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Only, Presupposition and Implicature

The meaning of the English adverb *only* has been the subject of intense debate; in particular, regarding the status of its prejacent. It has been argued that the latter is a presupposition, a conversational implicature, and an entailment. I argue that it is closer to a presupposition than to an entailment or a conversational implicature, but it may best be characterized as a non-speaker-oriented conventional implicature. The detailed consideration of the meaning of *only* sheds light on the relationship between these various types of meanings, contributing to the recent reconsideration in the literature of the nature of presuppositions and implicatures, both conversational and conventional.

1. Introduction¹

In the recent literature, there has been an important trend toward the re-consideration of the status of various types of presuppositions, and of the notion of conventional implicature, as well as of the relations between these different classes of meanings. Zeevat (1992) and Beaver & Zeevat (to appear) argue that there are important differences between different presupposition triggers. Simons (2000,2005) has re-opened the question of the conventional status of various presuppositions, especially the factive and semi-factive verbs, arguing that the presuppositions generally associated with them arise instead through conversational means. Abusch (2002,2005) has contrasted two classes of presupposition triggers, the “hard” and “soft” triggers, arguing that presuppositions associated with hard triggers are much more difficult to suspend than those associated with soft triggers. Chierchia & McConnell-Ginet (1990) and Kadmon (2001) have

¹ These notes grew out of three strands: The material on *only* was developed on the basis of comments I made on a paper by Michela Ippolito (Ippolito 2005) at the 2005 University of Michigan Workshop in Philosophy and Linguistics. Thanks to the organizers, especially Rich Thomason and Peter Ludlow, for occasioning these reflections. It was further developed at the 4th Workshop on Discourse Structure at the University of Texas at Austin, March 4, 2006. Thanks to Carlota Smith and the participants for that opportunity. Material on presupposition projection and presupposition satisfaction was presented earlier in the OSU Pragmatics Working Group, and to audiences at the Workshop on Information Structure in Context at the Institut für maschinelle Sprachverarbeitung, University of Stuttgart; in Department of Philosophy Colloquia at the University of Amsterdam; in Linguistics Department Colloquia at the Université de Paris VII, the Universitat Pompeu Fabra in Barcelona, Georgetown University, and the University of South Carolina, and in the Department of Brain and Cognitive Science at the University of Rochester. The discussion of conventional implicature arose from conversations with Chris Potts, Elizabeth Smith and Patricia Amaral at OSU, made possible by a grant from the OSU Institute for Collaborative Research and Public Humanities. Thanks also to Barbara Abbott, Nick Asher, Chris Barker, David Beaver, Anne Bezuidenhout, Josh Brown, Paul Dekker, Josh Dever, Kai von Fintel, Hans Kamp, Ilse Lehiste, Paul Portner, Robert van Rooij, Sharon Ross, Mandy Simons, Martin Stokhof, William Taschek, Rich Thomason, Enric Vallduví, Rob van der Sandt, and Henk Zeevat for valuable discussion and feedback on various portions. Larry Horn gave particularly useful, detailed comments on an earlier draft (and still disagrees with some of what I have to say). If I have inadvertently overlooked anyone whose work should be cited here, I would appreciate hearing about it.

argued that non-conventionally triggered (conversational) presuppositions behave in other respects like their conventionally triggered counterparts. Abbott (2000), Horn (2002), and Schwenter (2002) have argued that certain implications that had been taken to be presuppositions are, instead “assertorically inert” entailments (Horn 1996). Meanwhile, though Karttunen & Peters (1979) had used the term *conventional implicatures* to denote the class of conventionally triggered presuppositions, this does not seem to be what Grice (1967) originally meant by the term. Bach (1999) argues that there are no conventional implicatures; according to him, *but* and other terms taken by Grice to be canonical examples of conventional implicature triggers, instead contribute assertions in addition to the central content of the utterance. And Potts (2003,2005) argues that there *are* conventional implicatures, but that, in keeping with Grice’s original conception these are quite distinct from presuppositions (whether conversationally or conventionally triggered). Rather like Bach’s treatment of this class of meanings, under Potts’ analysis conventional implications do constitute material to which the speaker is committed—effectively yielding additional entailments; but unlike the content contributed by *but*, these entailments are independent of what Potts calls the *at-issue* content of the utterance, and crucially they are (a) speaker-oriented, and (b) always project globally, no matter how deeply they might be embedded under the scope of any intensional predicates or other operators.

If we take all this literature seriously, we have an array of possible types of meanings that might be associated with a given utterance, including at least the following candidates:

- at-issue content, close to what Grice seems to have meant by *what is said*²
- conversational implicatures (generated through the interaction of at-issue content and (some version of) the conversational maxims)
- conversationally triggered presuppositions
- conventionally triggered presuppositions
- conventional implicatures
- assertorically inert, non-presupposed conventional content

My goal in this paper is to shed some light on this taxonomy and on the relations between the different classes of meanings through detailed consideration of the meaning of the English adverb *only*. Understanding the way in which it contributes to the meaning of an utterance in which it occurs will help to clarify the properties of and relations among the various classes of non-at-issue meanings.

The meaning of *only* has been the subject of intense debate. Consider an utterance of a sentence of the form [*only NP*] *VP*. Everyone agrees that in the default case this utterance has two implications. Staying extensional here for the sake of simplicity, take

² In earlier work (Roberts 1996b), I introduced the term *proffered content* as a cover term for what is asserted in an assertion, what is queried in a question, and the commitment proposed to an addressee with an imperative, distinguishing these from the conventionally presupposed content of the utterance. Arguably, this term doesn’t distinguish between at-issue content on the one hand, and conventionally implicated and assertorically inert content, on the other, since the latter are also non-presuppositional and entailed by the utterance. Hence I have adopted Potts’ terminology here. However, I occasionally use the term *proffer* and *proffered content* below to contrast with *presuppose* and *presupposed content*.

X' to be ‘the denotation of X ’, and P to be some entity (in the model) of type $\langle\langle e,t \rangle, t \rangle$, the same type as the denotation of NP . Then:

The implications of *only NP VP*:

the **prejacent implication**: $NP'(VP')$

the **exclusive implication**: $\neg\exists P: P(VP') \ \& \ P \neq NP'$

Horn (1996) calls the remainder of the sentence with *only* excised, i.e. *NP VP*, the *prejacent*, and I will adopt that terminology here. However, as reviewed by Rooth (1985 Chapter 3), when *only* precedes a NP (or DP), it forms a constituent with that NP/DP. Hence, the prejacent does not correspond with any syntactic constituent. Again, in the interest of simplicity I will restrict my consideration here to examples where *only* takes the subject as argument. But there is nothing essential in that, and the argument I develop can be straightforwardly extended to VP-adjunct *only*.

We see the implications of *only* exemplified in (1), which has the implications in (2) and (3):

- (1) Only Lucy came to the party.
- (2) prejacent implication: Lucy came to the party.
- (3) exclusive implication: No one other than Lucy came to the party.

On the alternative semantics approach to the meaning of *only*, it is argued that either directly (Rooth 1985) or indirectly (Rooth 1992), the domain of the operator in the exclusive implication is restricted to range over only those entities that are in the set of relevant alternatives to the focused constituent F . The default nuclear accent in (1) is on *Lucy*.³ As is usual, we take the focused constituent to be one headed by the bearer of the nuclear accent, so that in (1) either *Lucy* or *only Lucy* is focused, and what is under consideration is the set of alternative possible attendees, taken to include Lucy. There are a number of open questions about how to define those alternatives,⁴ but these are not the focus of this inquiry. Rather, the issue is the relative status of the two implications of *only*, which behave differently in several respects. The exclusive implication (3) is pretty clearly an entailment of (1). But what about the status of the prejacent (2): Is it an entailment of (1)? a presupposition? or is it merely a conversational implicature?

Atlas (1993) argues that the prejacent of *only* is an entailment of the utterance in which it occurs. Horn (1969) argues that, instead, the prejacent is a semantic presupposition of the utterance with *only* and this view is adopted by Rooth (1985,1992). I will call this view a *conventional presupposition* account, since (whatever else Horn meant by *semantic*) the

³ When *only* immediately precedes a subject, as it does in (1), the nuclear accent falls on the head of the subject unless the utterance has a special status, e.g. correcting someone’s previous assertion that only Lucy came to work. In the examples to follow, I assume that the accent is on the head of the modified NP unless otherwise specified.

⁴Besides the matter of association with focus, these include questions about plurality, quantification and intensionality. For an illuminating overview and discussion of some of these, see van Rooij & Schulz (2005).

presupposition is conventionally triggered. Horn (1996) proposes a rather different account. He argues that though there is a presupposition associated with *only*, it is logically weaker than the prejacent. There is an existential implication associated with the relevant utterances, derived by abstracting on the focused NP constituent in the prejacent and existentially binding the result:

the **existential implication**: $\exists x: VP(x)$

For (1) this is:

(4) Someone came to the party.

Horn notes that if we take the existential implication to be presupposed and assert the exclusive implication, this entails the prejacent. He then argues that this weaker, existential presupposition yields the correct range of predictions in more complex sentences. Von Stechow (1997) adopts this proposal.

McCawley (1981:226-7) observes that the prejacent can be derived from the exclusive implication as a conversational implicature: Suppose that the full conventional meaning of (1) is captured by the exclusive implication (3). This is consistent with two kinds of scenarios, one in which Lucy and no one else came to the party, and one in which nobody at all came. But if the speaker had reason to believe that Lucy did not attend the party, then in order to be maximally cooperative (under Grice's first Maxim of Quantity) she should have proffered the stronger (5):

(5) Nobody came to the party.

So (1) can only be uttered cooperatively if the speaker either knows that Lucy came to the party or doesn't know whether Lucy came. But if the speaker doesn't know whether Lucy came, "cooperativeness would demand that he indicate it", e.g. with *No one other than Lucy came, and maybe not even Lucy*. Since he has not hedged in this way, we conclude that the speaker couldn't honestly say the stronger (5) and had reason not to hedge, implicating the truth of the prejacent (2). Van Rooij & Schulz (2005) adopt McCawley's idea and develop it formally. Ippolito (2005) adopts a variant of this view, according to which the prejacent is a scalar implicature of positive *only* sentences like (1), but an entailment of its negated counterpart *Not only Lucy came to the party*.

In the following section, I review the principal arguments that have been adduced for and against each of these four views of the status of the prejacent implication of *only*. Each view has merit, but in the end I conclude that all are inadequate in some respects.

However, except for one important property the prejacent of *only* is a good deal more like a presupposition than a conversational implicature or a mere entailment. In section 3, I consider the place of the prejacent of *only* in a taxonomy of types of meanings which includes not only conversational implicatures and various types of presuppositions, but also conventional implicatures, and I use this occasion to develop a general comparison of the central features of the types of meanings considered.

2. Theories of *only*

In this section I consider the ten principal arguments for or against the four approaches to the meaning of *only* sketched above: the prejacent is **entailed**, it is **presupposed**, there is a weaker, **existential presupposition**; or the prejacent is **conversationally implicated**.⁵ A scorecard at the end of this section summarizes how the theories fare against the benchmark data adduced.

Argument 1: NPI occurrence in background:

Negative polarity items (NPIs) are appropriate in the background, but not in the focus of *only* (Jacobsson 1951, Jacobson 1964, Visser 1969, Horn 1969, 1996, 2002):

- (6) a. Only [Lucy]_F has *any money* left.
b. *Lucy only has [*any money*]_F left.
c. Lucy only has [sm money]_F left, no travelers' checks.

As Horn argues in detail, assuming that only the exclusive implication, and not the prejacent, is entailed permits us both to account for examples like (6a) and to predict correctly that NPIs are not generally licit in the focus of *only*, as we see in (6b,c).⁶ Moreover, it can explain why *only* can trigger negative inversion:

- (7) Only in stories does a dropped glass betray agitation. (Graham Greene, cited by Horn 2002).

But of course, these facts would be equally compatible with a theory in which what is presupposed is not the prejacent but the corresponding existential, or in which the prejacent is merely conversationally implicated rather than presupposed.

⁵ I ignore here the evidence from *only if*, discussed in detail in von Stechow (1997), Horn (1996), for reasons of space. I believe it is compatible with the conclusions I reach here. I also ignore the argument in Wagner (2005) for the weaker, existential presupposition of *only*. I believe Wagner's argument is based on confusion about two central factors in his analysis: (a) the significance of narrow focus on a sub-constituent of the syntactic sister (or restrictor) of *only*, especially the kinds of contexts in which it is felicitous, and (b) the motivation and theoretical import of von Stechow's (1999) *Downward Strawson Entailment* (DSE). In particular, it is crucial to Wagner's argument to claim that *only* is DSE over any non-focused sub-constituents of its restrictor (sister constituent), so that such sub-constituents "do allow inferences from super-sets to subsets". But the following shows that this is not the case. In (i), B corrects A's utterance with respect to the correct value of the restrictor of *only*, putting narrow prosodic focus on the added conjunct and de-accenting the original conjuncts. Then, if the non-focused parts of the restrictor of *only* allow inferences from supersets to subsets, as Wagner's account would have it, since {John} is a subset of {John and Mary}, (iB) should entail (ii), which it clearly does not:

- (i) A: Only JOHN and MARY ate vegetables. [both conjuncts in focus]
B: No, only John and Mary and MONTY ate vegetables. [narrow focus on *Monty*]
(ii) Only John and Monty ate vegetables [with whatever focus you like]

In fact, (ii) contradicts (iB), as well as the original (iA).

⁶ There are examples where an NPI occurs in the focus of *only*, but Heim (cited in von Stechow 1997) and Beaver (2004) argue that in these cases, the NPI is licensed by a separate operator.

Argument 2: Horn’s bet

Horn (1996) points out that the theory of *only* in which the prejacent is presupposed predicts that if the prejacent fails, then even if the exclusive implication is false the whole utterance is undefined. He contrasts this with the (“Neo-Burleyan”) theory in which what is presupposed is the weaker existential proposition obtained by existential closure over the position of the focused constituent. The latter predicts that even when the prejacent fails, so long as there’s someone who has the property predicated of the focus, the whole is defined and false. To check our intuitions about such cases, he constructs the following example:

(8) Bet: Only Seattle will win more than 60 games in the upcoming regular season for the National Basketball Association.

The following table lays out the kinds of scenarios of interest, and how they correlate with our intuitions about whether the speaker wins or loses the bet in a given scenario:⁷

Theories:	Entail	Prejac Presup	\exists Presup	
Scenarios:				Intuitions:
a. Seattle wins 62 games, every other team wins ≤ 60	W	W	W	W
b. Seattle wins 62 games Orlando wins 61	L	L	L	L
c. No team wins more than 60 games	L	#	#	?
d. San Antonio wins 62 games every other team wins ≤ 60	L	#	L	L

Table 1: Scenarios for the outcome of Horn’s bet

Both presuppositional theories correctly predict that it isn’t clear whether the person who placed the bet by uttering (8) loses in case (c), where both the prejacent and the purported existential presupposition are false. Horn takes scenario (d) to be a problem for the presupposition-of-the-prejacent theory. It is intuitively pretty clear that in the circumstance in question the bet is lost, yet the theory predicts that the results are incompatible with the prejacent of (8). The existential presupposition theory fares better.

At first blush, I thought this was a strong argument for the weaker, existential presupposition account, and damning for the stronger presupposition-of-the prejacent account. But on further reflection, I’m not so sure. The problem calls to mind the

⁷ In the table in Horn’s paper, in scenario (c) the value for the \exists -presupposition theory is given as *W*, but Horn (p.c.) confirms that that was a typo.

discussion of truth judgments in von Fintel (2004), focused on examples like (9) and (10):

- (9) The King of France is bald.
- (10) The exhibition was attended by the King of France.

Strawson (1950) had claimed that examples like (10) are intuitively false, in contrast with their Russellian counterparts like (9), the latter involving the unresolved presupposition that there is a unique King of France. But von Fintel argues that there's another way of explaining the perceived distinction between the two types of examples, while retaining the assumption (argued for on other grounds) that the same presupposition failure occurs in each. Roughly, he points out that in the examples we judge false despite the presupposition failure, there is another falsehood, besides that of the presupposition, and this second falsehood is crucially independent of the failure of the presupposition. Hence, speakers reject the truth of these examples on those independent grounds. In particular, in cases like (10) it is crucial that the non-existent king is said to stand in some relation to a particular actual event or entity. Hence, the interlocutors know that it is in principle possible to check into the facts about that particular event or entity and thereby to determine that, since there is (as they know) no king of France, the event or entity does not stand in the proffered relation to such a king. But in (9), there is no reference to an actual entity that we then can point to as not being in relation to the non-existent king, and so we cannot demonstrate its falsity.⁸

Von Fintel's deeper point is that "there is no neat correlation between truth-value gap judgments and presence/absence of presuppositions", so that we must take both judgments of falsity and of felicity with a grain of salt. Here's how I might put it: The distinction between what is entailed, what is presupposed, and what is only conversationally implicated is a theoretical one, not something we have pre-theoretic intuitions about. Naïve speakers tend to assess the truth or falsehood of an utterance not so much with respect to its conventionally given meaning as to what the speaker most likely intended to commit himself to in uttering it in the circumstances in question, given his other goals and intentions. In the case at hand, what was clearly at issue in the bet established by uttering (8) was the truth of the two implications that (we all agree) arise in making an *only*-statement: Seattle will win more than 60 games, and no other team will do so. If this isn't what was literally *said*, it was clearly what was *meant_{NN}* (Grice 1957), and the latter is arguably all we can ask speakers for judgments about. In scenario (c), one of the implicated propositions is false and the other is true. Moreover, the proposition that is true, that no one other than Seattle will win more than 60 games, is the one that everyone agrees is proffered! Hence, the outcome is confused. But since in scenario (d) it is verifiable that neither of the implications of (8) is true, it's clear that the speaker lost his bet. I.e., what we have intuitions about is what was clearly intended in placing the bet by uttering (8), and not its technical felicity after the fact.

⁸ See Bezuidenhout (2006) for a critique of von Fintel and an alternative explanation for such examples, which is still, however, in the same general spirit.

The most robust examples of infelicity due to presupposition failure are those where the failed presupposition in question cannot readily be accommodated because either the descriptive content associated with the presupposition trigger is insufficiently rich to permit retrieval of the specific presupposition intended (e.g., in the case of a pronoun with no plausible antecedent) or the presupposition itself is arguably (in part) that of the immediate salience of certain information, as in the use of *too*⁹ or a specificational pseudo-cleft (Prince 1978), and hence directly contradicts the evident facts. But neither of these is the case with the prejacent of *only*.

Argument 3: Negation is a hole to the prejacent:

If both prejacent and exclusive implications were part of the at-issue semantic content of *only*, we'd predict that a negative *only*-sentence like (11) conveys the negation of their disjunction. But instead only the exclusive implication is negated, while the prejacent is preserved:

- (11) It's not the case that only Lucy came to the party./Not only Lucy came to the party.
Implication: 'Lucy came and someone other than Lucy came'

Similarly, denial can only be taken to pertain to the exclusive implication, not to the prejacent:

- (12) a. Only Lucy came to the party.
b. No, that's false. #She did not/#Nobody came/√Monty did, too}

This, of course, smacks of presupposition, and it turns out that when (1) is embedded in other members of the family of sentences standardly used to test for presupposition, most speakers judge the prejacent to project as predicted if it were a presupposition. In posing the question in (13) or the conditional in (14) in the null, or out-of-the-blue context, the speaker seems to assume that Lucy came to the party, and asks or speculates about the exclusive implication of *only*:

- (13) Did only Lucy come to the party?
(14) If only Lucy came to the party, it must have been pretty quiet.

The existential presupposition theory of *only* is too weak to account for the attested implication. (11) is predicted to only presuppose that someone was at the party, not that Lucy was in particular. Geurts & van der Sandt (2004) recognize this problem, and in an effort to repair it they claim that (11) conversationally implicates that Lucy was at the party, since the speaker didn't utter the stronger *Lucy wasn't at the party*. But Ippolito (2005) shows that this assumption leads to other difficulties. Since the prejacent is only a conversational implicature of (11), this predicts that it should be cancellable. But it is not:

⁹ Saul Kripke is said to have made this observation about *too* at a workshop on anaphora at Princeton, University, 1990

(15) #Not only Lucy came to the party, and/but she didn't not.

(15) sounds like a contradiction, not an implicature cancellation.

Argument 4: Plural NP Focus:

Both Ippolito (2005) and van Rooij & Schulz (2005) point out that if sentences with *only* have only the weaker existential presupposition, this would be too weak to explain what is conveyed by (16):

(16) Only [Lucy and Monty]_F were at the party.

Uttering (16) clearly implies that both Lucy and Monty were at the party, but the prediction of the existential presupposition theory is only that *someone* was. Together with the exclusive implication, this only entails that either Lucy or Monty or both were at the party.

In contrast, either the entailment or the presupposition-of-the-prejacent story would explain the attested interpretation. And Ippolito and van Rooij & Schulz can offer plausible accounts of how the conversational implicature theory would make the correct predictions in such cases.

Argument 5: The *Hey, wait a minute!* test

This test, attributed to Shannon (1976) by von Stechow (2004), consists of a dialog in which a target utterance (containing a suspected presupposition) is followed by an interjection by another speaker, beginning with *Hey, wait a minute!* and then taking issue with the suspected presupposition. The underlying observation is that while we can directly deny or call into question the at-issue content of an utterance, we cannot do so with the presupposed content, so to avoid letting it slip by we must call a halt to the conversational proceedings. In this frame, the proposition following *Hey, wait a minute!* is taken to be the motive for calling the presupposition into question. Applying this test to the two implications of an *only* utterance, we find that taking issue with the prejacent is clearly more acceptable than taking issue with the exclusive implication:

(17) Only Lucy came to the party.

√Hey, wait a minute—I had no idea Lucy came to the party. I didn't even know she was in town!

√Hey, wait a minute—I had no idea anyone came to the party. I saw Bob at the bar and thought the party was cancelled.

#Hey, wait a minute—I had no idea that nobody else came.

Note, however, that it isn't clear exactly what this frame tests for. Consider the fact that it works with non-restrictive relative clauses:

- (18) A: Monty, who's from Kentucky, likes corn grits.
B: Hey, wait a minute—Monty grew up in Indiana! I was his neighbor as a kid.

Chierchia & McConnell-Ginet (1990) observed that non-restrictive relatives are not intuitively pragmatic presuppositions, in that they are generally used to introduce information presumed to be new to the hearer. But, like the presuppositions associated with factives or *too*, when a non-restrictive relative is embedded under a hole to presupposition like negation, a question, or an *if*-clause, the truth of the relative clause is projected. Hence, all of the following implicate that Monty is from Kentucky:

- (19) Monty, who's from Kentucky, doesn't like corn grits.
(20) Does Monty, who's from Kentucky, like corn grits?
(21) If Monty, who's from Kentucky, likes corn grits, it isn't surprising.

Chierchia & McConnell-Ginet conclude that what the operators involved are holes to is not presupposition in the sense of Karttunen and Stalnaker, but **background** material—that which cannot be directly contested or called into question because it isn't directly at-issue.

In any case, the differential behavior of the prejacent and the exclusive implicature under this test argue that the prejacent isn't a straightforward entailment.

Argument 6: Suspending the prejacent

Following an utterance with *only*, we can call the truth of the prejacent into question, but not that of the exclusive implication:¹⁰

- (22) a. #Only Lucy can pass the test, [and/but] it's possible that someone else can.
b. Only Lucy can pass the test, and it's possible even she can't.

¹⁰ I prefer examples like (22), where something intangible like ability is at issue, to those like (i) which pertain to more readily verifiable facts about concrete situations:

(i) Only Lucy came, and it's possible that even she didn't.

To me, it sounds like the speaker in uttering (i) is correcting herself, and I would prefer that the second conjunct be prefaced by a hedge like *actually*. Since this could amount to a non-monotonic context update, I have used examples in the text which seem to me make the strongest case for the possibility of (monotonic) suspension. Of course, talking about ability is arguably speculating about what is possible, so it may be that the improvement in cases like (22) is due to the notorious vagueness of modality and, hence, the greater latitude that we give a speaker to hedge a bit. One way of thinking about this would be that where ability and other modal factors are involved, there is a wider *pragmatic halo* (Lasnik 1999), granting the speaker somewhat more slack than is typical with statements pertaining to actual situations, where the facts are clearer. This calls for more careful consideration than I can give it here.

As (22a) shows, if we have just asserted something, it verges on pragmatic contradiction to immediately assert the possibility of its falsehood (at least without indicating that you're changing your mind). But there's no such problem with entertaining the possibility of the falsity of the prejacent of *only*, as in (22b). This is taken by both Ippolito (2005) and van Rooij & Schulz (2005) to argue that the prejacent is neither entailed nor presupposed. The latter is under the assumption that we have a theory like that of Stalnaker (1974) and Karttunen (1973) in which a presupposition is stronger than an entailment because the presupposition must be entailed by any context in which the utterance that triggered it would be felicitous.

It is sometimes said of these examples (e.g., by van Rooij & Schulz) that they show that the prejacent implication of *only* is cancellable. But that is doubtful, if by *cancel* one means that the prejacent implication just disappears. It is crucial in these examples that the negation of the prejacent occur under the scope of a modal, and that the modal be an epistemic like *possible* or *maybe*.¹¹ Without a modal in the second conjunct, attempting to suspend the prejacent sounds contradictory:

(23) Only Lucy can pass the text. #(And/In fact,) even Lucy can't.

Here's another way of explaining examples like (22): The epistemic modal of possibility in the second clause induces a widening of the set of relevant facts one considers in evaluating Lucy's capability, so that the two instances of *can*, that in the first clause and that in the second, differ in their domain restriction, and hence in the corresponding modal accessibility relations that pick out worlds or situations that exemplify Lucy's ability. I think the following is evidence that something like this may be the case:

- (24)
- a. Only Lucy can pass the test, and maybe even she can't.
 - b. #In view of the fact that most people's GRE scores are fairly low and Lucy's are high, only Lucy can pass the test, and in view of her high GRE scores, maybe even she can't.
 - c. In view of everyone's GRE scores, only Lucy can pass the test, and in view of the difficulty of the test, maybe even she can't.

When we control for maintaining the same domain restriction with the similar *in view of* clauses in (24b), the example is quite odd. When we call into consideration an additional, less favorable factor, in (24c), the result is markedly improved. This is parallel to the well-known phenomenon of strengthening the antecedent of a conditional.

As additional evidence for the claim that the felicity of examples like (22a) is based on distinct domain restriction of the two modals, note that the purported cancellation is not possible when both conjuncts are under one and the same epistemic modal:

¹¹Of course, we can also produce alternatives to (22) with deontic modals, but that won't generally produce the contrast of interest between prejacent and exclusive implications, because what we should do is often contradicted by the facts. So both the prejacent and exclusive implications can be "deontically suspended":

- (i)
- a. Only Lucy can pass the test, even though others should be able to, too.
 - b. Only Lucy can pass the test, and even she shouldn't.

- (25) A: Who can pass the test?
 B: It's possible that only Lucy can, and maybe not even Lucy.
 #It's possible that while only Lucy can, (even) she can't.
 #It's possible that in addition to the fact that only Lucy can, (even) she can't.
 #It's possible that only Lucy can and (even) Lucy can't.

(When the *only*-clause is subordinate, this precludes taking the second clause to be outside the scope of *possible*.) Again, all the infelicitous examples strike me as contradictory.

Mandy Simons (p.c.)¹² noted that the acceptable examples of suspension of the prejacent are generally better with *even*, as you see above. Consider the theory of *even* adopted by Karttunen & Peters (1979), exemplified in (26) with the content of the second clause of (22b):

- (26) Even Lucy can't pass the test.
 At-issue content: Lucy can't pass.
 Presupposition: (i) someone who is not Lucy can't pass.
 (ii) for all *x* under consideration besides Lucy, the likelihood of *x* not passing is greater than or equal to the likelihood of Lucy not passing.

The use of *even* is doubly contrastive. E.g. in (26), first it contrasts Lucy with others in the relevant alternative set, giving her special status as least likely to have the relevant property (presupposition (ii)). Second, it contrasts our expectation that Lucy is unlikely to have this property, as presupposed, with the fact that she does, in fact, have it, as proffered. In this second contrast, *even* is like *but*, and it is of interest to note that *but* is also felicitous in most of the examples of suspension of the prejacent, although, perhaps because it doesn't also single out Lucy as most likely to pass, it isn't as useful as *even*. Now consider the application of *even* to the second clause of (22b), 'even Lucy can pass the test':

- (22b) Only Lucy can pass the test, and it's possible even she can't.
 Asserted: It's possible that Lucy can't pass the test.
 Presupposed:
 (i) Someone other than Lucy can't pass the test.
 (ii) Everyone else in the relevant group is even more likely than Lucy to not pass the test, i.e. Lucy is the most likely to have passed the test.

Note that the semantics for *only* of Rooth (1992) requires that its alternative set include both the denotation of the focus and at least one other individual—in the first conjunct of (22b), Lucy and at least one other person. Assuming that this plausible requirement is correct, then clause (i) of the presupposition of *even* in (22b) is already entailed by the first conjunct. Then the use of *even* is clearly intended to recognize the contrast between the established possibility of Lucy passing the test and the possibility that she cannot.

¹² In the discussion of these remarks at the University of Michigan workshop, October, 2005.

The pervasive use of *even* in these examples seems generally to be a way of conceding that the epistemic possibility in question is counter to an established expectation. This is a hedge, not a contradiction, and its felicity depends on the possibility of additional facts being brought to bear.

There's additional evidence that what's involved in examples involving the suspension of the prejacent of *only* is a widening of the domain for a modal operator. Hans Kamp (p.c.)¹³ noted that these examples are odd when the conjuncts are reversed, as we see in (27). And he pointed out that this is parallel with the behavior of counterfactual examples that J. Howard Sobel brought to the attention of Lewis (1973:10). von Fintel (1999) attributes to Heim (p.c.) the observation that reversing the Sobel example (28) is infelicitous, as we see in (29):

- (27) ??Maybe even Lucy can't pass the test, and/but only Lucy/she can.
- (28) If Otto had come, it would have been a lively party. But if both Otto and Anna had come, it would have been a dreary party.
- (29) If both Otto and Anna had come, it would have been a dreary party. ??But if Otto had come, it would have been a lively party.¹⁴

As von Fintel puts it, in evaluating a sequence of counterfactuals in a discourse the *modal horizon*—the set of possibilities entertained in restricting the domain of a modal operator—is “passed on from one counterfactual to the next and...continually evolves to include more and more possibilities.” We see this same phenomenon in sequences of modals more generally, as evidenced by the phenomenon of modal subordination (Roberts 1987, 1989, 1996). But crucially, once a possibility is called into consideration, it cannot be arbitrarily ignored. Hence, the irreversibility of (28). And if we take the phenomenon of suspension of the prejacent of *only* to involve domain restriction of a modal, this explains the failure of reversibility in (27), as well.

Ippolito (2005) contrasts (30) with examples involving other types of presuppositions, which do not appear to be so readily suspended, and takes this as evidence that the case of *only* is distinct, and hence that the prejacent is not presupposed:

- (30) It's possible that only Lucy was at the party...
...and maybe not even she was there.
- (31) It's possible that Lucy will regret having smoked...
...#and maybe she never smoked.
- (32) It's possible that Lucy quit smoking yesterday...
...#and maybe she never smoked.
- (33) It's possible that Lucy will go to the Opera with her husband...
...#and maybe she is not married.

¹³ During the same discussion at the University of Michigan workshop, October, 2005.

¹⁴ It's interesting to note that the second sentence in this example would be markedly better with *only Otto* or *Otto alone*. Moreover, in that case, it wouldn't mean 'if Otto was the sole person at the party' but rather 'if Otto and not Anna had come to the party'. That is, the implicit domain of *only* is given by contrast with the antecedently salient and relevant pair Otto and Anna.

The purported presupposition triggers in the unacceptable cases—factive *regret*, the aspectual verb *quit*, and the possessive *her husband*—are different in at least one very important way from *only*: The prejacent of *only*, e.g. in (30) that Lucy was at the party, is logically independent of that part of the conventional content of the utterance that all agree to be proffered: the proposition that no one other than Lucy was there. One can be true, the other false in the same situation. Hence, entertaining the truth of one of these propositions sets up no logical barrier to the falsity of the other. In contrast, in the cases in (31) – (33) what is presupposed is something that is a conceptual prerequisite on the proffered relation obtaining. That is, it isn't clear what it could mean to regret something that one didn't believe to be true. It isn't clear how one could quit some activity that one hadn't been engaged in. And how could one stand in the *husband* relation to a person who didn't have a husband? This, I take it, is why Abbott (2003) calls the type of presuppositions in (31)-(33) *entailed presuppositions*. In these cases, because the truth of *p* is conceptually dependent on the truth of *q*, one could not deny the truth of *q* without effectively contradicting the very possibility of *p*. Hence, knowing that the truth of *p* is conceptually dependent on the truth of *q*, one knows that the very possibility of *p* is contingent on the truth of *q*. This is why when (31) - (33) are uttered out of the blue (in the null context, and hence in the absence of any contextual reason to assume modal subordination to some merely hypothetical context where *q* is true), the first conjunct gives rise to the expectation that the presupposition *q* is true globally (and not just under the scope of *possibly*). Then in order to entertain the possibility of the falsehood of *q*, the speaker must acknowledge the contradiction of that expectation, for example through the use of a conjunction like *but* or *though*. And, in fact, each of these examples improves markedly with a connective like *but* or *though* instead of *and*. E.g. (31') and (32'):

- (31') It's possible that Lucy will regret having smoked...
 ...but maybe she never smoked.
- (32') It's possible that Lucy quit smoking yesterday...
 ...though maybe she never even smoked, and I just thought she did.

Note that it is only when contradicting an expectation that the use of *but* is required. If we simply entertain first the possibility of *p* and then the straightforward possibility that not-*p*, we can conjoin them with *and*.

At this point, Ippolito could rejoin that the difference between (30) and (31) - (33) *does* point to a problem for the claim that the prejacent of *only* is presupposed. If, as is commonly assumed, presuppositions are characterized as requirements on the common ground, hence as conventionally expressed expectations about the contexts in which the utterances that trigger them will be felicitous, then we would expect to have to use *but* in (30), as well. But we do not. I agree with Ippolito that this is an important difference between the two cases, but disagree with the conclusion, that it is to be explained by denying that *only* presupposes its prejacent. The reason for the difference, I will claim, is the difference I have just sketched in the logical relationship between the proffered content and the presupposed content in the two cases. This calls into question whether we should expect the presuppositions to behave the same in the two kinds of cases.

In any case, as we saw with (23), whatever the status of the prejacent of *only*, it cannot be straightforwardly cancelled. Without the modal in the suspending clause, the suspension fails, suggesting it is at least an entailment.

Argument 7: Failure of the prejacent to cancel:

If it is generally the case that the prejacent of *only* cannot be straightforwardly cancelled, this is a problem for any theory of *only* which takes the prejacent to be merely a conversational implicature. Atlas (1991, 1993) gives pairs like the following to argue that the prejacent is, as van Rooij & Schulz put it “only cancellable to a certain extent”, i.e. the suspension of the prejacent in the epistemic modal case:

- (34) a. Only Hillary trusts Bill, if (even) she does/and perhaps even she does not.
b. *Only Hillary trusts Bill, and (even) she does not.
- (35) a. #Only Hillary could reform health care, and even she couldn't.
b. #I love only you, but maybe I don't love you either.

Van Rooij & Schulz (2005) are at great pains to explain this contrast. They suggest that “This difference in behavior of the pragmatic information of a sentence can be taken to suggest that the pragmatic meaning splits in two parts with different cancellation behavior and maybe also different sources. Thus, one could propose that a sentence like ‘Only [Hillary]_F trusts Bill’ gives rise to two kinds of pragmatic inferences: one with *weak epistemic force* saying that the speaker takes it to be possible that Hillary trusts Bill, and one with *strong epistemic force* saying that the speaker knows that Hillary trusts Bill. The epistemic weak inference is difficult to cancel, while the inference with strong epistemic force can be suspended easily. Only the second one entails (by the veridicality of knowledge) the inference we actually want to explain: that Hillary *in fact* trusts Bill.” (p.28) Although their account is quite interesting and sophisticated, and the epistemic distinction they appeal to has long been recognized (see the related discussion in Gazdar 1979), I don't believe that their account of the facts about implicature cancellation succeeds. There are three reasons for this.

First, it's quite straightforward to cancel most scalar implicatures in extensional contexts, as in (36) – (39):

- (36) Who ate some of the cookies?
Lucy did—in fact, she ate all of them.
- (37) Is it possible that Lucy won?
Yes, in fact, it's certain!
- (38) It's warm out—in fact, it's broiling hot!
- (39) A: Anyone with six kids is eligible for food stamps. Which of these people has six kids?
B: Lucy does—In fact, she has seven.

But as we saw earlier, there is apparently no possibility of the cancellation of the prejacent implication in non-modal contexts, as in (23), repeated here.

(23) Only Lucy can pass the text. #In fact, (even) Lucy can't.

If *only* really doesn't presuppose and/or entail the prejacent, but only conversationally implicates it, these examples should work. But they sound quite infelicitous to me. I think this shows that something stronger than implicature is involved in generating the prejacent implication.

Second, even in the felicitous examples of suspension of the prejacent (as discussed above), this suspension does not constitute cancellation. When we put both the *only* clause and the purported cancellation under a single modal, as in (25), the result sounds contradictory, arguing that the prejacent implication persists under the scope of the modal.

Third, van Rooij & Schulz's account of cancellation depends crucially on the distinction between the weak and strong implications. This predicts that if you control to prevent the required epistemic strengthening, then the strong conversational implicature shouldn't even arise. But I think it *does* arise, notwithstanding. Even if we try to head off generation of the proposed conversational implicature of *only* in advance, by explicitly denying the epistemic preconditions for drawing it, the effort strikes me as a failure. Consider van Rooij & Schulz's two "pragmatic inferences" for (1), in (i) and (ii):

- (1) Only Lucy came.
(i) Speaker takes it to be possible that Lucy came (weak epistemic force, difficult to cancel)
(ii) Speaker knows that Lucy came (strong epistemic force, easily suspended)

Now we embed (1) in a context in which the implication in (ii) is straightforwardly denied prior to uttering the *only*-sentence:

- (40) A: Who came to the party?
B: I'm not entirely sure, because I don't know what Lucy did. But I know the rest of the invitees were at the bar instead, so I'm pretty sure that only Lucy came.
C: That's right, and I happen to know that Lucy didn't come.

B's first utterance in (40) should undercut any grounds for making the stronger inference (1ii). Hence, *I'm pretty sure that only Lucy came*, implicating only that it's possible that Lucy came, should be felicitous. But it already sounds quite odd after the speaker has insisted that he doesn't know what Lucy did. Moreover, though C says she agrees with B, her second clause clearly seems to contradict what B has just said. This argues that the prejacent implication is stronger than a conversational implicature, and that in fact it is conventionally associated with *only*.

2.1 Projection Behavior

The remaining evidence against the presupposition-of-the-prejacent theory of *only* is a cluster of data pertaining to its projection behavior. There are some respects in which the prejacent does not project as we might expect given a theory like that of Karttunen (1973). First, I'll briefly lay out the three remaining arguments, then discuss their import.

Argument 8: Failure to project globally from under a modal.

Since modals are holes to presupposition, and presuppositions are said to project through such holes, projection from under the scope of a modal has been taken to be a test for presupposition. But as illustrated by examples like (41), we see that when our example (1) occurs under the scope of epistemic *maybe*, the prejacent implication needn't put restrictions on the global context in which the utterance is embedded. That is, (41) may be felicitous in contexts in which it is not already assumed or entailed by the interlocutors' common ground that Lucy came to the party:

(41) Maybe only Lucy came to the party.

Presuppositions are also said to project from the antecedent of a conditional. But it is quite clear from the final sentence in (42) that the speaker does not assume the truth of the prejacent *Lucy is invited*, and this doesn't result in any sense of contradiction:

(42) I wonder who Justin's going to invite for dinner. If only Lucy is invited, Monty will be upset. So, Justin will either invite nobody or both Lucy and Monty.

Note that in (42) the antecedent of the conditional fails to project even a weaker, existential presupposition, since it is not contradictory of the speaker to assert that Justin may not invite anyone to dinner.

Argument 9: Occurrence after questions:

Under the view of presuppositions developed by Karttunen (1973) and Stalnaker (1974), an utterance is only felicitous if all of its presuppositions are entailed by the interlocutors' common ground. Hence, we'd expect that an utterance that presupposes *p* would be infelicitous immediately after the question of whether *p* is true is posed, since this question, if felicitous itself, implicates that *p* is not in the common ground (though its truth or falsity may be known either to the hearer or, as in exam questions, to the speaker). Horn (1996) observed that the predicted infelicity does seem to obtain in examples involving the presuppositions of possessive NPs, aspectual verbs, or factive operators (verbs or temporal connectives), as shown in (44)-(46), but apparently not for the prejacent implication of *only* in (43):

- (43) A: Who was at the party?
 B: Only Lucy.
 presupposition: Lucy was at the party.
- (44) Q: Is Lucy married?
 A: #She went to the Opera with her wife.
 presupposition: Lucy has a wife.
- (45) Q: Did you ever smoke?
 A: #I haven't quit.
 presupposition: I am a smoker.
- (46) Q: Did Lucy marry Sue?
 A: #She doesn't regret that she did.
 presupposition: Lucy married Sue.

Argument 10: Infelicitous local satisfaction.

Finally, we expect that a presupposition in the main clause of a conditional may generally be satisfied locally by entailments of the *if*-clause. Geurts & van der Sandt (2004) claim that the presupposition-of-the-prejacent analysis incorrectly predicts that the infelicitous (47) should be “well-formed”:

- (47) ?If Lucy smokes, then only [Lucy]_F smokes.

The last of these three arguments that the prejacent fails to project as it should if it were presupposed, is actually a non-argument. The infelicity of (47) is not due to explicit local satisfaction of the prejacent, but to infelicitous prosodic focus. Note that (48) is perfectly fine, with nuclear (hence, final) accent on *only*:

- (48) If Lucy is a smoker, then ONLY Lucy smokes.

(I think the variant with *Lucy smokes* in the *if*-clause would be fine, as well, but the non-parallelism of the predicates in (48) is more euphonious for me, and has no bearing on the issue of the local entailment of *only*'s prejacent.) Suppose that the question under discussion is who smokes. (If it weren't, then the conditional would most likely seem off-topic, at best an aside pertaining to a previous question.) The *if*-clause entertains a (possibly partial) answer and the main clause adds the information that the answer is exhaustive. What is newly proffered in the main clause is not the prejacent of *only*, the already relevant and salient (hypothetical) proposition that Lucy smokes, but the exclusive implication. De-accenting *Lucy* and *smokes*, which leaves the nuclear accent on *only*, is thus an indication of what is novel in the information conveyed by the main clause. Such de-accentuation of salient, non-novel information is normal and obligatory in English (Ladd 1996; Schwarzschild 1999). Then the problem in (47) is that *Lucy* infelicitously bears accent. So far as I can tell, de-accentuation in such cases has no bearing on the question of the presuppositional status of the prejacent, but only on the salience of the deaccented material. The same kind of de-accentuation occurs with

salient presupposed content, as in the complement to factive *know* in (49), and with proffered content that has a salient parallel, as in the second VP in (50). Again, capitalization indicates final/nuclear accent:

- (49) If Lucy smokes, Monty KNOWS that Lucy smokes. (factive presupposition)
(50) If Lucy lights up a cigarette, MONTY lights up a cigarette. (no presupposition)

So for the purposes of the current investigation, the cases of interest are those pertaining to projection from under modals and out of the antecedent of a conditional.

But I think that instead of being a problem for the theory of *only* in which the prejacent is presupposed, the claims about these examples point to some common misconceptions about what a presupposition is and how it should behave. When these misconceptions are cleared up, the examples in question are no longer a problem for the theory. The issues in question pertain to two related subjects: the question of what it means for presuppositions to project, and that of local vs. global satisfaction of presuppositions. I take up each in turn.

2.1.2 Projection vs. Satisfaction

This is a common assumption: If a presupposition occurs in a sentence in which (a) there are no plugs to presupposition and (b) there is no explicit, merely local satisfaction of the presupposition earlier in the sentence (as in the *if*-clause of a conditional like (48)), then the presupposition should “project”, so that the utterance as a whole carries the presupposition, thereby placing a global constraint on the type of common ground in which the utterance would be felicitous. If a presupposition triggered by a lexical item is not explicitly filtered or plugged on the way to the root of the sentence, it is “projected”; if not, it is “suspended” or “cancelled”. But this is not actually predicted by any of the current major contemporary theories of presupposition, which are effectively about contextual felicity conditions, whether the theory requires a presupposition to be entailed in its context of interpretation (Heim 1983) or to have an appropriate, accessible antecedent in prior discourse (van der Sandt 1992, Geurts 1996). In neither of these kinds of theories is there any principled reason why a presupposition should project, i.e. become apparent as a requirement on the global context of utterance.¹⁵ In the satisfaction-based theories, the presupposition may be satisfied merely locally or else more globally *as well as locally*; or in the anaphoric theory, the antecedent of the presupposition may be merely local or at a “higher” accessible level of a Discourse Representation.

For example, consider conditionals with a definite description in the main clause. Assume, as is common nowadays, that the definite description carries some presupposition—of familiarity, existence, and/or uniqueness. Then there are four ways that utterance of such a conditional might be felicitous:

¹⁵ Which is not to say that such a preference can’t be stipulated, but that it doesn’t follow from the nature of the theories themselves.

1. The presupposition is satisfied by global context, which is retained (as much as possible) in calculating the domain for the modal or quantificational adverbial (here, *would*) that takes the main clause as its nuclear scope. Two sub-cases:
 - (a) The presupposition is already entailed by the C(ommon)G(round):
 - (51) in CG: there is a King of Phlogstein
If Phlogstein had high taxes, the King of Phlogstein would be wealthy.
 - (b) The presupposition is accommodated to the common ground, on the assumption that the speaker would know if it's true:
 - (52) context: hearer doesn't know that there's a King of Phlogstein, but knows that the speaker is a Royalologist and could be trusted to know which nations have royalty.
same utterance as in (51)
2. The presupposition is only satisfied by local context, with two sub-cases:
 - (a) The presupposition is contextually entailed (at least) partly on the basis of the proffered content of the *if*-clause:
 - (53) CG: no information about the governmental structure of Phlogstein.
If Phlogstein had a king, then the King of Phlogstein would be wealthy.
 - (b) The presupposition is contextually entailed on the basis of accommodated material (modal subordination):
 - (54) Suppose that Phlogstein had a king.
If their taxes were high, then the King of Phlogstein would be wealthy.

The accommodation in case 1(b) is called *global*, that in 2(b) merely *local*. But it is important to stress that the global accommodation is only successful in making the utterance felicitous because it is assumed that the context dynamics are monotonic, so that the globally accommodated proposition that Phlogstein has a king is still entailed in the hypothetical context in which the nuclear scope of *would* is interpreted. Hence, what is crucial even in case 1(b) is that the accommodation is effective in making the hypothetical, local context entail that there is a unique, familiar King of Phlogstein.

Zeevat (1992:396) points out that van der Sandt's (1992) anaphoric theory of presupposition predicts the existence of presupposition gaps, cases where the presupposition trigger is deeply embedded and is not satisfied locally, but only at the global level. But this isn't generally possible, even with triggers that Zeevat calls "anaphoric". Consider *too*, which is arguably in the anaphoric class:

- (55) Mary defended her thesis last week.
 If Mary hadn't defended, [Lila]_F would have defended, too.
- (56) Prediction of van der Sandt's theory:¹⁶
 $\langle \{m,s\} \{ \text{defended}(m), \text{WOULD} \langle \langle \emptyset, \neg(\text{defended}(m)) \rangle, \langle \emptyset, \{ [\text{defended}(x), x \neq s] \}, \text{defended}(s) \} \rangle \rangle \rangle$

The consequent of the conditional in (55) presupposes that someone other than Lila defended, and that this fact is immediately salient in preceding discourse; this presupposition is in bold face in (56). There are two conditions in the main DRS, *defended(m)* and the tripartite condition consisting of the modal *WOULD* and its two DRS arguments, the first containing the explicitly given domain restriction (from the antecedent), the second the nuclear scope (from the consequent). In the second argument, there is a presuppositional condition, marked as such by occurring in double brackets (and set in boldface for ease of identification). According to Van der Sandt, the presupposition *defended(x)* could be satisfied by an anaphoric relation to the globally accessible condition *defended(m)*; presumably, we could readily globally accommodate that *m* ≠ *s* to satisfy the remaining presupposition. But the discourse in (55) is infelicitous precisely because this presupposition is not locally satisfied.¹⁷ If (55) is spoken out of the blue (so that we don't know of anyone other than Mary who has defended), this presupposition fails locally, due to the counterfactual assumption in the antecedent of the conditional. If the presupposition were true locally, e.g. by accommodating that Mary defended to the restricted domain partly suggested by the antecedent, the hypothetical common ground would be contradictory. Since by assumption the common ground doesn't contain information about anyone else who defended, Heim's Context Change Potential (CCP) theory, requiring local satisfaction, then correctly predicts that the conditional is infelicitous.

If we take the theories of Karttunen & Peters (1979) and Heim (1983) to say that a presupposition triggered in the main clause of a conditional must be entailed by the local context, consisting of the global context as updated by the *if*-clause, and we admit accommodation as a standard way of saving presupposition failure, then the four cases in (51) – (54) are just the range of possibilities we would expect. But this isn't always the way these theories of presupposition projection are understood. Gazdar (1979:148)

¹⁶ The prediction is couched in Discourse Representation Theory, since that is the foundation of van der Sandt's work. A DRS is an ordered pair, consisting of two sets, a set of reference markers (discourse referents) and a set of conditions. Among the possible conditions are modal relations over DRSEs, as with the ordered pair of DRSEs given as the arguments of *WOULD* in (56). For a model-theoretic interpretation of modals in DRS, see Roberts (1989).

¹⁷ There are examples with definite NPs that involve apparent presupposition gaps. Contrast (55) with (i):
 (i) [Context: Javier has a daughter and a son. Speaker is married to Javier's daughter.]
 If Javier hadn't had kids, I would have married someone other than his daughter.

Here the nuclear scope of *would* involves reference to an individual which the antecedent entails not to exist. But I think that we can argue here that *his daughter* is not taken to refer in the counterfactual worlds that *would* ranges over. Rather, like Enç's (1981) examples involving NPs whose descriptive content is not temporally consonant with the clause in which they are embedded, the definite here only serves to place a disjointedness constraint on the identification of the speaker's counterfactual spouse in any give world—that individual is not a counterpart of the actual individual Javier's daughter. Since this type of phenomenon is independently attested, I think it does not argue for presupposition gaps.

complained about the “zany material conditionals” predicted as the presuppositions of many conditionals by Karttunen & Peters (1979). Van der Sandt (1992) talks about examples like (57), claiming that Heim's theory predicts that (57) presupposes (57a), instead of the more intuitive (57b):

- (57) If John made coffee, his wife will be happy.
a. supposedly predicted to presuppose: If John made coffee, John has a wife.
b. intuitive presupposition: John has a wife.

Geurts (1996) calls this the *proviso problem* because "this problem arises because a presupposition is weakened by a condition that is not intuitively observable".

But Beaver (1999, 2001), Hobbs et al. (1993) and Asher & Lascarides (1998) all argue that what is accommodated when a conventionally triggered presupposition fails may be significantly more than is minimally necessary to satisfy the presupposition;¹⁸ all the “zany material conditional” tells us is what is minimally required. In a particular context of utterance, interlocutors use the information available to them to abductively determine what a speaker would most likely have had in mind in making the presupposition in that context, and this is what is accommodated. In the case of (57), we would not generally assume that the proposition that one made coffee is likely to have a bearing on one's having a wife. Hence, a reasonable hearer is unlikely to take the antecedent into consideration in determining what a speaker presupposes, but will instead only notice the more plausible and stronger (global) speaker's presupposition that John has a wife.

In keeping with this general perspective, it is now pretty clear that a conventionally triggered presupposition cannot be cancelled, at least not in the sense that conversational implicatures are cancelled. If we put *only p* under the scope of a plug like the verb *believe*, then the subject of *believe* is entailed to believe the prejacent. Conjoining the complement with the negation of the prejacent results in the same sense of contradiction that we observed in the examples involving suspension of the prejacent like (25Bii), repeated here:

- (25) A: Who can pass the test?
B: It's possible that only Lucy can, and maybe not even Lucy.
#It's possible that while only Lucy can, (even) she can't.
(58) Monty believes that only Lucy can pass the test.
(59) #Monty believes that while only Lucy can pass the test, she can't pass the test.

Exactly the same kind of behavior is displayed by clear presupposition triggers like factive *know* in (60) or the definite description *the radiator* in (61):

- (60) Why do you think Monty's angry with Lucy?
a. I don't know whether Lucy has been honest with Monty about her affair. It's possible that Monty knows that Lucy is hiding something from him. Or maybe she isn't.

¹⁸ See also Geurts (1999) for critical discussion.

- b. #It's possible that while Monty knows that Lucy is hiding something from him, Lucy isn't.
 - c. #George believes that while Monty knows that Lucy is hiding something from him, she isn't.
- (61) [Issue under discussion: What's wrong with Lucy's car.]
- a. It's possible that Lucy's car has a crack in the radiator, but I don't know. Maybe it doesn't even have a radiator.
 - b. #It's possible that while Lucy's car has a crack in the radiator, it doesn't even have a radiator.
 - c. #George believes that while Lucy's car has a crack in the radiator, it doesn't even have a radiator.

These argue that rather than being cancelled, the embedded presuppositions in (60) and (61) must be entailed by the local context for interpretation of the clause where the presupposition is triggered, presumably through local accommodation under the scope of the modal or intensional predicate. If the presupposition were accommodated globally in the (a) examples, then the final clause would constitute pragmatic contradiction: We can't consistently entertain the epistemic possibility of *not-p* when we have already established the truth of *p*. The parallel behavior of *only* in (25) is what we would expect if the prejacent were presupposed.

Hence, the failure of the prejacent of *only* to project to the global context is not unique to this particular presupposition, though, for reasons we will discuss below, it may be more common with the prejacent of *only* than with some other presuppositions.

2.1.3 Local Satisfaction

The pattern just considered pertains as well to a second misunderstanding reflected in these purported problems for the presupposition-of-the-prejacent theory of *only*. It has been claimed that global accommodation is preferred to local (Heim 1983, Beaver 1997). But the facts do not support this contention. First, merely local accommodation is extremely common in the familiar phenomenon of domain restriction. The work of Roberts (1987, 1989, 1995, 1996), von Stechow (1994) and Gawron (1996) argues that implicit domain restriction for all kinds of operators (quantificational determiners, adverbs of quantification, modals, *only* and temporal operators) generally involves merely local presupposition accommodation. In the general case, what leads to the recognition of the intended domain restriction on the part of the hearer is some combination of contextual factors, often involving complex reasoning on the basis of information in the common ground and the relevance of the utterance to the question under discussion, as well as other facets of the information structure of the discourse. It may be that in many cases of domain restriction the accommodation required is that of a speaker's presupposition, not necessarily conventionally triggered, while in others, as in modal subordination, the accommodation is both forced and guided by an otherwise unsatisfied conventionally triggered presupposition in the nuclear scope of the operator

involved; see (54) above. But the question of how a presupposition arises—via an implicit speaker’s intention or in order to satisfy an explicit, conventionally triggered presupposition—does not bear in any obvious way on the question of the ease and naturalness of merely local accommodation.

Moreover, when we view examples in isolation, as is unfortunately the usual case in discussions of presupposition accommodation in the literature, we are really using a particular kind of context, out-of-the-blue context, which has special properties. This is not the place for extended discussion of this special context, but note the following: Unlike in normal, cooperative discourse, a hearer/reader interpreting an example out of the blue has no clues whatsoever about the kind of domain restriction the speaker might have in mind, barring pragmatic factors triggered by the lexical content of the utterance and/or general world knowledge. When we control for context, as speakers typically do in generating their utterances in discourse, there is no problem whatsoever triggering intended domain restriction via merely local accommodation.

Cases like (62) and (63) have been adduced to argue that there is something dispreferred or marked about merely local accommodation, but there are other factors involved in these examples that can explain the preference for global accommodation in (62) and the oddity of (63). The perfectly natural (64) and (65) argue that when the relevant pragmatic factors are controlled for, merely local accommodation is unproblematic:

- (62) Every fat man was pushing his bicycle. (Heim 1983)
- (63) (i) Every student likes his Rolls Royce. (Manfred Krifka, p.c.)
(ii) Every student who likes his Rolls Royce polishes it.
- (64) [Context: In the third world, only the wealthy have autos. Very few Haitians are rich.]
Most Haitians drive their cars very fast.
- (65) Every nation cherishes its king, but few cherish their presidents. (Jirka Hana, p.c.)

(62) is clearly not a generalization, but a report of the facts about a particular situation. The use of the past progressive, as well as the lexical content suggest that this is a fragment of a narrative, where the speaker is conveying a story or describing something she has seen. Hence, we take the domain of the subject to be some set of fat men familiar from the situation already described in the preceding narrative. Since in presenting the sentence in isolation there is no suggestion that the domain of the subject should be further restricted (e.g. to contrast some subset of the familiar men who have bicycles from those who don’t), we assume that it had already been made clear in the narrative that all these men had a bicycle. (When I first heard this example, I thought of a scenario in the Netherlands, where everyone has a bicycle—though for that very reason there are few fat men!) The end effect is of global accommodation, not because this is generally preferred but because this is what is suggested by the example. (63) is just odd, whether one attempts local or global accommodation. Certainly we resist assuming that all students have a Rolls Royce! The very low likelihood of even a few students having such a car makes the local accommodation strange, as well.

Generally, if a speaker gives no indication that she intends some semantically significant domain restriction, then no domain restriction is assumed, as in (62). We can only be expected to retrieve those presuppositions that are suggested to us. When either there's a clear contextual indication for the need of accommodation (like the requirement to satisfy a presupposition of the nuclear scope, in modal subordination), or world knowledge comes to bear on what would be a reasonable understanding, so that failure to restrict the domain would lead to anomaly, as in (64) and (65), the cooperative hearer restricts the domain appropriately. What's at issue isn't the ease or naturalness of merely local accommodation, but what is required to *motivate* a particular domain restriction in a particular context.

Given the pervasiveness of non-global accommodation, the last two purported problems for the presupposition-of-the-prejacent theory—that the prejacent of *only* sometimes fails to project from under the scope of a modal, and that the *only*-sentence is felicitous immediately after a question indicating that the prejacent isn't already contextually entailed—do not constitute compelling counter-arguments. In these cases, there is merely local accommodation of a conventionally triggered presupposition. Where the accommodation occurs in a particular case is not predicted by the theory of presupposition, but should be explained by pragmatic theory.

The remaining obstacle to this explanation of the data pertaining to projection is the fact, observed by Ippolito, that unlike examples with *only*, other kinds of presupposition lead to lower acceptability in the context where the presupposition has just been questioned, as was illustrated with Ippolito's (44) – (46):

- (43) A: Who was at the party?
B: Only Lucy.
presupposition: Lucy was at the party.
- (44) Q: Is Lucy married?
A: #She went to the Opera with her wife.
presupposition: Lucy has a wife.
- (45) Q: Did you ever smoke?
A: #I haven't quit.
presupposition: I am a smoker.
- (46) Q: Did Lucy marry Sue?
A: #She doesn't regret that she did.
presupposition: Lucy married Sue.

But there is another important difference between the acceptable (43) and the unacceptable (44) - (46) when uttered out of the blue: Only in (43) is the proffered content of the answer (with or without the prejacent) directly relevant to the question. Both the prejacent and the proffered proposition that nobody other than Lucy was at the party are direct, partial answers (in the sense of Groenendijk & Stokhof 1984) to the question posed. But in (44) - (46), only the presupposed content of B's answer is a direct answer to the question. The proffered content is only indirectly relevant in it presupposes

an answer. E.g. in (44), Lucy's going to the Opera adds information that is irrelevant to the question of whether she's married. I would argue that it is the direct relevance of the proffered content of (43), and not the required presupposition accommodation, that makes it more natural out of the blue than the others.

But, of course, indirect answers are sometimes felicitous in the right context, and so, with slight changes, the acceptability of (44) – (46) can be improved. In (44), I prefer *I saw her at the opera with her wife last week*, which is an evidential answer (especially with the right delivery), strengthening the relevance. In (45), one might take the answer to be denying the implication of the question (due to the past tense and *ever*) that *A doesn't smoke presently*—again, strengthened with the appropriate delivery (e.g., contrastive accent on *quit*). Hence, with adequate motivation for the extra information—evidence to make the answer more plausible or taking issue with an implication—the examples work for me. (46) is more challenging to modify. Here, there's no evidence offered that would motivate an indirect answer; nor is it clear how Lucy's purported regret itself might have any bearing on the question under discussion. Thus, this is a violation of the requirement of relevance, and the utterance seems like a *non sequitur*. I much prefer (66):

- (66) Q: Did Lucy marry Sue?
A: Boy, does she regret it!
presupposition: Lucy married Sue.

One can speculate about why this improves the example: Perhaps A thinks that (or acts as if) the overarching question is *How's Lucy?*—that would make the answer relevant, and the presupposition accommodation is unobjectionable.

So, I think that the contrast between (43) and (44) - (46) when uttered out of the blue is not an argument against the presuppositional analysis. It simply points up that any given assertion in a discourse must be relevant to the question under discussion (Ginzburg 1994a, 1994b; Roberts 1996b). In the absence of any suggestion of the direct relevance of the proffered content of an utterance, the additional requirement of presupposition accommodation is beside the point.

2.2. Summary scorecard:

The following table summarizes the benchmark data for *only* considered above, with the conclusions indicated:

	Prejacent Entailed	Prejacent Presupposition	Existential Presupposition	Conversational Implicature	Notes:
NPI occurrence	#	√	√	√	a
Outcome of Horn's bet	#	√ <i>prima facie</i> #	√	?	d
Negation is prejacent hole	#	+	#	√	a, b
Plural NP Focus	√	√	#	√	b
<i>Hey wait a minute!</i> test	#	+	+	√/?	a
Suspending the prejacent	#	√ <i>prima facie</i> #	#	# <i>prima facie</i> √	a, b, c, d
Prejacent not cancellable	√	√	√	#	c
PROJECTION BEHAVIOR:					
Prejacent fails to project	√	√ <i>prima facie</i> #	#	# <i>prima facie</i> √	b, c, d
Occurrence after questions	√	√ <i>prima facie</i> #	<i>prima facie</i> #	√	d
Infelicitous local satisfac.	+	√ <i>prima facie</i> #	√	√	d

#: problem

√: no problem

+: positive argument in favor

a: Robust evidence against entailment

b: Robust evidence against weak presupposition accounts:

c: Strong argument against a conversational implicature account:

d: Merely apparent evidence against presupposition of the prejacent

Table 2: Scorecard for theories of the prejacent of *only*

The scorecard makes it clear that there are several compelling reasons to reject the symmetrical view of *only*, where the prejacent, like the exclusive implication, is entailed. Although the theory which posits the presupposition of the prejacent started out with quite a few apparent marks against it, I have offered evidence in every case that the problem is only apparent, and that a deeper appreciation of the phenomena even reinforces the existence of the relevant presupposition. In fact, the new evidence poses significant problems for the theory that the prejacent is only conversationally implicated. Not only does the prejacent fail to cancel in ordinary, non-embedded contexts, but, in considering the phenomenon of suspending the prejacent and of failure of the prejacent to project, a variety of examples showed that the prejacent cannot be cancelled under the scope of a modal or intensional verb, the attempt leading, instead, to a clear sense of contradiction. Moreover, reviewing the proposal that what is presupposed is only an existential proposition, not only does that make predictions that are too weak in the case

where *only* occurs under negation or has a plural focus, but it would also fail to predict the observed sense of contradiction under a modal or intensional verb.

Hence, assuming that *only* presupposes its prejacent seems to be by far the most reasonable candidate of the four under consideration, given the data considered. Crucially, it is the only one of the types of accounts we have considered which can explain the attested asymmetry of the prejacent and exclusive implication, while predicting that it is not possible to cancel the prejacent. While the existential presupposition account seemed initially promising in this respect, it turns out to be too weak to predict the attested implications.

But there is one important pattern pertaining to the character of the meaning conveyed by the prejacent of *only* that remains to be addressed: This is that it is so frequently informative (providing new information), rather than being entailed by the interlocutors' common ground prior to utterance. For example, we saw that when suspending the prejacent under an epistemic modal, we are not forced to use the connective *but* to counter a global assumption that the prejacent was true, whereas this is typically the case with other kinds of presuppositions. And it seems that factive or anaphoric presuppositions may be more likely to place a requirement on the global context than does the prejacent of *only*, so that we had to work to make utterances with these kinds of presuppositions acceptable after a question that implicates failure of the presupposition in the common ground. This suggests that there *is* something fundamentally different about the behavior of the prejacent of *only* from that of canonical presuppositions. This, I believe, is what all the fuss is about.

3. Classification of the prejacent of *only*

It seems to me that the purported presupposition triggers that have been traditionally discussed in the literature fall into (at least) these three classes:¹⁹

(67) Classical presupposition triggers:

A. Entailed presuppositions:²⁰ These are propositions whose truth is a necessary precondition for the truth of the proffered content of the utterance in which they're triggered. The triggers include the factive and semi-factive verbs and aspectual verbs like *quit*. These are entailments of the predicates in question, and their status as *presuppositions* may arise conversationally.

B. Anaphoric presuppositions: These are presuppositions of the familiarity, uniqueness and/or salience of suitable prior information in discourse. The triggers here include all definite NPs, including definite descriptions,

¹⁹Zeevat (1992) discusses the distinction between anaphoric and non-anaphoric presuppositions, but does not make the distinction between background and non-background presuppositions.

²⁰ There is a long tradition of work which recognizes the entailed character of these presuppositions, including Boër & Lycan (1976), Wilson (1972,1975) and Kempson (1975), and the recent work by Abbott and Simons.

demonstratives and pronouns;²¹ and indefinite pronouns like *one*. Also of this type are adverbial *so*; *too* and *again*, and the subjects of *wh*-clefts.

- C. Background implicatures: These are preconditions on felicitous update that are logically independent of the associated proffered content, and are often informative. The prejacent of *only* is one of these triggers.

Since the presuppositions associated with factives or aspectual verbs are conceptual prerequisites on the relation in question obtaining, not only are the complements of factives entailed in the utterances in question, but, except under the scope of an intensional operator, they are automatically presupposed by any rational speaker, i.e. they are pragmatic presuppositions. Hence, unless there is a modal with wide scope over the factive giving access to other possibilities than those in the speaker's epistemic ground, when the speaker asserts that someone knows or regrets something, this entails that the speaker is committed to the truth of that proposition or fact. Since these implications are speakers' presuppositions, this would explain why the entailed presuppositions tend to be taken to "project", i.e. to be satisfied in the global context, the common ground, except when there is access to some modal horizon (von Stechow 1999) broader than the epistemic ground of the speaker. We see the latter type of case in (60a), repeated here, where *it's possible that* widens the range of possibilities to include some which the speaker does not know to be true, as confirmed by the disjunctive follow-up:

- (60a) I don't know whether Lucy has been honest with Monty about her affair. It's possible that Monty knows that Lucy is hiding something from him. Or maybe she isn't.

On these grounds, one might agree with Wilson (1972,1975), Stalnaker (1974), Kempson (1975), Boër & Lycan (1976), Simons (2000) and Abusch (2002, 2005) that factive presuppositions are essentially pragmatic, rather than conventional. Simons (2000) gives related evidence that these presuppositions are conversational via sets of examples like the following:

- (68) Jane didn't stop/quit/cease/discontinue laughing.
(69) Harry didn't realize/come to know/become aware that he was a fool.

The fact that the closely related sets of predicates in these examples all seem to have the factive presupposition argue that: "...the presuppositions of change of state predicates [like those in (68)] and of factives [like those in (69)] are nondetachable, that is that they attach to the content expressed, and not to any lexical item. But presuppositions or implications cannot attach to content by convention. Thus, these presuppositions must

²¹ See Heim (1982,1990); Kadmon (1990); Roberts (2003,in progress). I must beg to differ with Szabo (2000), who argues that the implications associated with the definite article are not presupposed but only conversationally implicated.

have a conversational source."²² Since there is no polar opposition between the presupposed factive and the remainder of the entailed content in such utterances, it is difficult to argue for the sort of asymmetry we have seen between the implications of *only*.

I agree with Kadmon (2001:213ff) that for the purposes of understanding how the relevant presuppositions are filtered and accommodated, it does not matter whether factive presuppositions are triggered conventionally or only pragmatically. Levinson (1983:223-4) argued that certain conversational implicatures could project, including scalar implicatures. Kadmon argues that conversationally triggered presuppositions in general behave like conventional presuppositions in that they pass the family of sentences tests (projection through holes like negation, interrogation, the antecedent of a conditional, and other modals) and are subject to the same plugs and filters. Here are her Relevance implicature examples:

- (70) A: I have to pay my water bill.
B: There is a post office around the corner.
(70') It is being taken for granted that water bills can be paid at post offices.

The “taken for granted” implication of (70) in (70'), which I would call a speaker’s presupposition, arguably arises as a Relevance implicature, without any conventional trigger. This implicature projects through the family-of-sentences tests:

- (71) A: I have to pay my water bill.
B: There isn’t a post office anywhere around here.
(72) A: I have to pay my water bill.
B: Is there a post office around here?
(73) A: I have to pay my water bill.
B: If there is a post office nearby, I’ll be going there anyway.

Moreover, this implicature can fail to project globally while being satisfied by local context, as in Kadmon’s examples (p.214, (42)-(44)) and my:

- (74) [context: couple in Germany on sabbatical; not at home]
A: We have to pay the water bill.
B: If it’s like home, we should see if there’s a post office nearby.

She also shows how a variety of other types of non-conventionally triggered meanings display this type of projection behavior, including the counterfactual assumptions associated with subjunctive conditionals, the sometime-speaker’s presupposition of factivity associated with (generally non-factive) *before*, and even the preparatory conditions of speech acts. Hence, it seems that conversational implicatures and background CIs share the property of projecting with both speakers’ presuppositions like

²² Grice (1967) argued that nondetachability was a characteristic of conversational implicatures. This, of course, makes sense, since it is the content of an utterance in conjunction with its context that gives rise to these implicatures.

those associated with the semi-factives and factives and conventionally triggered presuppositions. In any case, the presuppositions associated with semi-factives and factives are quite robust, and we can understand how their presuppositional behavior arises from their proffered content.

Anaphoric presuppositions are rather different. In keeping with its Greek etymology, *anaphora* is a phenomenon wherein expressions harken back to preceding discourse. In the general case what anaphoric elements harken back to is arguably not the concrete conversational record or particular linguistic antecedents (like NPs) therein, but a more abstract context—the Information Structure of the discourse—and the abstract entities therein—discourse referents and Questions Under Discussion, as well as extensive non-linguistically introduced information (Roberts 2003, 2004). Anaphoricity is, hence, by its nature a question of discourse priority, so that the triggers in question are presuppositional as a function of their conventional anaphoric use. Anaphoric presupposition triggers, notably *too* and *she*, cannot properly contribute to the at-issue content of an utterance unless one can retrieve their intended anaphoric antecedent. In that case, the proposition which the speaker intends to express remains indeterminate. Hence, the failure of an anaphoric presupposition quite intuitively leads to a truth value gap, unless the presupposition can be accommodated. There are differences between particular anaphoric triggers. For example, the less descriptive content a definite NP has, the less likely that its intended interpretation can be successfully retrieved without a linguistic antecedent; if an addressee can figure out what the speaker meant in using an out-of-the-blue pronoun, it is likely that it will be on the basis of what is non-linguistically salient at the time of utterance (as at a funeral: *I can't believe it—I saw her only last week!*).

Presuppositions can be generally characterized as propositions that must be contextually entailed in order for an utterance containing the trigger to be felicitous. In the case of *too*, the proposition which must be contextually entailed may be any one of the focal alternatives to the clause to which the adverb adjoins. For example in (75), the presupposition is that for some entity *x* other than ice cream the context entails that Johnny likes *x* (and that this proposition is salient). Pronouns have existential presuppositions; e.g. *he* in (76) presupposes that there is some salient individual appropriately described with the singular masculine:

- (75) Johnny likes [ice cream]_F, too.
‘in addition to the other thing he likes, Johnny likes ice cream’
- (76) He likes ice cream.
‘the most salient male individual of whose existence we are aware likes ice cream’

In the case of anaphoric presuppositions, besides the felicity requirement there is also a logical dependency. Anaphoric presupposition triggers contribute to the at-issue content of the utterance, and they cannot do so as intended unless the addressee can retrieve the intended antecedent. In that case, the speaker's intended at-issue content, the proposition expressed, remains indeterminate. Hence, the failure of an anaphoric presupposition

quite intuitively leads to truth value gaps (“catastrophic failure” in Bezuidenhout’s (2006) terms), unless the presupposition can be accommodated. For example, uttering (75) commits the speaker to claiming that Johnny likes more than one thing. Hence, Johnny liking something other than ice cream is a necessary condition on the truth of (75). If the antecedent of *he* in (76) is Johnny, then it is a necessary condition on the truth of (76) that Johnny exists (in the relevant sense).

Background implicatures are neither merely entailed nor anaphoric. Recall the respects in which the prejacent of *only* is like a conventionally triggered presupposition, discussed in the preceding section:

- It is asymmetric in status relative to the exhaustive implication
 - It does not license NPIs.
 - It projects through holes, like negation.
 - It is suspendable under an epistemic modal of possibility, unlike the entailed exhaustive clause, and it displays the Sobel property, wherein the order of asserting and suspended clauses cannot be reversed (see (22a)).
 - It cannot be directly denoted, and consequently passes the *Hey! wait a minute!* test for non-asserted material.
- But it cannot be cancelled, hence is not merely conversational: If we accept the truth of the associated proffered content without challenging the presupposed content, we become committed to the truth of both. Hence, unless there is the possibility of truth under the scope of a modal (as in the suspension examples), then attempted cancellation results in a sense of contradiction (as in (25) and (60)-(61)). This is strongly reminiscent of anaphoric presuppositions, for which local satisfaction is necessary (as well as sufficient).

But as we have seen, there are a number of respects in which the prejacent of *only* is **not** like an anaphoric presupposition:

- It is more likely to be informative. This was evidenced by acceptability immediately after questioning the truth of the prejacent.
- It tends not to project even when not blocked from doing so by a “plug” to presupposition projection. We saw this in the examples involving non-projection from under the scope of a modal. I argued that nothing in a satisfaction-based theory of presupposition requires presuppositions to project above the local level. But the fact remains that other kinds of presuppositions seem to tend to project globally more readily than the prejacent of *only*.
- Its truth is logically independent from that of the clearly entailed portion of an *only*-sentence, the exclusive implication, and *vice versa*.
 - The truth of the merely entailed content of the utterance does not depend on the truth of the background implication, unlike anaphoric presuppositions, which must be resolved in order to determine the truth of the merely entailed content.
 - Arguably, this is why there is no need for *but* in suspension of the prejacent in examples like (30), while suspending the types of presuppositions in (31)-(33)

was improved with the addition of *but*, which acknowledges the contradiction of an expectation.²³

There is a class of expressions across languages that display similar behavior to that of the prejacent of *only*. These are what Horn (2002) and Schwenter (2002) call the *approximatives*, including Spanish *casi* and *apenas* and English *almost* and *barely*. For example, *almost* and *barely* each have two implicatures, the proximal and the polar, and only the proximal licenses NPIs:

- (77) Gore almost won the election.
Proximal implication: Gore came close to winning the election.
Polar implication: Gore didn't win the election
NPIs: *Gore almost got any votes.
- (78) Bush barely won the election.
Proximal implication: Bush came close to not winning the election.
Polar implication: Bush won the election
NPIs: Bush barely got any votes.

I find it a bit odd to negate the VP in (77) or (78) with *didn't* before the adverbial; this yields only a corrective sense. But the polar implications of approximatives do project, as we see in (79), and they may be satisfied merely locally, as in (80):

- (79) Did Gore almost win? implication: Gore didn't win.
(80) Marcie mistakenly believes that Bush lost, though she thinks he almost won.

Moreover, as Horn (2002) observes, we can suspend the polar implication, but not the proximal:²⁴

- (81) (a) I believe that (at least) Gore almost won the election, and perhaps he actually won it.
(b) I believe that (at least) Gore almost won the election, and #perhaps he didn't even come close.
- (82) (a) I believe that Bush barely won the election, if that. [implicates that perhaps he didn't actually win it]
(b) I believe that Bush barely won the election, and #maybe he didn't even come close to not winning.

²³ Having to use *but* is a reflection of the logical dependence in anaphoric and factive presuppositions, which leads to an expectation. But even when there isn't a direct logical dependence, contextual factors can lead to preferred use of *but*, for example in suspending the prejacent of *only* when the (independent) proffered content plus context *entails* expectation/probability of the (to-be-suspended) prejacent, as in:

(i) I think it's likely that Lucy came. Maybe only Lucy came. But then again, maybe LUCY didn't make it.

²⁴ Again, these seem better to me if the approximative in the first clause is under the scope of a modal. So compare (81a) with (i):

(i) ??Gore almost won the election, and perhaps he actually won it.

And while the *Hey! Wait a minute!* test seems a bit odd to me with *almost* or *barely*, I think it's the case that a hearer cannot directly challenge the polar implication with a denial:

- (83) A: Gore almost won the election.
B: No, that's not true: He didn't even come close!
B': #No, that's not true: He won it!
- (84) A: Bush barely won the election.
B: No, that's not true: He won a clear mandate!
B': #No, that's not true: He lost!

Schwenter (2002) argues that in all these respects the Spanish pair *casi* and *apenas* behave much the same as the English approximatives.

And like the prejacent of *only*, there are several respects in which the approximatives are different from anaphoric presuppositions. They can be proffered immediately after questioning the truth of the polar implication:

- (85) Did/didn't Gore win the election?
Well, Gore almost won the election.

As we saw in (81) and (82), we can suspend the polar implication, so that it doesn't project globally. And the truth of the polar implication is logically independent of that of the proximal implication.

This taxonomy of classical presupposition triggers in (67A-C) includes one type arguably triggered conversationally—the entailed presuppositions—and two other types triggered conventionally. I note that the presuppositions generated by Abusch's (2002, 2005) *hard* vs. *soft* presuppositional triggers come close to partitioning the domain in just this way. All the entailed presuppositions seem to be included in her class of soft triggers, which we would expect if these are conversational, as Simons argues. And the class of hard triggers includes both anaphoric presuppositions and background implicatures, the two classes that I have argued to be conventionally triggered. But I note that Abusch also includes focus in the soft triggers, which I have argued (Roberts 1996b, 1998) to be anaphoric. Her work thus calls for more careful consideration, in light of this discussion.

In accounting for the meaning of *only* in a satisfaction-based theory of presupposition, we're faced with a dilemma. The prejacent behaves in many respects like a presupposition, but it seems to be naturally informative, not imposing the constraints on the common ground that are clear with anaphoric presuppositions. So it seems that we must either:

- call the prejacent a presupposition, but revise to some extent our conception of presupposition so that it doesn't require entailment in the local context (or common ground) prior to utterance, or
- decide that the prejacent isn't a presupposition. It's something else.

Note that what's at issue here is not a mere taxonomic question, but one of how to correctly model the behavior of the prejacent of *only* and of the approximatives.

I originally explored the first path, adopting von Stechow's (2000) account of why presuppositions can be informative. He argues that informative presuppositions aren't the problem for the common ground theory of presuppositions that Gauker (1998), among others, had claimed. Citing Stalnaker (1998) and very similar earlier views of Karttunen (1974), Lewis (1979), and Thomason (1990), he claims (pp.8-9): "[S]entence presuppositions are requirements that the common ground needs to be a certain way for the sentence to do its job, namely updating the common ground. Thus, the common ground must satisfy the presuppositional requirements before the update can be performed, not actually before the utterance occurs." Hence, "the speaker need not assume the common ground prior to the utterance has the right properties. This will work out fine if the speaker can assume that the fact that he made an utterance which imposes certain requirements on the common ground will lead the hearers to make the necessary adjustments to the common ground." If we adopt this view of presupposition requirements, then informative presuppositions aren't the problem that they might have appeared to be initially.

I'm sympathetic with von Stechow's discussion. But on reflection, I'm inclined to think that in order to get at what a conventionally triggered presupposition *is*, we have to say that it is *normally* (in fact conventionally) a speaker's presupposition, in Stalnaker's sense:

- (86) A proposition *P* is a pragmatic presupposition of a speaker in a given context just in case the speaker assumes or believes that *P*, assumes or believes that his addressee assumes or believes that *P*, and assumes or believes that his addressee recognizes that he is making these assumptions, or has these beliefs.
(Stalnaker 1974:200)

On this view, then, a conventional presupposition is a conventionally triggered speaker's presupposition. Since it is conventionally triggered, and hence not cancelable, such a presupposition will be recognized by the competent addressee, who will assume that the concomitant constraint on the context of utterance was intended by the speaker. Given all this, if the speaker is competent and cooperative, she will only use such a conventional device when the contextual conditions are satisfied or can be unproblematically accommodated.²⁵ Since background implicatures like the prejacent of *only* are less likely than anaphoric presuppositions to put such a constraint on the context of utterance, they

²⁵ I think at least the following constraints should hold on what it is to be unproblematically accommodable:

- (i) Unproblematic Accommodation: Accommodation of a presupposition, when it is not already contextually entailed, is unproblematic only when the presupposition is:
- (a) retrievable (i.e., it's clear what the speaker presupposes),
 - (b) consistent with the context of interpretation, and
 - (c) uncontroversial.

But discussing these in detail would take us beyond the topic of the present paper.

are less clearly presuppositional. I am inclined to reserve von Stechow's explanation for cases where the informative presupposition is clearly anaphoric.

The second route is taken by Horn (2002), who argues that the polar component in an approximative is *not* a presupposition but is “entailed but assertorically inert”. Schwenter (2002) concludes that for the Spanish pair *casi* and *apenas*, both implications are entailed, but the utterance is “rhetorically oriented” toward the proximal component, not the polar component. Horn briefly argues that the prejacent of *only* is also assertorically inert. And he proposes that we “redefine Karttunen & Peters’ (1979) scopal diagnostics for conventional implicature as diagnostics for non-assertion.” That is, he proposes that there are three different classes of conventionally conveyed implications: those that are presupposed, those that are asserted, and those that are entailed but assertorically inert.

Horn's proposal, as he notes, is related to several others in the literature. Abbott (2000) observes that presuppositions are actually very commonly informative, yet perfectly felicitous in the context in which they are uttered. Among other presuppositions that are frequently informative, she cites *it*-clefts (about which, more below), “embedded announcements” (e.g., under *regret*, with the possibility of *hereby* in the embedded clause), and non-restrictive relative clauses. From this, she concludes that the requirement that presuppositions be entailed by the interlocutors' common ground is too strong. Her proposal (p.1431) is that “grammatical presuppositions are a consequence of a natural limit on how much can be asserted in any given utterance, where what is asserted is what is presented as the main point of the utterance—what the speaker is going on record as contributing to the discourse.” In other words, there is a functionally motivated tendency to limit assertion to one “atomic proposition” per root sentence. Similarly, Geurts (2000) claims that “the bulk of information in an utterance will float up to the main context and act as though it's presupposed, while only the subpart the speaker is focusing on will stay “where it is”, within the scope of assertion or other illocutionary force operators.” And compare also Wilson & Sperber's (1979) anti-presuppositional *Ordered Entailments*; and Grice's (1989, Chapters 4, 17) use of bracketing as “a conventional regimentation of a particular kind of nonconventional implicature” (p.292) that in effect gives widest scope (outside the assertion or imperative operator) to the entailed clauses that are conversationally implicated to be common ground or uncontroversial. These proposals differ in non-trivial ways, but all tend to agree that there are implications which are not conventional presuppositions but aren't part of the foregrounded assertion of the utterance in question.

There is yet another category of contributions to meaning that we might consider in characterizing the contribution of the prejacent of *only*, that of **conventional implicatures** (CIs). The classical discussion of CIs is due to Grice, who distinguishes them from ‘what is said’—what we are calling the at-issue content of the utterance.²⁶

²⁶ In Grice (1967/1989:41): “...one may distinguish, within the total signification, between what is said (in a favored sense) and what is implicated; and second, one may distinguish between what is part of the conventional force (or meaning) of the utterance and what is not. This yields three possible elements—what is said, what is conventionally implicated, and what is nonconventionally implicated—though in a given case one or more of these elements may be lacking.” In (1989:361), Grice uses the term *dictive*

Bach (1999:331) carefully considers Grice's few, brief discussions of the notion²⁷ and summarizes them as follows:

- (87) A proposition is a conventional implicature of an utterance just in case (a) the speaker (speaking seriously) is committed to the truth of the proposition, (b) which proposition that is depends upon the (or a) conventional meaning of some particular linguistic device in the utterance, but (c) the falsity of that proposition is compatible with the truth of the utterance.

(87) captures some of the central characteristics of the prejacent of *only* and of the approximatives. While they are conventionally triggered ((87b), and hence entailed (87a)), they are asymmetric with the at-issue content of an utterance in which they occur (hence distinct from 'what is said'). But unlike anaphoric presuppositions, they display logical independence of the at-issue content (87c).

Bach (1999) argues that there *are* no CIs. However, he principally focuses on one of Grice's two examples of CIs, *but* (the other is *therefore*), arguing that both its conjunctive contribution to the meaning of the utterance in which it occurs and its contrastive implication contribute to 'what is said'. I think he is right to argue that it does not adequately characterize *but* to say that it has CI content; but I think there is more to the contrastive implication than a "secondary contribution" to what is said.

In fact, *but* seems to be presuppositional, resembling *too* and pronouns in both contributing to the at-issue content and placing a requirement on prior context. In the case of *but*, the presupposition is that its second conjunct contradicts a presupposition that follows from the truth of the first conjunct, possibly in conjunction with other information in the context of utterance. Bach (1999:17ff) exemplifies how the contrastive implication of *but* varies with context; how the contrast indicated "is often part of the CG rather than being part of what the speaker is asserting," and how failure of the contrast to emerge in context leads to infelicity, as in his (88):

- (88) Shaq is huge but he is rich.

There is no inherent contrast between the property of being huge and that of being rich. If there is no evident contextual contrast in the context of utterance, "there is something wrong with [(88)], even though Shaq is both huge and rich". The context-dependence of the implicated contrast is typical of anaphoric presuppositions, where the presupposition intended must be "resolved" or retrieved. And the fact that this contrast is often part of the CG is in keeping with its being a speaker's presupposition, as in (86), as is the infelicity which results from the inability to contextually resolve the intended contrast. Moreover, addressees cannot directly deny the contrastive implication arising

content instead of *what is said*, and says of this type of content: "The truth or falsity and so the dictive content of [the speaker's] words is determined by the relation of his ground-floor speech-acts to the world". So I think it is reasonable to identify what is said with the at-issue content of an utterance, and to distinguish it from any CIs.

²⁷ See Grice (1961:127) and (1967/1989:24-26, 41, 46).

conventionally from *but*; like presuppositions generally, this implication can only be indirectly challenged, as by *Hey! wait a minute!*.

There is one difference between *but* and the anaphoric presuppositions we considered earlier: Bach points out that “the lack of a relevant contrast does not incline [addressees] to regard [(88)] as false. That is, given the choice between judging [(88)] true and judging it false, they judge it true” (345). So failure to retrieve the intended contrastive implication does not lead to truth valuelessness. But this does not necessarily argue against the presuppositional character of *but*. Though *but* is anaphoric to a presupposed contrast between the (contextual entailments of the) conjuncts, it does not contribute to the content of those conjuncts themselves. Moreover, it does contribute Boolean conjunction to the at-issue content of the whole utterance. So even if the intended contrast itself cannot be resolved, one can still determine the non-presupposed content of the utterance and judge its truth. Hence, the truth-value gap typical with failed anaphoric presuppositions does not arise. It’s just that there’s another proposition lurking which we cannot retrieve, ‘2nd conjunct contrasts with expectation *x*’. This suggests that truth valuelessness isn’t an essential feature of presupposition, just one that arises with many (but not all) anaphoric presuppositions—those whose lack of satisfaction leave us *unable* to retrieve the at-issue proposition.

Potts (2005) offers a characterization of CIs which differs in one important respect from Bach’s (87): He argues that all CIs are speaker-oriented. As in (87), they arise from the conventional content of the utterance and give rise to entailments, and they are logically independent of the at-issue content of the utterance. And Potts concurs with Bach that Grice’s CI triggers, *but* and *therefore*, are not CI triggers. His speaker-oriented CIs fall into two sub-classes, the supplemental CIs, including *as*-parentheticals, non-restrictive relative clauses, nominal appositives, and a variety of parenthetical sentential adverbs; and the expressive CIs, including adjectives like *damn* and *friggin’*, epithets, and honorifics.

Potts doesn’t make it entirely clear what it means to be speaker-oriented. He says (2005:31) that “a CI is never relativized to the beliefs of an entity other than the speaker. But at-issue content certainly can be.” We can see speaker orientation in non-restrictive relative clauses, as in (89):

(89) Monty, who’s from Kentucky, likes corn grits.

(89’) Andy said that Monty, who’s from Kentucky, likes corn grits.

When we embed (89) under an attitude verb, as in (89’), there is no *de dicto* reading where the denotation of the matrix subject *Andy* is entailed to attribute being-from-Kentucky to Monty. Extrapolating from this and other examples, it seems that supplemental CI triggers implicate that it is the speaker’s epistemic or doxastic ground that is the basis for the truth of the CI. Hence their content cannot take narrow scope with respect to the non-speaker subject of an attitude predicate or modal (like *Andy* in (89’)); Potts calls this property “scopelessness”.

Aside:

There is evidence that instead of being strictly speaker-oriented, Potts' CIs are actually anchored to the doxastic ground of some agent whose perspective is relevant at the time of utterance; in the default case, this is the speaker, but it needn't always be. Consider the following example involving a supplemental CI, a non-restrictive relative clause:

- (90) Every professional man I polled said that while his wife, who had earned a bachelor's degree, nevertheless had no work experience, he thought she could use it to get a good job if she needed one.

Non-restrictive relative clauses generally have the flavor of asides, which typically offer information directly from the speaker. But in this example, even though the relative clause *who had earned a bachelor's degree* does have that flavor, it modifies an NP, *his wife*, whose possessive is bound by a higher quantificational DP, *every man*; and perhaps even more telling, an indefinite within the relative clause, *a bachelor's degree*, serves as donkey-antecedent for a pronoun in the quantificational DP's scope, *it*. (90) does not seem to me to entail that the arbitrary professional man said during the speaking event being reported that his wife had a bachelor's degree. But the speaker is certainly committed to the man's believing this and at least presupposing it in what he said, since the donkey pronoun that depends on the relative clause content occurs within the main clause of the complement to *said*. Further, in containing the antecedent for a bound-variable pronoun, I think we can argue that the relative clause does play a role in deriving the at-issue content of the sentence, at least indirectly via presupposition satisfaction.

End aside.

Potts' argues convincingly that CIs are not presupposed. (89) is perfectly felicitous even if the speaker recognizes that the addressee doesn't already know where Monty is from. And Horn (p.c.) notes that non-restrictive relatives may contain performatives, another non-presupposition-like trait:

- (91) Felix, whom I hereby nominate for chair, is one of the most responsible people in the department.

Moreover, the scopelessness of CIs means that the implicature introduced by an embedded non-restrictive relative clause need *not* be satisfied locally (true in the local context of interpretation) and must project globally, so that the speaker is committed to their truth and thereby proffers it to the addressee. So, not only is the speaker of (89') committed to Monty's being from Kentucky (speaker-orientation), but its truth does not entail that Andy knows about this or said anything to that effect. This is unlike the projection behavior of presuppositions, which arguably must be locally satisfied and needn't be globally satisfied. And it is quite unlike the prejacent of *only* since, as we saw, not only must the prejacent be locally satisfied, but that would suffice, so that it is neither speaker-oriented nor inevitably globally projecting.

But in ways that mirror the behavior of the prejacent of *only*, Potts' CIs are like conventional presuppositions. Precisely because speaker-oriented CIs *do* project, then

like presuppositions, non-restrictive relatives pass the family-of-sentences tests. This is reflected in the fact that Potts’ formal treatment of CIs involves a projection mechanism that is a sophisticated revision of the approach in Karttunen & Peters (1979). And like conventional presuppositions, one cannot directly deny or question the content of non-restrictive relatives; hence, they pass the *Hey! Wait a minute...* test. Moreover, the supplemental and expressive CIs share with the prejacent and the polar implications of approximatives the feature that Grice focused on in his discussion of CIs, logical independence from the at-issue content.

I don’t believe it was Grice’s view that CIs generally are speaker-oriented. His examples of conventional implicature, *but* and *therefore*, are not speaker-oriented in the sense just sketched, as we see in the fact that the following examples can be interpreted as attributing the implications associated with these triggers to the matrix subject:²⁸

- (92) I grew up poor, and I know a lot of poor folks who are fine, upstanding people. But Alfred is an ignorant snob, born with a silver spoon in his mouth. He once said of Louise that she was poor **but** honest. I personally find it offensive that he would so clearly associate poverty with dishonesty.
- (93) Bob argued that he owned the car and **therefore** was entitled to drive it, even drunk.

Hence, I am inclined to view background implicatures like the prejacent of *only* and the polar implications of approximatives as a species of conventional implicature in Grice’s original sense, differentiated from Potts’ supplementals and expressives in not being speaker-oriented. Consider the following summary of the distribution of the properties of interest:²⁹

	Conversational implicature	Speakers’ presupposition *	Conventional presupposition ⁺	Background implicature [#]	Supplemental CI
Conventional (¬cancelable)	no		yes		
Independent of at-issue	yes	no		yes	
Constraint on context	no	yes (anomaly)	yes (truth gap)	no	
Speaker-oriented	no				yes

*Including the entailed presuppositions associated with semi-factive and (perhaps) factive verbs.

⁺Perhaps including only anaphoric presuppositions.

[#]Including the prejacent of *only* and the polar implications of the approximatives.

Table 3: Non-At-Issue Contributions to Linguistic Meaning:

²⁸ Whether these are CIs or not (as Bach 1979 argues) is not the point here, but that they aren’t speaker-oriented, so that this wasn’t part of Grice’s conception of the notion.

²⁹ Here I ignore the expressive CIs. See Potts (2006) for more discussion of this very interesting class.

I use the term *speaker's presupposition* here in the privative sense—‘mere speaker’s presupposition’, assuming that there is a broader application which covers the conventionally triggered presuppositions as well, as discussed above. I assume that the special projection behavior of supplemental CIs, their “scopelessness”, arises due to their speaker-orientation. All non-speaker-oriented contributions to linguistic meaning project and are filterable (as argued by Kadmon). It is the speaker- (or agent-)orientation of the supplemental CIs that gives rise to their global-only projection behavior, and hence this is not in itself a distinctive feature.

The point of the taxonomy and terminology tentatively adopted in Table 3 is not to argue about the application of the term *conventional implicature*. What is important is to consider the properties of the various classes of expressions we have considered, and in particular which of those properties are shared by the prejacent of *only*. It seems to me that the classes in the Table aren’t necessarily pre-existing categories of universal grammar, but rather interpretive possibilities that emerge as a function of the nature of linguistic interpretation in context (Roberts 2004) and the particular meanings of particular triggers. But treating the prejacent as a conventional implicature underlines the properties it shares with the supplemental CIs and, I believe, respects Grice’s original conception. In this respect, I find *conventional implicature* preferable to Horn’s *assertorically inert*. The latter term correctly captures one facet of the meaning of these expressions—they are not part of the at-issue content of an utterance in which they occur. But as we have seen, there is more to it than that.

All of the types of contribution to the meaning expressed by an utterance in Table 3 share one property: They cannot be directly denied or questioned. When the non-at-issue contribution is conventionally conveyed, it cannot be cancelled, and can only be disputed by interrupting the ordinary proceedings of the conversation. Hence the *Hey! Wait a minute!* test distinguishes presupposed and conventionally implicated from at-issue content. It seems to me that this feature of non-at-issue contributions is a consequence of what I take to be the crucial distinction between them and the at-issue content of an utterance in which they arise, especially distinguishing at-issue from non-at-issue conventional content: In order for the utterance to be felicitous, its at-issue content must be Relevant to the question (or issue) under discussion,³⁰ while other conventional facets of utterance meaning may be strategic additions, commentary on the at-issue content, or even irrelevant to the issue—like asides and various appositives. Hence, from a discourse-functional point of view, at-issue conventional content plays a distinguished role, and non-at-issue conventional content may play a variety of auxiliary roles that enrich the communicative value of the utterance and help to clarify its function in the discourse.

There are important questions that I have not attempted to address here. One of these is how we ought to model the way that background implicatures arise in the course of the compositional interpretation of an utterance. I suspect that something like the mechanism von Stechow (2000) proposes for informative presupposition will work for background

³⁰ See Roberts (1996b, 2004) for discussion of the way that the question under discussion organizes the flow of information in discourse.

implicatures, and that hence they can be calculated in tandem with at-issue content and conventional presuppositions, without necessitating additions to the basic mechanisms for interpretation in dynamic truth conditional theories. But this will have to be the subject of future investigation.

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