some such proposal incurs whatever substantial philosophical commitments the defense of the proposal incurs. Second, the “relation” question may remain even after the replacement or analysis is applied to the concepts deployed in hypothesized tacit semantic knowledge: showing that it did not would be a further commitment. To illustrate, consider modal structuralism, according to which reference to sets can be replaced by or analyzed in terms of what’s mathematically necessary, given some mathematically possible axioms. Roughly, the sentence ‘e is an element of set S,’ for example, would be replaced by or analyzed into ‘It’s mathematically possible that such-and-such set-theoretic axioms obtain, and it’s mathematically necessary that, if they do, then e is an element of set S.’ (Cf. Hellman (1989).) Adverting to modal structuralism in answering the “relation” question would clearly involve a substantial philosophic commitment. But, beyond that, we would seem no further along in specifying the relation between (11) and what would result for (10). Finally, third, it’s worth noting that, whether or not the strategy’s burden *could* be shouldered, extant semantic practice is typically not driven by such conceptual and ontological constraints.³⁰

3.5. “Interpretiveness” requires same content

It is natural at this point to wonder why, if the semantic theory *itself* states what expressions mean, one would need to appeal to any other notion of “analysis” in order to establish an intimate relation between (10) and (11)—similarly for other cases. The thought would run as follows: It’s inconsistent with (10)’s being an “interpretive” T-theorem—one that “gives” the meaning of the target sentence—that (10) and (11) differ in content. For if (10) and (11) differ in content, then surely their right-hand-sides differ in content: what else could be the source of the difference between (10) and (11)? But that’s just to say that

$$(15) |y: y \text{ is a person} - x: x \text{ ponders}| = 0$$

differs in content from

$$(16) \text{Every person ponders}$$

—that is, that (10) is not interpretive. Now, we can’t deny that (10) is interpretive if we are taking the deliverances of semantic theorizing at face value. So, (10) and (11) agree in content. Thus, whether one focuses on language use as rational activity or as the causal product of a cognized semantic theory, one ascribes the same semantic knowledge in the end after all.

This line of thought, however, does not suffice to answer the “relation” question. First, it assumes that the deliverances of the compositional semantic theory must preserve content. But whatever the aims and claims of *other* semantic projects, it’s not clear that this is required by a cognitivist account of semantic *competence*. It may be, for example, that subpersonal processing is well-served by the assignment of natural language sentences to representations that presuppose entities that the sentences neither explicitly mention nor presuppose. Consider the various semantic treatments that stem from Davidson’s “eventish” analysis of adverbs mentioned above. It has proven most fruitful to treat various constructions as involving quantification over and predication with respect to events. Conjoining such predications, for example, readily explains speakers’ entailment judgments as instances of Conjunction Reduction.³¹ But does it really matter to this explanation and, more generally, does it really matter so far as providing a successful account

of semantic *competence* is concerned, whether such sentences—the target sentences—in fact assert the existence of events? I have argued elsewhere that it seems that nothing is lost if it's claimed rather that speakers subpersonally represent the sentences *as if* they make such existence claims. More generally, one might hold that, subpersonally, there is an agnostic pragmatic *presupposition* that there are events, sets, possible worlds, what have you—a presupposition that proves computationally useful. The assignment of truth-conditions by the cognized semantic theory thus needn't even be *true* (if, say, it turns out that sets don't exist). As far as the requirements of explaining linguistic behavior go, it might suffice that T-theorems like (10) assign truth-conditions that are at least cognitively equivalent to their target sentences *relative* to a presupposition.³²

That said, the assumption that truth-theories must preserve content is widely held. But there is a second reason this line of thought does not suffice to answer the “relation” question: identity of content does not entail identity of states. Indeed, we have already noted how cognitive impenetrability might suggest that one can come to represent the same semantic content twice. If someone can change her mind about competing semantic theories (perhaps from a standard account of tense to Ludlow's) without affecting her linguistic behavior, then the cognitive states that underlie linguistic behavior would seem to differ from those that underlie her conscious semantic theorizing. Thus, even with identity of content, there would remain the question of what relation these two content-identical states bear to one another.

3.6. *Same state characterized two ways*

But that we might have identity of content without identity of states in *some* cases does not preclude the possibility of an identity of state between knowledge of (10) and (11). Potentially rationalizing semantic beliefs like (11) are stable—unlike semantic beliefs acquired in a semantics class. The argument from cognitive impenetrability to difference in states thus lacks a foothold here, since it requires some variability to which linguistic behavior is impervious.

Thus, it remains possible to answer the “relation” question by claiming that (10) and (11)—similarly for other cases—characterize one and the same state of the speaker, albeit in different ways. According to

this reply, there is after all an overlap between the empirically posited semantic knowledge and the knowledge speakers can articulate in rationalizing their linguistic behavior. Indeed, it turns out that speakers *can* homophonically characterize at least some of the states generated by the cognized compositional semantic theory, they *don't* require 3rd-person evidence to self-ascribe these states, and they *can* bring them to consciousness. It's just that they can do so only under a particular characterization. To conclude that there must be distinct *mental states* would be illicitly to transfer features of the characterizations to the states themselves. One would commit the same fallacy identity theorists object to when they're presented with the argument that visual experiences can't be brain states because I'm conscious of the one, but not the other.

The analogy here is not exact, however. When it's debated whether visual experiences could be identical with brain states, we are not dealing with two characterizations both of which ascribe content. When we are dealing with multiple intentional characterizations, there is the possibility of denying identity of state by denying identity of content. There is thus room to resist the current proposal if there is reason to deny that (10) and (11) agree in content, assuming that a difference in content suffices for a difference in characterized state. Now, we have already noted the possibility that “interpretive” T-theorems need not preserve content, which would allow (10) and (11) to differ in content. But even if one demurs at this controversial suggestion and maintains that “interpretiveness” requires identity of content, there remains room for content-based resistance. For one might suggest that the conception of content-individuation relevant to the “interpretiveness” constraint is coarser than the criterion relevant to individuating mental states.

Consider the following version of a criterion advanced by Frege:

Frege-Criterion: If someone who understands both claims can rationally believe that A and not believe that B, then 'A' and 'B' differ in content.³³

Suppose, moreover, that, if S believes that A and believes that B, and if 'A' and 'B' differ in content, then the beliefs differ in content—similarly for other attitudes. (Call this the Ascription Thesis.) A

nominalist—in particular, someone who denies the existence of sets—might believe (11) without believing (10). His nominalism may be wrong, but it's another thing to declare him irrational. If he's not irrational, then, given the Frege-Criterion, even *non*-nominalists must accept that (10) and (11) differ in content. From the Ascription Thesis, it then follows that speakers' attitudes characterized by (10) and (11) differ in content. Finally, if a difference in content suffices for a difference in state, it follows that (10) and (11) do not characterize the same state in different ways.³⁴

There are various responses to this argument, besides declaring the nominalist irrational. Each amounts to a distinct development of the 'one state, two characterizations' answer to the "relation" question. One might deny

- the satisfaction of the Frege-Criterion's antecedent in this case
- the satisfaction of the Ascription Thesis' antecedent in this case
- the Ascription Thesis
- the assumption that identity of state requires identity of content
- or of course the Frege-Criterion.

The details would vary with one's conception of content-individuation and attitude-ascription. Covering all the options is beyond our scope, but we can record some salient considerations. After briefer discussions of the first four moves, we'll spill more ink on the rejection of the Frege-Criterion.

1. *deny satisfaction of Frege-Criterion's antecedent*

How might one challenge the particular application of the Frege-Criterion? First, one might suggest that the nominalist fails to *understand* 'A' and/or 'B' (e.g., fails to understand (10) and/or (11)). It's hard to see, however, what grounds one could advance for this, save the nominalist's very failure to treat 'A' and 'B' as epistemically equivalent. But this would require a standard for understanding that's divorced from ordinary assessments (a standard, what's more, so high as to render the criterion useless in settling disputed cases). Absent some independent motivation, this response begs the question.

Second, one might deny that a nominalist who understands both and accepts (11) does not believe (10)—even if he does not assent when asked. This bullet-biting commitment would require as well a pragmatic explanation of why we typically would not ascribe such a belief, even though the ascription would be true. (Cf. Soames (1987).) In addition, there is a threat that such a position must deny that it's rationally possible to *be* a nominalist, if to be a nominalist just is to believe that there don't exist abstract objects such as sets. For, if the nominalist believes that every person ponders (or, it would seem, any other quantified claim), then he believes, on this view, its set-theoretic equivalent and is thus committed to the existence of sets and thus to something inconsistent with the belief that sets don't exist. Perhaps some would welcome this conclusion: the nominalist is irrational after all. Alternatively, to avoid this threat, one might reconceive what it is to be a nominalist: perhaps a nominalist is someone who understands but does not accept the *sentence* 'Abstract objects exist' (or some translation thereof).

2. *deny satisfaction of Ascription Thesis' antecedent*

How might one challenge the particular application of the Ascription Thesis? When one utters 'A believes that P' the *speech act* content can be accurate even though the sentence uttered is false—and, even if the sentence is not false, it may ascribe a different content than the speech act. There is thus the possibility that utterances of attitude-ascribing sentences that embed (10) and (11) express truths, although not by ascribing the contents that (10) and (11) express. If so, the antecedent of the Ascription Thesis may not be satisfied. The objection is thus that the argument falsely assumes that, if what a speaker communicates in uttering 'S believes that P' is true, then S believes that P.

But, while this assumption does not hold generally, we are dealing in our case, on the one hand, with an ascription entered in a theoretical context (the ascription of a cognized semantic theory), and, on the other, with an ascription of what the speaker herself can avow in any context using the sentence in the ascription's that-clause (the ascription of rationalizing semantic knowledge). It therefore seems that the possibility of interfering pragmatic factors is not relevant here. It's reasonable to assume that, not only our ascriptions, but also the ascribing

sentences are accurate.

3. *deny Ascription Thesis*

The Ascription Thesis follows from a more basic principle—viz., that “belief reports specify belief contents, i.e., to be true a belief report must specify a proposition the person believes.” (Bach (1997), p. 222) Kent Bach (1997) rejects this “Specification Assumption” in favor of the view that belief reports merely describe or characterize what a person believes. Bach’s argument in large part is that his view best handles the semantic and pragmatic effects of proper names in attitude contexts—in particular, in Kripke’s Paderewski case.³⁵ Someone adverting to Bach in challenging this basis for the Ascription Thesis thus commits herself to a particular position on much-disputed questions concerning attitude ascriptions. But even if one grants the attractions of Bach’s view, there is a question whether adopting it would threaten the use of the Ascription Thesis above.

Bach’s positive proposal is that an utterance of ‘S believes that P’ is true iff S believes a certain thing (made relevant in that context, in part owing to the sentence uttered) that entails and is an elaboration of the proposition that P.³⁶ An utterance of ‘Peter believes that Paderewski has musical talent,’ for example, may be true on one occasion but false on another, because the “certain thing” may differ: on one occasion, it may be more fully described using ‘Paderewski, the pianist, has musical talent;’ on the other, by ‘Paderewski, the statesman, has musical talent.’ These sentences express elaborations of and entail the proposition that Paderewski has musical talent. They more fully describe the relevant “certain thing,” even though they themselves may not fully specify the belief’s content either. (In fact, Bach doubts that a that-clause *can* give a *complete* description—a specification—of a belief’s content.)

To reject the Specification Assumption is to reject one basis for the Ascription Thesis. This rejection does not *per se* entail that the Ascription Thesis is false. But Bach’s view of belief ascriptions does entail the rejection of Ascription Thesis as well. For on his view it’s possible for utterances of ‘S believes that John is nice’ and ‘S believes that John, the barber, is nice’ to both be true and to be true in virtue of the same “certain thing” believed by S, even though ‘John is nice’ and ‘John, the barber, is nice’ differ in content.

The question now is whether Bach’s reasons for rejecting the Spec-

ification Assumption are germane to us. Bach focuses on utterances involving proper names. Can one generalize his considerations to encompass sentences like (10) and (11)? In particular, is it possible that ascriptions using (10) and (11) might concern the same state, even if (10) and (11) themselves differ in content? To address this question, one needs *inter alia* a better understanding of what counts as an “elaboration;” otherwise, one cannot assess whether there might be a content that is an elaboration both of what (10) expresses and of what (11) expresses. Bach’s discussion does not include an account of elaboration, but rather proceeds by example. (Cf. Soames (forthcoming), on proper pragmatic enrichment.) His examples all involve the addition of descriptive material to the ascription’s that-clause. But it is unobvious what additions one might make to (10) and (11)—short of conjoining each to the other—that would yield a content satisfying Bach’s conditions. If one cannot extend Bach’s discussion to our cases, then, even if the Ascription Thesis is false as a general principle, it may be a permissible idealization—one that brackets orthogonal concerns—as deployed above.

4. *one state, two contents*

Perhaps one might reject the assumption that a difference in content suffices for a difference in characterized state: why not allow one state to bear multiple contents? (10) and (11) could thus differ in content, and yet accurately specify the content of the same state—or rather, though neither would specify *the* content of the state, each would at least specify one of the state’s contents. Such a view clearly requires motivation and development. I will only mention three challenges it would face. First, allowing states to bear multiple contents complexifies the question of how a state, in virtue of its content, plays its causal and/or rationalizing roles. On the computational-representational theory of mind, for example, a state’s “syntax” mirrors its content. But if a state has multiple contents, which content is syntactically mirrored? And if only one can be, how does one account for the other contents’ causal-rationalizing roles? If these questions cannot be satisfactorily answered, then this move requires a rejection of the computational-representational theory of mind. Second, allowing states to bear multiple contents complexifies the question of how, or in virtue of what, states have the contents they do. It has proven difficult

enough to answer this question on the assumption that content-bearing states bear only one content. It's unclear, to say the least, how extant strategies could be developed to handle multiple contents. Third, one would want an explanation of *why* there are states bearing multiple contents, and why states bear *those* contents together.

5. reject Frege-Criterion

Finally, one might of course reject the Frege-Criterion. I limit myself to three remarks.

a. First, this move is not available to those neo-Davidsonians who have explicitly committed themselves to the Frege-Criterion. (Cf. Segal (2003), but also Brown (2003) in reply.) The cognitivist account *itself*, however, does not seem so committed; and those neo-Davidsonians might be willing to change their minds.

b. Second, one might find oneself committed to a very coarse conception of content indeed. At least on the surface, (10) and (11)'s right-hand-sides (i.e., (15) and (16)) seem to differ significantly in their structure—as do, therefore, (10) and (11) themselves. If this surface difference runs deeper, identifying the contents of (10) and (11) would preclude endorsing a conception of content-individuation that requires sameness of structure. This would preclude, for example, neo-Russellian conceptions, according to which contents are, or are represented by, n-tuples of objects, properties, and relations. The most natural remaining candidate conception would then seem to be mere necessary equivalence. While a conception of content with its defenders, this rather coarse conception is certainly controversial, facing well-known objections (one of which we'll touch on below).³⁷

To avoid this result, one could try arguing that (10) and (11)—in particular, their right-hand-sides—don't differ in structure after all. This would require an explanation and defense of the relevant conception of structure as applied to the claims at issue. It seems unpromising to suggest that (10) and (11) are *syntactically* isomorphic. But one might instead look to the cognized semantic theory itself for the relevant conception of structure. Suppose, for instance, that a sentence's structure is given by, or is a function of, the right-hand-side of its T-theorem. (10) and (11) would then agree in structure if the right-hand-sides of *their* T-theorems (note: not the structure of their *own* right-hand-sides (15) and (16)) were associated with the same

structure. That is, if 'A' and 'B' below were associated with the same structure:

(17) 'Every person ponders' is true iff $|y: y \text{ is a person} - x: x \text{ ponders}| = 0$ is true iff B.

(18) 'Every person ponders' is true iff every person ponders' is true iff A.

Because, however, (10) and (11) are identical except for their right-hand-sides, it's natural to assume that any difference in the right-hand-sides of the *T-theorems* for (10) and (11) will reflect a difference in the right-hand-sides of the T-theorems for (10) and (11)'s right-hand-sides—that is, in the T-theorems for (15) and (16):

(19) ' $|y: y \text{ is a person} - x: x \text{ ponders}| = 0$ ' is true iff ?

(20) 'Every person ponders' is true iff ?

Of course, once completed, (20)—the T-theorem for (16)—is just (10). What of (19), the T-theorem for (15)? What would need to be shown is that its right-hand-side is associated with the same structure as the right-hand-side of (20)—that is, the right-hand-side of (10), which is (15) itself. It's unclear, however, that this could be done. (15)'s mathematical symbolism arguably abbreviates an existential generalization. So, if the T-theorem concerns what the sentence abbreviates, then, according to Generalized Quantifier Theory, its right-hand-side will indeed concern the cardinality of a set. But not as with (10). Rather, the right-hand-side might look something like:

(21) $|u: u = 0 - v: v = |y: y \text{ is a person} - x: x \text{ ponders}|| = 0$, and $|v: v = |y: y \text{ is a person} - x: x \text{ ponders}|| = 1$.

If this is right, then (10) and (11) do not have the same structure. If this is not right, then we are owed an alternative account. I will not pursue further how this line might be developed, except to note that, if (19), the T-theorem for (15), is *homophonic*—if *this* is the way structural equivalence is achieved—then we risk jumping from the frying pan into the fire. For, as we'll now see, preserving structural identity in this way threatens to leave us without an answer to a *further* question proponents of alternative conceptions of content must address.

c. If one rejects the Frege-Criterion, there is the matter of adequately explaining, or explaining away, the apparent difference in cognitive significance that motivates the Criterion in the first place. I'll

mention just two strategies of particular relevance to us—the neo-Russellian account of Fodor (1990 and 1998), applied to the case at hand, and the explicitly Stalnakerian account of Dwyer & Pietroski (1996), who defend a coarse, necessary-equivalence conception of content specifically in application to semantic belief.

i. According to Fodor, what accounts for the difference in cognitive significance marked by the Frege-Criterion is not a difference in *content*, but rather a difference in *vehicle*. His Representational Theory of Mind holds that, for beings like us, to be in a contentful state is, as a matter of nomological necessity, to stand in some appropriate relationship to a mental representation, a sentence-like particular in the Language of Thought (Mentalese). This mental representation (token-identical to a brain-state) would be the *vehicle* of content. But differently typed vehicles can bear the same content—thus the strategy of explaining differences in cognitive significance by appeal to differences in vehicle.

While Fodor does not *himself* advocate a cognitivist truth-theoretic account of semantic competence, some such advocates have found it natural to develop their accounts within the framework of Fodor's Representational Theory of Mind. Thus they hold that the cognized semantic theory is represented in the Language of Thought.³⁸ On such a view, the cognized semantic theory functions as an interface between natural language sentences and sentences in Mentalese—translating, as it were, between one and the other.³⁹ (10), although expressed in English, is thus supposed to capture relevant aspects of how the T-sentence for 'Every person ponders' is represented in Mentalese: (15), the cardinality claim on (10)'s right-hand-side, is thus the Mentalese "translation" of 'Every person ponders.' (Cf. Kim (1995), pp. 549-50.) But then consider (11). (11) is supposed to be an example of a semantic claim X might use to rationalize her linguistic behavior. But how would (11)—not just the target sentence it mentions ('Every person ponders'), but (11) itself, the T-sentence—be represented in Mentalese? Given what (10) tells us, it would seem the T-sentence for (11) would be something like:

- (22) $\text{Val}(t, [_s \text{ 'Every person ponders' is true iff every person ponders}]) \text{ iff 'Every person ponders' is true iff}$
 $|y: y \text{ is a person} - x: x \text{ ponders}| = 0.$

(22), that is, would be the proper fleshing-out of (17). If we again ignore some admittedly important complications (concerning how the semantic theory treats the predicate 'is true,' how this predicate is related to the semantic value *t*, and how the semantic theory treats quotation), we see that (22)'s right-hand-side—that is, the translation of (11) into Mentalese—is more-or-less (10). This certainly seems to be good news for the strategy that would maintain that (10) and (11) characterize the content of one and the same mental state in two ways!

But now we face a problem. If (10) and (11) are represented the same way in Mentalese—that is, if there is no vehicular difference between them—then one can't apply Fodor's account of variation in cognitive significance. We are left without an explanation of how someone could rationally believe one but not the other. Admittedly, I've supplied but a gesture towards a reason for thinking that (10) and (11) would receive the same Mentalese representation. But we can heighten the problem by noting that it's not clear that a Fodorian is any *better* placed to explain variation in cognitive significance if (10) and (11) do *not* receive the same Mentalese representation. For, if they don't, then there's reason to worry that they differ in structure and so—by Fodor's lights—must differ in content after all. This is because, if (10) and (11) do not differ in structure, then it's unclear in what their vehicular difference consists. If not in a difference in structure, then surely it consists in a difference in atomic constituent concept.⁴⁰ But it's unclear what difference in atomic constituent concept there is between (10) and (11)'s Mentalese representations. Hence, the temptation to posit instead a difference in structure and thus in Fodorian content. It's therefore unclear that one can combine a structured conception of content and a vehicular account of variation in cognitive significance with the claim that t-sentence pairs like (10) and (11) agree in content. The burden rests with someone who thinks otherwise.⁴¹

Even successfully shouldering this burden, however, would not save this strategy from a more basic problem. The interest in defending the claim that (10) and (11) agree in content arises from an interest in arguing that they characterize the same state in two ways, which requires identity of content. But identity of content, as we've noted, is not *sufficient* for sameness of state. The whole idea behind the Fodorian strategy is to explain variation in cognitive significance by appeal to

some *other* difference in state besides a difference in content. The important point for us is that a difference in vehicle is a difference in state. So, successfully applying the Fodorian strategy in this case would hurt rather than help the present reply to the “relation” question.

ii. What of unstructured, coarse conceptions of content? Such views must also explain, or explain away, the apparent differences in cognitive significance that motivate the Frege-Criterion. Dwyer & Pietroski (1996) address this issue in the course of developing an account specifically of *semantic* belief. On their view, content can be represented by a set of possible worlds; the objects of attitudes are thus individuated by necessary equivalence. They then explain appearances to the contrary by offering a semantics for belief-ascription according to which (roughly) an ascription ‘S believes that p’ is true iff S believes *both* the proposition expressed by ‘p’ and the proposition expressed by the *meta-linguistic* sentence ‘p is true.’ (p. 364) The apparent difference in belief is thus explained by a real difference in what ascriptions assert concerning belief *about language*.⁴² That, at least, is how things go for *paradigmatic* cases. It is crucial to their view, however, that ascription of *tacit* belief—such as belief in a compositional semantic theory (pp. 367-8)—falls outside the paradigmatic cases. This is because speakers typically would not assent to statements of these beliefs and therefore the formulation of linguistic generalizations need not be sensitive to differences in co-referring theoretical terms. (p. 362) They argue that, as a result, belief ascriptions in such cases need not satisfy the meta-linguistic condition in order to be true. But this raises a *prima facie* problem: for now it would seem that their device for explaining our response to Frege-cases is *unavailable* when dealing with tacit semantic beliefs.

Dwyer and Pietroski might reply as follows. In ascribing belief in (11), we are engaged in paradigmatic belief ascription and so *do* require satisfaction of the meta-linguistic condition for the ascription to be true. In ascribing belief in (10), we are not engaged in paradigmatic belief ascription and so do not require it. Nonetheless, in each case, we’ve ascribed a belief with the same content. The apparent difference in belief, granted, is not in *this* case explained by a difference in the subject’s beliefs about language. But the approach still has the resources for explaining the appearance. In this case, it’s explained

by a difference in the *kind of belief-ascription* in which *the ascriber* is engaged (paradigmatic versus non-paradigmatic).

This reply, however, arguably succeeds *too* well. For in shifting the locus of the explanation to the *ascriber*, we seem committed to a view on which there’s little, if anything, to distinguish the nature of the *states*—in particular, the subject’s relation to them. Regardless of whether the intentional states posited in cognitivist explanations are called *beliefs* or not (as opposed to cognitions or what have you), there’s a natural thought that they often differ in significant, characteristic ways from paradigmatic beliefs—viz., in just the ways we’ve been emphasizing throughout. But, on the Dwyer-Pietroski view, these differences—for example, in accessibility to consciousness—don’t actually reflect differences in subjects’ mental *states*; they reflect differences located in the practices of *ascribers*.⁴³

Raised as a *worry*, this might seem question-begging: isn’t the *purpose* of the present section to consider the suggestion that claims like (10) and (11) might characterize one and the same state characterized in two different ways? Yes, but my current point is not that it’s *per se* problematic to say that differences in cognitive significance do not reflect differences in mental state. My point, rather, is to draw out the potential consequences of this suggestion—viz., that it might commit one, not only to a very coarse conception of content with its concomitant account of Frege-cases, but also to this surprising *ascriber*-based distinction between explicit and tacit belief. It’s highly unobvious to say the least that one should accept such consequences.

4. LESS “INTIMATE” RELATIONS

We’ve surveyed a variety of ways one might answer the “relation” question and their varying empirical and philosophical commitments. Suppose it happens that the cards do not favor any of them: suppose that ascriptions of (10) and (11) do indeed concern distinct states, that the one cannot be derived from the other, and that neither developments in nor reinterpretations of semantic theorizing will change this. It would not follow that rationalizing semantic knowledge and tacit knowledge of a compositional semantic theory are simply unrelated, but only that the relations they do bear to one another are somewhat less “intimate.”

I conclude by briefly indicating what some of these relations are or might be.

A. Recall our two bases for positing propositional semantic knowledge. According to the first, consideration of language use as rational activity provides reason to ascribe mature language users with semantic beliefs like (11). According to the second, for beings like us, it's nomologically necessary, to be a mature user of a language, that one cognize a compositional semantic theory for that language. It follows that, for beings like us, at least in the typical case and *ceteris paribus*, we would not possess the rationalizing semantic belief if we did not cognize a compositional semantic theory.⁴⁴ So, here's a first thing we can say: as a matter of empirical fact (in the normal case), the one enables the other. This is not yet to say very much, however, since it's also true as a matter of nomological necessity that we wouldn't possess the rationalizing semantic belief if we didn't possess a liver.

B. We may add something more specific, though, concerning the specifically *semantic* expressions needed to *express* rationalizing semantic belief—expressions such as 'means,' 'refers,' 'is true,' etc. Expressing *any* belief in language requires competence with the expressions used—and so expressing rationalizing semantic beliefs requires competence with semantic expressions. If the cognitivist hypothesis concerning semantic competence is correct, this means in particular that, in the normal case, the speaker must cognize axioms pertaining to the semantic terms. Thus, while cognition of the axioms pertaining to the constituents and syntactic structure of some sentence 'S' might in large part explain our understanding of *it*, our ability to express propositional knowledge of *what 'S' means* requires something more—in particular, cognition of that part of a semantic theory that concerns semantic vocabulary (not to mention a way of referring to or describing 'S').

Now, when the semantic claim is homophonic (say, 'S' means that S), the T-theorem for 'S' will indeed play a role in one's understanding of, and ability to produce, that claim. But not because the T-theorem's right-hand-side will receive further processing, as in the opening answers to the "relation" question. There, it was suggested that one draw on extra-semantic information to derive a homophonic T-sentence for 'S'. But the role the T-theorem for 'S' plays *here* is different. The point

is simply that, since 'S' is a *constituent* of ' 'S' means that S,' the T-theorem for 'S' will be drawn upon in deriving the T-theorem for the more *complex* sentence that states what 'S' means.

Thus, we have a second way claims like (10) and (11) are related: (9), the T-theorem from which (10) is derived (replacing the target-sentence's syntactic representation) plays a role in the generation of the *T-theorem* for (11), which (in the normal case) is necessary for the *expression* in that language of the semantic belief (12) characterizes. Let me underscore, however, that this is a relation between the cognized T-theorem and the homophonic *expression* of the rationalizing semantic belief—not a relation between the T-theorem and the rationalizing semantic belief itself.⁴⁵

C. But the T-theorem might play a role, not just in speakers' *understanding* the homophonic rationalizing semantic claim, but also in warranting their *belief* in what it expresses. This would be so if cognition of the relevant T-theorem plays a causal, but non-inferential, role in the generation of the corresponding rationalizing semantic belief.⁴⁶ Since these beliefs tend to be true, the mechanism that produces them is reliable—and so the cognition, insofar as it constituted an element of this mechanism, would provide part of the rationalizing semantic belief's entitlement. This etiological (and thus in this case epistemic) role for cognition of a compositional semantic theory would clearly distinguish it from the mere nomologically necessary enabling status of a speaker's liver.⁴⁷

These three relations are all sufficiently lacking in intimacy that perhaps one can't help but think that there are more intimate details to be learned (even if we're too young to learn them just yet). In particular, one wants to know *why* mature adults possess both kinds of semantic knowledge, if they do. One might speculate that the cognized semantic theory is as it is owing to the demands of our subpersonal cognitive economy, while we possess consciously accessible semantic knowledge that we may exercise a degree of rational control over our linguistic activities and explain our actions to others. But this is not the place to develop or assess this idea.

Of course, it's also very possible that we will come to see that we should reject the claim that propositional semantic knowledge plays a rationalizing role in linguistic behavior or that we should reject the

claim that we cognize a semantic theory—or that we should reject both (perhaps even in part on account of their relation being obscure).⁴⁸

Notes

¹Stanley and Williamson 2001 and Snowden (2003) argue that knowledge-how is a *species* of knowledge-that: for X to know how to Y is for there to be a way of Y-ing such that X knows that it's a way of Y-ing (under a “practical mode of presentation,” on Stanley and Williamson's view). Even if this is right, there would remain the question whether *this* kind of knowledge-that exhausts semantic knowledge. (Cf. Hornsby (2005) p. 117. fn. 17.) Stanley (2005), for example, would answer that it does not. As for semantic knowledge possibly being something else altogether, cf. (Chomsky 1968/72, p. 191) on the collocation ‘knowledge of language’—for discussion and further references, see Collins (2004). There is also the distinction between knowledge and belief (see also below on ‘cognition’), but this will play no significant role in my discussion and I will sometimes switch from one to the other. Talk of *knowledge* should be understood as a convenient shorthand for: knowledge or something knowledge-like.

²This aspiration, as I conceive it, is metaphysically modest: it's an expression of a methodological naturalism that does not presuppose metaphysical naturalism or physicalism. Cf. Gross (2005b).

³Regarding the claim that issues involving context-sensitivity and pragmatically communicated content are orthogonal to my topic: Empirical theories of semantic competence of the sort I discuss below typically accommodate such phenomena by some combination of (i) indexicality and other parameterizations in the semantics and (ii) post-semantic pragmatic processes. The “relation” question remains, however, when the parameters in (i) are filled in (see fn. 26 below); and, on the views in question, it happens at least often enough to raise the “relation” question that the saturated semantic content survives pragmatic processing—i.e., is, or is a part of, what the speaker communicates. (I do not take lightly, however, the challenge context-sensitivity poses for such semantic theories—see, e.g., Gross (1998/2001) and Gross (2005c). Other matters I skirt over include consciously accessible knowledge of semantically relevant structure and of the meaning of sub-sentential expressions; the proper object of semantic belief/cognition (I-language vs. idiolect vs. public language); and the proper format of semantic claims or beliefs (e.g., ‘S means p’, ‘S means that p’, or ‘S is true iff p’). Concerning the last, I concessively assume that something formatted in one way can be appropriately related to something formatted in another—but cf. Gross (2005a).

⁴Cf., e.g., (Hornsby 2005, p. 128), (Soames 1989, pp. 587–91), (Fodor 1989, pp. 418–9).

⁵(Hornsby 2005, pp. 118–9) maintains that, though “of course no-one will deny that, in some sense, producing sentences—words in a certain order—is something a speaker intentionally does,” this is so only insofar as words are “conceived as laden with meaning.” But, she says, a

different conception of words and sentences [viz., as mentioned] is brought into play by those who tell us that a speaker's knowledge of the propositions of semantic theories explains what the speaker does.

This, if correct, would pose no threat to the claims of this section, as far as I can see. But it could indicate a further difference between the semantic knowledge posited by our two strategies. However, I will bracket this and related issues concerning how sentences are conceived and represented. (Cf. below—also (Fodor 2006, p. 42, fn. 12), and Dwyer and Pietroski, 1996, p. 364.)

A possible consideration against the intentionality claim that Hornsby does not mention is that both speakers and hearers typically remember, even when asked immediately after the speech act, what was said, but not the exact words used. (Cf. Sachs (1967) and, for brief discussion and further references, (Johnson 2007, p. 267).) However, while this is an important datum about our linguistic capacities, it's not clear that intention-in-action requires that memory perform better.

Finally, for an excellent test-case of intentionality, see Clark & Fox Tree (2002) on the differing, surprisingly specific informational contents of ‘uh’ and ‘um.’ Clark and Fox Tree argue that ‘uh’ and ‘um’ are conventional English words meaning, roughly, that a minor delay is coming and that a major delay is coming, respectively. Speakers can control their use to some extent: radio announcers use them considerably less when on-air. But are these sounds uttered intentionally in order to communicate this content?!

⁶These claims contain a fair number of qualifications. It's not suggested that language use *as such* must be rationalized in part by propositional semantic knowledge. No claim about the concept or essence of linguistic competence is being made; nor even about what's nomologically necessary for humans. (The nature of possible non-human language use is not our concern; nor must we maintain that the picture extends to the language use of young children or incapacitated adults—though cf. fn. 45 below.) It suffices for our concerns that this *in fact* tends to be the case for mature human language users with respect to native languages in which they are competent. And we may allow plenty of exceptions even among instances of language use by mature competent humans. One may find oneself blurting out something *unintentionally*. One may *intentionally* utter some sentence for no particular reason—unless, perhaps, the presence of an urge to which one gives in may itself count as one's reason. One may utter a sentence to achieve some end, but not because one's belief that, in doing so, one will achieve that end is based upon a belief about what the sentence means—as when one utters any old French sentence in order to sound sexy to a non-French speaker. Still, having granted all this, one might maintain that the claims apply to *typical* language use—or at least a wide range of central cases. And that's all this section needs. Two further points. Note, first, that neither that someone X's in order to Y nor X-ing's being a way to Y entails that X-ing is a *means* to Y or is an *indirect way* of Y-ing. So, nothing said requires that the relation between uttering a sentence and performing a speech act always be so understood. Second, note that we nowhere above or below need advert to higher-order or reflexive Gricean communicative intentions.

⁷(Fodor 2006, p. 32) seems already to consider the knowledge that uttering S on this occasion is a way to assert that P to be propositional semantic knowledge.

⁸A clear example of such anti-intellectualism is Dreyfus (2005).

⁹For other tacks, see Lepore (1997) and Fodor (2006).

¹⁰These remarks are of course too brief to decisively refute either a general eliminativism or epiphenomenalism about folk psychology or a more specific skepticism concerning, if you will, folk semantics (or this aspect of it). But my aim here is only to motivate a view, not to establish it conclusively. On our surprising capacity for confabulation, see

e.g. Nisbett and Wilson's classic 1977.

¹¹Of course, bilinguals, unlike monolinguals, have the ability to speak about one language they speak using another. But I have in mind other differences. There is, for example, some evidence that bilinguals, at least in early stages of development, perform better on certain meta-linguistic tasks, such as Piaget's sun-moon problem (If we exchanged the names of the sun and moon, what would the sky look like at night?). Cf. Bialystok (2001, Chap. 5).

¹²I've simply adapted the standard way we explain to students the sense in which homophonic T-sentences are non-trivial. Cf. (Kim 1995, pp. 30-2).

¹³3rd-person evidence could indeed become relevant to a *reassessment* of some semantic belief—say, when communicative failure leads one to suspect idiolectal variation. But then the speaker is assessing the semantic belief itself, not a self-ascription of it.

¹⁴For a textbook presentation, see Kim (1995). I limit myself to neo-Davidsonianism as an expository convenience in part because it's familiar to philosophers, relatively easy to set out, and arguably less ontologically committing than other styles of semantic theorizing. Both Davidsonians and Neo-Davidsonians often argue, moreover, that other approaches fail to be “absolute”—i.e., they fail to yield information knowledge of which would suffice for understanding the language. Cf. Lepore (1983) and Higginbotham (1988). Much of what I say, however, would apply as well to other cognitivist propositional accounts of semantic competence. Work in the *Montagovian* tradition, for example, is *sometimes* construed in this way. Cf., e.g., (Chierchia & McConnell-Ginet 1995, pp. 404-7) for some discussion.

¹⁵Below I suggest that the theory deploys *concepts* unfamiliar to most competent speakers. The point is not meant to turn on unfamiliar *notation*. So, (1.a) says: For all x , x is a semantic value of 'Kate' iff $x = \text{Kate}$ (roughly, 'Kate' refers to Kate). 'V' 'NP' and 'VP' (short for: verb, noun phrase, and verb phrase) name different kinds of nodes on syntactic trees. (2.a) says: A sentence made up of a noun phrase followed by a verb phrase is true just in case there's something that's a semantic value of each. (2.c) says: If a node on a syntactic tree has but one daughter node, then the mother node inherits the semantic value of the daughter node. Etc. Variables above are bound by suppressed universal quantifiers.

¹⁶I.e., roughly, the syntactic structure associated with 'Jill knows Kate' has the semantic value t (is true) iff Jill knows Kate. Cf. Larson and Segal (1995, pp. 120-1).

¹⁷I am not counting the (subpersonal) presence of a mental representation with the relevant content as sufficient for possessing the concept in the relevant sense. Otherwise, the possession of tacit semantic knowledge would suffice for possession of these concepts. (Some cash out the relevant notion of concept-possession by reference to inferential integration. This would collapse the main text's present point into the next.)

¹⁸Though conscious beliefs can in *some* ways affect one's tacit semantic knowledge—as when one's lexical entry for 'fortnight' changes in response to one's realization that others use the term differently.

¹⁹This might seem in tension with the ascription of privileged self-knowledge of rationalizing semantic belief. But it only helps mark its limits.

²⁰Ludlow (1999). He discusses the further suggestive data on pp. 138-141. (Interpreted Logical Forms are labeled syntactic trees with each node paired with its semantic value.)

²¹Cf. (Chomsky 1975, pp. 164-6). I say “adapt,” however, because Chomsky himself

(e.g., 2003) disavows intentional readings of 'cognition'. (Construed non-intentionally—and perhaps even construed as ascription of an attitude distinct from both knowledge and belief—ascription of cognition might be acceptable to those who maintain that semantic knowledge is practical.)

²²It's a further question whether such states, since they are consciously inaccessible, can be reasons for which an agent acts or believes. (For a possible negative answer, see Heck, 2006, p. 32—though note his use of 'may' on p. 31. For a possible affirmative answer, depending on the details of the semantic theory, see Rumfitt, 1995, pp. 858-9, who, however, allows that this involves idealization—albeit without expanding on its nature.) It is tempting to argue that conscious accessibility is required if such states are to be subject to rational assessment and control and that this is what distinguishes rational agency from the merely purposive. But whether one can support such claims without committing oneself to an objectionably strong form of epistemic internalism is not obvious. If consciously inaccessible states cannot be reasons for which an agent acts or believes, then there is a further difference between the belief in a compositional semantic theory and rationalizing semantic belief. If they can, then the belief in a compositional semantic theory is, or can be, rationalizing semantic belief as well: but it would still seem to differ from the rationalizing semantic belief motivated above, and so the “relation” question would remain.

²³For discussion of explanatory exclusion, see Kim (2005, Chap. 1). It's suggested that overdetermination might not be problematic even between the physical and the intentional by Sider (2003).

²⁴Henceforth, I will assume—usually silently—that one can always transform as necessary left-hand-side representations of the target sentence.

²⁵Cf. Larson and Segal (1995, chap. 8). The possibility of formulating Generalized Quantifier Theory non-set-theoretically is taken up below.

²⁶Further processing is needed in any event if quantifier phrases contain an unpronounced, contextually determined parameter for domain restriction (cf. Stanley & Szabó (2000)). But determining this parameter—i.e., universally instantiating the relevant variable in the cognized T-theorem—would still leave us with a non-homophonic T-sentence concerning sets and their cardinalities. Again, context-sensitivity is orthogonal to our discussion.

²⁷Larson and Segal do not explain their own interest in restoring homophonicity; so, it should not be assumed that they intend to address some version of the “relation” question. Note also that some more general comprehension schema is needed if we are to avoid positing cognition of a distinct analogue of (12.c.) and (12.d) for each relevant term. In accounting for cognitive competence, however, it's not clear that such a schema must be constrained to avoid paradoxical results. Cf. Patterson (2008).

²⁸See Asher & Morreau (1995) and on generics generally the collection in which it appears: Carlson & Pelletier (1995). On mass terms, see Pelletier & Schubert (2003).

²⁹More sophistication potentially lurks in the semantic value t , which Pietroski (2003, pp. 221-3, and 2005, p. 34, fn. 5) doubts corresponds to truth. His reasons, however, in part have to do with his views on context-sensitivity, which we have bracketed.

³⁰Exceptions tend to be more philosophically-minded semanticists (including, admittedly, prominent neo-Davidsonians). Cf. Larson and Segal (1995, pp. 140-4) and Ludlow (1999, chap. 4). Even for them, however, minimizing non-obvious ontological commitment is not a goal *per se*, but rather a consideration if it receives independent metaphysical

ical support. For some discussion, see Gross (2006). As for Pietroski, the conceptual and empirical grounds he offers in favor of his approach nowhere advert to a desire to avoid conceptual sophistication or ontological commitment. In fact, Pietroski (2003, pp. 222-3, fn. 7, and 2005, p. 7f.) emphasizes the difference between the statement of truth-conditions provided by disquotation and those provided by an explanatory semantic theory. Though I've drawn upon his work in laying out a strategy for answering the "relation" question, I doubt it is one he would himself endorse in full generality.

³¹The inference from 'John swam briefly' to 'John swam' gets represented, roughly, as an inference from 'There was something that was a swimming, done by John, and brief' to 'There was something that was a swimming and done by John.' The standard treatment of tense above provides another example of a fruitful application of eventish semantics. And, as we've seen, Pietroski generalizes the approach.

³²Cf. Gross (2006). I adapt talk of cognitive equivalence relative to a presupposition from Field (1994, p. 250). It might seem that a problem arises with sentences explicitly about the presupposed entities. Consider, for example, a sentence that explicitly denies the existence of sets. Is it cognized that this sentence is true iff, on the supposition that sets exist, sets don't exist? If so, the target sentence is cognized to have *contradictory* truth-conditions. This is not the case, however, if we distinguish (as would seem plausible, given their distinct functional roles) two concepts: SET₁ (which plays a central role, let's assume, in cognized truth-theories) and SET₂ (which is lexicalized by the term 'set'). These concepts need not even be identical in content—cf. fn. 27 above.

³³Cf. Frege (1906, p. 299). A strengthened version would require the inverse as well. To handle "Mates-cases," one might require that 'A' and 'B' not contain intensional contexts. (Cf. Segal (2003), pp. 416-8.) This would block application to 'means-that' claims, though not to T-sentences. (Segal (2003), also mentions—and in one case discusses—some other complications and objections not mentioned here.)

³⁴This argument requires that the nominalist be a *revolutionary* nominalist, not a *hermeneutic* nominalist. The former holds that belief in (10) commits one to sets; the latter holds that it doesn't, given a proper nominalistic understanding of what (10) actually says. (Cf. Burgess & Rosen (1997), pp. 6-7, from whom I borrow these labels.) (The argument of course does *not* require that one *be* a nominalist, as would some replies to the "relation" question covered above in section D.) The argument also requires that merely cognizing not amount to belief, otherwise the nominalist *does* believe that P, if the account of semantic competence is correct. Alternatively, one might rephrase the criterion—e.g. in terms of conscious belief, or by changing the antecedent condition to believing P while believing not Q without irrationality (assuming one can cognize Q and believe not Q without irrationality). The argument and the succeeding discussion turn on *ontological* claims or presuppositions. But I don't mean to suggest that one could try to wield the Frege-Criterion only by adverting to such cases.

³⁵Kripke (1979). Peter knows of both the famous pianist named 'Paderewski' and the great statesman of that name, but he doesn't know that they are the same person—and he doesn't believe that a great statesman can have musical talent. It seems correct both that he believes and disbelieves that Paderewski has musical talent.

³⁶Bach's (1997, p. 238) formulation has it that the "certain thing" *requires* the truth of the proposition that P. My formulation incorporates Bach's clarification (personal communication) of what he intends by 'requires.'

³⁷Stalnaker (1984 and Stalnaker (1999)) defends such a coarse conception of con-

tent. He assays replies to standard objections—e.g., that such a conception assigns all mathematical claims the same content, is motivated by a conception of belief and other attitudes that seems to require that subjects be logically omniscient, and has particular difficulty otherwise accounting for the intuitions concerning "cognitive significance" that motivate the Frege-Criterion (see below).

³⁸See, e.g., Larson and Segal (1995, pp. 545-8). (They leave open whether the representation is explicit or implicit.) See, e.g. Fodor (1989) for his doubts concerning a role for propositional semantic knowledge in production and comprehension. For replies, see Segal (1994), Lepore (1997), and Matthews (2003).

³⁹Confronted with a spoken sentence, it's the information captured in the semantic theory that enables one to relate it (under the appropriate syntactic representation) to a Mentalese representation—viz., the right-hand-side of the T-sentence, fit now to be sent to the "belief-box" if one takes the speaker at her word. Conversely, in production, it's the same generated T-sentence that enables one to match a content one intends to express with the appropriate phonological form, given its relation to the syntactic representation that occurs on the T-sentence's *left-hand-side*.

⁴⁰This is how Fodor handles the more standard "Frege cases"—e.g., Hesperus / Phosphorus cases—to which his discussion is addressed: the vehicular difference between the concept HESPERUS and the concept PHOSPHERUS explains differences in cognitive significance among complex representations containing them.

⁴¹One might try to explain variation in cognitive significance by appeal, not to differences in content or in vehicle, but to differences in functional role, which Fodor (1990) allows as a *third* kind of possible difference between states. Fodor (1998), however, passes over this third possibility, presumably because vehicles are *individuated* by functional role. To resuscitate the strategy, one might try to justify a distinction between aspects of functional role that do and don't contribute to vehicle-individuation. Alternatively, one might distinguish two senses of functional role, tied respectively to intrinsic causal power and causal potential given extrinsic circumstances (e.g., isolation within a module). The point made in the main text's *next* paragraph would apply to these moves too, however. (For some discussion of Fodor on vehicle-individuation, see Aydede (1998) and Schneider (2005).)

⁴²Though this proposition is reasonably described as "about language," it might mislead if one were to label it—the *proposition*, as opposed to some of the sentences that *express* it—'meta-linguistic.' On the Stalnakerian view, this proposition is coarse and unstructured like any other.

⁴³It might be replied that the differences in ascribers' practices itself reflects differences in the states: it's *because* of the difference in states that ascribers use belief-ascriptions with truth-conditions that systematically vary in these ways. But then one is positing a difference in state after all—in other words, one has abandoned the attempt to argue that in the cases at issue there is one state characterized in two ways.

⁴⁴The qualification "at least in the typical case" accommodates such atypical cases as when someone knows but one sentence of a language and, on the basis of this knowledge (which she can only express in some *other* language) utters the sentence in communicating what it means.

⁴⁵Because generating the T-theorem for 'S' means that S' requires more resources than generating the T-theorem for 'S,' one might suggest that understanding a claim concerning what a sentence means is a *further* achievement beyond understanding the sentence

itself. It is true that they are *distinct* achievements and that one requires richer conceptual resources than the other. However, it is less clear that understanding ‘S’ is *developmentally* prior to understanding ‘S’ means that S’. Children exhibit awareness of language at a surprisingly early age—with clear indications of awareness by age 2 and explicit meta-linguistic claims by age 3, at least with respect to some aspects of language. See Clark (1978). According to my psycholinguistic informants, however, there is a dearth of good techniques for gathering hard evidence concerning specifically early *semantic* awareness. Though the hypothesis of developmental priority is indeed very plausible, this is clearly an empirical question—albeit one with a (quasi-)conceptual component concerning what constitutes (sufficient) *understanding*. It’s worth noting that, although competent articulation is sufficient for linguistic understanding and for consciousness of what’s thereby expressed (a point pressed into service earlier), an ability to competently articulate is arguably not necessary for either. (This is clear for linguistic understanding. The situation is more complicated, however, for consciousness, especially concerning conceptually complex beliefs.) Further, both consciousness (awareness) and understanding require the proper exercise of capacities that go beyond merely believing something (say, that ‘S’ means that S’) and/or cognizing something (say, the T-theorem for ‘S’). This opens up in particular the following possibility: that even for very young children the belief that ‘S’ means that S’ might play a role in linguistic production and comprehension *and* be consciously accessible—while yet being “blocked” from conscious access (and thus articulation) by something extrinsic to the belief-state (e.g., because further necessary capacities have yet to develop). If this were so, then this paper’s restriction to *mature* speakers could be dropped. Of course, one would first have to develop the necessary distinctions and make their application empirically plausible. Depending on the details, it would be a question whether cognized T-theories are in this sense accessible to consciousness too. Cf. Block (1990) in reply to Searle (1990).

⁴⁶ “Non-inferential” because we are supposing that the third reply to the “relation” question fails to garner empirical support.

⁴⁷ One might try arguing as well for a *metaphysical* relation between the cognized T-theorem and the homophonic semantic belief. The idea would be that one’s cognizing the compositional semantic theory in part *constitutes*, or *makes true*, the semantic facts the beliefs are about. (Or perhaps the cognition and the conscious semantic belief *co-play* this role.) Developing this, however, would require unbracketing the question of the proper object of semantic cognition and belief (e.g., idiolects or “public” languages).

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