

## *The Character of Natural Language Semantics*

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I had heard it said that Chomsky's conception of language is at odds with the truth-conditional program in semantics. Some of my friends said it so often that the point—or at least a point—finally sunk in.<sup>1</sup>

My aim in this paper is to describe and motivate what I take to be Chomsky's (2000) conception of semantics, with emphasis on his scepticism about more traditional approaches. But the goal is not exegetical. It is to advance a view, whose attractions are considerable, that often gets ignored.

### **1. Overview**

Let me start by simply presenting the main claims. In section two, I go through them again more slowly, with examples and arguments. This will, I hope, compensate for the stark initial statement of some ideas that may initially seem odd.

**1.1** We should be sceptical of the idea that a theory of meaning for a natural language will have theorems that specify the *truth*-conditions of all the declarative sentences of that language. The successes in semantics suggest that the theoretical action lies elsewhere; semantics is concerned with “internalist” features of linguistic expressions, rather than truth *per se*. The fact that (an utterance of) a sentence has a certain truth-condition is typically an *interaction effect* whose determinants include (i) intrinsic properties of the sentence that we can isolate and theorize about, and (ii) a host of facts less amenable to theorizing, like facts about how “reasonable” speakers would *use* the sentence. If this is correct—if our best semantic theories turn out to be theories of linguistic features that do not determine truth-conditions—and meaning is what our best semantic theories are theories of, then the meaning of a sentence doesn't determine its truth-condition. Sentences, as products of (largely innate and modular) language systems, have truth-conditions only by virtue of their relation to other cognitive systems and the environments in which the sentences are used. But sentences have their *meanings* by virtue of more local facts concerning the psychology (and hence biology) of language-users. So a semantics that makes the right theoretical cuts will not *itself* associate sentences with truth-conditions.<sup>2</sup>

There is, of course, a familiar sense in which the meanings of natural sentences—i.e., sentences of a natural language—fail to determine truth conditions: sentences with indexicals or demonstratives do not *have* truth-conditions apart from potential contexts of use. But let truth-conditions be sensitive to context. A theory of meaning still won't have theorems that specify truth-conditions. Indexicals and demonstratives have intrinsic features that introduce a theoretically tractable kind of context-sensitivity; see Kaplan (1989) and the discussion below. Truth-conditions, however, depend on less tractable features of communicative situations. Indeed, while meaning is compositional, truth-conditions may not be. We can hope to specify the “semantic character” of a sentence in terms of a function from Kaplan-style

contexts to *something* that is determined compositionally. But a theory of meaning need not associate sentences with anything that (given the world) determines their truth or falsity; and there is no empirical warrant for claiming that sentential meanings are functions from communicative situations to truth-values. Correlatively, natural language semantics should not be viewed as an attempt to formulate Tarski-style characterizations of truth for natural languages.

From this perspective, semantics is not the study of symbol-to-world relations, or of recursively characterized sets of abstract Propositions to which sentences are semantically related. Semantics, like syntax and phonology, is an internalist enterprise concerned with linguistic expressions and the minds that generate them. This is clearly not Davidson's (1984) program; though significant aspects of that program can be preserved.<sup>3</sup> The proposal will be anathema to anyone who thinks that psychologicist conceptions of semantics are misguided, like psychologicist conceptions of logic, because semantic facts are *normative* in a way that facts concerning (the nature and organization of) human brains are not. But even if logical truths are mind-independent, semantic truths may not be.

We gesture at certain facts by: saying what sentences mean; noting the compellingness of certain inferences; contrasting the ambiguity of certain strings of words with the nonambiguity of others; observing the kinds of referential (in)dependence exhibited by quantifiers, names, and pronouns; *etc.* (For a useful review, see Larson and Segal [1995].) There is no reason to believe that these facts, pretheoretically regarded as semantic, are inexplicable in Chomskyan terms. On the contrary, the available evidence tells against "logicist" conceptions of semantics according to which sentences have meanings only by virtue of being "regimentable" into sentences of a *Begriffsschrift*—a language designed for conducting "ideal inference." Thus, we should be sceptical of the idea that expressions of natural language have Fregean *Bedeutungen*, which reflect the truth-conditional contributions of expressions in a *Begriffsschrift*.

Following Davidson (1967) and/or Montague (1970), however, one might adopt the following bold hypothesis: the apparatus used to stipulate a semantics for a formal language—truth values, entities in a canonical domain, and functions from such entities to truth values—can be used to provide a correct semantics for natural languages (without first associating natural sentences with sentences of a *Begriffsschrift*). Indeed, this idea has become so familiar that Frege (1893) and Tarski (1944) can seem quaint for warning us against it. We name and describe things around us; and modulo cases that can seem peripheral—involving, for example, referential failure or vagueness—our sentences are true or false (as used in particular situations). So why not say that a natural sentence, minus its referential devices, is semantically associated with a mapping from entities we can denote to truth-values? We can then try to

characterize semantic compositionality in Fregean terms. Whether or not this hypothesis is fruitful, one might think the framework assumptions are relatively innocuous. So it is important to distinguish various claims concerning the utility of Fregean tools for the study of natural language.

**1.2** A modest view is that the *structure* of a Fregean semantics, shorn of any presumptions about actual interpretation, can be applied to natural languages. A stronger view is that this structure shows how the *truth-conditions* of natural sentences are *compositionally determined*.<sup>4</sup> I endorse the former.

There are, no doubt, various semantic types. Sentences, quantifiers, and verbs have importantly different semantic properties. One can encode this fact by positing several kinds of *valuations*, and associating expressions of different semantic types with valuations of different kinds. One can also encode facts about the meanings of particular words by associating each word with a particular valuation. But it hardly follows that expressions denote their valuations. The valuation of an expression is a reflection of that expression's theoretically important semantic properties. We *discover* which properties are important, and how they are related to the truth-conditions of sentences. Maybe sentences have truth-values as valuations, and the valuation of a name is what one refers to by using the name; and maybe not. Frege defined '*Bedeutung*' so that the *Bedeutung* of a (formal) sentence is its truth-value, and the *Bedeutung* of an expression *X* reflects *X*'s contribution to the truth-conditions of sentences in which *X* can appear. This technical notion proved useful for the study of valid inference. Whether it has further utility for the study of natural language remains to be seen.

It has, however, been fruitful to posit valuations that satisfy the following constraints: (i) the valuation of a complex expression is determined by the valuations of its constituents, given the expression's grammatical structure; (ii) there are exactly two possible valuations for declarative sentences; and (iii) every analytic sentence has the same valuation.<sup>5</sup> Semantic typologies of this kind have shed considerable light on the compositionality of meaning. And it is a matter of indifference how we *label* valuations. We can call the two sentential valuations '1/0', 'on/off', or 't/f'. But if we say that a sentence  $\Sigma$  has the valuation 1 iff  $\Sigma$  is true, we make an immodest claim that requires further evidence. Sentences are *apt for use as* devices for expressing truth-evaluable claims, since there are exactly two sentential valuations. There may also be domains, like arithmetic, in which the relation between sentential valuations and truth-values is transparent; but this is a poor basis for generalization. The relation between sentential valuations and truth-values may be theoretically intractable in other domains.

If the valuation of a natural sentence isn't its truth-value, then theories of meaning for natural languages shouldn't associate sentences with (functions from contexts to) truth-values. Similarly, the valuation of 'Aristotle' does not have to be a dead philosopher. There is nothing surprising about this:

‘valuation’, like ‘electron’, is a theoretical term; and there is no empirical reason for supposing that the theoretically important semantic properties of a name determine what users of the name refer to when using it. People refer to things, words don’t. The meanings of words may constrain without determining what people can refer to by using words. (This will be an important theme.) In order to formalize a semantic theory, one might inscribe axioms like the following: Valuation(‘Aristotle’) = Aristotle. But such notation is potentially confusing, since semantic axioms need not be viewed as claims about how natural expressions are related to things like ancient Greeks. A semanticist might use ‘Aristotle’ *in her metalanguage* to represent a valuation, where this valuation is unlikely to *be* a person who died long before any English was ever spoken, in an attempt to gesture at semantically relevant properties of the object-language name. So one need not view the axiom as a formalization of the claim that the name ‘Aristotle’ refers to (or denotes) a certain dead guy.<sup>6</sup>

With these caveats in place, let us grant that a semantic theory for a natural language L will (conditionally, and relative to Kaplan-contexts) associate each declarative sentence of L with a sentential valuation via (i) axioms that assign valuations to semantically primitive expressions of L, and (ii) rules for deriving consequences from these axioms.<sup>7</sup> Let us also assume that natural languages contain primitive terms that are apt for use as devices for referring to things, and that such terms have entities (in some domain or other) as valuations. Then we can advance various hypotheses about the semantic types of other subsentential expressions. Perhaps the valuations of predicates are functions from entities to 1/0; the valuations of quantifiers are functions from the valuations of predicates to 1/0; *etc.* For now, we needn’t dwell on whether these particular proposals are correct; *cf.* Pietroski (2002, forthcoming). The point is simply that the structure of standard typologies is independent of the further claim that a sentence is true iff it has the valuation 1.

Still, even if semanticists neither can nor must specify the truth-conditions of object-language sentences, one might think that a name surely bears *some* semantic relation to its bearer. If so, one can always stipulate that the name-bearer relation is semantic. But recall that Kripke (1980) denied offering any *theory* of how ‘Aristotle’ is connected to Aristotle; and despite considerable literature on this topic, no one has shown that names *do* bear any interesting and theoretically tractable relation to their bearers. As Kripke noted, highlighting the relevance of causal chains does not amount to a theory. We can let go of the idea that ‘Aristotle’ *must* bear some semantic relation to Aristotle—and that a “real” theory of meaning will provide an account of that relation—if we think of semantics as an internalist enterprise concerned with aspects of human psychology that determine certain intrinsic features of linguistic expressions. Similarly, we can let go of the idea that a predicate *must* bear some semantic relation to a

certain set of things. Which is a good thing, as we'll see, since the evidence suggests that predicates do not have classical extensions. (I will soon return to this last point.)

One might reply that speakers of English *tacitly believe* that 'Aristotle' is used to refer to Aristotle; that 'dog' is used as a predicate that applies to dogs; *etc.* So perhaps we should retain axioms like "Valuation('Aristotle') = Aristotle" without reinterpreting their right hand sides. Perhaps we should construe such axioms as hypotheses about what speakers tacitly believe—or to use an explicitly technical term, what speakers *t-believe*, leaving it open whether t-belief is a species of belief. The idea is that: speakers understand sentences by virtue of bearing some psychological relation to axioms (and rules that license the derivation of theorems) which determine the truth-conditions of those sentences; and sentences mean what they do because of how speakers understand them. Of course, one wants to hear more about what it is to t-believe semantic axioms. But there are proposals; and if the truth-theoretic axioms can be provided, one might well think that speakers bear some psychological relation to them. This neo-Davidsonian view is inspired by the idea that syntax and semantics are continuous enterprises with a shared goal of characterizing aspects of human psychology; see Higginbotham (1985, 1986), Larson and Segal (1995).<sup>8</sup> So this is a big step in Chomsky's direction. But a tension remains.

Imagine a neo-neo-Davidsonian who grants that speakers t-believe theories whose theorems assign sentential valuations to sentences, but not that all and only true (uses of) sentences have the valuation 1. If this weaker hypothesis explains the relevant facts equally well, it undercuts the bolder claim that speakers t-believe *truth* theories; and according to the neo-neo-Davidsonian, facts surrounding the compositionality of meaning—the meat and potatoes of semantic theorizing—are explained equally well by the weaker hypothesis. The neo-Davidsonian will say that other semantic facts (e.g., the putative fact that 'dog' applies to dogs) remain unaccounted for. But even if such facts can be described and explained in theoretically interesting ways, it doesn't follow that such facts (in conjunction with a psychologically realized compositional system) determine the truth-conditions of sentences. For the respects in which neo-Davidsonians go beyond neo-neo-Davidsonians may concern aspects of speaker-psychology (and/or the external world) that are not directly relevant to understanding. That is, even if speakers of English t-believe that 'dog' applies to dogs, they may not draw on this metalinguistic belief in understanding sentences with the word 'dog' (in the way speakers of English typically understand such sentences). And absent independent reason for thinking that speakers t-believe *truth*-theories, the neo-Davidsonian needs to argue that *understanding* involves deployment of the metalinguistic t-beliefs in question.

Moreover, even if speakers have the metalinguistic t-beliefs, appeals to such t-beliefs may label

theoretically intractable aspects of cognition. Perhaps in speaking of *t*-beliefs, the neo-Davidsonian is actually referring to a hodgepodge of psychological states that are not unified in any theoretically interesting way. (It wouldn't be surprising if understanding speech involved some such hodgepodge.) If the theoretically tractable semantic facts concern *certain* aspects of speaker-psychology, but speakers *t*-believe truth-theoretic axioms in part via *other* aspects of their psychology, then neo-Davidsonian semantics is an idealization in need of refinement. Or put another way, theorists who use terms like 'truth' may mischaracterize (at least much of) what speakers *t*-believe qua speakers, since notions like 'truth' may be ill-suited to characterizing the mental states that underly linguistic competence. The needed refinements of the neo-Davidsonian program, as currently practiced, may be relatively minor. But the shift in perspective may well affect future developments if appeals to *truth* fail to cut nature at its semantic joints.

One last qualification before concluding this polemical introduction. Humans often try to make their linguistic behavior conform (in certain respects) to that of other speakers—at least when successful communication matters, and others show no sign of modifying their usage. A child may strive to make it the case that: her use of 'dog' conforms, in various ways, to adult usage; and adults can correctly say, with regard to her, 'when she says "dog" she means what we do'. Similarly, adult speakers often hold themselves to external linguistic standards, which are often presupposed in ordinary meaning ascriptions. But it doesn't follow that *valuations* should reflect these aspects of our linguistic practice. Many humans try to modify their "accent" by way of conforming to certain (external, social) standards; but it doesn't follow that phonologists should employ a typology designed to reflect these standards. There are, however, some delicate issues here. Understanding may involve deployment of *some* mental states whose contents are (in some theoretically interesting sense) externalist. We must leave also open the possibility that 'linguistic competence' is like 'jade': a term we apply to things that are importantly similar yet (in a deeper sense) different. Even if current semantic theories mix internalist apples and externalist oranges, theorists may want to discuss both. I'll briefly touch on these matters in the final section.

## **2. Function and Context**

Let's try all that again, this time starting with some sentences.

### **2.1**

Chomsky (1977) discusses (1),

(1) Unicycles have wheels

which seems to be true. But (1) is not true iff each normal (operational, unvandalized) unicycle has wheels. The truth of (1) does not ensure the truth of (2)

(2) Jim's unicycle has wheels

even given that Jim owns a normal unicycle. Indeed, (1) is true even though no unicycle has wheels—and 'some unicycle has wheels' is false. By contrast, consider (3) and (4).

(3) Cars have wheels

(4) Jim's car has wheels

An utterance of (3) seems to imply that each normal car has wheels. If Jim's car is normal, (4) is true. And it is hard to see how a semantic theory could assign the right truth-conditions to (3-4), without assigning the wrong truth-conditions to (1-2).

If 'has wheels' applies only to things with wheels, the truth-conditional semanticist needs to explain why (1) still comes out true. For in that case, one cannot say that 'Φs have wheels' is true iff every normal Φ has wheels—or that 'Φs have wheels' is true iff {x: is a Φ} bears the right generic relation to {x: x has wheels}. If 'has wheels' applies to all wheeled things, including unicycles, we need to be told why (2) is false—and why (4) is false if Jim's futuristic car has only one wheel. If 'has wheels' applies in some contexts to anything with at least one wheel, but applies in other contexts only to things with more than one wheel, we need to hear how *that* works.<sup>9</sup> One might reply that 'have wheels' and 'has wheels' are semantically distinct predicates, with the former applying to all wheeled things (maybe counting some *species* as wheeled) while the latter applies only to things with wheels. But 'I have wheels' would be false if uttered by a unicycle yet true if uttered by a car; similarly, 'I have eyes' would be false if uttered by a cyclops yet true if uttered by a (normal) human. One can say that 'have eyes' is ambiguous: sometimes it means 'has eyes', which applies to an individual x only if x has eyes (counting a plurality of cyclopes as an individual that has eyes, to accommodate 'We have eyes'); but in generic sentences like (1), 'have wheels' can only apply to wheeled things (or perhaps wheeled species). One begins to wonder, though, if this is a theory of meaning or just a stipulation of the facts.

Moreover, Chomsky provides other examples that extend the point. While the truth of (5)

(5) Beavers are mammals

requires that *all* beavers be mammals, (6)

(6) Beavers build dams

requires only that *typical* beavers (in the wild, with suitable resources, free to express their beaverish nature) build dams. Correlatively, (6) does not have the same truth-condition as the passive (7),

(7) Dams are built by beavers

which falsely implies that typical dams are built by beavers. But (8) is true, relative to a context,

(8) Beavers built this dam

if and only if (9) is true relative to that context.

(9) This dam was built by beavers

This suggests that the truth-conditions of plural sentences—which involve quantification, including quantification over events (see Schein [1993])—exhibit interesting *but not obviously compositional* effects. While the facts are clear, and nonarbitrary, they may not be fully systematic. Consider (10-11).

(10) Poems are written by fools like me

(11) Mountains are climbed by fools like me

The truth of (10) requires that all poems be written by fools, but the truth of (11) does not require that all mountains be climbed by fools. In each case, the truth-condition can be specified roughly as follows: all the NOUNs that are VERBed are VERBed by fools like the speaker. Since all poems are written (or at least created intentionally), but not all mountains are climbed, there is a truth-conditional difference. Correspondingly, there is a significant difference between ‘write’ and ‘climb’. But the challenge is to show how the *truth*-conditions for (10-11) are compositionally determined without getting the truth-conditions for (5-9) wrong. Note, for example, that (12)

(12) Dams that are built are built by beavers

is logically weaker than (7), even though both sentences are actually false.

Of course, particular examples are open to dispatch by clever theorists; and one can always say that the examples are complex in ways that have not yet been understood. But given the available evidence, which includes many examples like (1-12),

...even a principle of compositionality is suspect. Global properties of the sentence, which may be quite involved, seem to play a role. We cannot simply assign a meaning to the subject and a meaning to the predicate (or to a sentence form with a variable standing for the subject), and then combine the two. Rather, the meaning assigned to each phrase depends on the form of the phrase with which it is paired (Chomsky 1977, p.31).

Chomsky does not state the composition principle he has in mind. But consider the following view: if  $\Sigma$  is a sentence formed by combining a singular term  $\alpha$  with a predicate  $\Phi$ , then  $\Sigma$  is true iff the *valuation* of  $\Sigma$  is the truth-value *true*; and the valuation of  $\Sigma$  is the value of (the function that is) the valuation of  $\Phi$  given the valuation of  $\alpha$  as argument. Or more briefly, letting ‘ $\|\dots\|$ ’ stand for ‘the valuation of ...’,  $\Sigma$  is true iff  $\|\Sigma\| = \text{true}$ ; and  $\|\alpha^{\wedge}\Phi\| = \|\Phi\|(\|\alpha\|)$ .

The idea is simple and familiar. Names are associated with entities in some canonical domain; predicates are associated with functions from such entities to truth-values; and the result of combining a name with a (unary) predicate is a sentence that is true iff the relevant function maps the relevant entity

onto the valuation *true*. A sentence like (13)

(13) Aristotle was Greek

is said to be true iff  $\| \text{'was Greek'} \| (\| \text{'Aristotle'} \|) = \textit{true}$ . Thus,  $\| \text{'Aristotle'} \|$  is said to be Aristotle. And the valuation of 'was Greek' is said to be the smallest function  $F$  from entities  $x$  in a specified domain to truth-values, such that  $F(x) = \textit{true}$  if  $x$  was Greek and *false* otherwise. Or more briefly,  $\| \text{'was Greek'} \| = [\lambda x: x \in D_e . \textit{true}$  if  $x$  was Greek and *false* otherwise]; or briefer still,  $\| \text{'was Greek'} \| = [\lambda x . \textit{true}$  iff  $x$  was Greek]. On this view, (13) is true iff  $[\lambda x . \textit{true}$  iff  $x$  was Greek](Aristotle) = *true*.<sup>10</sup>

While this can seem almost trivial, it isn't. If we say that a sentence is true iff it has the valuation *true*, it is tendentious that sentential valuations are compositionally determined; if we say that sentential valuations are compositionally determined, it is tendentious that sentential valuations are truth-values. Similar remarks apply to subsentential valuations. Consider the predicate 'has wheels'. One might think that specifying its valuation is simple:  $[\lambda x . \textit{true}$  iff  $x$  has wheels]. But which function is this? Is it a function whose extension includes only objects with more than one wheel; or is it a function whose extension includes some objects—like unicycles—with just one wheel? Merely surrounding the English predicate 'has wheels' with formal notation doesn't answer this question. Without an answer, we don't know what the theory says about the difficulty posed by (1); and a theory should not paper over the difficulties it faces. One can depart from strict homophony, and say either that  $\| \text{'has wheels'} \| = [\lambda x . \textit{true}$  iff  $x$  has at least one wheel], or that  $\| \text{'has wheels'} \| = [\lambda x . \textit{true}$  iff  $x$  has at least two wheels]. But either way, difficulty awaits. Similar remarks apply to other examples of the general point illustrated with (1-12): while there is presumably some complex semantic property of a sentence that is determined by its parts and syntax, *truth*-conditions may not be similarly compositional.

**2.2** Chomsky (1995a, 2000) returns to this theme, often with examples like (14).

(14) This book weighs about a pound. It is available in bookstores everywhere.

Each sentence in (14) can be true. Speakers can use 'book' to make remarks about certain concrete particulars, or to make remarks about "things" like *Sense and Sensibility*; and while certain copies of Austen's book may weigh about a pound, *Sense and Sensibility* does not. Moreover, it seems that a single use of 'book' can serve as the basis for both kinds of remarks. So what is the valuation of 'book'? It is no answer to say that  $\| \text{'book'} \| = [\lambda x . \textit{true}$  iff  $x$  is a book]. Does the relevant extension include things like *Sense and Sensibility*; concrete copies; things of both kinds; or entities that somehow have the properties of both authorial works and copies? There is no empirical reason to expect a determinate answer. While there are facts concerning the meaning of 'book', those facts need not determine a book-function from entities to truth-values; and speakers' judgments/usage provide no evidence of such a function.

Similar issues arise with respect to verbs. My wife and I once visited a Swiss campsite in which sentence (15) was prominently displayed:

(15) The bathhouse will be cleaned at 10AM

At 10AM, a maintenance team duly began to wash down the *outside* of the bathhouse. In fact, the inside was also rendered immaculate; but suppose that only the outer walls had been affected at 10AM. Would (15) have been true? If the answer is unclear, it is equally unclear which function corresponds to the hybrid English/Formalese expression ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ was cleaned at 10AM (on July 1 ...)}]$ ’. Would the imagined bathhouse be mapped to *true*? To answer in a way that determines truth-conditions for (15), we also have to be clear about which function is described with ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ is a bathhouse}]$ ’. So let us stipulate that the relevant extension consists of objects with interiors—containers, as opposed to their surfaces—and that such objects are in the extension of ‘cleaned’ only if their interiors are made tidy. (Whereas such objects are in the extension of ‘painted’ if only their exteriors are covered with paint.) Then (15) is false in the imagined scenario. But on this view, (15) is effectively synonymous with (16).

(16) The inside of the bathhouse will be cleaned at 10AM

And that seems wrong, since (16) can’t *ever* be true if only the outside walls are cleaned.

Moreover, the proposal about the extension of ‘cleaned’ needs revision, assuming that (17)

(17) Norbert cleaned the globe in his office.

can be true in a situation where Norbert wiped the surface of his globe, without dusting its interior—unless ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ is a globe}]$ ’ describes a function that maps the relevant globe-like surface in Norbert’s office to *true* (while mapping the relevant container onto *false*). But that would complicate the treatment of (18).

(18) The volume of this globe is greater the volume of my bowling ball<sup>11</sup>

In reply, it will be said that the valuations of predicates are context-sensitive, like the valuations of indexicals/demonstratives. I return to this suggestion presently. But let us at least consider another possibility: invented expressions like ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ is a book}]$ ’ and ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ was cleaned}]$ ’ fail to specify functions, despite the formalistic paraphernalia.

While ‘ $[\lambda x . \textit{true} \textit{ iff } x \textit{ is a prime number}]$ ’ specifies a function, it is a hypothesis that ‘book’ is relevantly like ‘prime number’. Lambdas do not guarantee function descriptions, just as curly brackets do not guarantee set descriptions. Consider ‘ $\{x: x \textit{ is not an element of itself}\}$ ’. And as Sainsbury (1990) notes, ‘ $\{x: x \textit{ is bald}\}$ ’ fails to specify a set, since sets have determinate extensions. There is the set of primes less than 1000, but there is no *set* of bald things. At best, there is the set of bald<sub>1</sub> things, the set of bald<sub>2</sub> things, and so on; where in each case, ‘bald<sub>n</sub>’ is some precisified variant of ‘bald’. Moreover,

precisifications are hard to come by: ‘ $\{x: x \text{ has less than } 1000 \text{ hairs}\}$ ’ doesn’t specify a set, since it can be indeterminate whether something that clearly has 999 hairs *has* one more.<sup>12</sup> Since almost all natural language predicates are vague, this makes it hard to even *say* which function is alleged to be the valuation of a given predicate.

This is often viewed as a sniggly point which does not really challenge the idea that the valuations of natural language predicates are functions. I find this attitude baffling. The available evidence suggests that natural predicates are not semantically associated with the kinds of “boundaries” that are essential to functions/sets; see Sainsbury (1990). Arguments to the contrary are *paradoxes*. Still, it is widely held that the phenomenon of vagueness is—and given certain logical considerations, *must* be—a kind of illusion: natural predicates really have valuations that can be characterized with sharp predicates (perhaps with the aid of context-relativization and/or techniques like supervaluation); it just seems otherwise for epistemic reasons of one sort or another. I won’t press skepticism about this, since the Chomskian point illustrated by (14-18) does not concern vagueness of the usual sort.<sup>13</sup> But it is worth pausing to distinguish two claims about the related phenomena of *standard-shifting*. For this highlights the important distinction between Kaplan-style relativization to contexts and far mushier relativizations to conversational situations.

**2.3** Consider the following thesis:

- (\*) the predicate ‘bald’ applies to an individual in a given situation iff  
the individual counts as bald given the standards operative in that situation.

This could be a modest claim whose point is simply to note that an individual can count as bald for *some but not all* conversational purposes. There is no single all-purpose standard for what counts as bald; as we often say, it depends on the context. This is the case for many predicates, if only because standards for precision vary across conversations. Whether a certain person counts as six feet tall may depend on whether inches, or fractions of millimeters, are what matter.<sup>14</sup>

One might, however, intend (\*) as the bolder claim that ‘bald’ is a context-sensitive term (like ‘I’, ‘here’, and ‘now’) whose valuation is relativized to Kaplan-style contexts (henceforth, K-contexts). Since the valuation of ‘I’ cannot be any particular individual, semanticists say that ‘I’ has a valuation only relative to a context K. The valuation of ‘I’ relative to K is the speaker of K; or more briefly,  $\|‘I’\|_K = \text{speaker}(K)$ . Similarly,  $\|‘here’\|_K = \text{place}(K)$ ;  $\|‘now’\|_K = \text{time}(K)$ ; *etc.* Correlatively, we can say that a K-context just *is* an ordered n-tuple of elements  $\langle \alpha, \beta, \gamma, \dots \rangle$  that correspond to the context-sensitive terms in sentences; a K-context will be interpretatively relevant to a given *use* of ‘I’ only if the speaker is  $\text{speaker}(K)$ ; and similarly for other indexical terms. One can speculatively extend this model to

predicates like ‘bald’ by suggesting that K-contexts include a baldness-standard parameter,  $s$ , which ranges over positive integers;  $s(K)$  would be a certain number (of hairs) relevant in  $K$ . Then one can say that  $\|‘bald’\|_K = [\lambda x . \text{true iff there are less than } s(K) \text{ hairs on } x\text{'s head}]$ . Perhaps there is also a cleaning-standard parameter  $s'$ , ranging over functions from entities to parts of those entities, such that  $\|‘cleaned’\|_K = [\lambda x . \text{true iff } [s'(K)](x) \text{ was made tidy}]$ . But prima facie, these suggestions are implausible. One needs reasons for positing context-sensitive terms (and slots in K-contexts), thereby increasing the complexity of a semantic theory; and the increased complexity will be staggering if any significant portion of the Chomsky/Austin/Wittgenstein-inspired examples are dealt with by treating ordinary predicates as relevantly like indexicals.<sup>15</sup>

Let me stress, however, that the point of the examples is not to present paradoxes that call for resolution. The illustrated features of words

...do not indicate that people have contradictory or otherwise perplexing beliefs. There is no temptation to draw any such conclusion, if we *drop the empirical assumption that words pick out things, apart from particular usages, which they constrain in highly intricate ways* (Chomsky 1995a, p. 23, my italics).

Examples like (1-18) do not reveal paradoxical semantic facts. The troublemaker is a certain theoretical assumption that we can and should do without.<sup>16</sup> But this is *not*—I repeat, NOT—a recommendation that we abandon attempts to construct compositional semantic theories.

On the contrary, it is a recommendation that we abandon a certain conception of meaning (and its relation to truth) that threatens to frustrate our semantic theorizing. As Evans (1981) noted, in response to rather different Wittgenstein-inspired criticisms of the Davidsonian program, we have learned a great deal about the compositionality of meaning by applying Fregean tools to the study of natural language. Only ‘intellectual Luddites’ would dismiss the whole project ‘without a detailed consideration of its findings, and an alternative account of the enterprise’ (p.326). So let me stress that Chomsky is not opposing semantics. He is proposing, in the spirit of technological progress, a certain revision of traditional semantic machinery. But I sympathize with those who find it hard to get their head around the idea that sentences have meanings which don’t fix their truth-conditions. So at the risk of tedium, I propose to say this all yet again, emphasizing—as Chomsky (2000) does—some concerns that will occur to philosophers.

### 3. Once More, With Dialogue

Phil: As I was saying yesterday, since the meaning of a sentence determines its truth-conditions...

Ling: That’s false. *Truth*-conditions are context-sensitive in a way that meanings aren’t.

Phil: OK, if you want to be precise: for each context, the meaning of a sentence  $\Sigma$  determines a truth-condition for  $\Sigma$  relative to that context. So...

Ling: That's either vacuous or very implausible. If 'context' is a label for all the factors relevant to the truth of  $\Sigma$ , apart from the meaning of  $\Sigma$ , your claim is trivial: meaning plus everything else relevant to truth determines truth. If by 'context' you mean a sequence of possible assignments for any indexicals and demonstratives in  $\Sigma$ , at least your claim is substantive: the meaning of  $\Sigma$  determines its truth-condition relative to a K-context. But why believe this, given all the apparent counterexamples?

Phil: You never let me get on with an argument. Before my first premise is out, you say 'trivial or false'. But you haven't offered an objection. You've described a research program: specify the context-sensitive aspects of meaning and describe contexts in a suitably detailed way.

Ling: In other words, you're positing a *lot* of indexicality. Why?

Phil: Because the meaning of a sentence determines its truth-conditions (relative to a context).

Ling: Is there independent evidence for the required indices? And if not, what does that tell you?

Phil: Not yet. And it tells me that there are *hidden* indices.

Ling: Are there also hidden leprechauns? Let's at least distinguish two senses of 'hidden'. An index (or indexed element) might be *covert*, but still part of the sentence—like the trace in 'Who<sub>i</sub> did Bill see t<sub>i</sub>'. A different idea is that sentences have Meanings, aspects of which are contextually determined but not indicated by any parts of sentences. This is to posit *agrammatical* indices. Thus, one might speak of  $K^+$ -contexts that include more parameters than K-contexts, which reflect the grammatical indices of sentences. So are the "hidden" indices you posit supposed to be covert or agrammatical?<sup>17</sup>

Phil: Yes.

Ling: You know, some of us have to work for a living.

Phil: Truth be told, *sentences* don't excite me. I'm more interested in what we express with sentences—viz., Propositions; and they may have contextually determined elements that sentences don't.

Ling: Sentences don't excite me either. I'm more interested in the minds of sentence-users. But the question is whether sentential meanings, which manifest minds, have the kinds of agrammatical constituents that you're so glibly countenancing.

Phil: One can express doubts about particular proposals. But as Russell (*et.al.*) showed, the meaning of a sentence  $\Sigma$  typically has a structure that differs considerably from the grammatical structure of  $\Sigma$ .

Ling: No one has shown that. If you think the syntax of 'the king is bald' is  $\{[_\alpha \text{ the king}][_\phi \text{ is bald}]\}$ , and you represent the meaning with ' $\exists x\{\text{King}(x) \ \& \ \forall y[\text{King}(y) \ \rightarrow y = x] \ \& \ \text{Bald}(x)\}$ ', you might be misled. But a more plausible syntax is  $\{[_{DP_i} [_D \text{ the}][_N \text{ king}]]\{t_i [_{VP} \text{ is bald}]\}\}$  with the determiner phrase

binding a covert trace; and we can encode Russell's hypothesis, using restricted quantifiers, with 'the(x):King(x)[Bald(x)]'. Similar remarks apply to other examples, including those that led Frege to think that Propositions/Thoughts have agrammatical structures. So where is the fabled divergence?<sup>18</sup>

Phil: If surface form sometimes differs from grammatical form because sentences have covert elements, that's fine; and particular examples may have been misdiagnosed. But the general point remains.

Meanings/Propositions may have structure that sentences don't. By the way, do you really think there is evidence *independent of semantic intuitions* for covert traces?

Ling: Will you admit that if I provide lots of independent evidence for traces, you have to provide at least some independent evidence for your hidden indices? Consider 'Who<sub>i</sub> do you think t<sub>i</sub> will win?', and ...

Phil: The general point remains. Meanings/Propositions may have structure that sentences don't.

Ling: And there may be leprechauns. You're saying that meaning determines truth-conditions, despite the apparent counterexamples, because (i) sentences are littered with covert indexicals that we can't detect given current technology; and/or (ii) a sentence  $\Sigma$  has its Meaning by virtue of its association with something that has more context-sensitive constituents than  $\Sigma$ . But appeals to covert sentential elements are always *prima facie* implausible; that's why we need *arguments* for traces. And since facts about quantifiers (names, pronouns, referential dependence, *etc.*) don't establish the existence of agrammatical "logical" structures, what's the evidence for agrammatical indices—and yours in particular?<sup>19</sup>

Phil: Our intuitions about the truth-conditions of sentences, coupled with the banality that the meaning of a sentence determines its truth-conditions (relative to a context).

Ling: I don't see how we could have reliable intuitions about the truth-conditions of sentences (or Propositions) on your view. But in any case, your "banality" leads to implausible claims.

Phil: I don't understand your resistance to the idea. If you're willing to posit meanings, why *not* suppose they determine truth-conditions? Isn't that what meanings are supposed to do?

Ling: I don't think meanings are supposed to *do* anything. I'm not *positing* meanings (qua theorist). I just think there are semantic facts that call for explanation; sentences have meanings, and we want to know more about this. But why think the meanings of sentences, which we discern so rapidly and effortlessly, determine truth-conditions (relative to parameters statable in advance in terms of K-contexts)?

Whether a sentence counts as true in a conversational situation typically depends on a host of factors—including various "salencies" and the judgments reasonable speakers would make about their listeners. Even Davidson (1986) admitted that we can't describe all these factors in any theoretically interesting way; but then, following Quine, he proceeded to unparalleled depths of triviality by...

Phil: Let's leave Quine and Davidson out of it. You can be very hard on them. I'll grant that contexts are

complex—maybe even too complex for us to *fully* characterize. But my thesis concerns the relation of meaning to truth, not our ability to characterize that relation in detail.

Ling: Did you just use ‘context’ as a label for all factors relevant to truth, apart from meaning?

Phil: No. My claim is that while  $K^{(+)}$ -contexts are complex, the semantic character of a sentence (which is what theories of meaning ought to specify) is a function from  $K^{(+)}$ -contexts (i.e., ordered n-tuples of possible valuations corresponding to the context-sensitive aspects of sentential meanings) to truth-conditions (i.e., conditional assignments of *truth-values*). Absent an alternative conception of how meaning is related to truth, I’ll posit the hidden indices required.

Ling: So let’s try to develop an alternative conception of how meaning is related to truth.

Phil: This is your show.

Ling: Fair enough. Here’s the alternative: the fact that a sentence has a certain truth-condition, as used in a certain conversational situation, is a massive *interaction effect*. The meaning of the sentence is a *contributing factor* that we can try to isolate and theorize about. But facts about the truth-conditions of sentences don’t constitute the target *explananda* in semantics, any more than facts about thermometers constitute the target *explananda* in chemistry.

Phil: I’m lost. We *shouldn’t* be trying to explain why (utterances of) sentences have the truth-conditions they do?

Ling: It depends what you mean by ‘explain’. If explanations need to have rigorous deductive structures, as in real science, forget about explaining why (utterances of) sentences have the truth-conditions they do—or why a given leaf followed exactly *that* trajectory. We occasionally formulate rigorous explanations of stable *phenomena*, which are typically unobservable and discovered only by long bouts of inquiry, but not the idiosyncratic interaction effects that we typically observe; see Bogen and Woodward (1988). A more relaxed conception of explanation might allow for combinations of a genuine semantic theory with some common-sense remarks that connect the theory with certain facts about communicative situations. But allowing for “explanations” of this sort doesn’t give you a *theory* that explains the particular facts, at least not in any interesting sense of ‘theory’.

Phil: Then all the intuitions linguists cite are surely interaction effects. So why all the fuss about them?

Ling: Because facts about speakers’ judgments can, like facts about thermometers, be evidence for hypotheses. But we know that judgments about sentences depend on things besides grammaticality and truth. So in syntax, we distinguish the *acceptability* of a word-string from more theoretical properties, like *grammaticality*. And in semantics, we already distinguish *felicity*-conditions from *truth*-conditions. Similarly, I claim, truth-conditions often depend on a lot of things that count as “noise” from the

perspective of a (compositional) theory of meaning.

Phil: Then why pick on truth? Why don't you say that grammaticality is an interaction effect?

Ling: I do. There is no useful notion of well-formedness for natural languages. We can speak of (un)grammatical word-strings and (il)licit phrase markers; but we shouldn't insist that a theory of *syntax*, which is really a theory about some portion of the mind-brain, must itself deliver explanations for why a given string of words either does or doesn't constitute a "well-formed" expression. Similarly, we shouldn't insist that a theory of *meaning* deliver explanations for why certain sentences have certain truth-conditions. Syntax bears on grammaticality (and acceptability); semantics bears on truth (and felicity). But semantics, like syntax, deals with *systematic and intrinsic* features of sentences. These features *constrain* truth-conditions (by constraining how sentences can be used); but they don't *determine* truth-conditions, which depend on many factors, including unsystematic and extrinsic properties of sentences. In short, meaning doesn't determine truth-conditions, because meaning isn't even a symbol-world relation. The meaning of a sentence is an intrinsic property of that sentence.

Phil: That can't be right. As Putnam and Burge have shown, ...

Ling: Please, spare me your Twin-Earth intuitions. They don't show that a *theoretical* notion of meaning has to be externalist. If 'meaning' is a kind-term, meanings are intrinsic properties of sentences.

(Thoughts, construed as Fregean senses, *may* be another matter.)

Phil: But it's a Moorean fact that meaning is a symbol-world relation. You really must read Lewis (1972) on what a theory of *meaning* needs to do.

Ling: Oh, I read it. If you're taking it to be *definitional* that meaning determines truth-conditions, you're lapsing back into triviality. If a "Lewisian theory of meaning" tells one how to connect expressions with (things in the world and) *truth*-conditions, good luck providing a Lewisian theory of meaning for any natural language. And why think there is one to provide?

Phil: But why adopt your internalist conception of semantics? What's the evidence for that?

Ling: Let's look at various textbook results that show us where attempts at semantic theorizing have actually been successful. In my view, they *all* concern intrinsic features of sentences. Consider standard accounts of quantifiers, anaphora, relative clauses, causatives, adverbs, ...

Phil: Let's not, at least not before lunch. Even if you're right, that may reflect the (short) history of semantics. Tell me why we shouldn't expect theories that specify truth-conditions.

Ling: Consider examples like 'unicycles have wheels', which counts as true even though no unicycle has wheels. How can its truth-condition be compositionally determined? Facts about usage constrain theories of meaning. But we don't need—or want—a massively parameterized semantic theory. If we try to

represent the truth-conditions of our sentences as used, we'll lose the distinction between representations of sentential meanings and representations of the facts that sentence-users gesture at by using sentences.

Phil: Exactly! There is no analytic distinction, as Quine taught us. So 'there is no boundary between knowing a language and knowing our way around in the world' (Davidson [1986], p. 446).

Ling: Rubbish. The positivistic theses Quine criticized were, no doubt, objectionable. Maybe he was even right about the following conditional: *if* you take semantic facts to be normative facts about the inferences we ought to make, you will be led to reject any analytic/synthetic distinction (and perhaps the notion of meaning itself). But then *modus tollens* is the appropriate inference.<sup>20</sup>

Phil: You *can't* distinguish semantic facts from the other facts we report with our sentences.

Ling: Is that an empirical claim, or a threat to call the inquiry police? What's the *argument* that sentences like 'if you boiled the soup, the soup boiled'—'if someone persuaded you to sing, you intended to sing', 'if Pat thinks that Chris likes himself, Pat thinks that Chris likes Chris', *etc.*—are not analytic? Why should we deny that such examples differ, in semantically interesting ways, from 'if you boiled the soup, the mean molecular energy of the soup rose'?

Phil: You're going to make a speech, aren't you?

Ling: Various formulations of the analytic/synthetic distinction may be untenable; and analytic truths won't do the *epistemic* work that some philosophers have wanted them to do. But how does that even begin to warrant the claim that 'there is no boundary between knowing a language and knowing our way around in the world'? Maybe our ordinary notion of *truth* is connected with epistemic notions, in a way that makes Davidson's remark defensible; and likewise for meaning *if* meaning is related to truth in the way you (and he) suggest. But that's what we were arguing about. You can hardly assume all this just on the alleged strength of the idea that meaning determines truth-conditions. If that little slogan encodes the whole Quine-Davidson worldview, then we need to see some evidence *before* adopting the slogan. Let's follow empiricist advice, and see what actual inquiry suggests.

#### **4. What's Next**

So what *is* a (natural language) semanticist supposed to do if we abandon the project of recursively specifying the truth-conditions of natural sentences?

**4.1** There remains the nontrivial project of finding a semantic typology, with an associated theory whose theorems assign valuations to expressions, that helps explain the range of facts that semanticists discuss. But valuation-assignments have to be motivated by the facts they purportedly explain. One can't just "observe" that the theory assigns the right truth-conditions and declare it materially adequate. For this reason, one cannot tell in advance what *form* a correct theory of meaning will take, or which facts

such a theory will explain. The details will be revealed, if at all, only through inquiry. We cannot know *a priori* what a semantic theory should look like any more than pre-Newtonian theorists could have known what the right theory of celestial mechanics would look like. (Anyone who insisted that a theory of planetary motion had to be about *planetary motion*, or that talk of tides and falling bodies was just a distraction, got the theory he deserved.) It may once have seemed clear that a semantic theory should associate each object-language sentence with a meaning-giving specification of its truth-conditions. But that was a proposal, which we can refine, about how to study meaning.

Moreover, it bears emphasis that the target explananda in semantics go well beyond the facts cited when we disquotationally report what particular sentences mean. The sentence ‘Deflationists miss the point’ has a certain meaning; and we want a compositional semantics to reveal how the parts (and structure) of the sentence conspire to produce that meaning. But this is the tip of an explanatory iceberg. Semanticists try, often with some success, to help explain why speakers find inferences like the following impeccable: Pat boiled the soup at noon, so Pat boiled the soup; Pat boiled the soup, so the soup boiled; every kid swam, so every tall kid swam (*cf.* most kids swam, so most tall kids swam); every kid is a kid who swam, so every kid swam; *etc.*<sup>21</sup> We also want to explain various semantic contrasts. Why is the position occupied by ‘Fido’ semantically opaque in ‘I heard that Fido barked’, but not in ‘Fido barked’ or ‘I heard Fido bark’? Facts concerning ambiguity are familiar, but facts concerning nonambiguity are just as important. Why can’t speakers of English use ‘Was the child who lost kept crying’ to ask whether the child who was lost kept crying? One of Chomsky’s most famous examples still bears repeating: ‘John is eager to please’ means (roughly) that John is eager that he please someone *and not* that John is eager for someone to please him; ‘John is easy to please’ means (roughly) that it is easy for someone to please John *and not* that it is easy for John to please someone. Or more mundanely, ‘Brutus stabbed Caesar’ has no reading on which Brutus is the stabbee and Caesar is the stabber. Why?

Semantics textbooks are loaded with descriptions and partial explanations of such facts. Unsurprisingly, the explanations involve both hypotheses about the structures of sentences and how various aspects of structure are related to meaning. For example, ‘John is easy to please’ involves covert elements as indicated in [John<sub>i</sub> is easy [ \_ to please e<sub>i</sub>]]; while the logically possible structure [John<sub>i</sub> is easy [e<sub>i</sub> to please \_ ]] is unavailable in natural language. But ‘eager’ differs from ‘easy’; the former cannot take a pleonastic subject. (Consider what ‘It is eager to please John’ means.) This constrains the possible structures of English: [John<sub>i</sub> is eager [e<sub>i</sub> to please \_ ]] is fine, while [John<sub>i</sub> is eager [ \_ to please e<sub>i</sub>]] is not. Similarly, given constraints on extractions from relative clauses, natural languages do not include expressions like {Was<sub>i</sub> [[the child who e<sub>i</sub> lost][kept crying]]}; but

{Was<sub>i</sub> [[the child who lost][e<sub>i</sub> kept crying]]} is fine. These structural facts help explain the semantic facts given certain assumptions about the interpretation of unvoiced elements—and the background assumption that meaning is compositional. (If meaning of the whole isn't determined by the meanings of the parts, and the way the parts are structured, why *doesn't* [ \_ to please e<sub>i</sub>] have the meaning of [e<sub>i</sub> to please \_ ] or the meaning of 'bark'? Similarly, when semanticists account for the compellingness of inferences—even simple ones like 'Pat ran, so someone ran'—compositionality is assumed.)

I stress this point, in part because some philosophers fail to give it due weight when making claims about meaning.<sup>22</sup> More importantly in the present context, it bears emphasis that specifying *truth*-conditions was never the only semantic project in town. And in my view, the explanations remain equally good if we replace occurrences of 'true' in current semantic theories with occurrences of '1'— with compensating adjustments elsewhere—and eschew the assumption that a sentence  $\Sigma$  is true (as used in a given context) iff the  $\Sigma$  has the valuation 1 (relative to that context). One can retain the structural aspects of our theories, which are typically the aspects that do the explanatory work, without the illusion that we are *also* explaining why (utterances of) sentences have the truth-conditions they do. Perhaps there will be some cases in which such revision leads us to think that a putative explanation is really no explanation at all, as opposed to a more modest explanation of a more modest fact. But if so, better to see our theories for what they are. (For analogous discussion in the context of vision theory, see Egan [1992].)

Trading in truth-values (and entities referred to) for different valuations does not change the basic questions. We still want to know, for any given sentence: what is its structure; what does it mean; and how is the former related to the latter? Or in the psychologized mode, which structures and meanings (if any) do speakers unconsciously assign to utterances? When the answers start to stabilize—and *phenomena* emerge—we can ask more general questions: why do human languages exhibit *these* structures, meanings, and structure-meaning relations; why do humans assign *these* structures and meanings, as opposed to others? At any given time, these big questions are translated into more manageable ones in the usual ways. But so far as I can tell, the issues that animate current research in semantics are orthogonal to the question of whether *truth* values are really the valuations of sentences.

To take a much discussed example, one can ask whether syntactically binary predicates like 'stab' should be associated with: binary functions—from the valuations of singular terms like 'Caesar' to functions from the valuations of singular terms like 'Brutus' to sentential valuations, as in Montague (1970); ternary functions—with an additional "event position" as in Davidson (1967); or unary functions from eventish to sentential valuations, as in Parsons (1990) and Schein (1993). Regardless of what sentential valuations are, one can ask whether 'stabbed' is *apt for use as* an event sortal, a binary-

function expression, a ternary-function expression, or something else entirely. Similarly, one can ask whether adverb phrases like ‘with a knife’ are apt for use as event sortals (which can be conjoined with other event sortals) or as expressions for creating a complex function-expression of the same type as the relevant verb. The possible answers have empirical consequences, including consequences for how syntax contributes to meaning, which we can test and evaluate. Natural language semantics is a field rich with such questions if we’ll just ask them. Questions about the truth-conditions of sentences were good questions to ask; they got the field going. But now it’s going.<sup>23</sup>

Some (neo-)Davidsonian projects will seem less urgent from the present perspective. Consider the fact that ‘The book is red’ can be true, as used in a given context, even though the universe contains more than one book. If a semantic theory doesn’t *have* to explain this fact by positing a (covert or agrammatical) domain-restriction parameter, we might not posit one until there is evidence for a corresponding index. Such evidence may be forthcoming. But there is no pressure to devote research energy to finding an index, if the fact about truth-conditions isn’t a theoretically interesting fact. If a fact challenges an important aspect of our best semantic theories, we need to deal with that; but if it is just one fact among many, we can ignore it. Of course, one can’t tell in advance which facts are theoretically interesting. Perhaps the really interesting questions will emerge by trying to save the idea that meaning determines truth-conditions relative to a K-context. But as I read Chomsky, he is urging us to adopt a different view of what’s important (and what to ignore). In any case, we can question the assumption that facts about truth-conditions are *ipso facto* of theoretical interest to semanticist. Maybe our time is better spent elsewhere. Physicists don’t spend their time determining the trajectories of particular leaves.

**4.2** Still, when a speaker of English understands (19),

(19) Brutus killed Caesar

she seems to grasp *more* than that (i) the constituent words belong to certain semantic types, and (ii) the sentence exhibits a certain “valuational structure”. Someone who knew only that ‘killed’ is a binary predicate, and that ‘Brutus’ and ‘Caesar’ are referential devices, wouldn’t know the specific meaning of (19)—i.e., that it means that Brutus stabbed Caesar, as opposed to (say) that Antony saw Cleopatra. A neo-neo-Davidsonian can say there is more to meaning than meets the eye; ‘Killed(Brutus, Caesar)’ may reflect an overly simple view about the semantic structure of (19). Consider the following alternative:

(20)  $\exists e\{\text{Agent}(e, \text{Brutus}) \ \& \ \exists f[\text{Die}(f) \ \& \ \text{R}(e, f)] \ \& \ \text{Theme}(e, \text{Caesar})\}$

where ‘R’ stands for some relation that holds between eventish valuations. Still, this doesn’t explain how speakers distinguish the meaning of (19) from that of ‘Bob felled Chris’. No matter how rich the intrinsic features of sentences are, they come to an end. There is a sense in which we don’t know what (21)

(21) All mimsy were the borogoves

means. And one might think that a semantic theory should be (*inter alia*) a theory of what (21) lacks; see Higginbotham (1989).

A radical line is to deny this outright; see McGilvray (1998, 1999). Perhaps a semantic theory doesn't have to explain the (alleged) difference between the interpretable and uninterpretable aspects of (21). Perhaps the difference between 'mimsy' and 'flimsy' is like the difference between the name of your best friend and a name you've never heard before; and it's not obvious that a semantic theory has to account for *that* kind of felt difference. Or perhaps 'borogove' is like 'quark'—a word that physicists use to talk of charming things, but which is effectively meaningless for ordinary speakers. There is, no doubt, a difference between knowing that 'flimsy' applies to flimsy things and that 'mimsy' applies to mimsy things. Speakers of English not only know that something counts as flimsy (in a conversational situation) iff it is flimsy (by the standards operative in that situation), they know—or at least have an idea of—what counts as flimsy (at least in many situations). But not so for 'mimsy'. How this bears on linguistic understanding is a hard and potentially interesting question.

Consider just one of the potentially confounding factors. To what degree are intuitions about (21) affected by the (perhaps dim) recognition that *there is nothing to know* about what counts as mimsy? How relevant is Kripke's (1980) discussion of unicorns? Suppose I utter (22)

(22) All bimsy were the chimeras.

thinking that 'bimsy' is the word for Hume's missing shade of blue. Is (22) importantly different than (21); or does (22) also lack a meaning in a way that a semantic theory should illuminate? If we drop the idea that semantics *has* to connect sentences with truth-conditions and things we refer to, lots of things need rethinking. On the other hand, we should leave room for the following thought: speakers have certain t-beliefs with externalistic (broad) contents; this will help explain certain facts about linguistic understanding; and so a theory of meaning will be externalist at least to this extent.<sup>24</sup>

It might be useful to distinguish facts speakers t-believe by virtue of *having a language faculty* from other facts speakers t-believe by virtue of *being a language-user in some environment*. Speakers may t-believe that 'dog' is true of dogs; and perhaps this bears on how speakers understand sentences with the word 'dog'—say because understanding a sentence (as used in a conversational situation **c**) involves being able to (somehow) figure out its truth-conditions (in **c**). Understanding may involve two or more kinds of cognition, and correspondingly related but different theoretical notions of meaning. If there are interesting things to say about what speakers t-believe, even where we specify what they t-believe by using notions like truth, let's hope we discover this. But let's not assume, without evidence, what there is

to discover. This will not be concessive enough for a certain kind of theorist who will say (rightly) that the facts concerning a speaker's language faculty include facts that reflect her linguistic experience, *and* (more tendentiously) that at last some of these facts are properly characterized (for theoretical purposes) in terms of an externalist/normative notion of truth. Someone should sort out, in a clear and systematic way, what the available evidence suggests on this score. But a Chomsky-style internalism is at least worthy of serious consideration. Indeed, it may provide the best overall account of what a theory of meaning is a theory of.

## 5. Afterthought

Phil: I've decided to adopt the Language of Thought hypothesis.

Ling: Pardon?

Phil: The structure of a Proposition differs from the structure of the public sentence used to express it, because (tokens of) public sentences have their meanings by virtue of their causal relations to mental sentences, which contain indices not present in the public sentences. What you called a  $K^+$ -context, is really just a K-context. But the sentences that matter for semantics are those of Mentalese; see Fodor (1987) for elaboration and better dialogues.

Ling: It's very late. So I'll grant that when a person hears an utterance  $u$  of her language,  $u$  typically causes a tokening of some Mentalese sentence that is germane to how the person interprets  $u$ .

Phil: Not just *some* Mentalese sentence, but one that differs in semantically important ways from the public (though perhaps idiolectal) sentence that  $u$  is a token of.

Ling: Fine. When I hear you speak certain expressions are generated via my language faculty. And those expressions might be transformed, in any number of ways, in the process of figuring out what you said.

Phil: Not transformed. Public sentences get *transduced* into sentences of a completely different language. Mentalese sentences don't merely encode speaker meanings, they're the only sentences that *have* meanings. For unlike the expressions generated by your language faculty, sentences of Mentalese have compositionally determined (characteristic functions from K-contexts to) truth-conditions.

Ling: Why suppose that unicycle-type examples won't apply, *mutatis mutandis*, to Mentalese?

Phil: It's an empirical hypothesis that they won't. Do you have evidence to the contrary?

Ling: No. But neither do I have evidence against the claim that Mentalese wards off leprechauns. What's your reason for thinking that Mentalese is as different from English as you suggest? We're not worried about phonology here. And for all we know, which is very little, the grammar of (my idiolect of) Mentalese is identical to the grammar of (my idiolect of) English—or some other language that differs from English only in the trivial ways that Japanese differs from English.<sup>25</sup>

Phil: Mentalese isn't English or any other language of the sort that people speak. We probably share Mentalese with chimps—maybe even rats.

Ling: I knew it would come back to rats and chimps. But when I say 'Tigers are nigh' you are far more likely to have the thought that tigers are nigh than the semantically unrelated thought that fish swim. (See Fodor [1983].) Doesn't this suggest—at least a little—that the English sentence has a semantic character that at least constrains translation into Mentalese?

Phil: It's not translation; it's transduction, the sort of thing the vision system does to light. The speed of the process makes it seem as though the sentence has a meaning of its own, but it doesn't.

Ling: And what makes it transduction as opposed to translation?<sup>26</sup>

Phil: The fact that mentalese sentences have genuine meanings—functions from K-contexts to truth-conditions—while English sentences don't. And we need genuine meanings for Intentional Psychology.

Ling: Let's not get into Intentional Psychology. Tell me why English sentences *don't* have meanings?

Phil: Because meanings, which determine truth-conditions, are what Mentalese sentences have.

Ling: I thought meanings were what theories of meaning were theories of. Is all the work that appears to be about the semantic character of English really a proto-semantics for Mentalese?

Phil: At best.

Ling: So we can try to characterize the semantically relevant aspects of English—i.e. the aspects in virtue of which it approximates Mentalese? And we can occasionally succeed?

Phil: If I deny it, you'll go on and on about quantifiers and anaphora.

Ling: So we can have (partial) theories of how the languages we speak approximate some Ideal Language for which a truth-conditional semantics can be given. But we mustn't say that English actually *has* a semantics, because it's analytic that only expressions in an Ideal Language can have Meanings?

Phil: Nice try. But no, it's not analytic. And I didn't hypothesize Mentalese as a regulative ideal.

Ling: So it's an empirical hypothesis that (i) Mentalese is effectively a *Begriffsschrift* and (ii) the semantic facts are facts about Mentalese, as opposed to the languages we speak.

Phil: That's the idea. Meaning is really a topic for philosophical psychology, not linguistics.

Ling: And you have results to back up this claim? A truth-conditional semantics for Mentalese?

Phil: Not yet. But how else could we have *thoughts* with determinate truth-conditions?

Ling: Let's try to walk upright before running a marathon. At least for now, the way to study meaning is by supposing that our publicly available sentences have meanings—and then trying to say how various features of sentences contribute to sentential meanings. But we shouldn't assume that English has a *truth-conditional* semantics, since that would distort the semantic facts; about that, we seem to agree.

Phil: Yes, but when the facts are in, we'll see that the real bearers of meanings are Mentalese sentences.

Ling: Fine. Call me when those facts are in. But what shall we do tomorrow?

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## Notes

1. Let me acknowledge, at the outset, Jim McGilvray and Norbert Hornstein. Much of what I say was prompted and shaped by many conversations with them. McGilvray (1998, 1999) and Hornstein (1984)

provide a helpful context for Chomsky's (2000) remarks. This paper is a written descendant of an informal talk at the *Epistemology of Language* conference; especially in sections three and five, the informality remains. I'm indebted, for illuminating discussions of context dependence, to Jerry Fodor, Jason Stanley, Zoltan Szabo, and especially Ernie Lepore. Thanks also to: Noam Chomsky, Susan Dwyer, Jim Higginbotham, Gabe Segal, Peter Ludlow, Georges Rey, Rob Stainton, Alex Barber and the helpful group he brought together in Sheffield.

2. Semanticists need to see past truth-conditions, much as physicists need to see past “noisy” surface phenomena. This is not to deny that the ordinary term ‘meaning’ is used in different ways. But I am concerned with meaning as a theoretical notion—meaning in so far as we can have a theory of it. I am inclined to equate this with (what) meaning (really is), though one can introduce the explicitly technical term ‘meaning\*’. In the end, we probably need to think of meaning\* as layered, perhaps along the lines of a Marr-style theory of vision that posits primal, 2-D, and 2½-D sketches; see Marr (1982). But for the most part, I focus below on (at best) primal aspects of meaning\*, leaving open the possibility that other aspects of meaning\* are (partly) tractable in ways not yet understood; though like Chomsky, I suspect that all theoretically tractable aspects of meaning\* will turn out to be internalistic.

3. See Pietroski (1994) for discussion of Davidson (1986), who makes some relevant concessions. But the emphasis on *truth*-theoretic semantics remains, if uneasily.

4. Consider the following quote from Montague (1970):

Like Donald Davidson I regard the construction of a theory of truth—or rather, of the more general notion of truth under an arbitrary interpretation—as the basic goal of serious syntax and semantics; and the developments emanating from the Massachusetts Institute of Technology offer little promise towards that end.

This may correctly report the goal some semanticists have had, the importance they have assigned to it, and the relevance of Chomskian linguistics to that goal. But it is hardly obvious that truth is a special case of truth-in-a-model (see Lepore [1983]); and the remark about syntax shows the risk of making pronouncements about the basic goal of ‘serious’ work in an active domain of inquiry. Those who seek a Tarski-style characterization of English may well end up with nonpsychologistic conceptions of syntax and semantics. But this makes a mystery of many (quite robust) linguistic intuitions that speakers report and many psycholinguistic studies of young children; see Crane and Pietroski (2000) for a review. But even setting this aside, it is worth pausing to ask, as Chomsky (2000) does, why a nonpsychologistic phonology would be absurd; why few of us would say that a sentence has its sound and syntax only by virtue of being “regimentable” into a sentence of a suitable formal language; and what *evidence* suggests that semantics is different in this respect.

5. Condition (iii) ensures that ‘if Pat ran, then Pat ran’ and ‘if Fido barked and Fido is Rex, then Rex barked’ have the same valuation. But ‘valuation’ is not a good translation of ‘*Bedeutung*’. Neither is ‘referent’; users of a sentence typically don’t refer to its truth-value. (Names for the same object have the same *Bedeutung*, since inferences of the form ‘Fa & a = b; so Fb’ are valid. But ‘*Bedeutung*’ is not *defined* so that the *Bedeutung* of a name is its intuitive “referent.”)

6. Thus, it might better to say: Valuation(‘Aristotle’) = Aristotle\*, leaving it open whether Aristotle\* is (the late) Aristotle himself or some (yet to be defined) theoretical construct that reflects the important semantic properties of the name ‘Aristotle’. If names are “pure tags” with *no* further semantic content, then perhaps Aristotle himself is a good choice for the valuation of ‘Aristotle’. But while I agree that names are rigid designators, and not disguised descriptions (see Kripke 1980), this hardly shows that

names have no semantic content.

7. Suppressing context-relativization, the theory will have theorems of the form ‘Valuation( $\Sigma$ ) = 1 iff  $\sigma$ ’ for each sentence  $\Sigma$  of L, where ‘ $\sigma$ ’ is a sentence of the metalanguage. But there is no reason to expect such theorems to be homophonically disquotational. The left side of a meaning-specifying theorem will involve a *structural* description of the object-language sentence, while the right side will typically involve semantic analysis. Actual theorems look more like

Valuation( $[[[[_S \text{ NP Pat}][[_VP [_V \text{ ran}][[_Adv \text{ quickly}]]]]]]$ ) = 1 iff  $\exists e[\text{Agent}(e, \text{Pat}) \ \& \ \text{Ran}(e) \ \& \ \text{Quick}(e)]$   
 than

Valuation(‘Pat ran quickly’) = 1 iff Pat ran quickly.

But even if one resists analysis, one cannot derive instances of ‘*p* is true iff *p*’ from an honest theory. Try deriving ‘Pat ran’ is true iff Pat ran, as opposed to something more like

$[[[_{\text{argument}} \text{ Pat}][[_{\text{predicate}} \text{ ran}]]]$  is true iff Ran(Pat).

One can add the premises that  $[[[_{\text{argument}} \text{ Pat}][[_{\text{predicate}} \text{ ran}]]]$  is true iff ‘Pat ran’ is true, and that Ran(Pat) iff Pat ran. But even if these biconditionals are correct, they don’t seem to be semantic truths of English.

8. I used to endorse this conception of semantics wholeheartedly, and still extol its many virtues; see Pietroski (2000d). Someone can believe that ‘Aristotle’ bears a certain relation to a certain thing, whether or not the name and thing are so related. So semantic axioms, construed as psychological reports, could be correct even if natural expressions don’t really have valuations at all. One might argue that facts about speaker-psychology determine the linguistic facts: if speakers of English tacitly believe that Valuation(‘Aristotle’) = Aristotle, then Valuation(‘Aristotle’) = Aristotle. But that wouldn’t show that semantics is really concerned with the relation between words and things; one would need an externalist gloss of the relevant psychological states.

9. There also seems to be a truth-conditional difference between ‘No unicycles have wheels’ and ‘No cars have wheels’; the latter is clearly false, but I think the former is true. Even if it’s analytic that each unicycle has one wheel, that won’t help. Why isn’t (1) a contradiction? If one insists that (1) is false *strictly speaking*, then ‘true *strictly speaking*’ becomes a technical term; and we will have no reason to think that a sentence is true iff it is true *strictly speaking*. Of course, this is not to deny that interesting things can be (and have been) said about the compositional semantics of generic sentences; see, e.g., Carlson and Pelletier (1995), Koslicki (1999).

10. I urge a different view in Pietroski (2002, forthcoming). But let this pass for now. Sentences with indexical/demonstrative/quantificational subjects can be accommodated, in the usual way, by relativization to Kaplan-contexts (or sequences), and associating quantifiers (like ‘every beaver’) with functions from functions to truth-values; although sentences with quantificational subjects have the form  $[[D^{\wedge}N]_i^{\wedge}[t_i^{\wedge}\Phi]]$ , where ‘ $t_i$ ’ is a bound trace of a raised quantifier (composed of a determiner and a noun), and  $[[[D^{\wedge}N]_i^{\wedge}[t_i^{\wedge}\Phi]]] = [[D^{\wedge}N]_i]([t_i^{\wedge}\Phi])$ .

11. In stressing this kind of point, Chomsky (2000) occasionally comes close to saying that London doesn’t exist, on the basis of examples like ‘He wants to move London up the Thames, but its elected officials are opposed’. But of course, Chomsky believes in cities (PC). I construe any remarks suggesting the contrary (if read in isolation) as dramatic reports of the following thought: since it’s not analytic that London exists, the most a semanticist should say is that London is the valuation of ‘London’ if London exists; if London is the valuation of ‘London’, then there is some entity *x* such that *x* is movable *and* *x* has elected officials; but the actual world contains no such entity. The last premise is tendentious, but not implausible: the movable—and hence spatiotemporal—things have no elected officials; and the

“things” with elected officials—political units—don’t move. (Unless we’re playing fast and loose with ‘move’ and ‘has’, in just the ways that are illicit if one is trying to specify functions.) And is the semantics of natural language so demanding that the truth of ordinary claims about London *requires* a potentially exotic metaphysics? Absent independent reason for an affirmative answer, one might simply deny that (the real city) London is the valuation of ‘London’; where one can reject this conception of natural language semantics, while granting that speakers can and do refer to London. That said, Chomsky (qua scientist, if not qua political critic) has nominalistic tendencies, which may bear on how he would resolve the puzzles that attend sentences of the form ‘\_\_ does (not) exist’; see McGilvray (1999, forthcoming) for illuminating discussion. But one can reject nominalism, while still insisting that semanticists who take the valuations of names to be mind-independent things need to say more about the posited valuations.

12. Perhaps the hair has dislodged, but remains on the head, for the moment. And even if this situation does not arise, it might; and ‘bald’ can appear in modal claims.

13. As McGee and McLaughlin (1994) rightly note, you need an assumption to get claims about the object-language to follow from reasoning in the metalanguage. And many proposals about how to avoid the paradoxes look (to me) more like proposals about how we ought to use sharp predicates than plausible hypotheses about the valuations of natural predicates. One can, however, formulate a truth-conditional semantics without the usual function-talk by employing axioms like ‘Valuation( $x$ , *bald*) iff  $x$  is bald’; the idea is that a predicate has many valuations (instead of a single function as its valuation). See Larson and Segal (1995). Among the benefits of this notational scheme is that one can use ‘bald’ to say (with just the right degree of vagueness) which things are valuations of ‘bald’.

14. Travis (1985) seems to think this tells against compositional semantics; but *cf.* Lepore (forthcoming), and see note 2 on the possibility of “layered” meanings\*, which may be what Austinian observations suggest. Correspondingly, one might reject the idea that axioms like ‘Valuation( $x$ , *bald*) iff  $x$  is bald’—see the previous note—are formulated in a “canonical conversational situation” with the intention of specifying a “canonical standard” for ‘bald’. If there is no canonical standard, the axiom can still state that ‘bald’ has certain semantic properties.

15. Suppose that each demonstrative element in a sentence is associated with some index, as in ‘That<sub>1</sub> is better than that<sub>2</sub>’. Then one can say that the valuation of a demonstrative  $\Delta_i$  relative to a context  $K$  is the  $i$ th object demonstrated in  $K$  (the object demonstrated in the act of demonstration associated with  $\Delta_i$ ):  $\|\Delta_i\|_K = K_i$ . And one can say that  $K$ -contexts are ordered  $n$ -tuples of the form  $\langle \alpha, \beta, \gamma, \dots, 1, 2, 3, \dots \rangle$ ; where Greek letters represent “indexical slots” and Arabic numerals indicate demonstrative slots. (See Larson and Segal [1995].) The proposal considered in the text would involve  $K$ -contexts of the form  $\langle \alpha, \beta, \gamma, \dots, 1, 2, 3, \dots s, s', s'', \dots \rangle$ . This is bad enough, since most predicates will require at least one “floating standard” parameter. But think of all the other ways in which context bears on truth. Stanley and Szabo (1999) posit a covert domain-restriction parameter for every nominal expression. And so on. Phrase-markers (and  $K$ -contexts) as currently conceived would represent only the tiniest fraction of sentential meanings. Perhaps this is the case. (Maybe most matter is “dark,” and most meaning is covert.) But one wants to see the arguments for this view, as opposed to arguments that other ways of showing how meaning can be determined truth-conditions are worse. See Hornstein (1986) for related discussion.

16. Similarly, perhaps, for ‘the average philosopher publishes 2.7 papers, and he is overpaid’ or ‘The average philosopher disguises his contempt of the average man’; *cf.* Higginbotham (1993).

17. For representative views, see Stanley (2002) and Bach (1994), respectively.
18. See Neale (1990, 1993), Higginbotham and May (1981), Barwise and Cooper (1981).
19. One might think that propositional attitude reports motivate appeals to hidden indexicals of the sort discussed (but rejected) by Schiffer (1992). See Pietroski (1994, 2000a) for a “(c)overt indexical” view, according to which complementizers (which may or may not be overt) are semantically associated with Fregean senses. This is a variation on “Interpreted Logical Form” views; see Larson and Ludlow (1993), Segal (1990), Higginbotham (1986), Harman (1972). A more ambitious style of argument starts with certain assumptions about logical possibility and its relation to meaning; see Wittgenstein (1921), Lewis (1986). But one can imagine denying the assumptions; see Pietroski (2000a) for related discussion.
20. Similarly *if* semantic facts are abstractions from the usage of ideal scientists trying to report the facts. There are related issues concerning the degree to which meanings are *innately* determined; see McGilvray (1998, 1999), Crain and Pietroski (2000). But no sane person denies that experience matters. The questions concern the constraints imposed by biology on the kinds of cognitive states human beings normally form under the pressure of normal linguistic experience—and the degree to which scientific discourse involves *invention* of symbol systems not governed by these constraints.
21. This last inference pattern holds for all natural language determiners, though we can easily invent determiners for which it doesn’t. While ‘only’ is not a determiner, it illustrates the point: only boys are boys who swam; but it hardly follows that only boys swam. See Larson and Segal (1995) for discussion.
22. *Cf.* Schiffer (1987). Or consider Horwich’s (1998) claim that ‘dogs bark’ means what it does simply because: ‘dogs’ means *dogs*; ‘bark’ means *bark*; and the relevant syntax means what it does. This may account for the extremely “thin” fact that the sentence means what it does; and in a correspondingly thin sense, Horwich may be right that one can account for the *mere* compositionality of meaning without further semantic machinery, like a Davidsonian truth theory (or a neo-Davidsonian valuationist theory). But whatever the merits of deflating truth—see Horwich (1990)—a deflationary account of meaning leaves the facts that semanticists really care about completely unexplained. It does no good to say that the syntax of ‘ran slowly’ makes the semantic contribution it makes: our best theories of meaning reveal *which semantic contribution this is* in a way that sheds light on inferences that speakers recognize as impeccable. (By and large, the semantic correlate of syntactic adjunction is conjunctive—as opposed to disjunctive. But you need to *say* that in your semantic theory, if you want to explain the semantic relation between ‘red box’ and ‘box’.) It is no *explanation* of opacity to say that the parts of ‘heard that Fido barked’, together with how they are arranged, give the verb-phrase a meaning that differs from that of ‘heard Fido bark’. And so on. See Pietroski (2000c) for extended discussion.
23. This is, admittedly, too quick. One wants to see how semantics is done, starting with basic facts about predicates and quantifiers, without the standard truth-theoretic assumptions. But this is not the place to pursue the detailed project; see Pietroski (forthcoming) for an attempt to deliver some goods. With regard to ‘Unicycles have wheels’ one hypothesis would be that it has the valuation 1 iff each (typical) valuation of ‘unicycle’ is a valuation of ‘have wheels’. It seems unlikely that any valuation of ‘unicycle’ will be a valuation of ‘have wheels’, since no unicycle has wheels. On this view, a true sentence has the valuation 0. If this is correct, the truth of the sentence has something to do with our tendency to use ‘have wheels’ instead of ‘are wheeled’, despite the “mismatch” between the truth-conditions and the (compositionally determined) valuation-conditions.

24. Whether this is a view supported by evidence, or a dispensible way of talking, is a topic for another day. At the conference, it was rightly noted that a strongly internalist conception of semantics would (given familiar and not implausible views about rationality) threaten the idea that acquiring a language is a *rational* achievement. But however initially attractive this idea may be—especially if one wants to view linguistics as continuous with Intentional Psychology (see Higginbotham [1989], Rey [forthcoming])—it is not a datum. Facts about what children try to do leave the issue unsettled (see the last paragraph of section one), as do facts about their “errors” (see Crain and Pietroski [2000]). See Dwyer and Pietroski (1996) for an approach to t-belief compatible with an internalist semantics.

25. This leaves open the possibility that when you say ‘the book is blue’, my language faculty generates a token of  $\{[DP_i [D \text{ the}][N \text{ book}]] [t_i [VP \text{ is blue}]]\}$ , which then triggers further processing that results in a token of  $\{[t_i [Adj \text{ blue}]] [DP_i [D \text{ that}][N \text{ book by Russell}]]\}$ . *If* we go on to identify the truth-conditions of the first token with those of the latter, say because we think English-as-Mentalese is what matters for purposes of assigning truth-conditions to utterances, then we might adopt the following view: there *is* a truth-conditional semantics for English; but when we utter an English sentence, the utterance typically has the truth-conditions of some *other* English sentence (relative to the context in question).

26. Bob Matthews effectively challenged this distinction—cf. Schiffer (1987), Fodor (1998)—in his conference presentation.