Mind & Language, ISSN: 0268-1064
Vol. 11. No. 4 December 1996, pp 338–370.

Fregean Innocence

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Abstract: Frege's account of opacity is based on two attractive ideas: every meaningful expression has a sense (*Sinn*) that determines the expression's semantic value (*Bedeutung*); and the semantic value of a 'that'-clause is the thought expressed by its embedded sentence. Considerations of compositionality led Frege to a more problematic view: inside 'that'-clauses, an expression does not have its customary *Bedeutung*. But contrary to initial appearances, compositionality does not entail a familiar substitutivity principle. And Fregeans can exploit this point in a way that lets them reject *Bedeutung*-shifting.

For familiar reasons, I think natural languages are compositional in the following sense:

> the meaning of a word fixes its semantic value (perhaps relative to a context) in sentences; coreferential expressions have the same semantic value; and the truth conditions of a sentence S are determined, given S's logical form, by the semantic values of S's constituents.

It can seem that any language satisfying this constraint must respect a principle of substitutivity:

> if a sentence S2 of the language is the result of replacing some expression in sentence S1 with a coreferential expression, then S1 and S2 have the same truth conditions.

For if the semantic values of words fix the truth conditions of sentences (given logical form), and if coreferential terms have the same semantic value, then substituting coreferential terms should preserve truth; or so it seems. But substitutivity apparently fails for sentences like

For a variety of helpful suggestions, thanks to: Kent Bach, Martin Davies, Susan Dwyer, Jerry Fodor, David Hunter, Ernie Lepore, Sarah Patterson and a referee; special thanks to Richard Larson, Peter Ludlow, and Clare McRae for help with sections 3.3 and 4.2. FCAR and SSHRCC provided financial support.
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(1) Nora believes that Fido barks.

Suppose that every night Nora hears her neighbor's dog barking, whereupon the neighbor yells 'Fido, be quiet'; each morning Nora sees a quiet dog walking in the park with someone who says 'Good dog, Rex'; and unbeknown to Nora, the morning dog *is* the evening dog. If Rex is Fido, then 'Rex' and 'Fido' are presumably coreferential. Yet intuitively, (1) can be true, while

(2) Nora believes that Rex barks,

is false. In short, compositionality seems to imply substitutivity, which seems to be false.

Frege would respond by denying that 'Fido' and 'Rex' corefer *as used in (1) and (2)*. On his view, terms in 'that'-clauses do not have their usual referents. But this is a problematic claim. And one can reject it, while retaining a more attractive Fregean thesis: 'N believes that p' is true, just when N believes the thought expressed by 'p'. I argue that Fregeans can and should deny substitutivity, by adopting a Davidsonian idea: in 'N believes that p', 'that' has a referent.

1. Sinn and Shifty Values

My main goal is to show that an attractive Fregean thesis

(FT_1) A sentence of the form 'N believes that p' is true (relative to context C), if and only if N believes the thought expressed by 'p' (relative to C)

is compatible with what Davidson (1968) called 'semantic innocence', according to which the semantic value of an expression is independent of whether or not it appears in a 'that'-clause. But I begin with a reminder of why (FT_1) is attractive, why it seems to require the rejection of semantic innocence (given compositionality), and why semantic innocence is worth preserving.

1.1 The Appeal of Senses

Frege's (1892) celebrated account of belief ascription embodies (FT_1). On this view,

(1) Nora believes that Fido barks.

is true, if and only if Nora believes the thought expressed by

(3) Fido barks.

Similarly,

(2) Nora believes that Rex barks.

is true, if and only if Nora believes the thought expressed by

(4) Rex barks.

The thought expressed by sentence S is its sense (*Sinn*), which is determined by the senses of S's constituents, given S's logical form. Coreferring names differ in sense, if they are associated with intuitively different ways of thinking about the same thing—e.g. thinking about something as the evening dog, versus thinking about it as the morning dog. So even if Fido is Rex, (3) and (4) can express distinct thoughts, each of which is partly determined by a particular way of thinking about a certain dog. And given (FT_1), (1) and (2) can have different truth conditions.

So far, this is an attractive diagnosis of the phenomenon: (1) and (2) have different truth conditions because (3) and (4) express different thoughts, one of which can be affirmed while the other is denied (without irrationality); and the difference between these thoughts is grounded in the different ways that a subject might think about a certain dog. It is independently plausible that 'Fido' and 'Rex' differ in a way that matters to the thoughts expressed by sentences in which the coreferential names appear. For intuitively, 'Fido is Rex' expresses a nontrivial thought that differs from the trivial thought expressed by 'Fido is Fido'. On Frege's view, one can use 'Fido is Rex' to convey that two ways of thinking about something are ways of thinking about the same thing, while 'Fido is Fido' is not similarly informative. Of course, one wants to hear more about senses and their individuation. But the details are likely to turn on considerations in the philosophy of mind, not just on semantic considerations. In any case, my goal is to show how Fregeans can avoid a certain class of objections to their initially attractive account of (1–2), not to provide a substantive account of *ways of thinking about things*.

1.2 The Road to Bedeutung-Shifting

The objections concern Frege's strategy for showing how, despite initial appearances,

(FT_1) A sentence of the form 'N believes that p' is true (relative to context C), if and only if N believes the thought expressed by 'p' (relative to C).

is compatible with a cluster of theses at the heart of his general semantic theory:

—each semantically significant expression is associated (perhaps rela-

tive to a context C) with some value, an entity that Frege called the expression's *Bedeutung*;
—the *Bedeutung* of a matrix sentence (a sentence not embedded in another) is its truth value;
—the *Bedeutung* of any complex expression is determined, given its logical form, by the *Bedeutungen* of the expression's constituents.

(Instead of translating '*Bedeutung*', I use it as a technical term characterized by these claims; if one wants a translation, I suggest 'semantic value', or simply 'valuation'). As Evans (1982, p. 8) says, it is 'natural to think of each significant expression as having ... a *semantic power*'. And for Frege, an expression's semantic power is its power to affect the truth of sentences in which the expression appears.

Frege uses the name/bearer relation as a prototype for the expression/*Bedeutung* relation (see Dummett, 1973). So names for the same object share a *Bedeutung*; coreferential names have the same semantic power. Given compositionality, this makes it hard to see how

(1) Nora believes that Fido barks.

can ever differ in truth value from

(2) Nora believes that Rex barks.

But if the *Bedeutung* of a matrix sentence is its truth value, one is more or less driven to say that names for the same object share a *Bedeutung*. Inferences like

(3) Fido barks; therefore, (4) Rex barks.

are truth-preserving. And this would be mysterious, if coreferential names could have different *Bedeutungen*. Put another way, if coreferential terms share a *Bedeutung*, compositionality explains why substituting coreferential terms typically preserves truth. But for just this reason, if 'Fido' and 'Rex' share a *Bedeutung* in (1) and (2), compositionality seems to be in tension with the fact that the inference from (1) to (2) is not truth-preserving. The tension becomes an outright paradox, if one assumes that: (1) and (2) have the same logical form; and with the possible exception of 'Fido'/'Rex', each word in (1) shares its *Bedeutung* with the corresponding word in (2). The first assumption seems obvious, and Frege never considers rejecting the second. So he concludes that 'Fido' and 'Rex' have the same *Bedeutung* in (3) and (4), but not in (1) and (2).

If 'Fido' and 'Rex' share a *Bedeutung* in (3–4), but not in (1–2), then a name must shift its *Bedeutung* when appearing in a 'that'-clause.[1] Frege thus holds

[1] Being in a 'that'-clause, not being in the scope of certain verbs, seems to be what matters. Consider: 'The key point was that Fido/Rex barked'.

that an expression's *Bedeutung* can depend on the context of use, and not just in the way that the referent of an indexical like 'me' depends on the context. An expression's syntactic position—in particular, whether or not it is embedded in a 'that'-clause—is said to be part of that expression's context of use. So the *Bedeutung* of 'Fido' as used in (1) can differ from the *Bedeutung* of 'Fido' as used in (3), even if the extralinguistic context is held fixed; similarly for uses of 'Rex' in (2) and (4). In allowing for such *Bedeutung*-shifting, Frege abandons semantic innocence.

Indeed, it can seem that Fregeans *must* abandon semantic innocence. If

(FT_1) A sentence of the form 'N believes that p' is true (relative to context C), if and only if N believes the thought expressed by 'p' (relative to C).

is correct, the truth conditional contribution of 'p' to 'N believes that p' is the thought expressed by 'p'. That is, the power of an embedded sentence to affect the truth value of its matrix sentence resides in the thought expressed by the embedded sentence. So Frege takes the *Bedeutung* of 'p' in 'N believes that p' to be the thought expressed by 'p'. Thus, he can endorse

(FT_2) 'N believes that p' is true (relative to context C), if and only if N believes the *Bedeutung* of 'p' (relative to C, which will be a context in which 'p' appears in a 'that'-clause).

This preserves compositionality. It also coheres nicely with Frege's construal of epistemic relations as relations thinkers bear to the senses of sentences. The *Bedeutung* of 'Fido barks' in

(1) Nora believes that Fido barks.

will be a sense—viz., the thought expressed by

(3) Fido barks.

But this violates semantic innocence, since the *Bedeutung* of 'Fido barks' as a matrix sentence is a truth value. Moreover, the *Bedeutung* of a complex expression is always determined, given its logical form, by the *Bedeutungen* of its constituents. So the *Bedeutung* of 'Fido' in (1) must partly determine the thought expressed by (3), making the sense of 'Fido' in (3) the obvious candidate for the *Bedeutung* of 'Fido' in (1). Similarly, the *Bedeutung* of 'Rex' in

(2) Nora believes that Rex barks.

is said to be the sense (and not the *Bedeutung*) of 'Rex' in

(4) Rex barks.

The sense of 'Rex' in (4) differs from the sense of 'Fido' in (3). So replacing 'Fido' in (1) with 'Rex' is not a case of substituting words with the same *Bedeutung*. Relativizing *Bedeutungen* to syntactic context thus lets Frege preserve his semantic principles, by letting him preserve substitutivity in the face of examples like (1–2).[2] But abandoning innocence has costs.

1.3 *The Price of Bedeutung-Shifting*

A familiar worry concerns the interpretation of pronouns linked to embedded terms. In

(5) Nora believes that Fido$_i$ barks, and he$_i$ does bark.

the second conjunct is true, just when a certain dog barks. So if the *Bedeutung* of 'Fido$_i$' is a sense, one cannot simply identify the *Bedeutung* of 'he$_i$' with the *Bedeutung* of the coindexed name. Similarly, Frege cannot allow that 'Nora' shares its *Bedeutung* with 'she' in

(6) Nora$_i$ believes that she$_i$ saw Rex.

Perhaps one can formulate more complicated rules that capture the relevant generalizations concerning the interpretation of pronouns, even given the possibility of *Bedeutung*-shifting. But the need for such complications can at least motivate a preference for semantic innocence, according to which embedded expressions retain their customary *Bedeutungen*.[3]

Bedeutung-shifting also requires shifts in the semantic role of logical form. Suppose the only relevant aspect of logical form for 'Fido barks' is noun-verb concatenation. The *Bedeutung* of a matrix sentence is a truth value. So the semantic contribution of matrix noun-verb concatenation is a function from the customary *Bedeutungen* of nouns and verbs to truth values. But the

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[2] In a substitutional language that eschews *Bedeutung*-shifting, one might render (1) and (2) as

(1*) Believes {Nora, that(f*, b*)} (2*) Believes {Nora, that(r*, b*)}

where 'f*', 'r*' and 'b*' stand for the senses of 'Fido', 'Rex' and 'barks'; and 'that' represents a function from word senses to thoughts (see Burge, 1979). Frege thus regards natural language terms as ambiguous: no *single* term of a logically proper language translates all uses of 'Fido'.

[3] Higginbotham, 1986 shows how to generalize Frege's strategy of syntactic relativization, so that the *Bedeutung* of expression E relative to its smallest sentential clause can differ from the *Bedeutung* of E relative to its matrix sentence. He argues that some non-opaque constructions (e.g. 'Every boy$_i$ fails unless he$_i$ studies') require such relativization anyway. But Higginbotham concedes that this manoeuvre weakens the traditional (and more computationally tractable) notion of compositionality, and that such weakening should be exploited only when necessary. My point is that Fregeans need not resort to such weakening to account for opacity.

contribution of embedded noun-verb concatenation must be something else. If in

(1) Nora believes that Fido barks.

the *Bedeutung* of 'Fido' is a sense, and the *Bedeutung* of 'Fido barks' is a thought, then: in (1), the semantic contribution of concatenating 'Fido' and 'barks' must be (not a function from customary *Bedeutungen* to truth values, but rather) a function from senses of words to thoughts.

This complicates the semantics. Moreover, since every (use of a) name is associated with some way of thinking about its bearer, a way of thinking about Fido is plausibly regarded as an aspect of what (a use of) 'Fido' means. But there is little intuitive support for the claim that noun-verb concatenation is associated with two things—one function for ordinary contexts, another function inside 'that'-clauses. The objection is magnified, if 'Fido's *Bedeutung* in

(7) Olga believes that Nora believes that Fido barks.

is a way of thinking about the *Bedeutung* of 'Fido' in (1). There is no independent reason to say that a name is associated with a way of thinking about a way of thinking about its bearer. And in the scope of *two* complementizers, the contribution of noun-verb concatenation would have to be a function from ways of thinking about ways of thinking about things (like dogs and barkers) to ways of thinking about thoughts. The worry iterates, if the *Bedeutung* of 'Fido' in

(8) Pat belives that Olga believes that Nora believes that Fido barks.

is a way of thinking about the *Bedeutung* of 'Fido' in (7).

Of course, one can introduce 'Gottlob' as a name for the usual sense of 'Fido'. Then

(9) Gottlob is a way of thinking about Fido.

is true; and the sense of 'Gottlob' will be a way of thinking about a way of thinking about Fido. Let 'Bertrand' be a name for the sense of 'Gottlob' in (9), and so on (see Church, 1951). But Gottlob and Bertrand can each exist without ever being a *Bedeutung* of 'Fido'. And there is no independent motivation for saying that Bertrand is a secondary (or indirect) sense of 'Fido'.

So if one appeals to *Bedeutung*-shifting at all, there is pressure to say that *Bedeutungen* (and the semantic contributions of logical form) shift only once: in the scope of one or more complementizers, an expression's *Bedeutung* is its sense; and an expression never takes a way of thinking about its sense as its *Bedeutung* (see Dummett, 1973, pp. 268–9; Parsons, 1981). But this view has intuitively implausible consequences. Fregeans have no reason to deny—

and Frege did not deny—that distinct terms of a language can have the same sense. (If 'snow' and the German word 'schnee' can share a sense, why not two words of English?) For illustration, suppose 'lawyers' and 'attorneys' are such terms. Then (10–11) express the same thought:

(10) Lawyers lie. (11) Attorneys lie.

If N believes that p, just when N believes the thought expressed by 'p', then sentences

(12) Nora believes that lawyers lie.
(13) Nora believes that attorneys lie.

are true in the same circumstances. And if (12–13) are true in the same circumstances, so are

(14) Nora believes that lawyers lie, if Nora believes that lawyers lie.
(15) Nora believes that attorneys lie, if Nora believes that lawyers lie.

I take this result to be acceptable; although I will deny that (12–13) express the same thought. But intuitively, the following iterations (inspired by Mates, 1950) can differ in truth value:

(16) Olga believes that [Nora believes that lawyers lie if Nora believes that lawyers lie].
(17) Olga believes that [Nora believes that attorneys lie if Nora believes that lawyers lie].[4]

Yet if *Bedeutungen* shift only once: the sense of 'Lawyers' in (10) is the *Bedeutung* of 'lawyers' in (16); the sense of 'Attorneys' in (11) is the *Bedeutung* of 'attorneys' in (17); so 'attorneys' in (17) has the same *Bedeutung* as 'lawyers' in (16); and (16–17) cannot differ in truth value.

It is tempting to bite this bullet, saying (with Soames, 1987b) that contrary intuitions reflect the fact that (16–17) differ in pragmatic appropriateness. But it is hard to see how Fregeans can say this, yet insist (*pace* Soames, 1987a) that 'Nora believes that Fido barks' can differ in truth value from 'Nora believes that Rex barks'. Why not say these sentences differ only pragmati-

[4] One can sharpen the intuition, by replacing the matrix 'believes' with 'doubts', *à la* Mates, or other verbs: 'said', 'wondered (whether)', 'is certain', 'realized', 'argued', etc. It is tempting to say that (12–13) can differ in truth value, even if (10–11) share a sense: if in *Nora's* idiolect, 'lawyers' and 'attorneys' differ in sense, she might assent to (10) yet dissent from (11). But if *we* associate the same sense with 'lawyers' and 'attorneys', then (12–13) arguably have the same truth conditions in *our* language: we ascribe the same thought to Nora with either sentence. If Nora interprets (11) differently from us, her dissent from (11) hardly shows that our (13) is false.

cally? So there is considerable pressure on Fregeans to say that (17) can be false while (16) is true. Moreover, there are no examples of distinct terms substitutable *salva veritate* in contexts like (16–17). So even if doubly embedded terms refer to ways of thinking about their customary senses, one wants to know why distinct terms never share their indirect sense. In short, no amount of *Bedeutung*-shifting yields a fully satisfactory account of (16–17).

2. *Substitutivity and Context Sensitivity*

The task is to capture the initially attractive Fregean thesis

(FT_1) 'N believes that p' is true, iff N believes the thought expressed by 'p'.

without *Bedeutung*-shifting. And to reject *Bedeutung*-shifting is to reject

(FT_2) 'N believes that p' is true, iff N believes the *Bedeutung* of 'p'.

Frege endorses (FT_2), because he accepts substitutivity. But even setting propositional attitude ascriptions aside, there are reasons for thinking that natural languages violate substitutivity (without violating compositionality). This suggests a way of preserving (FT_1) without (FT_2).

2.1 So-Called Examples and Parataxis

Quine (1953) draws our attention to apparent failures of substitutivity like

(18) Slim is so-called because he is thin.
(19) Jim is so-called because he is thin.

Even if 'Jim' has the same *Bedeutung* as 'Slim', (19) can be false while (18) is true. But this is no violation of compositionality, if 'so-' has a *Bedeutung*, and the *Bedeutung* of 'so-' in each case depends on the phonetic (or orthographic) properties of the matrix subject. Or consider

(20) Slim is called that when he visits his family (but not when he is at work).
(21) Jim is called that when he visits his family (but not when he is at work).

In general, the effect of a term on the truth of its matrix sentence need not be wholly determined by the term's *Bedeutung*. For a term T can affect the truth of its matrix sentence in two ways: directly, by virtue of the fact that T has a certain *Bedeutung*; and indirectly, by virtue of the fact that the *Be-*

deutung of another term in the sentence depends on features (besides the *Bedeutung*) of T. But the *Bedeutung* of a complex expression (relative to context C) can still be a function of the *Bedeutungen* of its constituents (relative to C), given the expression's logical form.[5]

As I noted above, Frege takes the semantic power of an expression to be its power to affect the truth of matrix sentences in which the expression appears. But (18–21) suggest that if effects on truth include an expression's indirect effects—i.e. the effects on truth an expression has because it affects the *Bedeutung* of another expression—then terms with the same *Bedeutung* will not always have the same semantic power. On the other hand, if we understand semantic power as the power to affect truth values directly, then substituting terms with the same semantic power will not always preserve truth. Either way, Frege's notion of substitutivity is violated.

Sentences like (18–21) bear an obvious affinity to examples involving quotation, like

(22) He is called 'Slim'.
(23) He is called 'Jim'.
(24) Nora said, 'Slim is thin'.
(25) Nora said, 'Jim is thin'.

where replacing 'Slim' with 'Jim' can clearly fail to preserve truth. In section three, I show how Fregeans might achieve a unified account of quotation (the opaque context *par excellence*) and propositional attitude ascription. But for now, consider an analogy to indirect discourse reports:

(26) Fido barked. Nora said so.
(27) Rex barked. Nora said so.

Suppose that in each case, the *Bedeutung* of 'so' is the sense of the first sentence. Then replacing 'Fido' with a coreferential term that differs in sense will affect the *Bedeutung* of 'so'. This will not affect the truth of the first sentence, but it might well affect the truth of the second. Or to mirror Davidson's (1968) analogy to parataxis, consider the demonstrative 'that' in

(28) Fido barked. Nora said that.

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[5] One might argue that (18–21) do not violate substitutivity. If (18) is uttered in a context where 'so-' is associated with a demonstration of 'Slim', one might insist on evaluating (19) relative to a context where 'so-' is associated with the same act of demonstration. In such a context, (19) is true. (The *Bedeutung* of 'so-' need not depend on a term in its own sentence. Consider: 'Slim is a nice guy. He is so-called because he is thin.') Analogous replies will not be available for my proposal concerning 'that'-clauses, since I treat 'that' as an indexical whose *Bedeutung* is always established by the sentence it introduces. So I think 'that'-clauses are genuine counterexamples to substitutivity. And in any case, (18–21) are counterexamples to the following principle: E1 (as uttered in context C1) and E2 (as uttered in a context C2 like C1, except that E2 was uttered instead of E1) have the same *Bedeutung*, if they differ only in that some term T appears in E1 where T* appears in E2, given that T* has (in C2) the same *Bedeutung* as T (in C1).

(29) Rex barked. Nora said that.

If the *Bedeutung* of 'that' is the sense of the previous sentence, it will differ in each case.

No single sentence in (26–29) is such that replacing coreferential terms in *it* affects *its* truth value. So one might try to explain away all apparent failures of substitutivity with paratactic analyses, according to which the substitution does not occur in a sentence that includes the term whose *Bedeutung* is affected by the substitution. I will not argue against this strategy. The difficulties facing paratactic theories have been discussed elsewhere (see Seymour, 1994 for a review). And such drastic hypotheses about the logical form of (1–2, 18–25) are unneeded. If the *Bedeutung* of one term can depend on features of another, substitutivity can *fail* even given compositionality. *Prima facie*, the word 'that' is a complementizer (not a demonstrative) in

(30) Nora said that Fido barks. (1) Nora believes that Fido barks.

where 'Fido' is a constituent of the sentence whose subject is 'Nora'. And Fregeans can retain this *syntactic* innocence while saying that the *Bedeutung* of a complementizer is a thought.

2.2 Combining Frege and Davidson

Let me introduce a simple hypothesis that will need modification, but which illustrates my central claim that Fregeans can usefully exploit the gap between compositionality and substitutivity. Suppose the *Bedeutung* of the complementizer 'that' in (1) is the sense of its embedded sentence. Then the *Bedeutung* of 'that' in (1) will be thought expressed by

(3) Fido barks.

Similarly, the *Bedeutung* of 'that' in

(2) Nora believes that Rex barks.

will be the thought expressed by

(4) Rex barks.

If the *Bedeutung* of 'that p' (relative to context C) is the *Bedeutung* of 'that' (relative to C), the *Bedeutungen* of 'that Fido barks' and 'that Rex barks' are, respectively, the senses of (3) and (4).

On this view, 'that'-clauses serve as devices for referring to thoughts. So (1) and (2) have different truth conditions, given that 'N believes that p' is true, just when N believes the *Bedeutung* of 'that p'. The main idea is simple: replacing 'Fido' in (1) with a coreferential term that differs in sense affects

the *Bedeutung* of 'that'; and such replacement can affect the truth of the matrix sentence without affecting the truth of the embedded sentence. This view preserves

(FT_1) 'N believes that p' is true, iff N believes the thought expressed by 'p'.

But it rejects the thesis that leads to *Bedeutung*-shifting, namely

(FT_2) 'N believes that p' is true, iff N believes the *Bedeutung* of 'p'.

For the *Bedeutung* of 'that p' is the *Bedeutung* of 'that' (not the *Bedeutung* of 'p'), and the *Bedeutung* of 'that' is the sense (not the *Bedeutung*) of 'p'. The *Bedeutung* of a sentence is a truth value, even when embedded. So embedded names will not take their customary senses as *Bedeutungen*. The fact that (1) and (2) can differ in truth value is compatible with saying that 'Fido' and 'Rex' corefer, since terms can have indirect effects on the truth of matrix sentences. The effect of 'p' on the truth of 'N believes that p' depends on the sense of 'p'; but since 'p' has an indirect effect on the truth of its matrix sentence, the *Bedeutung* of 'p' need not be its sense.

Assigning *Bedeutungen* to complementizers can seem odd. But on Frege's own view, complementizers have a semantic power: they affect the *Bedeutungen* of embedded terms (and the semantic contribution of embedded syntax). And it should be no surprise, if the *Bedeutung* of a complementizer phrase depends on the *Bedeutung* of its head. One might worry about letting a syntactically primitive term take the sense of a sentence as its *Bedeutung*. But recall

(9) Gottlob is a way of thinking about Fido.

in which 'Gottlob' is a name for the sense of a word. Now consider:

(31) The sense of 'Fido barks' is a fine thought, and Nora believes it.

Given that there *are* Fregean thoughts, the sense of 'Fido barks' can be the *Bedeutung* of the syntactically primitive term 'it' in (31). And the present proposal is that a complementizer functions semantically like an indexical, in that its *Bedeutung* is a contextually determined sense.

Since there is no *Bedeutung*-shifting, one can adopt the simple view that in

(5) Nora believes that Fido_i barks, and he_i does bark.

the *Bedeutung* of 'he_i' just is the *Bedeutung* of 'Fido_i', which is the dog Fido; and similarly for other examples involving the interpretation of pronouns. The treatment of

(7) Olga believes that Nora believes that Fido barks.

is straightforward. The *Bedeutung* of the matrix 'that'-clause is the *Bedeutung* of the matrix complementizer. And the *Bedeutung* of the matrix complementizer in (7) is the sense of

(1) Nora believes that Fido barks.

So (7) is true, iff Olga believes the sense of (1). The *Bedeutung* of 'that' in (1) is the sense of

(2) Fido barks.

And the sense of 'Fido' partly determines the sense of (2). The *sense* of 'that' in (1) is thus a way of thinking about a thought partly determined by the sense of 'Fido'. So the sense of (1), which is the *Bedeutung* of the matrix complementizer in (7), is partly determined by a way of thinking about the sense of 'Fido'. But 'Fido' has a single sense, and 'Fido' never takes a sense as its *Bedeutung*. The iterated ascription (7) provides distinct terms—*viz.* the matrix and embedded complementizers—that take as *Bedeutungen* the senses of (1) and (2), respectively.

Turning to Mates-sentences, if (10–11) share a sense, (12–13) share their truth conditions.

(10) Lawyers lie.
(11) Attorneys lie.
(12) Nora believes that lawyers lie.
(13) Nora believes that attorneys lie.

On the present proposal, the *Bedeutung* of a complementizer is the thought expressed by the embedded sentence. That is, one refers to a thought by using a complementizer. So in (12–13), 'that' has the same *Bedeutung*. And the *Bedeutung* of each embedded complementizer in

(16) Olga believes that [Nora believes that lawyers lie if Nora believes that lawyers lie].
(17) Olga believes that [Nora believes that attorneys lie if Nora believes that lawyers lie].

is the shared sense of (10–11). But if the *sense* of the second occurrence of 'that' in (16) differs from the *sense* of the second occurrence of 'that' in (17), (16–17) have different truth conditions.

On a Fregean view, whenever one refers to something, one thinks about it in some way. Intuitively, if one refers to a thought Θ by using a complementizer, one thinks about Θ *as the thought expressed by* the relevant embedded sentence. The complementizer in 'that lawyers lie' thus presents a certain thought *as* the thought expressed by 'lawyers lie'; the complementizer in 'that attorneys lie' presents the same thought *as* the sense of 'attorneys lie'.

If these are different ways of presenting the same thought, the second occurrences of 'that' in (16) and (17) differ in sense, in which case the bracketed expressions differ in sense. If the bracketed expressions differ in sense, the matrix complementizers in (16) and (17) have different *Bedeutungen*. So (16) can be true while (17) is false. That is, Olga may believe the sense of the bracketed expression in (16) without believing the sense of the bracketed expression in (17).

2.3 *The Context-Sensitivity of Sense*

It is crucial to this view that an expression whose *Bedeutung* depends on the context can have different senses in different contexts. So as Burge (1986, 1990) notes, an expression's sense must be distinguished from its conventional meaning (or character, see Kaplan, 1989). The conventional meaning of the demonstrative 'that' is given by some rule like: 'That is Φ' is true, relative to context C, just when the object demonstrated in C satisfies 'is Φ'. Such a rule determines a context-insensitive mapping from contexts to *Bedeutungen*; so the conventional meaning of the demonstrative will remain the same across contexts. But two uses of

(32) That is a lawyer.

can express different senses, even if the *Bedeutung* of the demonstrative is the same each time. Suppose Nora accepts (32) as uttered in a courtroom, when the speaker is pointing at the back of a well-dressed person who has approached the bench; but Nora later dissents from (32) as uttered outside the courtroom, when the speaker points to the same (now ill-dressed) member of the bar. Fregeans will say that the corresponding uses of

(33) Nora believes that that is a lawyer.

differ in truth value, because the demonstrative has different senses on the two occasions of use. Taking this to be a legitimate Fregean position, I see no reason to deny that in

(12) Nora believes that lawyers lie.
(13) Nora believes that attorneys lie.

the complementizers differ in sense, while sharing a *Bedeutung*. So (12–13) express different thoughts. In this respect, (12–13) is like the pair 'Fido barks'/'Rex barks': for Fregeans, sentences can express different thoughts yet be true in the same circumstances.

Still, things are not ideal. Let Θ be the thought expressed by 'lawyers lie' and by 'attorneys lie'. On the present view, Θ is the *Bedeutung* of each embedded complementizer in

(16) Olga believes that [Nora believes that lawyers lie if Nora believes that lawyers lie].
(17) Olga believes that [Nora believes that attorneys lie if Nora believes that lawyers lie].

The account of why (17) can be false, while (16) is true, trades on the claim that thinking of Θ *as* the sense of 'lawyers lie' differs from thinking of Θ *as* the sense of 'attorneys lie'. But one wants to know why (and how) the first way of thinking about Θ differs from the second, and why this matters (if 'lawyers' and 'attorneys' share a sense). And one wants a semantic theory to *show* why distinct terms are never substitutable *salva veritate* in contexts like (16–17).

Moreover, while a demonstrative *can* be used to refer to another expression in the sentence or to some thought, these are just manifestations of the fact that a demonstrative can be used to refer to anything in the context at hand. But the 'that' of a 'that'-clause cannot be used to refer to just anything. The present account accommodates this by effectively treating complementizers as dedicated demonstratives—they must refer to the senses of their embedded sentences. But the disanalogy between complementizers and demonstratives is deeper. Consider

(34) Every lawyer$_i$ believes that he$_i$ lies.

Paratactic theorists are led to deny that the variable 'he$_i$' is a constituent of a sentence that includes 'Every lawyer$_i$', making it hard to see how the former can be bound by the latter. The present account fares better. By allowing for counterexamples to substitutivity (in natural languages), one can preserve semantic innocence while admitting that embedded terms are parts of the same sentence as matrix subjects. But there is still no single sense of 'he$_i$ lies' for the complementizer 'that' in (34) to take as its *Bedeutung*. So the account must be modified, a little.

3. *A Role for Linguistic Forms*

Instead of taking the *Bedeutung* of 'that' in 'that p' to be the sense of 'p', suppose the *Bedeutung* of 'that' is 'p' itself. And suppose the *Bedeutung* of 'that p' is the sense of the (sentence that is the) *Bedeutung* of 'that'. On this view, 'that p' still serves as a device for referring to the sense of 'p'; and this result is still achieved without *Bedeutung*-shifting. Before showing how appeal to sentences helps, though, let me say how sentences are to be individuated for these purposes.

3.1 Counting Sentences

Intuitively 'lawyers lie' and 'attorneys lie' are different sentences, because they *sound* different. Utterances that sound the same can also be utterances

of distinct sentences. The sound of 'small dogs and cats' can be paired with two syntactic structures: [[small dogs] and [cats]], or [small [dogs and cats]]. So the sound of 'Nora hates small dogs and cats' is associated with two different sentences. The sound of 'bank' is associated with several words—'bank1', 'bank2', etc. So the sound of 'Nora went to the bank' is also homophonous (since sentences composed of different words are different sentences); similarly for 'The doctor lost her patients/patience'.

So far, I have said nothing about the interpretation of sentences. And one might identify the *Bedeutung* of 'that' in 'that p' with the sentence 'p', where sentences are individuated nonsemantically. The *Bedeutung* of a complementizer would then be a purely formal object—a structuring of lexical elements; and the *Bedeutung* of 'that p' (relative to context C) would be specified as *the sense associated* (relative to C) with the nonsemantically individuated sentence 'p'. This may be acceptable. But it appears to make context do all the work, suggesting that a 'that'-clause acquires its *Bedeutung* in the manner of a demonstrative (as opposed to a syntactically structured clause). Fregeans can avoid this appearance—and make it clear why the *Bedeutung* of 'that p' is the very sense already expressed by 'p'—by taking the *Bedeutung* of a complementizer to be the *interpreted linguistic form* of its (sentential) complement. This will be a purely formal object coupled with an interpretation of it; where the Fregean interpretation of a linguistic form (relative to context C) is its sense (relative to C). If the sense of an embedded sentence is part of what individuates the *Bedeutung* of its complementizer, then complementizers will have different *Bedeutungen* whenever their embedded sentences differ in sense.

Let me make this suggestion more precise. A *linguistic form* is a phrase marker whose terminal nodes are lexical items. A phrase marker is a suitably labelled *tree*; a partial ordering of points, such that the resulting structure has a unique root; where each point—i.e. each node of the tree—is labelled as a token of some syntactic type in accordance with a correct theory of syntax for the language in question (see Higginbotham, 1986). A lexical item is an n-tuple of features, including a phonetic form and a point labelled as a terminal phrase marker node. How much information is lexicalized is an empirical question. But verbs have subcategorization features relevant to the shape of phrase markers—e.g. 'barks' takes a noun-phrase subject and no object (NP ____), while 'likes' takes noun-phrases as subject and object (NP [____ NP]). The linguistic forms of 'Fido barks' and 'Rex barks' can thus be represented as follows:

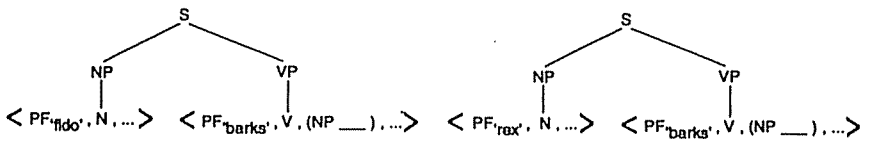

Figure 1

We get a Fregean interpretation of a linguistic form, by replacing each terminal node with the sense of that lexical item, and each nonterminal node with the sense of the relevant expression (which will be determined by the senses of its constituents, given logical form). The result is the sense of a sentence, perhaps relative to a context of use. For 'Fido barks' and 'Rex barks', we get

Here the various nodes are *ways of thinking about*: the common truth value of the two sentences, the dog Fido/Rex, and the barkers; where $WT_{fb} \neq WT_{rb}$, because $WT_f \neq WT_r$.[6]

The present proposal is that the *Bedeutung* of 'that', in

(1) Nora believes that Fido barks.

is the interpreted linguistic form of 'Fido barks'. An interpreted linguistic form is the pairing of a linguistic form with a sense. So the *Bedeutung* of 'that' in (1) will be the ordered pair:

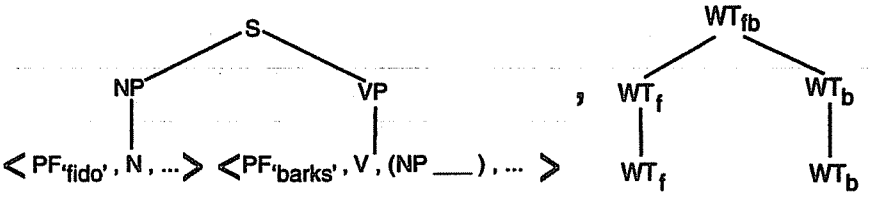

Figure 2

The *Bedeutung* of 'that Fido barks' will be the second element of this pair (not the entire interpreted linguistic form). This captures an attractive idea: a 'that'-clause abstracts away from specifically linguistic features of the embedded sentence, leaving the sense expressed. So a German 'that'-clause (a 'daß'-clause) can share a *Bedeutung* with an English 'that'-clause.

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[6] Others, e.g. Larson and Ludlow, 1993, have appealed to pairings of linguistic forms with interpretations obtained by replacing nodes with *Bedeutungen*. I discuss this alternative below. For simplicity, I assume that the *Bedeutung* of 'barks' is the class of barkers, and that 'Fido barks' is a straightforward noun-verb sentence. But nothing hangs on this.

Similarly, the *Bedeutung* of 'that' in

(2) Nora believes that Rex barks.

is the interpreted linguistic form of 'Rex barks', which is the following ordered pair:

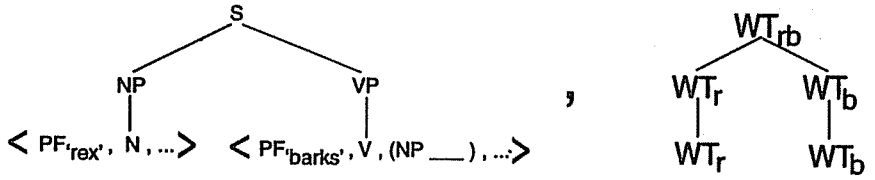

Figure 3

The second element of this pair serves as the *Bedeutung* of 'that Rex barks'. The *Bedeutung* of 'that Rex barks' thus differs from the *Bedeutung* of 'that Fido barks'. But there is no *Bedeutung*-shifting. The terms 'Fido' and 'Rex' have the same *Bedeutung*, even when they appear in 'that'-clauses. Substitutivity fails, because replacing 'Fido' with 'Rex' can affect the *Bedeutung* of a complementizer, thereby affecting the *Bedeutung* of a 'that'-clause.

3.2 Back to Mates-Sentences

The proposal of section two has been altered in just one respect: the *Bedeutung* of a complementizer now includes specifically linguistic features (in addition to the sense) of the embedded sentence. Often, this will make no difference. But the added complexity pays off.

It will be useful to use quote-names of sentences as devices for referring to the relevant interpreted linguistic forms. (In Section 3.3, I turn this convention into an account of quotation.) Thus, 'Fido barks' will be an ordered pair whose first element is a linguistic form, and whose second element is a Fregean sense. To say Θ is the sense of 'Fido barks' is to say Θ is the second element of the ordered pair that *is* 'Fido barks'. To say 'lawyers lie' and 'attorneys lie' share a sense is to say these ordered pairs share a second element. To say two uses of 'That is a lawyer' differ in sense is to say: relative to context C1, 'That is a lawyer' is <LF, Θ1>, where LF is a linguistic form; but relative to context C2, 'That is a lawyer' is <LF, Θ2>, where $\Theta 1 \neq \Theta 2$.

Recall that the proposal of section two left one wondering why 'that p' and 'that q' always differ in *sense*, if 'p' and 'q' differ. And this was relevant to why

(16) Olga believes that [Nora believes *that* lawyers lie if Nora believes that lawyers lie].

(17) Olga believes that [Nora believes *that* attorneys lie if Nora believes that lawyers lie].

have different truth conditions. If (17) can be false while (16) is true, the bracketed expressions must differ in sense; so given the compositionality of sense, the italicized complementizers must differ in sense. Appeal to interpreted linguistic forms lets one give a semantic theory that shows why introducing 'attorneys lie' as opposed to 'lawyers lie' affects the sense of 'that'.

While 'lawyers lie' and 'attorneys lie' share a sense, they differ in linguistic form; they have different lexical features. Let x and y be the linguistic forms of (i.e. the first elements of) 'lawyers lie' and 'attorneys lie', respectively; let \$ be their shared sense. Thinking about \$ as the sense paired with x differs from thinking about \$ as the sense paired with y. Moreover, the italicized complementizers in (16–17) have different *Bedeutungen*: <x,\$> and <y, \$>, respectively. If the italicized term in (16) has a different *Bedeutung* than the corresponding term in (17), these terms must also have different senses. For I assume that sense determines *Bedeutung*, at least relative to a context; that is, the sense/*Bedeutung* relation is many/one.[7]

The difference between (16) and (17) is thus due to the differing contexts in which the italicized complementizer is used: it introduces 'lawyers lie' in (16), and 'attorneys lie' in (17). (The proposal has always been that the sense and the *Bedeutung* of a complementizer depend on the context of use.) In general, 'that p' will differ in sense from 'that q' relative to context C, just when 'p' and 'q' are distinct interpreted linguistic forms relative to C. For if 'p' is distinct from 'q', then the *Bedeutung* of 'that' in 'that p' differs from the *Bedeutung* of 'that' in 'that q'; hence, the two complementizers must also differ in sense. For this reason, 'N believes that p' will differ in sense from 'N believes that q', even if 'p' and 'q' share a sense. So

(12) Nora believes that lawyers lie.
(13) Nora believes that attorneys lie.

differ in sense, as do the bracketed expressions in (16–17). Thus, the matrix 'that'-clauses in (16–17) have different *Bedeutungen*. For the *Bedeutung* of 'that p' is the sense of 'p'.

Not surprisingly, this discussion bears on whether the inference from (12) to (13) is valid. If the *Bedeutung* of a complementizer were simply the sense of its embedded sentence, this inference would be like 'Nora saw that, so Nora saw that'; where the *Bedeutungen* of the demonstratives are (perhaps known to be) the same. I think this analogy is inapt. But in any case, the current proposal suggests another analogy, since the complementizers in (12–13) have different *Bedeutungen*: 'Nora saw his_i mother, so Nora saw his_j

[7] Like Evans (1982), I take senses to be partly individuated by their *Bedeutungen*. (I do not identify senses with verificationist rules for establishing *Bedeutungen*.) If β is the *Bedeutung* of E, then to give E's sense is to say how some subject thinks of β; and two subjects think about β in the same way, only if they both think about β. Note that the *Bedeutung* of 'that p' can be the sense paired with x, without the sense of 'that p' being the sense of 'the sense paired with x'.

mother'; where the *Bedeutung* of 'his' is different in each case, but the mothers are (perhaps known to be) the same. In (12–13), the same sense is associated with distinct linguistic forms. By analogy, the same mother might be associated with distinct individuals; the referents of 'his' might be brothers. But 'Nora met his_i mother, so Nora met his_j mother' does not strike me as a valid inference, even if it is known that he_i is his_j brother; though in some sense, the inference preserves truth. (I return to issues of validity in section four.)

The current proposal also yields an attractive treatment of quantified constructions like

(34) Every $lawyer_i$ believes that he_i lies.

Fregeans will say (34) is true, just when: each lawyer *i* believes a thought whose predicative component is the sense of 'lies' and whose other component is a way of thinking about *i*. But there is no specific way that each lawyer must think of himself. So let the Fregean interpretation of 'he_i' be a function $\mathcal{F}$, from possible assignments to *i* onto classes of ways of thinking about *i*. Given $\mathcal{F}$ and the sense of 'lies', one can (compositionally) obtain a function $\mathcal{G}$ that maps possible assignments to *i* onto classes of thoughts, as indicated in this representation of 'he_i lies':

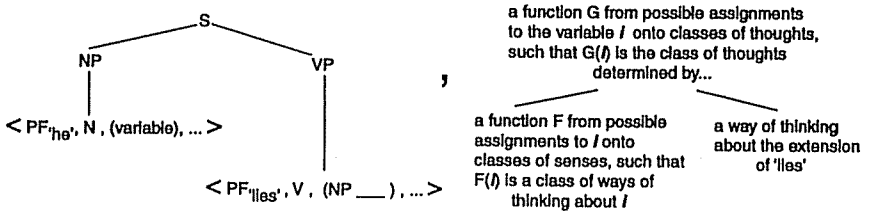

Figure 4

The *Bedeutung* of 'that p' is the interpretation of 'p'. So given a value for *i*, the *Bedeutung* of 'that he_i lies' delivers a class of thoughts composed of the sense of 'lies' and a way of thinking about *i*. And we can say: 'believes that p' is true of those x, such that ∃y[y **is an element of** the *Bedeutung* of 'that p' & x believes y]; when the embedded sentence contains no variable, the *Bedeutung* of 'that p' will be a class consisting of a single sense. Then (34) is true, just when each lawyer *i* believes a thought composed of the sense of 'lies' and a way of thinking about *i*.[8]

[8] Forbes', 1989, 1990 treatment of other quantified constructions is designed for a *Bedeutung*-shifting theory. But it can be adapted to the present account. If one finds the proposed truth conditions for (34) too liberal, one can impose restrictions on the relevant functions.

3.3 Towards a Unified Account of Opacity

So far, I have emphasized the value of interpreted linguistic forms in accounting for the senses of 'that'-clauses. But appealing to interpreted linguistic forms also lets Fregeans offer an account of quotational constructions. The idea is that the *Bedeutung* of " 'p' " is 'p' itself.

The present proposal involves two theses, suppressing relativization to context:

(i) the *Bedeutung* of a complementizer phrase 'that p' is the second element of the *Bedeutung* of (the complementizer) 'that'; and
(ii) the *Bedeutung* of 'that' in 'that p', is the interpreted linguistic form 'p'—<LF,Θ>, where LF is a lexicalized phrase marker and Θ is the thought expressed.

I now want to analyse quote-names like 'Fido barks' as complementizer phrases, on the model of 'that'-clauses. Indeed, I will speak of 'quote'-clauses. For the idea is to render (35) as (36)

(35) Nora said, 'Fido barks'. (36) Nora said quote Fido barks.

where 'quote' (like 'that') is a complementizer that introduces an embedded sentence.

This allows for a unified treatment of quotation and attitude ascription, via:

(iii) the *Bedeutung* of a complementizer phrase 'quote p' is the *Bedeutung* of (the complementizer) 'quote'; and
(iv) the *Bedeutung* of 'quote', in 'quote p', is the interpreted linguistic form 'p'.

On this view, 'that p' serves as a device for referring to the sense of 'p'; 'quote p' serves as a device for referring to 'p' itself. This captures the idea that 'quote'-clauses do not abstract away from lexical features of embedded terms. But substituting distinct terms with the same *Bedeutung* fails to preserve truth in quotational contexts for the same reason that such substitution fails to preserve truth in propositional attitude ascriptions: the *Bedeutung* of a complementizer depends on features (other than the *Bedeutungen*) of the words in its scope. Substituting 'Rex' for 'Fido' in (36) affects the *Bedeutung* of the complementizer. In (36), the *Bedeutung* of 'quote' is the interpreted linguistic form 'Fido barks'. In

(37) Nora said quote Rex barks.

the *Bedeutung* of 'quote' is the interpreted linguistic form 'Rex barks'. If the *Bedeutung* of 'quote p' just is the *Bedeutung* of 'quote', then the 'quote'-clauses in (36) and (37) have different *Bedeutungen*—'Fido barks', and 'Rex barks', respectively. So (36) can be true while (37) is false, without violating compositionality or semantic innocence.

Let me make this proposal a bit more precise. One can represent theses (i–iv) as follows:

(i) Bed($[_{CP}\ [_{C}\text{that}][_{S}\ldots]]$, C) = the second element of Bed($[_{C}\text{that}]$, C)
(ii) Bed($[_{C}$ that], C) = the interpreted linguistic form introduced by $[_{C}$ that] in C
(iii) Bed($[_{CP}\ [_{C}\text{quote}][_{S}\ldots]]$, C) = Bed($[_{C}$ quote], C)
(iv) Bed($[_{C}$ quote], C) = the interpreted linguistic form introduced by $[_{C}$ quote] in C

where Bed($[_{X}\ldots]$, C) is the *Bedeutung* of the expression '. . .', which is of category X, relative to context C. Theses (ii) and (iv) can be captured by a single general rule:

Bed($[_{C}\ldots]$, C) = the interpreted linguistic form introduced by $[_{C}\ldots]$ in C

The idea is that 'that' and 'quote' both take as their *Bedeutung* the interpreted linguistic form of their complement. Theses (i) and (iii), however, cannot be captured by one simple rule. For the *Bedeutung* of a complementizer phrase is either the second element of the relevant interpreted linguistic form, or both elements, depending on whether the complementizer is 'that' or 'quote'. So perhaps 'that' and 'quote' are different *kinds* of complementizers: *indirect* and *direct*, represented as $[_{C(i)}$ that] and $[_{C(d)}$ quote], respectively. Then we can capture (i) and (ii) with:

Bed($[_{CP}\ [_{C(i)}\ldots][_{S}\ldots]]$. C) = the second element of Bed($[_{C(i)}\ldots]$, C)
Bed($[_{CP}\ [_{C(d)}\ldots][_{S}\ldots]]$, C) = Bed($[_{C(d)}\ldots]$, C)

And it is independently plausible to treat 'that' and 'quote' as syntactically distinct. The former must be followed by a complete sentence, while any part of speech can be quoted, as in:

(38) Nora yelled, 'Fire!' (39) Aristotle satisfies 'taught Alexander'.[9]

A full account of quotational constructions is beyond the scope of this paper. But it is hard to resist some speculation. Initially, one might want to treat a direct discourse report like

[9] There may be a *formal* version of quotation: Bed($[_{CP}\ [_{C(f)}\ldots][_{X}\ldots]]$, C) = the *first* element of Bed($[_{C(f)}\ldots]$, C). But I think (38) is false, if Nora's exclamation meant what 'Help' means, even if it had the formal features of 'Fire'; (39) may be ambiguous. Even where interpretation matters to direct discourse reports, though, there are differences between corresponding direct and indirect reports. Terms embedded in direct discourse reports must often be understood as though uttered by someone other than the reporter: compare 'Nora said that I am tall' and 'Nora said, "I am tall"'.

(36) Nora said quote Fido barks.

completely on a par with an indirect discourse report like

(30) Nora said that Fido barks.

where the complementizer phrase serves as direct object. On this view, (36) is true, just when <Nora, 'Fido barks'> satisfies 'said'. But for Fregeans, (30) is true, only if <Nora, Θ> satisfies 'said'; where Θ is *the sense of* 'Fido barks'. Other things equal, one wants to avoid positing such diversity in the extension of 'said'. Moreover, Munro (1982) offers a number of syntactic reasons for treating (36) as a less transitive construction than (30). So one might treat (36) adverbially: Nora *said 'Fido barked'-ly* (compare *ate quickly* or *muttered angrily*); where the 'quote'-clause is a complementizer phrase that is part of an adverbial phrase whose adverb unvoiced. That is, one might elaborate (36) as:

(36a) Nora said [quote Fido barks]-(ly).

The verb phrase here can be depicted more perspicuously as follows:

$[_{VP}\ [_{V}$ said$]\ [_{AdvP}\ [_{CP}\ [_{C(d)}$ quote$][_{S}$ Fido barks$]]\ [_{Adv}$ (null) $]]]$

Treating adverbs along the lines of Davidson (1967), (36a) would be true if and only if: Nora was the agent of a saying, and the saying was done in a 'Fido barks' manner; where a saying is done in a 'Fido barks' manner, if it is done by using (the interpreted sentential form) 'Fido barked'. Cappelen and Lepore (forthcoming) draw attention to mixed constructions like:

(40) Nora said that the poor dog 'yelped'.

where direct quotation occurs within an indirect discourse report. If (40) is true, Nora said that the poor dog yelped by using the word 'yelped'. So perhaps (40) is a shortening of:

(40a) Nora said that the poor dog yelped 'yelped'(-ly).

where the direct object of 'said' is a 'that'-clause, and the basic verb phrase is modified adverbially by 'yelped'. The full verb phrase of (40a), which might be represented as

$[_{VP}\ [_{V}'[_{V}$ said$][_{CP}\ [_{C(i)}$ that$][_{S}$ Fido yelped$]]]$
$[_{AdvP}[_{CP}\ [_{C(d)}$ quote$][_{V}$ yelped$]][_{Adv}$ (null) $]]]$

would be true of those x, such that: x was the agent of a saying, the sense of 'Fido yelped' is what x said, *and* x did the saying in a 'yelped' manner.

3.4 Potential Problems

Let me turn now to some objections. I cannot deal with these in detail. But I hope to make them seem less like deep problems for Fregeans, and more like places for further work.

One might think true belief ascriptions are rare, if ascribers and ascribees must think of things in the *same* way. But we often use loose standards for what counts as the same. Suppose

(41) Nora's dog is the same size as Olga's dog.

counts as true in most contexts. Still, when precise measurements matter, (41) may count as false. Similar considerations will be relevant to whether Nora and a belief ascriber count as thinking about Fido in the *same* way.[10] Moreover, someone who often thinks of x in a way that is unavailable to others may be able to think of x in ways that are available to others. (Consider the many ways in which one thinks of: oneself, one's spouse, one's job, etc.) And one can believe a thought partly constituted by a way of thinking about x, even if one does not ordinarily think of x in that way. Let B(W1) be a thought composed of the sense of 'barks' and Nora's usual way of thinking about Fido. Suppose Nora believes B(W1), but also B(W2); where W2 is some reporter's usual way of thinking about Fido. (Perhaps W1 is unavailable to the reporter.) In this situation, the reporter's utterance of 'Nora believes that Fido barks' will still be true.[11]

Another worry concerns ascriptions like 'Nora believes Fido barks', where 'that' does not appear. The obvious response is that the complementizer is

[10] Though I would prefer not to, one might introduce a context-sensitive relation $\mathfrak{R}$ (of *suitable similarity*) between senses: 'N believes that p' is true, just when N believes* a sense that bears $\mathfrak{R}$ to the sense of 'p'. On this view, the *Bedeutung* of 'that' is still 'p'; the sense of 'p' depends on the reporter; but the *Bedeutung* of 'that p' is a (non-singleton) class of senses, each of which bears $\mathfrak{R}$ to the sense of 'p'; 'believes that p' is true of those who believe* a member of this class; and believing* a sense Θ is *not* a matter of bearing a relation to something that bears $\mathfrak{R}$ to Θ. (But see Segal, 1989, Larson and Ludlow, 1993, who argue against this manoeuvre).

[11] Experts must take care not to ascribe overly sophisticated thoughts to others. Chemists may think of water in ways unavailable to non-chemists. But non-chemists think about water in ways available to chemists; see Sections 2.2, 4.2. Kripke, 1979 trades on the 'Cicero'/'Tully' example. But there may be various explanations of cases where 'Cicero is F' and 'Tully is F' express different thoughts. Sometimes, we think of famous people *as the bearers* of famous names. Sometimes, the context of ascription may let an ascriber associate different senses with 'Cicero' and 'Tully'; for the context will include the way(s) in which the ascribee is thinking about Cicero. And as Burge, 1979 notes, a sense need not enable a thinker to distinguish a *Bedeutung* from all other entities *in abstraction from the context*; see also Owens, 1995. If the reporter is to convey which thought is being ascribed to Nora, the *listener* must be able to figure out (in the context) how the reporter is thinking of Fido; though often, it may suffice to communicate that Nora believes a thought constituted by the sense of 'barks' and some way of thinking about Fido.

unvoiced, though present at logical form. But cases like 'Sam believes Fido to be a barker' are more tendentious. So suppose there are verb phrases of the form $[_{VP}[_V$ believes$][_S \ldots]]$ satisfied by those who believe the sense associated with $[_S \ldots]$. Even this worst case scenario would not present a fatal difficulty. One could build the work done by complementizers into the rule for any verbs that do not subcategorize for complementizer phrases, by specifying $Bed([_{VP}[_V \ldots][_S \ldots]], C)$ as follows:

> x: $\exists y\{y$ = the thought associated with $[_S \ldots]$ in C & $<x,y> \in Bed([_V \ldots], C)\}$.

For semantic purposes, attitude ascriptions would be treated *as if* they had complementizers.[12]

Taking the *Bedeutung* of a complementizer phrase to be the sense of its embedded sentence nicely accounts for the opacity of 'that p explains why q'. But inferences like

> It is true that Fido barks, and Fido is Rex; so it is true that Rex barks.

seem valid. *Sometimes*, substitutions of coreferential terms inside 'that'-clauses preserves truth. But this does not show that 'that Fido barks' and 'that Rex barks' have the same *Bedeutung* in the scope of 'it is true'. Consider the potential role of schema-T: it is true that p, iff p. Given schema-T, the first premise in the argument above entails

> (3) Fido barks.

Together with the second premise, (3) entails

> (4) Rex barks.

which entails the conclusion, given schema-T. In Fregean terms: 'It is true that Fido barks' is true, just when the thought expressed by (3) is true; and if this thought is true, then a second thought like it *except that it involves a different way of thinking about the same dog* is also true.

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[12] This rule violates the following strong compositionality constraint: the *Bedeutung* of a complex expression is a function (determined by its logical form) of the *Bedeutungen* of its immediate constituents. But troublesome verb phrases (if such there be) would be special cases, accommodated with semantic rules parasitic on rules that violate neither the letter nor the spirit of compositionality. (Given my stress on the context-sensitivity of sense, this is reminiscent of the 'hidden indexical theory' discussed by Schiffer, 1992; though using a complex rule for verb-phrases instead of an indexical blunts Schiffer's objection based on logical form—cf. Ludlow, 1996.) Somewhat tendentiously, I would treat 'Nora considers Howard honest' as having the form 'Nora considers Howard [to be] honest'. And I hope that 'In her view, Fido is a menace' can be treated as parasitic on 'Her view is that Fido is a menace'.

4. Still a Role for Senses

In this final section, I compare the proposed Fregean treatment of attitude ascriptions with that of Larson and Ludlow (1993), henceforth 'L&L'. Developing suggestions due to Higginbotham (1986, 1991) and Segal (1989), L&L provide a detailed theory based on appeals to the forms and interpretations of embedded sentences. But for L&L, the interpretation of a sentence is composed of the *Bedeutungen* (not the senses) of its components. So a Fregean who appeals to linguistic forms and senses owes some reason for not adopting L&L's more parsimonious account. My aim, however, will be to offer reminders of why senses remain attractive—not to establish that a semantically innocent Fregean theory is the best option, all things considered. (That would require, *inter alia*, discussion of how semantics interacts with philosophy of mind.)

4.1 Coarse-Grained ILFs

On L&L's view,

(1) Nora believes that Fido barks.

is true, if and only if Nora believes (what they call) the interpreted *logical* form of

(2) Fido barks.

I prefer to speak of interpreted *linguistic* forms, since I want to say that (2) and

(4) Rex barks.

have the same logical form. For L&L, an expression's logical form includes its lexical features. (So substitutions typically affect logical form.) But one can bypass this terminological dispute, and simply speak of LFs; either way, (2) and (4) have different LFs. The important point is that (for L&L) the interpretation of an LF is a tree whose terminal nodes are the *Bedeutungen* of the corresponding lexical items, and whose nonterminal nodes are the *Bedeutungen* of the corresponding complex expressions. So for L&L, the interpretation of both (2) and (4) can be represented as follows:

true, iff Fido/Rex barks

x: x is Fido/Rex x: x barks

x: x is Fido/Rex x: x barks

The nodes of this (coarse-grained) interpretation are: a dog, the barkers, and

a truth value. An interpreted LF is the pairing of the relevant LF with its interpretation. On L&L's view, the *Bedeutung* of 'that p' (relative to context C) is the interpreted LF corresponding to 'p' (relative to C).[13] So the *Bedeutung* of 'that Fido barks' is:

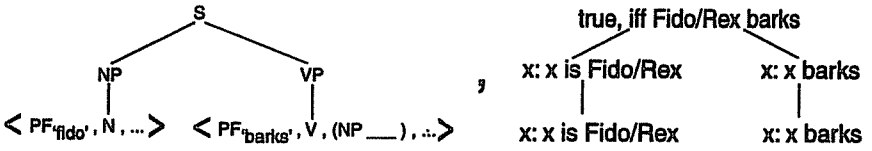

Figure 5

And (1) is true, just when Nora believes this (abstract) object—i.e. just when the extension of 'believes' includes <Nora, x>, where x is the interpreted LF above. The *Bedeutung* of 'that Rex barks' is the following pairing of a distinct LF with the same interpretation:

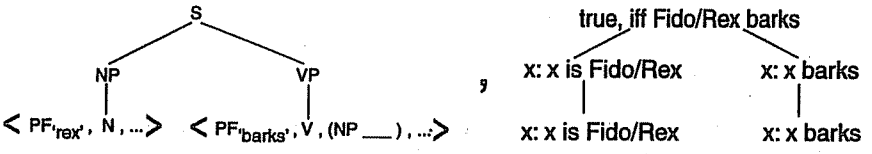

Figure 6

By letting the *Bedeutung* of 'that p' depend on lexical features of 'p', L&L can assign different *Bedeutungen* to 'that Fido barks' and 'that Rex barks' *without* appealing to senses. So (1) and

(2) Nora believes that Rex barks.

can differ in truth value. And in general, 'N believes that p' and 'N believes that q' will differ in truth value, just when 'p' and 'q' have different LFs *or* different (coarse-grained) interpretations.

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[13] L&L do not assign *Bedeutungen* to complementizers; and (*pace* their note 5) their theory retreats from the strong notion of compositionality characterized in my note 12. For L&L, the *Bedeutung* of $[_{CP}\ [_{C}$ that$][_{S} \ldots]]$ is (not a function of the *Bedeutungen* of its immediate constituents, but rather) a function of (i) the LF of $[_{S} \ldots]$, and (ii) the *Bedeutungen* of $[_{S} \ldots]$ and all its constituents. Perhaps this is the strongest notion of compositionality that natural languages satisfy. But one could modify L&L's theory, to let the *Bedeutung* of $[_{C}$ that] be the (coarse-grained) interpreted LF corresponding to $[_{S} \ldots]$.

4.2 Context-Sensitivity Again

This is an attractive account, but its simplicity has costs. If a monolingual German believes that Fido barks, he believes an interpreted LF with *English* lexical features; and this seems odd. L&L reply that if 'p' is an interpreted LF, then to believe 'p' is simply to be such that one's belief states can be correctly reported with 'p'; where what counts as a correct report is a pragmatic matter. Perhaps this is acceptable. But it gives up the idea that phonetically distinct 'that'-clauses can corefer. And Fregeans will say that if 'Fido barks' correctly reports what Hans believes, Hans and the speaker share a way of thinking about Fido.[14]

Fregeans will also claim that, in other respects, L&L do not individuate the *Bedeutungen* of 'that'-clauses finely enough. Examples like (1) and (3) make senses appear unnecessary: since the embedded sentences differ formally, why say that they *also* differ in interpretation? But in other cases of truth-conditionally distinct attitude ascriptions, the embedded expressions do not seem to differ with respect to their LFs or their *Bedeutungen*. Suppose Nora assents to

(32) That is a lawyer.

relative to context C1, but not relative to C2—even though the referent of 'That' is the same in each context. (In C1, the speaker points to the back of someone approaching the bench; in C2, the speaker points to the front of someone in a toolshed building a bench.) Then plausibly,

(33) Nora believes that that is a lawyer.

is true relative to C1, and false relative to C2. Fregeans can say that the sense of a demonstrative depends on the context. But on L&L's view, if the demonstrative has the same *Bedeutung* in both contexts, (33) has the same truth conditions in both contexts. L&L thus deny that the *Bedeutung* of a demonstrative is simply its intuitive referent. Instead, they take the *Bedeutung* of a demonstrative to be a pairing of the object demonstrated with an act of demonstration.

Relative to C1, the *Bedeutung* of 'That' in (32–33) is said to be <x, a1>, where x is the lawyer in question and a1 is the speaker's act of demonstration in C1; relative to C2, the *Bedeutung* of 'That' in (32–33) is <x, a2>, where a2 is the distinct act of demonstration in C2. In either context, though, the truth of (32) depends solely on whether x is a lawyer. That is, the differing acts

[14] On my proposal, the sense of the embedded complementizer in 'Hans believes that Nora believes that Fido barks' is a way of thinking about the pairing of a sense Θ and an English LF. But the ascriber can think of this interpreted LF in a way available to Hans—namely, as the pairing of Θ and a suitable LF of the language of ascription; Section 3.4 is relevant here.

of demonstration can affect the truth of (33), but not (32). And this seems to concede the Fregean point: relative to each context, a demonstrative is associated with a (demonstrative) way of thinking about its referent; where this is relevant to the truth of matrix sentences, when the demonstrative is embedded in a 'that'-clause. As L&L note, Burge (1974) offers independent reasons for appealing to acts of demonstration in stating the truth conditions of constructions like (32); and *perhaps* the best way to incorporate such appeals, independently of attitude ascriptions, is by taking the *Bedeutungen* of all demonstratives to be ordered pairs. But it is not clear that L&L's manoeuvre is both motivated and non-Fregean.

Cases inspired by Kripke (1979) reveal another cost of L&L's proposal. Suppose Howard is Nora's neighbour, whom Nora sometimes sees in the hallway. Howard is wealthy, but usually appears otherwise: he dresses shabbily, lives in a one-room apartment, etc. Thus,

(42) Nora believes that Howard is poor.

is true in many contexts. Once at a party, though, Nora met a prosperous man called 'Howard', who vaguely resembled her neighbour. Of course, Howard was Howard; but he never let on, and Nora never suspected. Nora believed that this man was not poor. So at least in some contexts,

(43) Nora does not believe that Howard is poor.

is also true. Fregeans can hold—and following Burge (1986), I think Frege held—that the sense of a name can *differ* across contexts, much like the sense of a demonstrative.

The sense of 'Howard' in a context where (42) is offered as a correct report might well differ from the sense of 'Howard' in a context where (43) is offered as a correct report. From a Fregean perspective, an asserter of (42) might be thinking of Howard in the way Nora usually thinks of her neighbour; while an asserter of (43) might be thinking of Howard in the (distinct way) Nora sometimes thinks of that party attender. Someone who knows there is only one Howard can still think of him in different ways—just as we can still think of Venus in different ways, after learning that Hesperous is Phosphorous. And from a Fregean perspective, propositional attitude ascribers try to (and sometimes do) think of *Bedeutungen* in the same way as ascribees; but this sometimes requires ascribers to adjust how they think of *Bedeutungen*. (For the same reason, 'Howard is Howard' need not be a triviality; in this context, it is not.)

For Fregeans, then, (42–43) no more present a contradiction than do

(32) Nora believes that that is a lawyer.
(44) Nora does not believe that that is a lawyer.

Each of these ascriptions is true relative to one context. And the demonstra-

tive has the same *Bedeutung* in both contexts. But in no context are both (32) and (44) true. In each context C, the sense of the demonstrative is such that only one of these belief ascriptions is true relative to C; and similarly, *mutatis mutandis*, for (42–43). Given coarse-grained interpretations of embedded sentences, however, 'Howard is poor' has the *same* interpretation in each context—assuming that the *Bedeutung* of a name is its bearer. So L&L are led to deny that the embedded sentences in (42–43) have the same LF. That is, they take the sound of 'Howard' to be ambiguous, much like the sound of 'bank' (except that the two names share a *Bedeutung*). But this is tendentious.

I grant that in *Nora's* idiolect, the sound of 'Howard' is ambiguous. Suppose Nora thinks her neighbour is shy, but not witty; whereas she thinks the man from the party is witty, but not shy. Then Nora will see a possibility of equivocation in the following argument:

> Howard is shy, and Howard is witty; so Howard is shy and witty.

(Compare: banks are damp, and banks are secure; so banks are damp and secure.) But my intuition is that the inference above is straightforwardly valid. So I am inclined to deny that the sound of 'Howard' is ambiguous in my idiolect. And (42–43) are sentences of *my* language—or better, *our* currently shared language. Thus, it is not clear that the ambiguity resides where it must, if coarse-grained interpretations and linguistic forms are to do the work of senses.

A possible response is that we can add names to our lexicon when ascribing attitudes. We introduce 'Howard1' and 'Howard2' to say what Nora believes. It *seems* that the inference above avoids any equivocation, since we introduce the names on the understanding that: Howard1 = Howard = Howard2. But on this view, (42–43) are ambiguous. Their true readings are:

(45) Nora believes that Howard1 is poor.
(46) Nora does not believe that Howard2 is poor.

The embedded sentences in (45–46) have different LFs; so Nora can believe exactly one of them.

Perhaps this manoeuvre is no less plausible than the Fregean manoeuvre of supposing that ascribers can associate a single lexical item ('Howard') with different senses in different contexts. But on L&L's view, one expects no *sound* reading of the following argument:

> Howard is shy, and Nora believes it.
> Howard is witty, and Nora believes it.
> ---
> Howard is shy and witty.

On L&L's view, Nora believes the interpreted LFs 'Howard1 is shy' and 'Howard2 is witty'; and one would expect the referent of 'it' in each premise

to be the interpreted LF of the first conjunct. So if the second conjunct of each premise is true, there is equivocation on 'Howard', in which case the argument would seem to be invalid. My intuition, though, is that the argument can be sound. Fregeans can explain this: the same lexical item 'Howard' appears throughout, but with different senses in the two premises. This preserves formal validity—assuming that predicate conjunction is valid in natural languages—while making it possible for 'it' to refer to distinct senses in each case.[15] L&L might allow that the argument has a sound reading, by saying that *in certain circumstances* arguments involving equivocation can still be valid. (Perhaps when names are introduced on the understanding that they corefer, one can speak of 'implied premises' without obliterating the distinction between valid arguments and arguments that someone takes to be truth-preserving.) But Fregeans avoid the need for this manoeuvre.

As Etchemendy (1990) shows, however, questions about validity (and the relation between syntax and truth-preservingness) are *extremely* subtle. So it would be rash to say that (*pace* L&L) coherent attitude ascription requires senses.[16] But *if* the argument above can be sound, L&L's account seems to conflict with an intuition about validity we may want to keep: 'Howard1 is poor, so Howard2 is poor' fails to be valid, as does 'Fido barks, so Rex barks'. The methodological problem one faces here is that the following tasks are inseparable: getting clear about the notion of validity relevant to natural language semantics; saying how an agent's beliefs are related to the number of lexical items in her idiolect; and providing a semantics of attitude ascriptions that handles Kripke-cases, while also yielding an adequate treatment of Mates-sentences.

4.3 Conclusion

If L&L face difficulties only with respect to attitude ascriptions involving homophonic terms with the same *Bedeutungen*, isn't their account doing

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[15] This is, in several respects, an unFregean thing to say. If the sense of 'Howard' differs in the premises, one can (without irrationality) endorse the thoughts expressed by the premises yet not endorse the thought expressed by the conclusion. For Frege, validity is a relation between thoughts (not sentences) that we aim to represent with a logically perspicuous language. And the fact that names can have different senses in different contexts shows that natural languages fail to be logically perfect. Nonetheless, I think we can legitimately speak of 'Nora walked' following from 'Nora walked slowly', even if 'Nora' is associated with two different ways of thinking about the same person; and similarly for cases of predicate conjunction.

[16] Dwyer and Pietroski, 1996, explore a non-Fregean approach to some of these issues, in discussing speakers' tacit knowledge of language. And a potential complication (ignored here) is that the propositional objects of thought may be diverse: perhaps many attitude ascriptions relate subjects to senses; but *some* (e.g. ascriptions to non-linguistic animals) relate subjects to sets of possible worlds (or Russellian propositions). One could accommodate such a complication by saying that: in some contexts, the *Bedeutung* of 'that p' is a set of worlds (or Russellian proposition) determined by the *Bedeutung* of 'that', which would still be an interpreted LF.

well? Perhaps. But the question is whether we need Fregean senses as the interpretations of embedded sentenecs, or whether we can make do with coarse-grained interpretations (given LFs). If the former, considerations of effective communication would still lead one to expect that sentences expressing different Fregean thoughts will typically have different LFs. So it hardly tells against Fregeans, if most attitude ascriptions that differ in truth value also involve embedded sentences with different LFs. To decide whether 'Fido barks' and 'Rex barks' have different interpretations, we must consider 'That is a lawyer' and 'Howard is poor'. For it is here that the costs of eschewing senses will be visible. Of necessity, then, the debate between Fregeans and non-Fregeans will focus on this relatively narrow class of examples. (Not surprisingly, these are also the cases where questions about validity become hardest.)

Fregeans should grant, however, that one cannot make do with senses alone. In my view, Mates-type sentences show that senses are not fine-grained enough to do all the needed work. Semanticists need LFs as well. (The opacity of quotation—together with the desire for a unified treatment of substitutivity failures—points in the same direction.) I have suggested that there is at least some reason to continue appealing to senses, even once we have appealed to LFs. More importantly, though, I have argued that we should not abandon senses because of the (high) costs of abandoning semantic innocence. The essential aspects of Frege's theory do not require *Bedeutung*-shifting; although one must allow for the context-sensitivity of senses. In short, the virtue of innocence is not in tension with a tendency towards *Sinn*.

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