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Presuppositions as Anaphoric Duality Enablers

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Abstract The key to an adequate account of presupposition projection is to accommodate the fact that the presuppositions of a sentence cannot always be *read off* the sentence but can often be identified only on the basis of prior utterances in the conversation in which the sentence is uttered. In addition, an account of presupposition requires a three-valued semantics of assertibility and deniability in a context. Presuppositions can be explicated as sentences that belong to the conversation and the assertibility of which ensures that the remaining assertibility and deniability conditions of the presupposition-bearing sentence are dual to one another. The prevailing approach to presuppositions, grounded in Heim's context-change semantics, can be criticized both on philosophical grounds and for failing to accommodate the phenomena.

1 Introduction

A topic of continuing interest in the study of presupposition is the problem of *presupposition projection*. Given that a sentence or predicate carries a particular semantic presupposition, which presuppositions are carried by the sentences in which that sentence or predicate is embedded under one or more logical connectives or quantifiers? Consider for example:

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(1)   John's Jaguar is hidden.
(2)   If John owns a Jaguar, then John's Jaguar is hidden.
(3)   If John's Jaguar is hidden, then we will not see it.
(4)   If John won the lottery, then John's Jaguar is hidden.

(1) presupposes that John has a Jaguar, (2) does not presuppose this, and (3) presupposes it. (4) does not presuppose that John has a Jaguar, but, arguably, it presupposes that *if* John won the lottery, then John owns a Jaguar. Why do we find that the presupposition of (1) disappears when (1) is the consequent of the conditional in (2) but persists when (1) is the antecedent of the conditional in (3), whereas when (1) is embedded in (4) it generates a different, conditional presupposition? The presupposition projection problem is the problem of explaining in a general way how the semantic presuppositions of a logically complex sentence can be read off of the presuppositions of its logical components.

The presupposition projection problem remains controversial for a couple of reasons. One reason is that there is some dispute over the correct framework for characterizing presuppositions. But there is also still a great deal of uncertainty over what the presuppositions of logically compound sentences are supposed to be. Consider, for example, this disjunction:

(5)   Either John's Jaguar is hidden or he is not as rich as we thought.

The most prominent theories of presupposition projection all entail that (5) presupposes that John has a Jaguar. But that result seems to be an over simplification. One might utter (5) without in any sense taking for granted that John does have a Jaguar. Moreover, there does not seem to be any obvious other proposition that we could say is "the" presupposition of (5).

In posing the presupposition projection problem in this way, we are making several strong assumptions, some of which I accept, but one of which I reject. The first assumption is that some presuppositions deserve to be called "semantic". That is, for some sentences, such as (1), the grammatical structure of the sentence, in light of its semantics, determines some condition that has to be met in order for the sentence as a whole to be semantically good in some way. This condition could perhaps, in a theoretical sense, be called the *presupposition* of the sentence in question, although in my opinion that usage would be misleading; it is, rather, a condition that has to be *satisfied* by the genuine presuppositions. Different theories may differ on what kind of semantic goodness is at issue. I accept this first assumption, and will take a stand on the kind of semantic goodness at issue. While others might say that the presupposition must be satisfied by the context in order for the sentence to *update the context*, on my account the presupposition must be satisfied in order for the remaining *assertibility* and *deniability* conditions to be *dual* to one another.

A second assumption is that for each logically noncompound sentence that carries a semantic presupposition, if that component is embedded in a larger sentence, then the presupposition of the component has some kind of calculable semantic effect on the larger sentence in which it is embedded. For example, while (1) is a component of (4), and (1) presupposes that John owns a Jaguar, (4) presupposes only that if John won the lottery then John owns a Jaguar. Sometimes the semantic effect is a null effect, as in (2), but the important point is that that null effect is in a sense calculable on the basis of the syntax and semantics of the sentence without having to take account any features of the situation in which it is uttered. With this assumption, I will also agree, although I will want to be careful about the exact nature of the *semantic effects*, and, in particular, will not want to characterize them as *the* presupposition of the sentence.

But there is a third assumption, and that is what I wish to dispute. This is that what we call *the* (semantic) presupposition of an utterance can always be *read off* the sentence uttered in light of its standing grammatical and semantic features. For instance, it is too weak to say that the presupposition of "Sam is having dinner in New York tonight too" (with focus on "Sam") is simply that *someone other than Sam is having dinner in New York tonight*. Rather, when the sentence is uttered appropriately, there will always be one or more persons x of whom we can say that what is presupposed is specifically that x is having dinner in New York tonight. But the person x cannot be identified on the basis of the sentence in question apart from the situation of which the utterance is a part.

This general idea has been noted before, but the point has not been adequately taken into account in discussions of presupposition projection.[1] What has not been appreciated is the fact that a presupposition is in a sense an anaphor whose antecedent enables the duality of the assertibility and deniability conditions of a sentence, although that duality may not fully specify the sentence that may serve as such an anchor. It is this fact that enables us to solve the presupposition projection problem. Even when the presupposition of a logically noncompound sentence can be read off the sentence itself, what we call *the presupposition* of a logically compound sentence embedding that sentence may have to be drawn from the context of utterance. For example, while the presupposition of "John's Jaguar is hidden", namely, "John has a Jaguar", may be read off the sentence quite apart from the context of utterance, the presupposition of (5) may be either "John has a Jaguar" or only "If John is as rich as we thought then John has a Jaguar", depending on the context of utterance.

Here I list the basic elements of my account, on which I will elaborate more fully in Sect. 3 below:

- Every sentence may be *assertible*, *deniable* or *neither* relative to a *context*. A context is a formal structure that provides values to various parameters. Contexts as such are to be distinguished from *situations* in which utterances take place. For each utterance of a sentence there is a context that *pertains* to the utterance, or, alternatively, to the conversation of which the utterance is a part. The utterance will be assertible (simpliciter) if and only if the sentence uttered is assertible in the context that pertains to the utterance.

- For various reasons an utterance of a sentence may fail to be assertible or deniable in a situation. One reason may be simply that the utterance is completely irrelevant in the situation. In the contexts that pertain to such situations the sentence uttered is neither assertible nor deniable. In this way even a simple sentence such as "Charles is human" may fail to be assertible or deniable in a given context. But another reason is that the sentence may contain a presupposition trigger associated with a condition that is not fulfilled.

- For every sentence, we can identify, on the basis of syntax and semantics, a condition on contexts such that if it is satisfied, the remaining assertibility and deniability conditions of the sentence are *dual* to one

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[1] The fact that a presupposition cannot be read off the sentence containing the presupposition trigger and somehow depends on an "active context" was especially emphasized by Kripke in his 1990 lecture, which circulated unpublished for many years, until an enhanced version was published in 2009. Kartunnen's 1974 account of "too" seems clearly designed to allow that the presuppositions must be in some sense given by the context and not wholly generated by the sentence containing "too", but Kartunnen does not particularly emphasize the point.

another.[2] We can call that condition, in one sense, a *presupposition*, but it is not what we would ordinarily think of as *the* presupposition of an utterance of the sentence. I will call it a *duality condition* for a sentence.

- In addition to the context that pertains to a conversation, we need to take account of the other sentences that make up the conversation. These are roughly sentences that have been previously uttered in the conversation or which we can, for various reasons, *think* of as already uttered. Some, but not necessarily all, of these will also be assertible in the context that pertains to the conversation. What we call *the* presuppositions of an utterance will be sentences that meet the following two conditions: 1) They are sentences that belong to the conversation of which the utterance in question is part. 2) They are assertible in the context that pertains to the conversation. 3) The assertibility of those sentences in the pertinent context ensures that a duality condition is satisfied *without* also ensuring that the sentence is assertible and *without* also ensuring that the sentence is deniable.

For example, consider the following sentence:

(6)   Sampras can beat Edberg too.

(Assume that the focus of "too" is on "Sampras".) Again, it is too weak to say merely that (6) presupposes that someone other than Sampras can beat Edberg. But we can say that a condition on the duality of the assertibility and deniability conditions for (6) is that "Someone other than Sampras can beat Edberg" is also assertible in the context. That is a duality condition, because the largest set of contexts in which that condition is satisfied is a set of contexts such that for each context in that set (6) is assertible in that context if and only if "Sampras can beat Edelberg" is assertible in that context, and (6) is deniable in that context if and only if "Sampras can beat Edelberg" is deniable in that context. So suppose that (6) is uttered in the course of some conversation, and the context that pertains to that conversation is Γ. Suppose also that some other sentence has been uttered in that conversation such that we can say that it is by virtue of the assertibility of that sentence that the duality condition of (6) is satisfied. For example, an utterance earlier in the conversation might have been an utterance of the sentence "Courier can beat Edberg". In that case, we can say that *the* presupposition of that utterance of (6) is the sentence "Courier can beat Edberg".

Next, let us extend the example to:

(7)   Either Sampras can beat Edberg too or Sampras is injured.

The unreduced assertibility condition for (7) is this:

(7A)   Either (a1) "Sampras can beat Edberg" is assertible in Γ and (a2) "Someone other than Sampras can beat Edberg" is assertible in Γ, *or* (b) "Sampras is injured" is assertible in Γ.

The unreduced deniability condition for (7) is this:

(7D)   Both (a1) "Sampras can beat Edberg" is deniable in Γ and (a2) "Someone other than Sampras can beat Edelberg" is assertible in Γ, *and* (b) "Sampras is injured" is deniable in Γ.

Now consider the following condition:

(7P)   Either "Someone other than Sampras can beat Edberg" is assertible in Γ or "Sampras is injured" is assertible in Γ.

Consider the largest set of contexts such that condition (7P) is true of each context in the set. Of each context Γ in that set we can say that (7) is assertible in Γ if and only if:

(7A′)   Either (a) "Sampras can beat Edberg" is assertible in Γ or (b) "Sampras is injured" is assertible in Γ,

and (7) is deniable in Γ if and only if:

(7D′)   Both (a) "Sampras can beat Edberg" is deniable in Γ and (b) "Sampras is injured" is deniable in Γ.[3]

But (7A′) and (7D′) are duals of one another. So (7P) is a duality condition for (7).

Condition (7P) is not *the* presupposition of (7). Nor even is the result of *disquoting*: "Either Sampras is injured or someone other than Sampras can beat Edberg." But there may be sentences that have been uttered in the course of making assertions and are assertible in the context that pertains to (7) and whose assertibility in that context ensures that condition (7P) is fulfilled. For instance, if "Sampras is injured" is assertible, then (7P) will be fulfilled. However, "Sampras is injured" does not qualify as the presupposition of (7), not even if it has been uttered, because the assertibility of that sentence ensures also the

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[3] *Proof* Suppose (7P) is not true of Γ. Then (7) is neither assertible nor deniable in Γ, not even if (7A′) is fulfilled and not even if (7D′) is fulfilled. Suppose (7P) is true of Γ. Then the fulfillment of (7A′) is necessary and sufficient for the assertibility of (7) in Γ, and the fulfillment of (7D′) is necessary and sufficient for the deniability of (7) in Γ.

assertibility of (7). If (7) is assertible just because "Sampras is injured" is assertible, then an actual assertion of (7) will presuppose *nothing*. But if "Courier can beat Edberg" is assertible in the context that pertains to the utterance of (7), then condition (7P) will be fulfilled, though that alone will not ensure that (7) is assertible and will not ensure that it is deniable. For that reason we can say that if "Courier can beat Sampras" was uttered earlier in the conversation of which an utterance of (7) was a part and was assertible in the context that pertains to the conversation, then that sentence is *the* presupposition of that utterance of (7).

2 The Dynamic Solution

Many, if not most, contemporary treatments of semantic presupposition take their point of departure from Irene Heim's dynamic semantical account (Heim 1983; Schlenker 2010; Rothschild 2011).[4] Before I elaborate on the account sketched at the end of the previous section, I want to take a step back and explain why I do not follow the lead of the dynamic account of presupposition projection initiated by Heim.

2.1 Heim's Theory

Heim bases her account on Stalnaker's idea (1978) that the utterance of a sentence serves to *update a context set*. Following Stalnaker, a context set may be conceived of as a set of possible worlds that represents the beliefs that a number of interlocutors share (or treat as if they were sharing). The acceptance of an interlocutor's assertion has the effect of eliminating possible worlds from the context set. Heim's main contribution was the idea that the meaning of a sentence may be conceived as a *context change rule*, which is a function from context sets to context sets. The input to such a function is a context set thought of as the context set before the acceptance of an assertion by means of the sentence in question, and the output is a context set which results from restricting, or *updating*, the input context set by accepting an assertion by means of the sentence. (Of course, in some cases, the

output may be identical to the input, if the sentence is trivial or already implied by the context set.)

On Heim's account, the meaning of a logical connective is to be thought of as a certain recipe for updating the context set. Let $c + p$ be the result of updating context set c in accordance with the context change rule associated with sentence p. The rule for conditionals, for example, tells us that

$$c + \textit{If } p \textit{ then } q = c - ((c + p) - ((c + p) + q))$$

This tells us that the result of accepting "If p then q" consists of all worlds in c that remain when we subtract those in $((c + p) - ((c + p) + q))$, which in turn consists of all the worlds that remain when we subtract the result of adding p and then q to c from the worlds that result from adding p to c. The result is that $c + \textit{If } p \textit{ then } q$ is the set of worlds that results from removing from c all of those worlds in which p holds and q does not.

Heim's conception of meaning as context change rule generates a theory of presupposition when we add the assumption that the +-function is defined, or *admissible*, only when the presuppositions of the sentence that is the second argument to this function are satisfied in the context set that is the first argument to this function. For each kind of presupposition trigger that may occur in a noncompound sentence p, the conditions under which $c + p$ is admissible have to be defined independently. For example, $c + \textit{John's Jaguar is hidden}$ will be admissible only if c entails that John has a Jaguar (i.e., "John has a Jaguar" is true in every world in c).

Given the admissibility conditions for the noncompound components, the admissibility conditions of a logically compound sentence can be read off the update rules associated with the connectives from which it is formed. For example, since the recipe for conditionals has $c + p$ and $(c + p) + q$ on the right-hand side, c admits $\textit{If } p \textit{ then } q$ if and only if both c admits p and $c + p$ admits q. The presuppositions of a sentence are those conditions such that an arbitrary context set c admits the sentence if and only if those conditions are fulfilled in every world in c. For example, (4) presupposes "If John won the lottery, then John owns a Jaguar," because only if that is true in every world in c will $c + $ "John won the lottery" admit "John's Jaguar is hidden". Further, (3) presupposes "John owns a Jaguar" because only if that is true in every world in c will c admit "John's Jaguar is hidden". (2) presupposes nothing because $c + $ "John owns a Jaguar" will admit "John's Jaguar is hidden" regardless of what is in c.

2.2 The Sins of Dynamic Semantics

Historically, the semantic approach to presupposition is grounded in the idea that when a presupposition fails, the

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[4] Another leading paradigm is the theory of van der Sandt (1992), elaborated by Geurts (1999). Van der Sandt and Geurts, like me, advertise their theory as treating presuppositions as anaphoric. What they mean by this is that where the presupposed material resides in the discourse representation for a sentence is determined by where it is anaphorically bound. What I mean by comparing presuppositions to anaphors is entirely different. I have criticized the van der Sandt and Geurts theory in my 2008. For lack of space, I will not reiterate that critique here.

sentence that carries the presupposition in some sense lacks a truth value. An important landmark in this history is Strawson (1950). A challenge that any definite theory of semantic presupposition has to meet is to explain what it means for a sentence to lack a truth value. This is a challenge, because falsehood has to be conceived as some kind of positive property that a sentence might lack as well as truth, and it is just not obvious what positive property falsehood could be over and above the lack of truth.

Heim's dynamic semantic account of presupposition can be thought of addressing this challenge. On this account, we can say that an assertion updates the context set *truly* when it takes us from a context set that contains the actual world to another context set that contains the actual world, and we can say that an assertion updates *falsely* when it takes us from a context set that contains the actual world to one that does not. If the original context set did not contain the actual world, then the distinction between truth and falsehood gets no traction. But even when the original context set contains the actual world, there is a third possibility, namely, that the assertion fails to update the context set at all. The function from context sets to context sets that is the meaning of a sentence may be partial, so that for some context sets the function yields no output at all. In particular, if a sentence carries a presupposition that is not entailed by a given context set, the context change rule for that sentence will yield no output for that context set. The update, in that case, we can say, *crashes*.

In effect, then, dynamic semantics gets around the problem of having to say what falsehood is over and above the lack of truth by switching to a framework in which the relevant question is never whether an assertion is true or false but only whether it successfully updates the context set and, if so, what the output of the update is. But this way of "getting around" the problem of explaining distinguishing between falsehood and lack of truth is not actually an *implementation* of that distinction. In the case of a noncompound sentence that carries a presupposition, the two accounts do come to much the same. For example, the presupposition of "John has stopped smoking" can be read off that very sentence; it is that John used to smoke. If it is not true that John used to smoke, we can say both that "John has stopped smoking" is neither true nor false and that an assertion by means of that sentence fails to update the context set. But in the case of a compound sentence the traditional idea that a semantic presupposition is a condition on being true-or-false falls entirely by the wayside, as I will now explain.

Consider the case of conjunctions. Various context change rules might be proposed for conjunctions. Here are some alternatives:

$$c + p \text{ and } q = (c + p) + q.$$
$$c + p \text{ and } q = (c + p) \cap (c + q).$$
$$c + p \text{ and } q = (c + p) + q \text{ or } c + p \text{ and } q = (c + q) + p.$$

(The third of these is intended to give us a choice between updating in the first way or updating in the second.) All of these options have the consequence that the following sentence:

(8)   Sam has stopped smoking and Maureen has stopped smoking

presupposes *both* "Sam used to smoke" and "Maureen used to smoke". But in order for (8) to fail to have a truth value it is not necessary that *neither* "Sam used to smoke" nor "Maureen used to smoke" be true. For instance if "Sam has stopped smoking" is true, but "Maureen used to smoke is false", then the first conjunct of (8) will be true and the second conjunct will be truth-valueless; so by all of the usual three-valued semantics (8) will be truth-valueless. Moreover, (8) may have a truth value even if the presuppositions do not all hold; for it may be false even if only one of them holds.

Likewise, we can find cases in which the dynamic account attributes a presupposition to a sentence but an utterance of the sentence could be true even if the attributed presupposition failed to be true. Consider again the case of disjunctions. Heim herself does not propose a context change rule for disjunctions. A first proposal would be this:

$$c + p \text{ or } q = (c + p) \cup (c + q).$$

But this rule has the consequence that

(9)   Either John has stopped smoking or he never smoked.

presupposes that John once smoked, which just does not seem right. A second proposal might be to allow that the context set can be updated by means of a disjunction in either of two ways (by *free choice*):

$$c + p \text{ or } q = c - ((c + not\text{-}p) - ((c + not\text{-}p) + q)).$$
$$c + p \text{ or } q = c - ((c + not\text{-}q) - ((c + not\text{-}q) + p)).$$

This rule in effect treats a disjunction *p or q* as a conditional that can be read as either *If not-p then q* or as *If not-q then p*. On this account the presupposition of (9) would be one of the following:

(9a)   John used to smoke.
(9b)   If it is not the case that John never smoked, then John used to smoke.

But (9b) is vacuous; so on this alternative (9) presupposes nothing, as desired. This solution seems a bit ad hoc, but in any case it still does not yield intuitively acceptable results for the following:

(10) Either John has stopped smoking or Maureen stopped smoking.

Regardless of whether we say that (10) presupposes both "John used to smoke" and "Maureen used to smoke" (as on the first proposal) or that it presupposes just one or the other (as on the second proposal), we get the result that (10) can be true though a presupposition fails, because the disjunct other than the one that carries the false presupposition can be true.

These results poses the question whether perhaps the dynamic semantic approach to presupposition was born from confusion. On the one hand, history suggests that it might have been viewed as an implementation of the idea initiated by Strawson that a presupposition is a condition on a sentence's being true or false. On the other hand, that basic inspiration gets dropped as soon as it is applied to compounds. Even if this attempt to assign some kind of original sin to dynamic semantics fails, inasmuch as the founders had no intention of implementing the semantic conception of presupposition initiated by Strawson, the present observation raises the following painful question: Why should we say that a sentence semantically presupposes something that does not have to be true in order for an utterance of the sentence to have a truth value?

Even with the respect to the showcase example of conditionals, the dynamic semantic account of presupposition generates some apparently wrong results. Consider the following conditional:

(10) If John's wife is angry at him for coming home late last night, then he will not go bowling.

By Heim's context change rule for conditionals, (10) presupposes that John has a wife. But on the contrary, it is easy to imagine circumstances in which someone might utter (10) without taking for granted that John has a wife: We don't know whether John is married, but we are trying to think of reasons why he might miss bowling, and we know that he went home late last night.

It is widely acknowledged that the dynamic approach has a hard time explaining the projection of presuppositions from predicates embedded under quantifiers. Heim extends her account to handle quantified expressions by defining contexts not as sets of possible worlds but as sets of pairs consisting of a possible world and a variable assignment (1983). As she herself explicitly shows, her account has the consequence that "A fat man was pushing his bicycle" presupposes that every fat man in the world possesses a bicycle. This is clearly a wrong result. I am not aware that this well-known problem has ever been addressed in a plausible way.

Quite apart from the question of motivation and its poor handling of the data, another sort of problem facing the dynamic semantical account of presupposition is that it involves a kind of question-begging hypocrisy regarding the nature of meaning. On the one hand, it claims that the meanings of spoken sentences are context change rules. But in our use of the metalanguage we continue to suppose that our sentences have sets of worlds as their contents. We continue to suppose, for instance, that an assertion of "John stopped smoking" is admissible in a context set c if and only if the proposition that John used to smoke is true at every world in c. If we allow that there is a proposition that John used to smoke, which we can identify with, or model as, a set of possible worlds, surely we must admit also that that proposition is one kind of content that our sentence, "John used to smoke" has. So I think the dynamic semanticist has to admit that aside from meanings in the sense of context change rules sentences also have contents of something like the traditional sort. But then that poses the question, what kind of content, of the traditional sort, is had by a sentence bearing a presupposition trigger, such as "John stopped smoking", which is the question we began with. The best the dynamic semanticists could do would be to say that contents of the traditional sort are reserved for sentences that do not contain any presupposition triggers.

Furthermore, the dynamic semanticist has to draw a questionable distinction between mental representations, which bear the contents of beliefs, and spoken sentences. Token mental representations, which bear the contents of beliefs, have to be capable of specifying the contents of a context set, since the context set is supposed to be the set of possible worlds in which the beliefs that the interlocutors share are all true. But a spoken utterance of a sentence is not supposed to specify a set of worlds in which it is true; rather, it simply functions to update the context set for the conversation in accordance with the context change rule that is the meaning of the sentence uttered. Why should not spoken sentences have contents of the same sorts as token mental representations? If mental representations may themselves be sentences of the very languages we speak, as I have argued elsewhere (Gauker 2011), then they should. And if mental representations belong to some other system of representation than the words we speak, and words serve to *express* the contents of our beliefs, then again they should. And if the mental representations that bear the contents of beliefs can contain presupposition triggers (why not?), then, contrary to the position of the dynamic semanticist, we will have to give an account semantic presupposition that works as well for the presuppositions of

mental representations as for the presuppositions of spoken sentences.

Further, I do not understand how a dynamic semanticist can adequately formulate what we might call the *norms of discourse*. A central norm of discourse is that one should strive to make and accept only true assertions. The dynamic semanticist cannot endorse this, however, simply because, for the dynamic semanticists, assertions are not the sort of thing that can be true or false at all. The closest the dynamic semanticist might come to this norm of discourse would seem to be the following: Try not to make or accept assertions that take you from a true context set (containing the actual world) to a false context set (excluding the actual world). But this is a poor substitute since it is not clear that it gives any real instruction to someone who is already sure that his beliefs must include some falsehoods.

Finally, it is necessary to point out there is no obvious truth in the idea that when a presupposition fails to belong to the context set then any update with the sentence that carries the presupposition "crashes". Speaking to someone who does not already know that I have a sister, I may say, "I have to pick up my sister at the airport" (Stalnaker's own example in his 2002). From this my interlocutor may learn that I have a sister and update his or her beliefs to reflect the fact that I have to pick her up at the airport. Elsewhere I have criticized various attempts to address this objection in terms of *accommodation* (Gauker 2008). The lesson we should draw is that whatever presuppositions are, we should not think of them as necessarily elements of the common ground between speaker and hearer.

3 The Elements of a Theory of Semantic Presupposition

My own positive account of presupposition will draw a distinction between presupposition triggers that allow the presupposition to be *read off* the noncompound sentences that contain them and those that do not. "Has stopped" is a presupposition trigger of this kind. From "John has stopped smoking" we can *read off* the presupposition, "John used to smoke". Call these kinds of presupposition triggers *transparent*. The other kind of presupposition trigger is that which does not allow the presupposition to be read off the noncompound sentences that contain them. "Too" is such a presupposition trigger, because from a sentence such as "*Susan* is late too" (with focus on "Susan"), we cannot identify the *x* such that what is presupposed by an utterance of this sentence is "*x* is late". Call these kinds of presupposition triggers *opaque*. An important feature of my account will be that even in the case of a logically compound sentence containing transparent presupposition

triggers, presuppositions cannot necessarily be read off the sentence.[5] For both types of presupposition trigger, what we call *the* presupposition of a logically compound sentence will have to be, in a sense, grounded in the conversation that comes before the utterance of the sentence in question.

3.1 The Basic Three-Valued Semantics

Let us start with a three-valued semantics for a language without presupposition triggers of any kind. My supposition will be that a context can be represented as a space of "possibilities", but my conception of this space of possibilities will differ from Stalnaker's and Heim's in one important respect: It does not represent the set of assumptions shared by interlocutors. Rather, it represents the set of possibilities that are *relevant* to the conversation in light of the goals and the state of the world around the conversation. One cannot assume that the participants in a conversation are antecedently aware of what these are. On the contrary, the object of a conversation can be taken to be the identification of the context that pertains to the situation in which the interlocutors are conversing. In this they may fail, and so it may happen that the interlocutors never do represent the context pertinent to their conversation.

Suppose we are dealing with a language formed from a base of atomic sentences and negations, disjunctions, conjunctions, and conditionals recursively built up from the atomic sentences. All of these sentences may be said to be true or false relative to a possibility in accordance with the usual bivalent truth tables. (So evaluated relative to a possibility, a conditional is a material conditional.) This initial language contains no presupposition triggers. Throughout I will improvise the syntax of the languages I discuss in what I expect will be an understandable way.

Sentences containing no presupposition triggers are always bivalent (either true or false) with respect to worlds. But with respect to contexts sentences may be either *assertible*, *deniable* or *neither*. For instance, an atomic sentence will be assertible relative to a context if and only if it is true in *every* possibility in the context, and it will be deniable relative to a context if and only if it is false in *every* possibility in the context. If it is true in some but false in others, then it will be neither assertible nor deniable relative to the context. In general, sentences of our language will be evaluated relative to a context Γ (again, a set of possibilities) as follows:

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[5] This distinction was noticed by Kripke (2009/1990), who explained it by saying that some presupposition triggers (which is not a term he uses) carry "obligatory anaphora to parallel statements in the active context" (2009: 376).

(A0)   If for all $w \in \Gamma$, S is true in w, then S is assertible in Γ.

(A¬)   If S is deniable in Γ, then [*Not* S] is assertible in Γ.

(A∨)   If S_1 is assertible in Γ or S_2 is assertible in Γ, then [*Either* S_1 *or* S_2] is assertible in Γ.

(A∧)   If S_1 is assertible in Γ and S_2 is assertible in Γ, then [*Both* S_1 *and* S_2] is assertible in Γ.

(A>)   If either S_1 is deniable in Γ or S_2 is assertible in Γ, then [*If* S_1 *then* S_2] is assertible in Γ.

(ACl) No other sentence is assertible in Γ.

(D0)   If for all $w \in \Gamma$, S is false in w, then S is deniable in Γ.

(D¬)   If S is assertible in Γ, then [*Not* S] is deniable in Γ.

(D∨)   If S_1 is deniable in Γ and S_2 is deniable in Γ, then [*Either* S_1 *or* S_2] is deniable in Γ.

(D∧)   If S_1 is deniable in Γ or S_2 is deniable in Γ, then [*Both* S_1 *and* S_2] is deniable in Γ.

(D>)   If S_1 is assertible in Γ and S_2 is deniable in Γ, then [*If* S_1 *then* S_2] is deniable in Γ.

(DCl) No other sentence is deniable in Γ.

To this account of assertibility and deniability conditions we can add the following definition of logically valid arguments: An argument is *logically valid* if and only if for each context Γ, if the premises are all assertible in Γ, then so is the conclusion.

Since we are thinking of the context pertaining to a conversation as comprising the possibilities that are relevant in light of the goals of the conversation and the state of the world around the conversation, we want to say that an atomic sentence is assertible if and only if it is true in every possibility in the context. Other sorts of sentences may also be true or false in a context, but the thought is that for some kinds of sentences, such as disjunctions and conditionals, what we are primarily interested in is what they do to identify the *set* of relevant possibilities. The useful feature of this account of the semantics of disjunctions is that it allows that a disjunction may have a positive semantic value (viz., assertibility in a context) though neither of the disjuncts has it (when it is true in every possibility in the context though neither disjunct is).

The present semantics for conditionals is adequate for present purposes, but it is not a good account of the semantics of the natural language indicative conditional. On this account, conditionals have a logic too close to the logic of indicative conditionals. (For instance the following argument will be logically valid: *If p and q, then r; therefore, either if p then r or if q then r.*) For a better theory of the indicative conditional, which likewise rests on the concept of assertibility in a context but which employs a richer conception of contexts, see Gauker (2005).

A context is an abstract entity. A conversation is a concrete sequence of events in time and space. Utterances are parts of conversations. But a context may *pertain* to a conversation inasmuch as it circumscribes the possibilities that are relevant to that conversation. We can say that an *utterance* is assertible (simpliciter) if and only if the sentence *uttered* is assertible in the context that *pertains* to the conversation of which the utterance is a part.

In light of this semantics we can begin to get a grip on what it means to say that a sentence is not assertible and yet not deniable either. That a sentence is not assertible in a context is not the worst thing we can say about it. It might fail to be assertible and yet be true in some of the possibilities that comprise the context. So it might still be a disjunct in an assertible disjunction. In that respect uttering it would not be entirely misleading. But if a sentence is deniable in a context then it is false in *all* of the possibilities that comprise the context. Uttering it cannot contribute anything at all to the representation of the possibilities that comprise the context.

3.2 An Opaque Presupposition Trigger: *Too*

My account of presupposition triggers in the context of this basic three-valued semantics will begin with a case of what I above called an *opaque* presupposition trigger. I will explain what it means to say, for instance, that "Mary will come too" presupposes that "Susan will come". Along with this it will make sense to deal as well with the case of "either", which is the negative polarity counterpart of "too". So I will suppose that the language in question contains sentences of the form [NP$_f$ VP$_{aff}$ *too*] and [NP$_f$ VP$_{neg}$ *either*]. "VP$_{aff}$" stands for a verb phrase that is positive in a way that makes the addition of "too" appropriate, and "VP$_{neg}$" stands for a verb phrase that is negative in a way that makes the addition of "either" appropriate. The subscript "*f*" on "NP$_f$" means that "NP" is the focus of "too" or "either". For any sentence S, I will write *not*-S for the grammatically correct negation of S.

The first step is to introduce the concept of a *conversation type*. A conversation type will be modeled as a sequence of sentences: $\sigma = \langle s_1, s_2, s_3, \ldots, s_n \rangle$. We might prefer to model a conversation type as a sequence of *pairs* consisting of a person and a sentence; however, for present purposes it will suffice to model a conversation type as simply a sequence of sentences. Say that *p is earlier than q* in $\langle s_1, s_2, s_3, \ldots, s_n \rangle$ if and only if there are i, k such that $1 \leq i < k \leq n$ and $p = s_i$ and $q = s_k$. We say that $\langle s_1, s_2, s_3, \ldots, s_n \rangle + s_{n+1} = \langle s_1, s_2, s_3, \ldots, s_n, s_{n+1} \rangle$.

While a conversation *type* is a sequence of *sentences*, a (concrete) *conversation* is a temporal sequence of *utterances*. In the paradigmatic case, a conversation C = $\langle u_1, u_2, u_3, \ldots, u_n \rangle$ will be *of* type $\sigma = \langle s_1, s_2, s_3, \ldots, s_n \rangle$ if for

each i, $1 \le i \le n$, u_i is an utterance of s_i. To ensure that this condition is sufficient, we may add that each utterance is a speech act appropriate to the mood of the sentence uttered. (So utterances of declarative utterances will be assertions.) However, we do not have to stipulate that a conversation is of a type *only* in case each sentence in the type of the conversation is actually uttered. In some cases we will allow that a presupposition is merely implicit in the conversation. We can treat such cases as cases in which a sentence belongs to the conversation type that a conversation is *of* even though that sentence is not actually uttered.

Let us say that a pair $\langle \Gamma, \sigma \rangle$, consisting of a context Γ and a conversation-type σ is a *context-and-conversation*. Above I defined the assertibility of an utterance in terms of the assertibility of the sentence uttered in the context that pertains to the utterance. Next I extend the notion of *pertaining* to the relation between a context-and-conversation and a concrete conversation conceived of as a sequence of *utterances*. We say that a context-and-conversation $\langle \Gamma, \sigma \rangle$ *pertains* to a concrete conversation C if and only if Γ pertains to a C and C is of type σ. (We do not stipulate that every sentence in σ is assertible in Γ.)

We will also need a general account of the conditions under which a sentence is *eligible* to be the presupposition for a given utterance of a "too"- or "either"-sentence. Up to a point, this is a matter of syntactic form. We might say that for a sentence of the form $[NP_f \ VP_{aff} \ too]$, if NP' is distinct from NP, then $[NP' \ VP_{aff}]$ is eligible to be the presupposition for an utterance of $[NP_f \ VP_{aff} \ too]$. But that is not quite sufficient for eligibility. If NP and NP' denote the same object, then $[NP' \ VP_{aff}]$ may not be eligible to be the presupposition for an utterance of $[NP_f \ VP_{aff} \ too]$. But there are other sorts of cases in which this is not sufficient as well, for example:

A1 None of our usual customers called today.
B1 *Acme Plumbing called today too.

In any case, we cannot say that the *only* sentences eligible to be the presuppositions for utterances of sentences of the form $[NP_f, \ VP_{aff} \ too]$ are sentences of the form $[NP', \ VP_{aff}]$ (with the same VP_{aff}). For example, the following dialogues seem perfectly natural:

A2 A teacher called Mary Green's mother today.
B2 *We* got a call from a teacher today too.

A3 Uma did not get a qualifying time today.
B3 Rita loused up her chances too.

Here I will not try to formulate a general theory of the relation that must hold between "too"- and "either"-sentences and sentences that are eligible to serve as

presuppositions for utterances of them. I will just assume that we know what it is for a sentence to be *eligible* to serve as the presupposition for an utterance of a "too"-sentence or an "either"-sentence. (But the relation of *being the presupposition* remains to be explained.)

For simplicity I will here confine my attention to "too"- and "either"-sentences in which the subject is a determiner phrase (under which I include proper names). The assertibility and deniability conditions for noncompound "too"-sentences can be formulated as follows:

(A"too") If for some eligible sentence α for $[DP_f \ VP_{aff} \ too]$,

(i) α is in σ, and
(ii) $[DP_f \ VP_{aff} \ too]$ is not in σ or α is earlier than $[DP_f \ VP_{aff} \ too]$ in σ, and
(iii) α is assertible in $\langle \Gamma, \sigma \rangle$, and
(iv) $[DP \ VP_{aff}]$ is assertible in $\langle \Gamma, \sigma \rangle$,
then $[DP_f \ VP_{aff} \ too]$ is assertible in $\langle \Gamma, \sigma \rangle$.[6]

(D"too") If for some eligible sentence α for $[DP_f \ VP_{aff} \ too]$,

(i) α is in σ, and
(ii) $[DP_f \ VP_{aff} \ too]$ is not in σ or α is earlier than $[DP_f \ VP_{aff} \ too]$ in σ, and
(iii) α is assertible in $\langle \Gamma, \sigma \rangle$, and
(iv) $[DP \ VP_{aff}]$ is deniable in $\langle \Gamma, \sigma \rangle$,
then $[DP_f \ VP_{aff} \ too]$ is deniable in $\langle \Gamma, \sigma \rangle$.

The assertibility condition (A"either") for sentences of the form $[DP_f \ VP_{neg} \ either]$ is just like the assertibility condition for sentences of the form $[DP_f \ VP_{aff} \ too]$, except that "$[DP_f \ VP_{neg} \ either]$" is substituted for "$[DP_f \ VP_{aff} \ too]$" and "$[DP \ VP_{neg}]$" is substituted for "$[DP \ VP_{aff}]$". Likewise, the deniability condition (D"either") for sentences of the form $[DP_f \ VP_{neg} \ either]$ is like the deniability condition for sentences of the form $[DP_f \ VP_{aff} \ too]$, *mutatis mutandis*.

Next we need to rewrite the basic assertibility and deniability conditions to relativize assertibility and deniability to a context-and-conversation. (ACl) should now be thought of as taking (A"too") and (A"either") in its scope, and (DCl) should now be thought of as taking (D"too") and (D"either") in its scope as well.

(A0) If for all $w \in \Gamma$, S is true in w, then S is assertible in $\langle \Gamma, \sigma \rangle$.
(A¬) If S is deniable in $\langle \Gamma, \sigma \rangle$, then [*not*-S] is assertible in $\langle \Gamma, \sigma \rangle$.
(A∨) If S_1 is assertible in $\langle \Gamma, \sigma \rangle$ or S_2 is assertible in $\langle \Gamma, \sigma + not$-$S_1 \rangle$, then [*Either* S_1 *or* S_2] is assertible in $\langle \Gamma, \sigma \rangle$.

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[6] The first disjunct in clause (ii) provides for the case in which $[DP_f \ VP_{aff} \ too]$ is not a member of the sequence σ.

(A∧)   If S_1 is assertible in $\langle \Gamma, \sigma \rangle$ and S_2 is assertible in $\langle \Gamma, \sigma+S_1 \rangle$, then [*Both* S_1 *and* S_2] is assertible in $\langle \Gamma, \sigma \rangle$.

(A>)   If either S_1 is deniable in $\langle \Gamma, \sigma \rangle$ or S_2 is assertible in $\langle \Gamma, \sigma+S_1 \rangle$, then [*If* S_1 *then* S_2] is assertible in $\langle \Gamma, \sigma \rangle$.

(ACl)   No other sentence is assertible in $\langle \Gamma, \sigma \rangle$.

(D0)   If for all $w \in \Gamma$, S is false in w, then S is deniable in $\langle \Gamma, \sigma \rangle$.

(D¬)   If S is assertible in $\langle \Gamma, \sigma \rangle$, then [*not*-S] is deniable in $\langle \Gamma, \sigma \rangle$.

(D∨)   If S_1 is deniable in $\langle \Gamma, \sigma \rangle$ and S_2 is deniable in $\langle \Gamma, \sigma+not-S_1 \rangle$, then [*Either* S_1 *or* S_2] is deniable in $\langle \Gamma, \sigma \rangle$.

(D∧)   If S_1 is deniable in $\langle \Gamma, \sigma \rangle$ or S_2 is deniable in $\langle \Gamma, \sigma+S_1 \rangle$, then [*Both* S_1 *and* S_2] is deniable in $\langle \Gamma, \sigma \rangle$.

(D>)   If S_1 is assertible in $\langle \Gamma, \sigma \rangle$ and S_2 is deniable in $\langle \Gamma, \sigma+S_1 \rangle$, then [*If* S_1 *then* S_2] is deniable in $\langle \Gamma, \sigma \rangle$.

(DCl)   No other sentence is deniable in $\langle \Gamma, \sigma \rangle$.

We assume that sentences containing presupposition triggers, such as "too" and "either", do not have truth values in possible worlds. So such sentences do not acquire assertibility or deniability in a context-and-conversation via (A0) or (D0).

In light of this account of assertibility and deniability conditions, we can identify for each sentence a condition (sometimes vacuous) such that in the largest set of contexts-and-conversations in which that condition is fulfilled, the assertibility and deniability conditions for the sentence can be reduced to conditions that are dual to one another. For example, consider the following condition:

(C1) For some eligible sentence α for [DP_f VP_{aff} *too*],
   (i) α is in σ, and
   (ii)   [DP_f VP_{aff} *either*] is not in σ or α is earlier than [DP_f VP_{aff} *too*] in σ, and
   (iii) α is assertible in $\langle \Gamma, \sigma \rangle$

In the largest set of contexts-and-conversations such that (C1) holds in all of them, the assertibility and deniability conditions for atomic "too"-sentences reduce to the following, respectively:

[DP_f VP_{aff}] is assertible in $\langle \Gamma, \sigma \rangle$.
[DP_f VP_{aff}] is deniable in $\langle \Gamma, \sigma \rangle$.

Those conditions are dual to one another; so (C1) is a duality condition for sentences of the form [DP_f VP_{aff} *too*]. For any sentence α and context-and-conversation $\langle \Gamma, \sigma \rangle$ that satisfy (C1), α can be called *the* presupposition of an utterance of [DP_f VP_{aff} *too*] in a situation to which $\langle \Gamma, \sigma \rangle$ pertains. (Here and for the remainder, I ignore the possibility

that for more than one sentence α, α and context-and-conversation $\langle \Gamma, \sigma \rangle$ satisfy (C1).)

Or consider the following condition:

(C2) Either
   (i)   for some eligible sentence α for [DP_f VP_{aff} *too*],
      (a) α is in σ, and
      (b)   [DP_f VP_{aff} *too*] is not in σ or α is earlier than [DP_f VP_{aff} *too*] in σ and
      (c) α is assertible in $\langle \Gamma, \sigma \rangle$, or
   (ii)   S is assertible in $\langle \Gamma, \sigma+not$-[$DP_f$ VP_{aff} *too*]$\rangle$

In the largest set of contexts-and-conversations such that (C2) holds in all of them, the assertibility and deniability conditions for sentences of the form [*Either* [DP_f VP_f *too*] or S] reduce to the following, respectively:

[DP_f VP_{aff}] is assertible in $\langle \Gamma, \sigma \rangle$ or S is assertible in $\langle \Gamma, \sigma+not$-[$DP_f$ VP_{aff}]$\rangle$.
[DP_f VP_{aff}] is deniable in $\langle \Gamma, \sigma \rangle$ and S is deniable in $\langle \Gamma, \sigma+not$-[$DP_f$ VP_{aff}]$\rangle$.

These conditions are dual to one another; so (C2) is a duality condition for sentences of the form [*Either* [DP_f VP_{aff} *too*] or S]. If (C2) is fulfilled in $\langle \Gamma, \sigma \rangle$ only by virtue of the fact that S is assertible in $\langle \Gamma, \sigma+not$-[$DP_f$ VP_{aff} *too*]$\rangle$, then an utterance of [*Either* [DP_f VP_{aff} *too*] or S] in a situation to which $\langle \Gamma, \sigma \rangle$ pertains presupposes nothing, because that condition also ensures the assertibility of [*Either* [DP_f VP_{aff} *too*] or S] in $\langle \Gamma, \sigma \rangle$. But if (C2) is fulfilled by virtue of α and $\langle \Gamma, \sigma \rangle$ satisfying clause (i) in (C2) (though (ii) may be fulfilled as well), then α will be *the* presupposition of an utterance of [*Either* [DP_f VP_{aff} *too*] or S] in a situation to which $\langle \Gamma, \sigma \rangle$ pertains.

For yet another example, consider a sentence of the form [*Either* *not*-S or [DP_f VP_{aff} *too*]], where *not-not*-S is an eligible sentence for [DP_f VP_{aff} *too*]. An example of such a sentence would be,

(11) Either Mary will not be late or Susan will be late too.

Consider the following condition:
(C3) Either
   (i)   *not*-S is assertible in $\langle \Gamma, \sigma \rangle$, or
   (ii)   for some eligible sentence α for [DP_f VP_{aff} *too*],
      (a) α is in $\sigma+not$-*not*-S, and
      (b)   [DP_f VP_{aff} *too*] is not in $\sigma+not$-*not*-S or α is earlier than [DP_f VP_{aff} *too*] in $\sigma+not$-*not*-S, and
      (c) α is assertible in $\langle \Gamma, \sigma+not$-*not*-S$\rangle$.

In the largest set of contexts-and-conversations such that (C3) holds in all of them, the assertibility and deniability conditions for sentences of the form [*Either* *not*-S or [DP_f VP_{aff} *too*]] reduce to the following, respectively:

not-S is assertible in $\langle \Gamma, \sigma \rangle$ or $[DP_f\ VP_{aff}]$ is assertible in $\langle \Gamma, \sigma+not\text{-}not\text{-}S \rangle$.

not-S is deniable in $\langle \Gamma, \sigma \rangle$ and $[DP_f\ VP_{aff}]$ is deniable in $\langle \Gamma, \sigma+not\text{-}not\text{-}S \rangle$.

These conditions are dual to one another; so (C3) is a duality condition for sentences of the form [*Either not*-S or [DP_f VP_{aff} *too*]]. In the particular case of (11), what the duality condition (C3) tells us is that either (i) "Mary will not be late" is assertible in $\langle \Gamma, \sigma \rangle$ or (ii) for some eligible sentence α for "Susan will be late too", (a) α is in σ+"Mary will *not not* be late", and (b) "Susan will be late too" is not in σ+"Mary will *not not* be late" or α is earlier than "Susan will be late too" in σ+"Mary will *not not* be late", and (c) α is assertible in $\langle \Gamma, \sigma+"Mary will *not not* be late" \rangle$. The interesting feature of this example is that (C3) can be fulfilled in this case even if there is no eligible sentence for "Susan will be late too" in σ, because an eligible sentence of "Susan will be late too", namely, "Mary will *not not* be late", will certainly be in σ+"Mary will *not not* be late". If there is thus no eligible sentence for "Susan will be late too" in σ, then there is nothing that we can call *the* presupposition of an utterance of (11) in a situation to which $\langle \Gamma, \sigma \rangle$ pertains.

For a final example, let us consider the following conditional:

(12) If the bus is not running, then Susan will be late too.

If someone utters (12) in a conversation containing an earlier utterance of

(13) If the bus is not running, then Mary will be late.

then we might like to say that (13) is *the* presupposition of that utterance of (12). The present account does not yet accommodate that result. A duality condition for (12) will be:

(C4) Either

   (i) "The bus is not running" is deniable in $\langle \Gamma, \sigma \rangle$, or

   (ii) for some eligible sentence α for "Susan will be late too",

      (a) α is in σ+"The bus is not running", and

      (b) "Susan will be late too" is not in σ+"The bus is not running" or α is earlier than "Susan will be late too" in σ+"The bus is not running", and

      (c) α is assertible in $\langle \Gamma, \sigma+"The bus is not running" \rangle$.

To obtain the result that (13) may be the presupposition for an utterance of (12), it suffices to introduce two liberalizations: First, we need to loosen up condition (ii)(a) to allow that α need not be a member of σ+"The bus is not running" but need only be among the *logical consequences*

of the sentences in σ+"The bus is not running", for in this case if (13) is a member of σ, then the logical implications of σ+"The bus is not running" will include "Mary is late", which is an eligible sentence for "Susan is late too". Second, we need to allow that what we call *the* presupposition of an utterance may be not the eligible sentence for an uttered sentence or a component thereof; rather, it may be a member of the conversation type that, together with *the final member* of the conversation type—in this case "The bus is not running"—implies an eligible sentence of an uttered sentence or component thereof.

3.3 A Transparent Presupposition Trigger: Indefinite Possessives

In order to illustrate the present account of transparent presupposition triggers, I want to pick an example that has a minimum of other complications. Factives such as "knows" seem to be a special case in various ways. "John has stopped smoking" is not entirely transparent, because it seems to involve some kind of anaphoric dependence on a prior specification of a time period. Even possessives on the order of "John's Jaguar" have an anaphoric aspect that needs to be accommodated. So instead I will work with *indefinite* possessives on the order of "a Jaguar of John's", although these have the disadvantage of not being very commonly used. Indefinite possessives are transparent presupposition triggers, because when they occur in a noncompound sentence, the presupposition can be *read off* the sentence itself. Thus, from "A Jaguar of John's is being repaired", we can read off the presupposition "John has a Jaguar".

The assertibility condition for sentences of the form [A G of S's is H] can be formulated as follows:

(APoss) If for some eligible sentence α for [A G of S's is H],

(i) α is in σ, and

(ii) [A G of S's is H] is not in σ or α is *not later than* [A G of S's is H] in σ, and

(iii) α is assertible in $\langle \Gamma, \sigma \rangle$, and

(iv) [S has a G that is H] is assertible in $\langle \Gamma, \sigma \rangle$,

then [A G of S's is H] is assertible in $\langle \Gamma, \sigma \rangle$.[7] The deniability condition will be the same, except that the last two occurrences of "assertible" must be replaced with "deniable".

So far, this account of assertibility and deniability conforms closely to the same pattern as the account for "too"-sentences and gives no indication that the presuppositions

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[7] Inasmuch as clause (iv) concerns a quantifier, we will need to supplement the account of assertibility and deniability conditions with an account of the assertibility and deniability conditions for quantified sentences. I will not take the space to do that here. For indications of how to do it, see Gauker (2003, 2005).

of a noncompound indefinite possessive sentence can be *read off* the sentence. To secure that result, what we have to do is complicate our account of what it takes for a sentence to be *in* a conversation type. (We already encountered such a maneuver at the end of the previous section.) What we can say is that the eligible sentence for "A G of S's is H" is just "S has a G", and that whenever "A G of S's is H" is a member of a conversation type σ, that eligible sentence automatically counts as *in* σ as well. To allow that, we have to allow that the eligible sentence for "A G of S's is H" may not literally *precede* it in σ but may only be *not later* than "A G of S's is H" in σ (because it is *in* "A G of S's is H"). With these assumptions and modifications in place, a duality condition for (unembedded) sentences of the form "A G of S's is H" is automatically fulfilled in any conversation in which a sentence of that form is uttered, provided that "S has a G" is assertible in the context-and-conversation that pertains to the utterance.

Now consider a disjunction in which one or more of the disjuncts is a noncompound indefinite possessive sentence, such as:

(14)   Either a Jaguar of John's is being repaired or a Mercedes of John's is being repaired

A duality condition for (14) is that both (a) "John has a Jaguar" is in σ and assertible in ⟨Γ, σ⟩ and (b) "John has a Mercedes" is in σ and is assertible in ⟨Γ, σ⟩. (The mere disjunction of (a) and (b) will not ensure that the remaining assertibility and deniability conditions are dual to one another.) (14) may be assertible in ⟨Γ, σ⟩ though this duality condition is not fulfilled (by virtue of the assertibility in ⟨Γ, σ⟩ of just one of the disjuncts). In that case, an utterance of (14) presupposes nothing. But if this duality condition *is* fulfilled, then we can say that *the* presuppositions of an utterance of (14) in a situation to which ⟨Γ, σ⟩ pertains are both "John has a Jaguar" and "John has a Mercedes".

This last example illustrates the claim I made at the start of this section: Even when a presupposition can be read off a noncompound sentence, we cannot necessarily read off the presuppositions of a compound sentence in which that noncompound sentence is embedded. The compound sentence may lack presuppositions altogether, but may have them if they are present in the conversation.

4 Conclusion

Obviously, the present account of presuppositions needs to be tested against further data, and even what I have said

leaves some vagaries and loose ends that need to be tied up (particularly, those concerning being "in" a conversation type). The main idea that I would like to emphasize in closing is this: Presuppositions are properties of utterances of sentences, not of sentences. What an utterance presupposes cannot usually be read off the syntax and the semantics of the sentence uttered. What the utterance presupposes is a matter of what belongs to the type of the conversation to which the utterance belongs. In particular, the presuppositions will be sentences in the conversation type whose assertibility in the pertinent context-and-conversation ensures that the remaining conditions on the assertibility and deniability of the sentence in question are dual to one another (without ensuring the assertibility of the sentence in question).

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