# A NOTE ON LOCAL ACCOMMODATION*

RAJ SINGH
*Carleton University*

### Abstract

I argue that current approaches for dealing with presupposition cancellation – such as local accommodation – are problematic. This might be teaching us that cancellation is not a real phenomenon. This paper explores this possibility by developing a revised theory of presupposition projection that makes cancellation unnecessary. The approach derives presuppositions that are often weaker than commonly assumed, and supplements these weak presuppositions with a strengthening component independently needed to deal with the proviso problem. The proposal follows Schlenker (2008b) in assuming a bivalent semantics supplemented with incremental reasoning (quantifying over continuations), but it rejects transparency and derives presuppositions only with the assumption that the sentence has a true continuation at the point at which the presupposition trigger is encountered.

## 1   Introduction

Following Heim (1983b), satisfaction theories of presupposition commonly assume two mechanisms that can modify the projected presupposition of a sentence: (i) a global accommodation mechanism, which enriches the global context so that it will entail the projected presupposition, and (ii) a local accommodation mechanism, which 'cancels' the projected presupposition and treats the triggered presupposition as part of the assertive component. This note builds on conceptual and empirical difficulties that have been identified with local accommodation (Chierchia 1995, von Fintel 2008), and problematizes cancellation mechanisms across different theories of presupposition more generally. In the face of these challenges, I will sketch a proposal under which cancellation mechanisms can be eliminated with a revised theory of projection and an independently motivated theory of strengthening.

---

Specifically, I will explore a theory of projection which takes the 'local accommodation' meaning as primitive and derives a projected presupposition from it. The system borrows heavily from Schlenker (2008a), and in particular it (a) uses a classical, bivalent semantics, and (b) involves quantifying over continuations of a sentence in incremental processing (following Schlenker 2007, 2008a, 2009, George 2008, Fox 2008). However, it employs a modified 'bridge principle' connecting the semantics and pragmatics (building on Stalnaker 1978, Beaver 2001, Simons 2003), and specifically rejects the assumption from Schlenker (2008a) that the assertability of a presuppositional sentence is related to the assertability of its 'articulated' conjunctive alternative. Instead, the pragmatic motivation is that speakers are expected to speak the truth, and that reasoning about presuppositions occurs at some point after the trigger is encountered but before update with the asserted content (Stalnaker 1998, 2002, von Fintel 2008). Incrementalizing this reasoning – using information in the context and everything to 'the left' of the trigger as evidence – tells the hearer what should be presupposed at this point in the conversation. These projected presuppositions are sometimes predicted to be weaker than commonly assumed (e.g., negation is predicted to be a plug rather than a hole), but the intuitively correct presuppositions can be derived with auxiliary assumptions about strengthening (global accommodation).

## 2   Motivation for complexity

### 2.1   The Projection Problem

Consider a sentence like (1), and embeddings of (1) under propositional operators, as in (2).

(1)   John will bring his wetsuit

(2)   Some embeddings of (1)
    a.  John won't bring his wetsuit
    b.  If John is a scuba diver, he'll bring his wetsuit

Assuming that (1) presupposes that John has a wetsuit, what are the presuppositions of (2a) and (2b)? More generally, how can one predict the presuppositions of any complex sentence from the presuppositions of its parts? This is the projection problem, and since Karttunen (1973) most theories agree that negation is a 'hole' for presuppositions, such that (2a) inherits the presupposition of its constituent (1), while conditionals are 'filters,' such that (2b) presupposes that if John is a scuba diver he has a wetsuit. More generally, where $S$ is an atomic sentence that presupposes $p$, $S_p$, and $\phi$ is a sentence containing $S_p$, $\phi(S_p)$, a solution to the projection problem is a function which outputs the presupposition of $\phi$ from the presuppositions of its parts and its form. Following Karttunen (1973), most theories agree with the following characterizations:

(3)   Projection properties of negation and conditionals
    a.  *Not* is a hole: The presupposition of $\neg S_p$ is $p$
    b.  *If* is a filter: The presupposition of *If A*, *then $S_p$* is $A \rightarrow p$

Heim's (1983b) dynamic semantics system derives (3) (among other generalizations) from the way context change is specified. The meaning of a sentence is identified with its so-called

*context-change-potential*, CCP. CCPs are partial functions from contexts to contexts, with partiality induced (in part) by presuppositions.[1] For example, the meaning of (1) is a function, $+$ *John will bring his wetsuit*, which is defined only on those contexts that entail that John has a wetsuit; for any such context, the function returns a new context containing only those worlds where John will bring the wetsuit that he has.

A specification of CCPs, together with the principle in (4), yields a solution to the projection problem.

(4)  Local Satisfaction: For any sentence $\phi$ and context $c$, $+\phi$ is defined on $c$ only if for each constituent $S$ contained in $\phi$, $+S$ is defined in its local context.

For example, consider the CCPs Heim (1983b) defines for (2a) and (2b).[2]

(5)  Context change potentials
 a.  $c + \neg S_p = c \smallsetminus (c + S_p)$
 b.  $c + \textit{If A, then } S_p = c \smallsetminus ((c+A) \smallsetminus (c+A+S_p))$

The projection properties of negation and conditionals stated in (3) follow from (4) and (5). For example, the execution of $+\neg S_p$ applies $+S_p$ on $c$, and thus $c$ itself must entail $p$. In the execution of $+$ *If A, then* $S_p$ there is only one update where partiality is relevant, $+S_p$, which updates $c' = c + A$. To ensure that this update is defined, $c'$ must entail $p$, which means that $c$ itself must entail $A \to p$.

One of the innovations in Heim (1983b) was to characterize context-change for formulas (sentences containing free variables). This made it possible to specify CCPs for quantified sentences; together with (4), this made it possible to derive the projection properties of quantified sentences. I omit details here, but the predictions are that for any quantified sentence $[[Qx : Ax][Bx_{Px}]]$, the CCP of the sentence is defined only if the context entails that every object satisfying the restrictor satisfies the presupposition of the nuclear scope: $c \subseteq \forall x(Ax \to Px)$.[3]

(6)  Universal projection out of quantified sentences
 a.  Every man in this room will bring his wetsuit
   $\leadsto$ every man in this room has a wetsuit
 b.  No man in this room will bring his wetsuit
   $\leadsto$ every man in this room has a wetsuit

## 2.2  Tampering with projection: accommodation mechanisms

Upon hearing the following sentences, a listener might plausibly come away accommodating something stronger than the predicted projected presupposition of each sentence:

---

[1]Variables also come with their definedness conditions, which to some extent motivated the dynamic system introduced in Heim (1982, 1983a,b).

[2]The CCPs defined in Heim (1982, 1983b) are underdetermined by truth-conditional content alone, and this is sometimes taken to indicate an explanatory inadequacy in the theory (for discussion, see Soames (1989), Heim (1990), Beaver (2001), Schlenker (2007, 2008a), Fox (2008), Rothschild (2011)). Note, however, that there seems little choice with negation, and that – with conjunction defined as sequential composition ($c + (A \wedge B) = (c+A) + B$) – the CCP for other connectives follows from classical equivalences. See also notes 1 and 11.

[3]To make room for variables, contexts must be enriched from pieces of information – sets of worlds – to sets of world-assignment pairs. See Heim (1997) for evidence from ellipsis that quantifiers project LFs with formulas.

(7)   The need for presupposition strengthening

    a.  If John is hungry, he will bring his wetsuit
        Predicted presupposition: that if John is hungry he has a wetsuit
        Plausible Hearer Accommodation: that John has a wetsuit

    b.  Every man in this room who is hungry will bring his wetsuit
        Predicted presupposition: that every man in this room who is hungry has a wetsuit
        Plausible Hearer Accommodation: that every man in this room has a wetsuit

To make sense of these inferences, satisfaction theories posit an additional mechanism, presupposition strengthening, that modifies the global context so that it entails the projected presupposition of the sentence.[4] There are various proposals for how this strengthening comes about (e.g., Heim 1992, Beaver 2001, 2006, Heim 2006, van Rooij 2007, von Fintel 2008, Singh 2007, 2008, 2009, Pérez Carballo 2007, 2009, Lassiter 2012, Schlenker 2011b, Fox 2012). We return to specific assumptions about the strengthening mechanism in later parts of the paper (section (3.2)). For now, we will assume that there is an accommodation mechanism that can strengthen the projected presupposition of the sentence:

(8)   Presupposition Strengthening with Global Accommodation: When $S_p$ is uttered in a context $c$ that does not entail $p$, modify $c$ to a context $c'$ such that $c' \subseteq p$.

Another way of tampering with projected presuppositions involves weakening them to the point of cancelling them entirely. For example, the following sentences do not presuppose their predicted projected presuppositions; in fact, they presuppose nothing at all.

(9)   The need for presupposition cancellation

    a.  John doesn't have a wetsuit. Therefore, he's not going to bring his wetsuit.

    b.  No man in this room will bring his wetsuit because no man in this room (even) has a wetsuit!

Negation is a hole for presupposition (cf. (3a)), and *no* projects universal presuppositions (cf. (6b)), but neither of these presuppositions is inferred from the sentences in (9). To account for this, a cancellation mechanism is posited that – under certain circumstances – can accommodate the presupposition of an embedded constituent in its local context, a mechanism that amounts to asserting the presupposition in its embedded position. For example, recall that the CCP of $\neg S_p$ is $c \setminus c + S_p$. Global accommodation would modify $c$ to $c'$, where $c' \subseteq p$, and then execute the CCP of $+\neg S_p$ on $c'$: $c' \setminus c' + S_p$. Local accommodation, on the other hand, modifies the context on which $+S_p$ is applied: $c \setminus c' + S_p$, where $c' \subseteq p$. This effectively cancels the presupposition ($p$ does not make its way into the global context).

(10)   Presupposition Cancellation with Local Accommodation: When $S_p$ is uttered in a context $c$ that does not entail $p$, and $S$ contains a constituent $T_q$ whose local context $c'$ does not entail $q$, modify $c'$ to a context $c''$ such that $c'' \subseteq q$.

---

[4]Heim (1982, Chapter III, Section 5.2) noted that what gets accommodated can be stronger than the projected presupposition of the sentence. A reviewer reminds me that Karttunen and Peters (1979) were also concerned with why the intuitive presuppositions of a sentence are sometimes felt to be stronger than what is predicted to be projected, although this question was divorced from 'accommodation.' The challenge of characterizing the strengthening mechanism – the so-called 'proviso problem' – was given a general statement in Geurts (1996).

## 2.3 Difficulties with local accommodation

We have seen that a single LF can give rise to different presuppositional inferences, depending on various context-dependent factors that we will largely ignore here. This suggests that the linguistic system needs some way to derive multiple potential presuppositions for a sentence. There seems to be no way around this. For example, $\neg S_p$ can presuppose $p$ or nothing at all. A conditional sentence *if S then $T_p$* can presuppose $S \to p$ or $p$. These and other generalizations have to be captured somehow. We have seen that satisfaction theories posit three mechanisms to capture this multiplicity: a projection mechanism, and two accommodation mechanisms that get activated when presuppositions are not satisfied.[5] I will now argue that local accommodation is the least natural mechanism of the three, and that we might benefit from trying to get rid of it.

Given that sentences encode presuppositions, it is natural to consider how presuppositions project in complex sentences. The statement in (4) gives a solution to this problem (together with a specification of CCPs). And given a sentence which projects $p$, together with a use condition demanding that $c$ entail $p$ (e.g., Karttunen 1974, Stalnaker 1974, Heim 1983b), global accommodation is naturally thought of as a conversational strategy that helps the efficient flow of communication (e.g., Karttunen 1974, Stalnaker 1974, 1978, Lewis 1979). The statement in (8) states the computational problem the hearer faces when the threat of presupposition failure arises. However, local accommodation does not naturally fit into this scheme (it might be relevant that (10) is quite stilted in comparison with (4) and (8)). First, the statement in (10) appeals to local contexts, an ontological commitment that is controversial. Second, even if we grant appeal to local contexts, local accommodation seems to break the compositionality of CCPs (von Fintel 2008, pp. 155-157). For example, returning to local accommodation in negated sentences, $c \smallsetminus c' + S_p$, note that $c$ and $c'$ are different. Moreover, von Fintel (2008) points out that local accommodation is subject to different constraints than global accommodation, raising the question whether presupposition cancellation is really a matter of 'accommodation' at all. For example, one can appropriately utter a sentence like *there is no king of France; therefore, the king of France isn't bald*. This requires local accommodation of the existence of a king of France, and this is contradictory in a context in which there isn't a king of France. This makes local accommodation quite different from global accommodation, which must always result in a consistent context. The concrete suggestion in von Fintel (2008, p. 157) is that presupposition cancellation should not be identified with local accommodation, but rather with formal processes that modify the semantics of the sentence, such as the insertion of covert cancellation operators used in trivalent systems (following Beaver and Krahmer 2001) or the movement operations in DRT.[6] However, either of these moves leads to a problematic blurring of the presupposition-assertion distinction.

Trivalent theories, following Beaver and Krahmer (2001), employ a covert operator $A$ that converts presuppositions to assertions, and specifically converts the third-value '#' to '0'. Thus, in a world in which $p$ is false, the sentence $S_p$ receives the third-value '#,' and the sentence $A(S_p)$ receives the value 0. In such a world, by the rules of projection, $\neg S_p$ receives the third-value (negation is a hole), but the sentence $\neg A(S_p)$ receives the value 1. The appropriateness of a

---

[5]Heim (1992, 2006) argues that when the context satisfies the presupposition of the uttered sentence, accommodation does not take place. Geurts (1996) argues that accommodation inferences can be detected even in such contexts. In Katzir and Singh (2013b) we identify confounds in each argument, but our own attempts to overcome the confounds leave the question unresolved.

[6]Chierchia (1995) also suggested a general research strategy that avoids local accommodation entirely, in part because so little is understood about it. He called this limitation to global accommodation the *Root Context Constraint*.

sentence like (9a) is hence explained by the availability of a parse of the sentence with an $A$ embedded below negation. The appeal to $A$ as a syntactic operator has led to simple accounts of cancellation in complex sentences (e.g., Beaver and Krahmer 2001, Sudo et al. 2012, Fox 2012), and might account for Russellian judgments when sentences are rejected. However, I think appeal to a covert $A$ is not entirely innocuous. Specifically, I believe a challenge for this approach to cancellation is to explain the discourse status of the inferences when the relevant sentences are accepted. Consider sentence $S_p$ parsed with $A$ as $A(S_p)$ or sentence *not* $S_p$ parsed as $A(\neg S_p)$. The availability of such parses – with $A$ taking matrix scope – predicts that when a hearer accepts a sentence like *John brought his wetsuit* or a sentence like *John didn't bring his wetsuit* in a context in which it is open whether John has a wetsuit, it should be possible for them to accept John's having a wetsuit as an assertion of the sentence. But this seems incorrect. For example, the objection *no, that's false!* cannot mean that it's false that John has a wetsuit (see von Fintel 2004b for discussion of different ways of challenging presupposed and asserted meaning). Furthermore, if the listener then goes on to report to someone else that John has a wetsuit, and is asked how they know, they cannot respond that someone told them that John has a wetsuit. The puzzle is, if $A$ is available, and a sentence that projects $p$ is accepted in discourse, why is $p$ in fact available only as a presupposition? Why does it never behave like an assertion?

This question is exacerbated in DRT systems (van der Sandt 1992), which do not assume a presupposition-assertion distinction at all. Presuppositional elements are scope-taking elements that can be displaced to various positions; given a landing site, the semantics treats the meaning as asserted meaning. Thus the presuppositional status of these meanings, reflected for example in the observation that they cannot be challenged with a simple *no, that's false!*, cannot be explained. Furthermore, it is not clear why syntactic position should relate to some of the differences between global and local accommodation pointed out in von Fintel (2008). For example, why should local consistency be required only for presuppositions that have been displaced to the root?[7]

Putting these concerns aside for the moment, note that the movement operations are entirely unrelated to syntactic displacement. Thus, movement can be upwards to a c-commanding position, but also 'sideways,' for example from the nuclear scope of a quantified sentence to the restrictor, or from the consequent of a conditional into the antecedent. It is perhaps because of such non-standard displacement operations that a new level of representation is posited (DRSs). More worrisome, however, is that these sideways movement operations – often called 'intermediate accommodation' – have been argued to be empirically inadequate (e.g., Beaver 2004, von Fintel 2004a, Schlenker 2011b; though see Geurts and van der Sandt 1999).[8] For example, it has been shown that the presupposition $p$ in conditionals *if A then $S_p$* can be globally accommodated at the root (11), or locally accommodated in its triggering constituent (12) – which is equivalent to global projection of $A \rightarrow p$ – but to my knowledge there is no known case of intermediate accommodation into the antecedent.

(11)    If John flies to Toronto he'll bring his wetsuit

      a. *Local Accommodation: If John flies to Toronto he has a wetsuit and will bring it

---

[7]In fact, local consistency and local informativity are required for all DRSs. There would need to be a special stipulation to waive this requirement for presuppositions that remain embedded.

[8]Intermediate accommodation can result in movement to a c-commanding position, but this will not be important in anything we say here. See Geurts (1999).

b. *Intermediate Accommodation: If John flies to Toronto and has a wetsuit he will bring it

c. Global Accommodation: John has a wetsuit and if he flies to Toronto he will bring it (preferred)

(12)  If John is a scuba diver he'll bring his wetsuit

a.  Local Accommodation: If John is a scuba diver he has a wetsuit and will bring it

b.  *Intermediate Accommodation: If John is a scuba diver and has a wetsuit he'll bring it

c.  *Global Accommodation: John has a wetsuit and if he's a scuba diver he'll bring it

Taken together, these considerations suggest that relying on formal cancellation/movement operations to deal with cancellation might be problematic.

## 2.4  Incremental Transparency and presupposition cancellation

The transparency theory of Schlenker (2008a) differs from dynamic and trivalent approaches in that it does not assume a dedicated process responsible for cancelling presuppositions. Instead, it simply assumes that one of the pragmatic maxims active in its projection component is not being obeyed. I briefly review the projection system before discussing its handling of cancellation.

Schlenker (2008a) assumes sentences are bivalent, such that $S_p$ entails $p \wedge S$ (we use $S$ to symbolize the asserted meaning of $S_p$), and derives projection properties from two pragmatic maxims: (i) *Be Articulate*, which demands that a sentence $S_p$ be articulated as $p \wedge S$, (ii) *Be Brief*, which bans the representation of a redundant conjunct if the redundancy can be detected at the point in the left-right parse at which the conjunct is evaluated (see also Horn 1972, van der Sandt 1992).[9] Thus, if the context entails that Mary is expecting a son, it is odd to say *Mary is pregnant and John is happy*. In fact, as soon as one has processed *Mary is pregnant and ...* the sentence can be ruled out no matter what the second conjunct happens to be. This is what lies behind the contrast between *Mary is expecting a son and she is pregnant*, which is odd, and *Mary is pregnant and she is expecting a son*. Although *Mary is pregnant* is redundant in both sentences, the contrast relies on whether the redundancy can be detected at the point at which *Mary is pregnant* is processed: when it follows *Mary is expecting a son* it can, but when it precedes it – and nothing in the context entails that Mary is pregnant – it can't.

Incremental redundancy is formally captured by quantifying over continuations of the sentence, where the continuations of a sentence $\phi$ at constituent $\psi$ contained in $\phi$ are all the sentences derivable by replacing constituents that follow $\psi$ in the linearization of $\phi$ with alternative constituents (Fox 2008).[10]

(13)  Incremental Redundancy: $q$ is incrementally redundant in $\phi(q \wedge r)$ if for all replacements $T$ of constituents of $r$, $\phi(q \wedge T)$ is equivalent (in context $c$) to $\phi(T)$.

This incremental formalization of *Be Brief*, together with a violable *Be Articulate*, gives a criterion for deciding between competitors $\phi(S_p)$ and $\phi(p \wedge S)$ in any context $c$:

---

[9]Schlenker (2008a) also considers symmetric redundancy constraints; see also Fox (2008), Chemla (2009b), Schlenker (2009), Chemla and Schlenker (2012), Katzir and Singh (2013a), Meyer (2013), Mayr and Romoli (2014).

[10]We state the condition for the special case of redundant initial conjuncts. For conjuncts that are final constituents there are no continuations, and thus final conjuncts are redundant if they are vacuous in the sentence itself.

(14)  Incremental Transparency:  $\phi(S_p)$ is ruled out by $\phi(p \wedge S)$ in context $c$ if $p$ is not incrementally redundant in $\phi(p \wedge S)$ (because of *Be Articulate*); $\phi(p \wedge S)$ is blocked by $\phi(S_p)$ in context $c$ if $p$ is incrementally redundant in $\phi(p \wedge S)$ (because of *Be Brief*).

Schlenker (2008a) shows how (14) gives a projection algorithm, and in particular derives the basic predictions of dynamic semantics while maintaining a classical semantics.[11]  For example, like dynamic semantics, the statement predicts that $S_p$ should not be usable in a context that does not already entail $p$.  In dynamic semantics, this is because update is undefined; in Schlenker (2008a), this is because the sentence is blocked by its articulated competitor $p \wedge S$. For both approaches, then, it is *prima facie* worrying that sentences are usable even when their presuppositions are not satisfied, as has long been noted.  There is nothing inappropriate when I say *I'm sorry I'm late; I had to pick up my brother from the airport* to an addressee who does not know I have a brother.  In fact, the articulated alternative is quite stilted in comparison:[12]

(15)  I'm sorry I'm late ...

  a.  ... I had to pick up my brother from the airport
  b.  #... I have a brother and I had to pick him up from the airport

The use of informative presuppositions is robust and often appropriate.[13]  Are they exceptions to the projection theory?

As noted earlier, satisfaction theories appeal to global accommodation to overcome this concern.  Under threat of presupposition failure (undefinedness of the update), the hearer modifies the context $c$ to that it ends up satisfying the presupposition after all.  The transparency theory makes a similar move: rather than assume that the speaker was uncooperative and violated *Be Articulate*, the hearer can amend the context so that the speaker's assertion ends up consistent with (14) after all.

The appeal to accommodation raises the question of characterizing the conditions under which *Be Articulate* can be violated when $p$ is not redundant.  For example, von Fintel (2008) notes that in a context in which you don't know whether I was at the funeral, both *I wasn't at the funeral yesterday and I regret it* and *I regret that I wasn't at the funeral yesterday* are felicitous, with no apparent preference between them.  We saw in (15) that sometimes the preference goes in the opposite way than predicted by *Be Articulate*, with $S_p$ preferred to $p \wedge S$.  In a context that doesn't entail $p$, the speaker thus faces the following choice: use $S_p$ and trust that the hearer will amend $c$ in the appropriate way, or use $p \wedge S$.  So far as I can tell, auxiliary assumptions need to be added to the transparency theory to answer this question.  The challenge is of course not unique to the

---

[11]Part of Schlenker's (2008) motivation for maintaining a classical semantics has to do with the argument that dynamic semantics is not explanatory, in that it encodes properties into its lexical entries that are not demanded by truth-conditions alone (Soames 1989, Heim 1990).  For example, the CCP for conjunction is $c + (A \wedge B) = (c+A) + B$, instead of $(c+B)+A$ or $(c+A) \cap (c+B)$, all of which would encode the classical truth-conditions of conjunction equally well.  Of course the motivation for this particular entry also comes from presupposition projection and from anaphora, but the problem is a general one extending to other operators (e.g., what should be the CCP of *unless*?).  See Schlenker (2008a) for extended discussion.

[12]This observation came up in conversation with my student Amir Anvari.

[13]Corpus studies show that informative presuppositions are rather frequent in natural discourse (e.g., Fraurud 1990, Poesio and Vieira 1998, Spenader 2002).

transparency theory; as noted in von Fintel (2008), satisfaction theories also fail to provide a choice principle.[14]

Returning now to the main concern of this article, how does Schlenker (2008a) deal with presupposition cancellation? For example, texts like (9) seem to be exceptions to the transparency theory (the theory agrees with Heim (1983b) that negation is a hole, and that *no* projects universal presuppositions). Clearly, without appeal to local contexts, local accommodation is not an option. And since the transparency theory employs a classical semantics, there is no obvious role for a covert $A$ operator. Schlenker (2008a, p. 180-181) suggests that in the face of bad conversational outcomes such as contradictions, the hearer can assume that the speaker is not obeying *Be Articulate*. For example, in a text like (9a) = *John doesn't have a wetsuit; therefore, he's not going to bring his wetsuit*, global accommodation of John having a wetsuit would contradict the first sentence in the text. By deactivating *Be Articulate*, the sentence $\neg S_p$ simply receives its classical meaning, $\neg(p \wedge S)$ (recall that Schlenker (2008a) assumes that $S_p$ simply means $p \wedge S$, and that presupposition projection follows from the interaction of *Be Brief* and *Be Articulate*).

Thus, Schlenker's (2008) proposal, unlike other systems, does not invoke a dedicated mechanism for cancelling presuppositions, but instead assumes that the projection mechanism is inactive (a crucial maxim is not being followed). This raises several questions. In particular, when is cancellation taken as an option? It is common to think, following Heim (1983b), that global accommodation is preferred to local accommodation.[15] Schlenker (2008a) interprets the local accommodation option as a last resort, available only in the face of difficult conversational outcomes. However, some observations suggest that something less radical will be needed. First, there seems to be speaker-variation in preferences (Sudo et al. 2012, Fox 2012). Second, local accommodation is quite readily available, and sometimes seems to be preferred, such as when it is likely that the speaker is ignorant about whether the presupposition is true:

(16)   Context: You are taking a walk in the park with a friend, and see a man whistling at the bushes. You say:
   You: What's up with that guy?
   Your friend: Who knows? Maybe he's lost his dog. (Modelled after Kay 1992)

To my ear (16) sounds okay, and it is natural to interpret it as 'maybe he has a dog and has lost it.' But there is no obvious contradiction that would follow if the embedded presupposition were to be globally accommodated.[16] The existence of speaker-variation, the ready availability of local accommodation under certain circumstances, and the intuition that even texts like (9a) are not all that marked, make it seem unnatural to think that core pragmatic maxims like *Be Articulate* are literally not being followed.

A deeper exploration of the principles active in language use might make sense of these apparent challenges to the theory. Here I will pursue a different strategy. I will borrow heavily

---

[14] Specifically, von Fintel (2008) notes that $p$ should be asserted rather than presupposed when it is surprising or controversial (as often noted – see e.g., Heim 1992), but the satisfaction theory does not dictate a preference between assertion or presupposition when $p$ is neither surprising nor controversial.

[15] This preference finds support in Chemla and Bott's (2013) finding that local accommodation induces greater processing complexity than global accommodation. For discussion of how this preference might relate to general preferences in interpretation, see Geurts (2000), Blutner (2000), Beaver and Zeevat (2007), Chemla and Bott (2013).

[16] Schlenker's (2008) system actually predicts $\diamond S_p$ to presuppose $\square p$, rather than $p$ (because $p$ is incrementally redundany in $\diamond p \wedge \ldots$ only if every world compatible with the world of evaluation entails $p$). So far as we can tell, nothing of importance hinges on this.

from the technical apparatus developed in Schlenker (2008a), and in particular his use of a classical semantics, and in reasoning over continuations of the sentence in incremental processing, to determine presuppositions. However, I will give up the assumption that $\phi(S_p)$ and $\phi(p \wedge S)$ compete, and with it the generalization in (14) and the corresponding equivalence with predictions of dynamic systems. Instead, I will take the apparent exceptions to (14) – and in particular those involving local accommodation – as being representative of appropriate language use. The 'bridge principle' I will assume to connect the semantics and the pragmatics is the assumption that speakers speak the truth, and that presuppositional elements trigger reasoning about what the speaker expects to be backgrounded in context at the point at which they are encountered. The theory will sometimes produce weaker projected presuppositions than what is commonly assumed, but some of the standard results will be recovered from the strengthening component. Crucially, there will be no need for cancellation devices.

# 3   Projection and strengthening

## 3.1   Projection and Timing Principles

Suppose with Schlenker (2008a) that atomic sentences $S_p$ are bivalent, with $p$ a distinguished component representing that information which is to be pragmatically backgrounded in communication. It is common to demand that $p$ be entailed by the common ground prior to update with the asserted content $S$. This demand is commonly understood as requiring that $p$ be entailed by the context prior to the assertion itself. However, technically all that is required is that $p$ be entailed by the context before update with $S$, the asserted content of $S_p$; this demand can be fulfilled *after* the speech act but *before* update with $S$ (Stalnaker 1998, 2002, von Fintel 2008, Schlenker 2012). Thus, the use of $S_p$ can be thought of as a signal from the speaker that they expect $p$ to be taken as common ground (whether it is at the moment or not), and that $S$ (the asserted component) should be added to the common ground. Importantly, $p$ is not open to challenge without ado but $S$ is open to debate. This might explain why challenges like *no way!* or *that's false* address $S$, not $p$. To challenge $p$ more elaborate objections are called for (cf. von Fintel 2004b).

   This way of understanding conversational dynamics naturally leads to the following view: when $S_p$ is used, the common ground must entail some piece of information before it is incremented with $S$. That is, at this point in processing (after the speech act but before update with asserted content), the common ground must satisfy some condition *no matter what the upcoming content happens to be*. What is this condition? The use of $S_p$ signals that the context must entail $p$. Assuming only that the speaker has uttered a truthful sentence, *at this point* the hearer can reason that there is some sentence, $T$, such that $p \wedge T$ is true. And this is equivalent to saying that the hearer can conclude $p$. In other words: $(\exists T(p \wedge T)) \Longleftrightarrow p$. The 'if' direction is obvious, and for the 'only if' direction, set $T$ to be any tautology. This reasoning, we suggest, is the core of presupposition projection: when a hearer encounters a presupposition trigger they are called on to reason about background assumptions in the context using only the idea that the speaker will say something true. In an atomic sentence like *John will bring his wetsuit*, the hearer reasons that there is some true continuation of *John has a wetsuit and . . .* ; this licenses the conclusion that John has a wetsuit, and the hearer places this proposition into the background context before updating with the assertion.

How does this work in complex sentences that embed $S_p$, $\phi(S_p)$? We assume – again with Schlenker (2008a) – that the reasoning occurs incrementally. Recall that Schlenker (2008a) quantifies over continuations of a sentence at some point in incremental processing. The use of continuations allows us to extend the reasoning sketched above to complex sentences. Suppose that the hearer has just encountered $S_p$ in the incremental evaluation of $\phi(S_p)$. They will conclude that there is some way of replacing $S_p$ and any constituents that follow $S_p$, call this replacement $T$, such that $\phi(p \wedge T)$. Thus, upon hearing *if John is a scuba diver, he'll bring his wetsuit*, the hearer will conclude that there is some true ending to the sentence *if John is a scuba diver he has a wetsuit and . . .* ; from this the hearer can conclude that if John is a scuba diver he has a wetsuit. This proposition must then be presupposed at this point in the conversation.

More generally, focusing here on final constituents $S_p$, the reasoning outlined above can be formalized as follows:

(17)    a.  Incremental Backgrounding: Encountering $S_p$ in the left-right parse of $\phi(S_p)$ triggers an inference in the hearer that there is some material $T$ to follow such that $\phi(p \wedge T)$ is true: $c \subseteq \exists T(\phi(p \wedge T))$.

        b.  Presupposition projection: The presupposition of $\phi(S_p)$ – determined at the stage of processing at which $S_p$ is encountered – is the incrementally backgrounded proposition $q$, where $q \Longleftrightarrow \exists T(\phi(p \wedge T))$.

We saw above that under this reasoning the presupposition of atomic sentences $S_p$ is $p$. We now work through embeddings under propositional operators, followed by embeddings under quantifiers. We will then state some general results, which we will see are sometimes different from what is commonly assumed.

Let's begin with negation. When encountering $S_p$ in the sentence $\neg S_p$, the hearer reasons that they should accept $\exists T(\neg(p \wedge T))$ into the background context. But this of course is trivially satisfied by setting $T$ to be a contradiction $\bot$, which means that $\neg S_p$ presupposes a tautology $\top$, i.e., it presupposes nothing at all: $\top \Longleftrightarrow \exists T(\neg(p \wedge T))$. (Intuitively, nothing can be concluded from 'it is not the case that (John has a wetsuit and . . . )') By (17), then, negation is not a hole, as commonly assumed since Karttunen (1973), but a plug. This means that there is no need for a cancellation mechanism to deal with sentences like (9a) = *John doesn't have a wetsuit; therefore, he won't bring his wetsuit*. Of course we are left with having to explain the fact that *John won't bring his wetsuit* can be taken as presupposing that he has a wetsuit. We will see that this possibility follows from our strengthening mechanism discussed in section (3.2).

For conditionals, as noted above, we derive the common prediction that *if A, then $S_p$* presupposes $A \rightarrow p$. To see this, we need to show that $\exists T(A \rightarrow (p \wedge T)) \Longleftrightarrow A \rightarrow p$. For the 'only if' direction, we set $T$ to be a tautology. Again, we will need to say something about why sentences *if A, then $S_p$* often presuppose $p$ instead of $A \rightarrow p$ (cf. (7a)), and again we will appeal to strengthening to answer this (section (3.2)).

For disjunctions, $A \vee S_p$, we predict a conditional presupposition $\neg A \rightarrow p$. Again, what we need to do is show that $\exists T(A \vee (p \wedge T)) \Longleftrightarrow \neg A \rightarrow p$. This is immediate, given the equivalence between $A \vee S_p$ and *if $\neg A$, then $S_p$*. Our predictions for disjunction thus agree with many other treatments (e.g., Chierchia 1995, Beaver 2001, Schlenker 2008a, 2009, Fox 2008, Rothschild 2011).

Finally, for conjunctions, $A \wedge S_p$, we predict something that looks rather strange at first sight: the presupposition is predicted to be $A \wedge p$. To see this, for the 'only if' direction we set $T$ to be

a tautology; it thus follows that $\exists T(A \wedge p \wedge T) \Longleftrightarrow A \wedge p$. But then a speaker uttering a sentence $A \wedge S_p$ would be both asserting $A$ and presupposing $A$, a self-defeating speech act if there ever was one. But conjunctive sentences $A \wedge S_p$ are unproblematic: *John got lost in the Stata Center and his sons love him* is appropriate, and one intuits that the first conjunct is asserted, not presupposed. Reductio ad absurdum? Perhaps, but the conclusion might be pointing us to the proper way to interpret the incremental backgrounding system. Specifically, (17) is a statement that guides the hearer about what needs to be assumed in the background context at the point at which constituent $S_p$ is evaluated. Thus, it seems to be a fact about natural language conjunction that before we get to find out the end of 'John got lost in the Stata Center and he has sons and ...' we conclude that John got lost in the Stata Center and that he has sons (assuming we trust the speaker, which is the heart of the incremental backgrounding system). In this way, we capture Stalnaker's (1974) insight that by the time the second conjunct $S_p$ is processed, the background context must entail both $A$ and $p$. We might avoid paradox, then, by understanding the predictions of the theory not as a way of assigning presuppositions to complex sentences, but as a way of determining what needs to be in the background when evaluating a presupposition-triggering constituent (Karttunen 1974). Thus, $A$ is asserted in $A \wedge S_p$, and it is presupposed, but only after it has been asserted and before update with $S_p$ takes place. Note that we capture this result without a dynamic update procedure, and – unlike Stalnaker's (1974) statement about conjunction – the incremental backgrounding statement gives a general procedure for reasoning this way for any complex sentence.[17]

It might have become clear from the propositional cases discussed above that for any operator upward entailing in its right argument, the presupposition of $Op(A, B_p)$ can be easily computed: $Op(A, p)$.[18] This result derives the projection properties of quantifiers like *at least three*, *every*, *some*, and so on: for right upward entailing quantifiers $Q_\uparrow$, $[[Q_\uparrow x : Ax][Bx_{Px}]]$ presupposes $[[Q_\uparrow x : Ax][Px]]$. For example, consider the sentence *every man in this room brought his wetsuit*; no matter what the value of *blah* it follows from the assumed truth of 'every man in this room has a wetsuit and blah' that every man in this room has a wetsuit, and this is to be presupposed at this point in processing.

The fact that negation turned out to be a plug is also not an accident: for right downward monotone quantifiers $Q_\downarrow$ like *at most three* and *no*, $[[Q_\downarrow x : Ax][Bx_{Px}]]$ presupposes nothing.[19]

Turning to non-monotonic quantifiers $Q$ like *exactly three*, the sentence $[[Qx : Ax][Bx_{Px}]]$ can be thought of as the conjunction of $[[Q_\uparrow x : Ax][Px]]$ and $[[Q_\downarrow x : Ax][Px]]$, where $Q_\uparrow$ is upward monotone (*at least three*) and $Q_\downarrow$ is downward monotone (*at most three*). It follows, then, that non-monotonic quantifiers inherit the presupposition of their upward monotone conjunct $Q_\uparrow$.[20]

We summarize the predictions for illustrative examples in (18) below:

---

[17]This is closely related to the proposal of Schlenker (2009), which assigns local contexts to all constituents without appealing to a dynamic semantics. For us, only conjunction leads to mid-sentence context updates, which seems to match intuition; we leave a fuller comparison for future work.

[18]Proof sketch: $\exists T(Op(A, p \wedge T)) \Longleftrightarrow Op(A, p)$. The 'if' direction follows from monotonicity, and for the 'only if' direction, let $T$ be any tautology.

[19]The result holds if we assume that natural language determiners satisfy the 'Variety' principle (van Benthem 1983). Let $Q$ be downward entailing in its right argument. Given Variety, there are $A, B$ such that $Q(A, B)$. We now need to show that $\exists T(Q(A, p \wedge T)) \Longleftrightarrow \top$. For the 'only if' direction, towards contradiction, suppose that there is no $T$ such that $Q(A, p \wedge T)$. Then in particular $Q(A, p \wedge \bot)$ is false, but then there is no $B$ such that $Q(A, B)$ (by monotonicity).

[20]A reviewer points out that the analysis runs into the well-known 'binding problem' (Karttunen and Peters 1979). I don't yet have a satisfactory response to this.

(18)   Sample predictions: Sentences with their predicted presuppositions

    a.   John will not bring his wetsuit
        Presupposition: tautology

    b.   If John flies to Toronto, he will bring his wetsuit
        Presupposition: if John flies to Toronto he has a wetsuit

    c.   John will fly to Toronto and he will bring his wetsuit
        Presupposition: John will fly to Toronto and he has a wetsuit

    d.   Every man in that room will bring his wetsuit
        Presupposition: every man in that room has a wetsuit

    e.   Some man in that room will bring his wetsuit
        Presupposition: some man in that room has a wetsuit

    f.   No man in that room will bring his wetsuit
        Presupposition: tautology

    g.   At least three men in that room will bring their wetsuit(s)
        Presupposition: At least three men in that room have a wetsuit

    h.   At most three men in that room will bring their wetsuit(s)
        Presupposition: tautology

    i.   Exactly three men in that room will bring their wetsuit(s)
        Presupposition: At least three men in that room have a wetsuit

These predictions agree with common assumptions about conditionals and disjunctions and *every*, but non-standard predictions are made for negation, *no*, *some*, conjunction, and modified numerals. In particular, note that the projection properties of quantifiers depend on the quantifier. In this way we agree with Chemla (2009b), Fox (2012) and Sudo (2012), and disagree with Heim (1983b), Chierchia (1995), Beaver (2001) and Schlenker (2008a). Presupposition from quantified sentences is a rich topic, and we will not be able to do it justice here. What we hope to focus on here is ways of reconciling our predictions with common assumptions, and in particular with Chemla's (2009a) finding that *no* gives rise to universal presuppositions while modified numerals do not.[21]

We will suggest that presupposition strengthening through global accommodation overcomes mismatches between our predictions and well-known observations about informant intuitions. For example, in the propositional domain Karttunen (1973) classified several operators as 'holes' which do not come out as holes in our system. We have already seen that negation is predicted to be a plug. Predicates like *might* are predicted by our system to be filters, rather than holes: *John might have lost his dog* is predicted to presuppose that John might have a dog (that is all that follows from the asumption that 'John might have a dog and ...' ends in a true sentence). Although this reading is possible, and sometimes even natural (cf. 16), it is also natural to understand the speaker to be presupposing that John has a dog. That is, *might* often behaves like a hole.

---

[21] Our predictions about projection out of restrictors are also different than commonly assumed. For example, assuming for the moment that quantifiers presuppose a non-empty domain, this is all that quantifiers like *no, every* and *some* presuppose. Without existential import, only *some* would have an existence presupposition, and *every* and *no* – being downward entailing – would presuppose nothing. (To see this, consider the sentence *S = every man who brought his wetsuit is happy*, and consider the assumption that the sentence 'every man who has a wetsuit and ...' ends in truth; this tells us the presupposition of *S*. We leave evaluation of these predictions for future work.)

## 3.2   Strengthening and the proviso problem

The proviso problem (Geurts 1996) teaches us that there is a need for a mechanism that strengthens presuppositions. Recall from (7a), for example, that sentences like *if John is hungry he will bring his wetsuit* intuitively give rise to the inference that John has a wetsuit, even though the predicted presupposition is that if John is hungry he has a wetsuit. We sketch an approach to strengthening under which our intuitively weak presuppositions can be made consistent with common assumptions.

Our approach to strengthening follows Heim (2006), who suggests that the strengthening mechanism works by (i) generating a set of alternatives $ALT(S)$ of the uttered sentence $S$, (ii) extracting the presuppositions of the alternatives in $ALT(S)$ to yield a set of candidates for accommodation $\mathscr{H} = \{q : \exists T \in ALT(S) \text{ and } q \text{ is the projected presupposition of } T\}$, and (iii) selecting a subset (or particular element) of $\mathscr{H}$ for accommodation. The statement in (17) is used to extract presuppositions (ii), and the selection mechanism relies on plausibility reasoning, though much remains to be worked out (see Beaver 2001, Heim 2006, van Rooij 2007, Pérez Carballo 2007, 2009, Singh 2007, 2008, 2009, Schlenker 2011b, Lassiter 2012, Fox 2012). Much of the work has focussed on characterizing the set of alternatives, $ALT$. Here we outline some constraints on $ALT$ needed to make our predictions consistent with established results, and we point to directions that might be pursued with this in mind.

Considering embeddings of $S_p$ under propositional operators, it seems clear that $S_p$ should be an alternative of $\phi(S_p)$. This is what will allow propositional operators like *not*, *if*, and *might* to sometimes behave like holes, even though *not* is predicted to be a plug and *if* and *might* are predicted to be filters. Under Heim's (2006) approach, having $S_p$ as an alternative allows its presupposition $p$ to be accommodated. Under various implementations of this approach to accommodation the triggering constituent $S_p$ would indeed be an alternative (e.g., Singh 2007, 2008, 2009, Schlenker 2011b, Fox 2012), and the apparent hole-like behaviour would follow from presupposition strengthening.[22]

For quantified sentences, we need to allow *no* to yield a universal inference, while preventing modified numerals from achieving the same result. This need comes from Chemla's (2009a) finding that *no* seems to project universal inferences while modified numerals do not. One way to achieve this result would be to allow *every* to be an alternative to *no*, and to prevent *every* from being an alternative to (modified) numerals: that is, we need *every man in that room will bring his wetsuit* $\in ALT$(*no man in that room will bring his wetsuit*), but *every man in that room will bring his wetsuit* $\notin ALT$(*at least/at most/exactly three men in that room will bring their wetsuit(s)*).

Can these desiderata be met? In Singh (2008, 2009) I suggested that the alternatives for presupposition strengthening be identified with Katzir's (2007) alternatives for implicature. Under this approach, alternatives are derived by a sequence of substitution operations that replace nodes in the tree with their subconstituents (for non-terminals) and with lexical items (for terminals). The alternatives for the propositional case follow immediately (e.g., replace the root node in $\neg S_p$ by its constituent $S_p$), and the alternatives for the quantificational case would follow if *every* were allowed to replace *no* but not modified numerals.[23] Support for such a restriction might come

---

[22]Under these proposals, alternatives can be generated by 'ignoring' bits of the structure; for example, here the negation operator, or the antecedent, or the embedding predicate, would be ignored.

[23]Fox's (2012) approach to strengthening allows quantificational determiners to access other quantificational determiners as replacements, and similar restrictions would need to be made there also.

from the fact that *at least three boys study algebra* does not implicate that not every boy studies algebra. We might also consider the possibility that logical operators can only be substituted by other logical operators (of the same type), and it is conceivable that modified numerals are not logical operators the way *every* and *some* and *no* are.[24]

I do now know whether these choices can be justified, nor whether they can be reconciled with other complications for theories of strengthening, such as strengthening in attitude contexts (e.g., Heim 1992, Zeevat 1992, Geurts 1999, Singh 2008, 2009, Schlenker 2011b,a, Beaver and Geurts 2011, Sudo 2014). The problem in attitude contexts is the following: *John believes it stopped raining* is predicted to presuppose that John believes it was raining. The incremental backgrounding system shares this prediction with other approaches (e.g., Heim 1992, Schlenker 2008a). Nevertheless, the sentence presupposes not only its projected presupposition, but also that it was in fact raining. This is the presupposition of the embedded constituent. As we have seen this presupposition is made available because the embedded constituent *it stopped raining* is an alternative. However, if we allow replacements of operators with other operators, then *John knows it stopped raining* is also an alternative, and thus the embedded constituent *it stopped raining* would also be made available as a potential accommodation. But this is never a presupposition of *John believes it stopped raining*.

# 4   Concluding Remarks

We have sketched a proposal for eliminating cancellation mechanisms from the inventory of presuppositional reasoning. The incremental backgrounding system in (17) includes only a projection component, which we suggested might be coupled with a strengthening component to yield well-known surface phenomena. The projection component makes use of a bivalent semantics, incremental reasoning over continuations, the assumption that reasoning about presuppositions occurs after the speech act but before update with asserted content, and the assumption that speakers speak the truth. The most natural way to understand the reasoning is about what needs to be backgrounded at the point at which a presupposition-triggering constituent is evaluated. The results sometimes disagree with standard results, but we suggested that the predictions might be made consistent with standard assumptions pending further remarks about strengthening.

The work owes an obvious debt to Schlenker (2008a), and a less obvious one to Schlenker (2009). In particular, we are inspired by Schlenker's (2009) suggestion that contextual reasoning about embedded constituents is driven by considerations of computational efficiency. The transparency theory, however, invokes complex computations: the projection component universally quantifies over all continuations of a sentence, and proves some non-trivial theorems about it. Some of this complexity might be reduced in our incremental backgrounding system. For example, recall that for upward entailing operators, the presupposition can essentially be read off of the form, and that for downward entailing operators the presupposition is trivial. These simple

---

[24]Under the assumption that *some* is a logical operator and that the indefinite article *a* is not (e.g., it might be a numeral or introduce variables), we would also predict a difference between *a fat man is pushing his bicycle* and *some fat man is pushing his bicycle*; although both are predicted by (17) to project an existential presupposition (that there is a fat man with a bicycle), the sentence with *some* might give rise to more robust universal inferences, given that it could be replaced with *every*. I am not sure about the judgments here (see Chemla 2009b, Fox 2012, Sudo 2012).

statements might provide savings in processing cost, but I would not wish to drive this point too hard.

We should note that the reasoning in (17) applies only for speech acts of assertion (the sentence needs to end in a true continuation). As stressed by Fox (2012), theories of projection need to say something about non-assertive speech acts also, such as questions; for example, the presuppositions of existential sentences seem to more robustly give rise to universal inferences when embedded under polar questions (see note (24)). Furthermore, our exploration of a world in which cancellation mechanisms do not exist has to deal with arguments that cancellation does in fact exist, and that presupposition triggers can be partitioned in part based on the extent to which they submit to cancellation (this is the 'hard' vs. 'soft' distinction; see e.g., Beaver and Zeevat 2007, Charlow 2009, Abusch 2010, Simons 2001, Abrusan 2011, Fox 2012, Romoli 2012).

# References

Abrusan, Marta. 2011. Predicting the presuppositions of soft triggers. *Linguistics and Philosophy* 34:491–535.

Abusch, Dorit. 2010. Presupposition triggering from alternatives. *Journal of Semantics* 27:37–80.

Beaver, David. 2001. *Presupposition and assertion in dynamic semantics*. Stanford, CA: CSLI Publications.

Beaver, David. 2004. Accommodating topics. In *Context-dependence in the analysis of linguistic meaning*, ed. Hans Kamp and Barbara H. Partee. Amsterdam: Elsevier.

Beaver, David. 2006. The proviso problem: Comments on von Fintel. Handout from Ohio State University Accommodation Workshop, Columbus, Ohio.

Beaver, David, and Bart Geurts. 2011. Presupposition. In *Stanford encyclopedia of philosophy*, ed. Edward N. Zalta.

Beaver, David, and Emiel Krahmer. 2001. A partial account of presupposition projection. *Journal of Logic, Language, and Information* 10:147–182.

Beaver, David, and Henk Zeevat. 2007. Accommodation. In *The Oxford handbook of linguistic interfaces*, ed. Gillian Ramchand and Charles Reiss, Chapter 17. Oxford: Oxford University Press.

van Benthem, Johan. 1983. Determiners and logic. *Linguistics and Philosophy* 447–478.

Blutner, Reinhard. 2000. Some aspects of optimality in natural language interpretation. *Journal of Semantics* 17:189–216.

Charlow, Simon. 2009. "strong" predicative presuppositional objects. Proceedings of *ESSLLI 2009*.

Chemla, Emmanuel. 2009a. Presuppositions of quantified sentences: Experimental data. *Natural Language Semantics* 17:299–340.

Chemla, Emmanuel. 2009b. Similarity: Towards a unified account of scalar implicatures, free choice permission, and presupposition projection. Under Revision for *Semantics and Pragmatics*.

Chemla, Emmanuel, and Lewis Bott. 2013. Processing presuppositions: dynamic semantics vs pragmatic enrichment. *Language and Cognitive Processes* 28:241–260.

Chemla, Emmanuel, and Philippe Schlenker. 2012. Incremental vs. symmetric accounts of presupposition projection: An experimental approach. *Natural Language Semantics* 177–226.

Chierchia, Gennaro. 1995. *Dynamics of meaning*. Chicago, IL: University of Chicago Press.

von Fintel, Kai. 2004a. Comments on Beaver: Presupposition accommodation and quantifier domains. In *Context-dependence in the analysis of linguistic meaning*, ed. Hans Kamp and Barbara H. Partee. Amsterdam: Elsevier.

von Fintel, Kai. 2004b. Would you believe it? The king of France is back! Presuppositions and truth-value intuitions. In *Descriptions and beyond*, ed. Marga Reimer and Anne Bezuidenhout. Oxford: Oxford University Press.

von Fintel, Kai. 2008. What is presupposition accommodation, again? *Philosophical Perspectives* 22:137–170.

Fox, Danny. 2008. Two short notes on Schlenker's theory of presupposition projection. *Theoretical Linguistics* 34:237–252.

Fox, Danny. 2012. Presupposition projection from quantified sentences: Trivalence, local accommodation, and presupposition strengthening. Manuscript, MIT and HUJI.

Fraurud, Kari. 1990. Definiteness and the processing of noun phrases in natural discourse. *Journal of Semantics* 7:395–433.

George, Benjamin R. 2008. Presupposition projection: Some alternatives in the Strong Kleene tradition. Manuscript, UCLA.

Geurts, Bart. 1996. Local satisfaction guaranteed: A presupposition theory and its problems. *Linguistics and Philosophy* 19:259–294.

Geurts, Bart. 1999. *Presuppositions and pronouns*. Amsterdam: Elsevier.

Geurts, Bart. 2000. Buoyancy and strength. *Journal of Semantics* 17:315–333.

Geurts, Bart, and Rob van der Sandt. 1999. Domain restriction. In *Focus: Linguistic, cognitive, and computational perspectives*, ed. Peter Bosch and Rob van der Sandt, 268–292. Cambridge: Cambridge University Press.

Heim, Irene. 1982. On the semantics of definite and indefinite noun phrases. Doctoral Dissertation, University of Massachusetts at Amherst.

Heim, Irene. 1983a. File change semantics and the familiarity theory of definiteness. In *Meaning, use, and the interpretation of language*, ed. Rainer Bäuerle, Christoph Schwarze, and Arnim von Stechow, 164–190. Berlin: Walter de Gruyter & Co.

Heim, Irene. 1983b. On the projection problem for presuppositions. In *WCCFL 2*, 114–125.

Heim, Irene. 1990. Presupposition projection. In *Reader for the Nijmegen workshop on presupposition, lexical meaning and discourse processes*. Nijmegen: University of Nijmegen.

Heim, Irene. 1992. Presupposition projection and the semantics of attitude verbs. *Journal of Semantics* 9:183–221.

Heim, Irene. 1997. Predicates or formulas? Evidence from VP-ellipsis. In *Proceedings of SALT 7*, ed. Aaron Lawon and Eund Cho, 197–221. Ithica, NY: CLC Publications.

Heim, Irene. 2006. A note on the proviso problem. Handout from Milan Meeting, Gargnano.

Horn, Laurence R. 1972. On the semantic properties of logical operators in English. Doctoral Dissertation, UCLA.

Karttunen, Lauri. 1973. Presuppositions of compound sentences. *Linguistic Inquiry* 4:167–193.

Karttunen, Lauri. 1974. Presupposition and linguistic context. *Theoretical Linguistics* 1:181–193.

Karttunen, Lauri, and Stanley Peters. 1979. Conventional implicatures in Montague Grammar. In *Syntax and semantics 11: Presupposition*, ed. Choon-Kyu Oh and David Dineen, 1–56. New York, NY: Academic Press.

Katzir, Roni. 2007. Structurally defined alternatives. *Linguistics and Philosophy* 30:669–690.

Katzir, Roni, and Raj Singh. 2013a. Hurford disjunctions: Embedded exhaustification and structural economy. In press, Proceedings of *Sinn und Bedeutung 18*.

Katzir, Roni, and Raj Singh. 2013b. A note on presupposition accommodation. *Semantics and Pragmatics* 6:1–16.

Kay, Paul. 1992. The inheritance of presuppositions. *Linguistics and Philosophy* 15:333–379.

Lassiter, Daniel. 2012. Presuppositions, provisos, and probability. *Semantics and Pragmatics* 5:1–37.

Lewis, David. 1979. Scorekeeping in a language game. *Journal of Philosophical Logic* 1:339–359.

Mayr, Clemens, and Jacopo Romoli. 2014. Redundancy, exhaustification, and the notion of local context. Manuscript.

Meyer, Marie-Christine. 2013. Generalized free choice and missing alternatives. Manuscript, MIT.

Pérez Carballo, Alejandro. 2007. A first shot at the proviso problem. Manuscript, MIT.

Pérez Carballo, Alejandro. 2009. Toward a dissolution of the proviso problem. In *Proceedings of mit-france workshop on scalar implicatures and presupposition*, ed. Paul Egré and Giorgio Magri, 169–184. MIT Working Papers in Linguistics.

Poesio, Massimo, and Renata Vieira. 1998. A corpus-based investigation of definite description use. *Computational Linguistics* 24:183–216.

Romoli, Jacopo. 2012. Soft but strong, neg-raising, soft triggers, and exhaustification. Doctoral Dissertation, Harvard University.

van Rooij, Robert. 2007. Strengthening conditional presuppositions. *Journal of Semantics* 24:289–304.

Rothschild, Daniel. 2011. Explaining presupposition projection with dynamic semantics. *Semantics and Pragmatics* 4:1–43.

van der Sandt, Rob. 1992. Presupposition projection as anaphora resolution. *Journal of Semantics* 9:333–377.

Schlenker, Philippe. 2007. Anti-dynamics: Presupposition projection without dynamic semantics. *Journal of Logic, Language, and Information* 16:325–356.

Schlenker, Philippe. 2008a. *Be Articulate!* A pragmatic theory of presupposition projection. *Theoretical Linguistics* 34:157–212.

Schlenker, Philippe. 2008b. Presupposition projection: The new debate. In *Proceedings of SALT 18*, ed. Satoshi Ito and Tova Friedman.

Schlenker, Philippe. 2009. Local contexts. *Semantics and Pragmatics* 2:1–78.

Schlenker, Philippe. 2011a. DRT with local contexts. *Natural Language Semantics* 19:373–392.

Schlenker, Philippe. 2011b. The proviso problem: A note. *Natural Language Semantics* 19:395–422.

Schlenker, Philippe. 2012. *Maximize Presupposition* and Gricean reasoning. *Natural Language Semantics* 20:391–429.

Simons, Mandy. 2001. On the conversational basis of some presuppositions. In *Proceedings of salt 11*, ed. R. Hastings, B. Jackson, and Z. Zvolensky.

Simons, Mandy. 2003. Presupposition and accommodation: Understanding the Stalnakerian picture.

Singh, Raj. 2007. Formal alternatives as a solution to the proviso problem. In *Proceedings of SALT 17*, ed. Tova Friedman and Masayuki Gibson, 264–281.

Singh, Raj. 2008. Modularity and locality in interpretation. Doctoral Dissertation, MIT.

Singh, Raj. 2009. Symmetric and interacting alternatives for implicature and accommodation. In *Proceedings of ESSLLI 2009 workshop: New directions in the theory of presupposition*, ed. Nathan Klinedinst and Daniel Rothschild.

Soames, Scott. 1989. Presupposition. In *Handbook of philosophical logic, vol. IV*, ed. Dov Gabbay and Franz Guenther. Dordrecht: Reidel.

Spenader, Jennifer. 2002. Presuppositions in spoken discourse. Doctoral Dissertation, Stockholm University.

Stalnaker, Robert. 1974. Pragmatic presuppositions. In *Semantics and philosophy*, ed. M. Munitz and P. Unger. New York, NY: NYU Press.

Stalnaker, Robert. 1978. Assertion. In *Pragmatics*, ed. Peter Cole, 315–332. New York, NY: Academic Press.

Stalnaker, Robert. 1998. On the representation of context. *Journal of Logic, Language, and Information* 7:3–19.

Stalnaker, Robert. 2002. Common ground. *Linguistics and Philosophy* 25:701–721.

Sudo, Yasutada. 2012. On the semantics of phi features on pronouns. Doctoral Dissertation, MIT.

Sudo, Yasutada. 2014. Presupposition projection in attitude contexts and modal subordination. Manuscript, UCL.

Sudo, Yasutada, Jacopo Romoli, Martin Hackl, and Danny Fox. 2012. Presupposition projection out of quantified sentences: Strengthening, local accommodation, and inter-speaker variation. In *Proceedings of the Amsterdam colloquium: Lecture notes in computer science volume 7218*, 210–219. Berlin: Springer.

Zeevat, Henk. 1992. Presupposition and accommodation in update semantics. *Journal of Semantics* 9:379–412.