On the non-independence of Triggering and Projection[*]

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April 2013

1. Introduction

It is standard methodology to break a difficult problem down into its subparts in hope of solving the problem one piece at a time. The linguistic literature has taken this approach to the problem of presupposition by separating out two central questions. One question pertaining to presupposition is how or why particular presuppositions attach to particular expressions, i.e. the triggering problem. Another question is how presuppositions behave in semantic composition, i.e. the projection problem.[1] The vast majority of linguistic work on presupposition has been concerned with the latter of these problems. To an outsider, this might seem odd: you might think that the question of how presuppositions arise in the first place would be conceptually prior to the question of how they behave once they're there. For many theorists, though, the focus on projection is entirely justified because it is presumed to be tangential to the question of triggering. Schlenker 2008, for example, presenting his own account of projection, stipulates presuppositions in the syntax of his logical forms, but says: "Eventually we would want to explain why an entailment *e* of a meaning *m* is sometimes conceptualized as a precondition of *m*, **but this is really a different question, which doesn't pertain to the Projection Problem**." As we'll see in section 3 below, some authors (Chierchia & McConnell-Ginet 2000, and Kadmon 2001) have explicitly claimed that triggering and projection are independent, and hence that the two questions can be explored independently.

In the discussion that follows, I'll argue that this methodological assumption is flawed. Triggering and projection are not conceptually independent problems. How one views the projection problem — that is, what one takes such things as the Family of Sentences Test (Chierchia & McConnell-Ginet 2000:

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[1] Interestingly, Soames 1989 doesn't identify the triggering problem as a fundamental question about presupposition. His list of the descriptive questions about presupposition includes the question: What presuppositions do various constructions give rise to? But he does not explicitly identify the triggering problem as something to be resolved, although he certainly touches on it in his discussion.

28-32) to show — depends on how you think presuppositional implications are triggered in the first place. Conversely, the adoption of a particular mechanism for projection, such as that of Heim 1983 or that of Schlenker 2008, imposes non-trivial constraints on accounts of presupposition triggering.

To demonstrate the point, I begin by considering what the projection problem looks like from the perspective of Global Triggering accounts of presupposition; I then take a look at what current standard accounts of projection entail with respect to triggering. In the final section, I'll discuss some approaches which hope to take advantage of the purported independence of triggering and projection, allowing for heterogeneity of triggering combined with a single account of projection.

2. Triggering and Projection in the Radical Pragmatic Approach to Presupposition

Atlas & Levinson 1981: 2-3 offer the following as a general hypothesis about presupposition:

> Wherever 'presuppositions' occur—for example, those associated with proper names and descriptions, clefts, aspectual verbs, pseudo-clefts, iteratives, quantifiers, etc.—the propositions should be considered an entailment of the affirmative sentence and part of or entailed by a generalized conversational implicatum of saying the negative sentence.

Views of this sort about presupposition generally, or about some subclass(es) of presuppositions, are expressed also by Atlas 2005 and elsewhere, Kempson 1975, Wilson 1975, Boër and Lycan 1976, Grice 1981 and Simons 2001. Views vary as to the type of conversational implication involved, and as to the principles involved in deriving the presuppositional implication, as well as accounts of the backgrounded status of the implication. The crucial common feature of these proposals, for current purposes, is their treatment of the presuppositions of negations and all other complex sentences. On these views, the presuppositions of complex sentences are conversational effects of the saying of the sentence as a whole, that is, they are global inferences. Let's call this class of views *Global Triggering Accounts*.

My concern here is not with the plausibilty of an account of presupposition along these lines, but with the perspective these accounts give us on the phenomenon of projection. On these accounts, there simply is no "projection problem," at least not as formulated by Langendoen and Savin 1971. For Langendoen and Savin, the projection problem is "the question of how the presupposition and

assertion of a complex sentence are related to the presuppositions and assertions of the clauses it contains".[2] But on Global Triggering accounts, it makes no sense to talk about the presuppositions of embedded clauses. Presuppositions, on this view, are properties of uttered sentences, triggered by the expression of a particular content (or, on Atlas and Levinson's view, by the use of a sentence with a particular logical form) in a particular discourse context. Hence, embedded clauses do not have independently identifiable presuppositions to be inherited (or not) by complex sentences within which they occur.[3]

But of course, there are still facts to be explained, as all the authors mentioned make clear.[4] Let's introduce the term *Basic Projection Facts* for the following empirical observations.

(1) Survival in the Family of Sentences (Chierchia and McConnell-Ginet 2000)
Given a sentence S which, when uttered, is typically understood to presuppose *p*, utterances of a sentence S' will typically also be understood to presuppose *p*, where:
  a. S' is the negation of S
  b. S' is the yes/no question formed from S
  c. S' is a conditional with S as its antecedent
  d. S' embeds S under an epistemic modal.

(2) The Karttunen Filtering Facts (Karttunen 1973)
  a. A sentence S of the form *If A, B* or *A and B* inherits all of the presuppositions of A and all presuppositions of B, except those which are contextually entailed by A.

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[2] The term *assertion* is clearly used in some nonstandard way here, but this is irrelevant to the current discussion.

[3] The story is somewhat more complicated on Atlas and Levinson's account, as they propose that presuppositions are *generalized* conversational implicatures which might be thought of as being associated with particular forms (and hence are hard to distinguish from conventional implicature). Although they do not discuss the issue directly, Atlas and Levinson don't seem to rule out the possibility of talking about embedded clauses as carrying generalized conversational implicatures. I present the more extreme version of the Global Triggering view for the sake of contrast with the views to be introduced below.

[4] Boër and Lycan are the exception here. They discuss only affirmative sentences and their negations.

b. A sentence S of the form *A or B* inherits all of the presuppositions of A except those which are contextually entailed by B, and all of the presuppositions of B except those which are contextually entailed by A.[5]

Advocates of Global Triggering must account for these regularities, but will have to do so by making reference to general features of utterances and discourses.[6] For example, to explain the Karttunen Filtering Facts with respect to conditionals, a pragmatic Global Triggering account might invoke conflict between what is typically pragmatically implied by utterance of the consequent of the conditional, and ignorance implications induced by the antecedent of the conditional, along the lines originally suggested by Gazdar 1979. But herein lies the rub: No-one has yet succeeded in giving anything approaching a fully general account even of the Basic Projection Facts in conversational terms, without making reference to presuppositions of embedded clauses.

An interesting variant on a Global Triggering account is given in a surprising context, as part of the account of certain cases of association with focus in Beaver and Clark 2008. While B&C are interested in association, their treatment also provides an account of focus-induced projection which, in these cases, is just the flip side of the association coin. The relevant case is what B&C call *quasi-association*, where association-like effects arise, in their view, due to a special type of pragmatic inference. Let's consider briefly their treatment of association with negation, which they discuss with reference to the following example:

(3)   Kim doesn't study [linguistics]$_F$ at Northwestern.

B&C (to some extent following Roberts 1996), argue for the following *Focus Principle*, which plays an important role in the explanation:

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[5] There is some dispute as to the correct formulation of the inheritance conditions for disjunctions, but this is not relevant to the discussion.

[6] We should not think, though, that advocates of a Global Triggering view may not make reference to the contents or other properties of subordinate clauses in developing the account. For arguments to this effect, see Simons (2011).

(4)   **Focus Principle**

        Some constituent (at LF) of a declarative utterance should evoke a set of alternatives which is

        a superset of the denotation of the Question Under Discussion.

Returning to example (3), we must ask what question an utterance of this sentence, with the indicated

focus, could answer. Most straightforwardly, it could answer either (5) or (6):

(5)   What doesn't Kim study at Northwestern?

(6)   What does Kim study at Northwestern?

However, the global intonation pattern further constrains which of these questions an assertion of (3)

could be an answer to. B&C argue in detail (pp.46-47) that with a neutral intonation pattern, (3) would

be appropriate only as an answer to (6). So, utterance of this sentence with a neutral intonation pattern

would most typically indicate an intention to make (6) the QUD. B&C argue that this further indicates

an assumption on the part of the speaker that this question has some positive answer, i.e. an

assumption that Kim studies something at Northwestern. This accounts for the intuition that this

proposition projects over negation.

    This account, which is not even presented as an account of projection, is of interest here because

it turns out to be a Global Triggering account of this case of projection. While the account makes

reference to properties of an embedded clause – namely, the alternatives generated by the clause

embedded under negation at LF – this property is invoked only to satisfy an utterance level constraint,

that is, the Focus Principle in (4). Projection is explained in terms of what is required to render *the

utterance as a whole* felicitous in its context of utterance. Like the traditional Gricean accounts of

projective implications, projection is here understood as a conversational effect of the saying of the

sentence in a particular discourse context.

    So far, we have considered how Global Triggering accounts approach *global* projection effects, that

is, cases where a presupposition (or other projective implication) is ultimately understood as a

commitment of the speaker. There is a different type of example to consider, cases of *Intermediate*

Projection.[7] These seem particularly problematic for any Global Triggering account. An example is given in (7):

(7)   If we pretend that we're already married, we can get Gillian to think that I didn't invite her to my wedding.

Here, the clause *I invite her to my wedding* is under the syntactic scope of negation, of *think* and of the consequent of the conditional. Speaking for now in terms assuming locally triggered presuppositions, we can describe the example as follows: The *invite* clause triggers the presupposition that the speaker has had a wedding by virtue of the definite description *my wedding*. This implication escapes the scope of negation, but falls under the scope of *think*, and is certainly not taken to be a commitment of the speaker. That is, the sentence as a whole receives the interpretation:

(8)   If we pretend that we're already married, we can get Gillian to think that I had a wedding and I did not invite her to it.

According to the Global Triggering view of projection laid out above, what it is for a proposition to project is for an utterance of a sentence to (in one way or another) pragmatically imply it. (Not every case of pragmatic implication is a case of projection; but every case of projection is a case of pragmatic implication.) But in the case of intermediate projection, the utterance as a whole does *not* imply the projective implication. So intermediate projection might seem to involve a very different mechanism from that which, on Global Triggering accounts, produces global projection.

    One possible solution for advocates of Global Triggering would be to argue that cases of intermediate projection are actually cases of an embedded pragmatic effect. We might envision an account in which the observed interpretation is argued to be optimal with respect to general

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[7] What I am here calling *intermediate projection* is more typically referred to as *intermediate accommodation*, and has mostly been discussed in relation to quantified sentences containing presupposition triggers, such as (i) below. It has been argued that where (i) is given the interpretation in (ii), this is the result of accommodating the presupposition which is triggered in the VP in the restrictor of the quantifier. The point has been contested by Beaver 2004.
(i)   Every nation loves its king.
(ii)   Every nation that has a king loves its king.
I am not sure whether examples like (7) have been discussed in the literature, but it does seem pretty clear that the reading in (8) is available, whatever mechanism may produce it.

conversational considerations. Given a framework (such as proposed in Simons 2011, forthcoming) which allows for pragmatically driven modification of the contents of embedded clauses, such an account is feasible. No such account has yet been proposed, however.

2. Local triggering and compositional projection

The Global Triggering theorists cited in the previous section were concerned primarily with the question of what presupposition *is*, and what sort of account should be given of it. They provide accounts of projection only as part of the explication of the general view of presupposition triggering. Indeed, for (most of) these theorists, the theory of projection triggering *is* the theory of projection.

But the far more dominant approach in the linguistic literature on presupposition has been to focus on the development of an account of projection. And all such approaches have been predicated on the assumption that presuppositions are associated with atomic clauses. As noted above, this assumption is embedded in the original definition of the projection problem itself, and it is maintained in all of the influential proposals concerning projection. One of the explicit assumptions of Karttunen's revolutionary 1974 proposal is that "we can give a finite list of basic presuppositions for each simple sentence of English" (184). Gazdar 1979 similarly takes "pre-suppositions" of clauses to be specifiable. Heim 1983 goes further, arguing that a completely general account of projection must allow for the specification of presuppositions of expressions that are not proposition-denoting, i.e. VPs. Turning to more recent developments, Schlenker 2008, although arguing for a very different account of projection, nonetheless assumes that each clause comes with its presuppositions 'attached,' and that these presuppositions are attached in the same way whether the clause occurs independently or embedded.

This assumption of the locality of presupposition is not only embedded in the definition of the projection problem. It is essential for any of the existing projection algorithms to work at all. Consider first those algorithms which are descendents of Karttunen's 1974 proposal, including Heim 1983 and Beaver 1995/2001. All of these algorithms explain projection as cases where the constraints imposed by embedded clauses on their local contexts can be satisfied only if the global context to which the embedding clause is added itself satisfies that constraint. Clearly, such an explanation relies on the assumption that presuppositions originate as clause-level (or lower) constraints. Projection algorithms in DRT are similarly bottom-up. Even the approach of Schlenker 2008, which explicitly eschews the notion of local contexts, requires presuppositions themselves to be locally attached. On his approach,

to predict the presuppositions of a sentence S, we always consider the felicity of a modified version of S in which the presuppositions are "articulated" (i.e. rendered explicitly). Where S is a complex sentence, Schlenker assumes that the relevant modified version is one in which the presuppositions are articulated as conjuncts of the triggering clause. Hence, the assumption of locality is crucial to the account. If the presupposition were articulated as a conjunct of the matrix S, the results would be quite different.

The assumption of locality of presuppositions typically goes hand in hand with the assumption that triggering is conventional. In explicit compositional theories of presupposition projection including Karttunen & Peters 1979 and Heim 1983, the presuppositions of atomic clauses are assumed to originate in the lexical specification of particular expressions: the presupposition trigger. Other theories, such as Karttunen 1973, Gazdar 1979 or Schlenker 2008, do not address the question of how the presupposition attaches to an atomic clause, but do explicitly assume that the attachment, however it happens, is conventional. Given standard assumptions about where conventional meaning properties get encoded, it is hard to see that the presuppositional content could be encoded anywhere other than in the lexical item.

We thus find ourselves very far from the Global Triggering accounts discussed in the previous section. On all of these more standard views, presupposition triggering is local and conventional, and some separate account of presupposition projection is required. The standard assumption is that the account of projection must make reference to the compositional analysis of the sentence. Let's therefore call all such accounts *Local Conventional Triggering + Compositional Projection* accounts.

3. Local Pragmatic Triggering

While no projection algorithm yet makes completely uncontestable predictions, they are remarkably successful, as well as theoretically elegant. No fully pragmatic account has come close to matching them in this respect. The one advantage of pragmatic accounts is that they (at least attempt to) do justice to the intuition that in many cases, perhaps most, the presuppositional status of some implication is pragmatically reasonable. That sentences have the presuppositions they do seems not arbitrary, but rather to derive in some way from the meanings or uses of those sentences. Most of the advocates of Global Triggering mentioned in Section 1. above provide arguments that support the claim that presuppositions are some kind of pragmatic implication. (For surveys of these arguments, see Levinson 1983, Kadmon 2000, Simons 2001.) The assumption made by all standard accounts of

projection, that presuppositions are conventional properties of lexical items or clauses, suggests that there should be no particular constraints on what is presupposed.

For a concrete example, consider the presuppositions associated with clauses expressing change of state, with main verbs like *leave*, *arrive*, *become* or *open*. All such clauses generally presuppose the holding (at the relevant interval) of the start state of the change, with the start state typically being projective, and the holding of the end-state being what is understood to be asserted. Hence, an utterance of:

(9)   Jane didn't leave the house.

typically presupposes that Jane was in the house to begin with, and thus conveys that Jane *remained* in the house.[8] The same observation holds, mutatis mutandis, for all other change of state clauses. But this certainly isn't a necessary property of a clause which expresses this content. It could be quite useful, in a language, to have a change of state verb which presupposes the end state, allowing speakers to assert, deny, or question the holding of the start state. Suppose *pleave* were such a verb, with the same truth-conditional content as *leave*, but presupposing the holding of the end-state. Then an utterance of :

(10)   Jane didn't *pleave* the house.

would convey that Jane was not in the house to begin with.

The assumption that presuppositions are simply stipulated in the lexicon leaves it puzzling why English (or any other language that I know of, although I can't claim to have done extensive or systematic research) has no such change of state verbs. The lexicon is supposed to be the locus of arbitrariness in a language: so if it is not arbitrary that a particular implication has presuppositional status, it would seem that our standard assumptions should lead us to model this fact without invoking lexical stipulation.

Considerations such as these have led some researchers to adopt what we might call the *Cautious Conversationalist view*. The view is that some (but probably not all) presuppositions arise at the clausal level through a pragmatic process, and hence can be *explained* in general pragmatic terms rather than

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[8]Tthere are also uses of the sentence which lack the presupposition; the point here is about typical uses.

being stipulated in the lexicon.[9] But to account for the Basic Projection Facts, and indeed for the presuppositional properties of any complex sentence, it is proposed that we should invoke one or another of the extant projection algorithms. Advocates of the various versions of this view are hopeful that they can thereby have the best of both worlds: an explanatory account of triggering, combined with an elegant, predictive and empirically adequate theory of the presuppositions of complex sentences. (Who wouldn't hope for such a thing?) The Cautious Conversationalist thus posits *Local pragmatic triggering + compositional projection*. In what follows, I will discuss some proposals along these lines, my main goal being to point out the issues that arise in attempting such an account.

3.1.   Local Pragmatic Triggering + Heimian Projection

Chierchia & McConnell-Ginet 1990/2000 [henceforward, Ch&McG] and Kadmon 2001 both adopt a heterogeneity view with respect to the source of presupposition, proposing that some presuppositions can be explained in terms of general conversational principles, while others must be stipulated in the lexicon. Both propose that Heim's projection mechanism provides the right account for the behavior of both types of presupposition in complex sentences.

This proposal imposes two conditions on the pragmatic triggering process envisioned. First, the triggering process must result in a *local pragmatic effect*. The operation of Heim's mechanism requires that presuppositional atomic clauses in a complex sentence impose a definedness constraint on their local contexts. Hence, if a pragmatic triggering account is to be coupled with this mechanism, pragmatic triggering must produce such a local constraint. Consider, for example, what would be required for a Cautious Conversationalist account of the conditional (11):

(11)   If John sees Claudia's car in the driveway, he'll realize that she's home.

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[9] To the best of my knowledge, the first person to propose this heterogeneity view of the sources of presupposition was Robert Stalnaker, who in Stalnaker 1974 writes: "I [conjecture] that one can explain many presupposition constraints in terms of general conversational rules without building anything about presuppositions into the meanings of particular words or constructions. But I make no general claim here. In some cases, one may just have to write presupposition constraints into the dictionary entry for a particular word" (212). Stalnaker, though, has not written in any detail about the assignment of presuppositions to complex sentences, hence his stand on this topic is uncertain. However, his discussion of the presuppositionality of sentences with *know* (1974: 206) suggests a Global Triggering approach.

The account must provide a pragmatic inference process which results in the conclusion that the local context for the consequent clause must entail that Claudia is home. There are thus two options: either the inference is a global one which has a local effect (i.e. results in the recognition of a constraint which applies to a subordinate clause); or else the inference is a local one, i.e. it is based only on the content (or expression of the content) of the consequent clause. So a Heim-compatible pragmatic-triggering account requires a version of pragmatics which allows for such local effects. Moreover, because Heim's mechanism assumes that atomic clauses are always associated with the *same* definedness constraint, the pragmatic triggering mechanism would have to produce the same effect regardless of the syntactic or discourse environment in which the clause occurs. Presumably, then, these factors could not play a role in the derivation of the inference.

The first condition, then, that must be satisfied by a pragmatic triggering mechanism which is to be combined with a Heimian projection mechanism is that its output must have a local effect. The second condition is that the inferential process must produce a particular kind of pragmatic effect, namely, it must derive a contextual update constraint. This is very different from the output of the pragmatic processes assumed under the kinds of Global Triggering accounts discussed earlier. On those views, presuppositions are simply beliefs attributed to the speaker. Inferences resulting in identification of a presupposition are simply inferences about the speaker's beliefs. In contrast, if pragmatic triggering is to interact with a Heimian projection mechanism, the output of the triggering inference must be a local contextual constraint of the appropriate kind.

One worry one might have about the envisioned pragmatic triggering mechanism is precisely this reference to local contextual constraints. Local contexts are theoretical objects. If pragmatic reasoning is supposed to draw conclusions about constraints on local contexts, then we must assume that language users, at least implicitly, have access to this notion.[10]

There is one further worry, or at least puzzle, that this combination of pragmatics with Heimian projection raises.[11] In Heim's framework, if a local-context constraint is not satisfied, the result is undefinedness of update: the correlate, in the Context Change framework, of truth-valuelessness.

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[10] If one wanted to combine pragmatic triggering with a DRT projection account along the lines of van der Sandt 1992, similar conditions would obtain. The pragmatic triggering would have to have a local effect, as discussed above. But rather than deriving a local context constraint, the inference would have to derive the conclusion that some element of content must have an antecedent in the DRS.

[11] Thanks to Ander Schoubye (p.c.) for this point.

Consequently, if we combine local pragmatic triggering with Heimian projection, we are committed to the idea that a *pragmatically* derived constraint can result in *semantic* failure.

Kadmon (2001: 216) explicitly acknowledges that the type of account she has in mind is subject to the two requirements just noted: the conversational inference resulting in presuppositions must be local, and must derive a contextual constraint. She expresses optimism that an appropriate inferential account can be given, but does not propose one. This certainly does not tell us that no such account can be given, but brings us no closer to identifying it.

Ch&McG, on the other hand, while advocating the same combination of pragmatic triggering and Heimian projection, do not note these constraints, and hence fall into an interesting error. It is worth looking in detail at their discussion.

Ch&McG take contextual defeasibility to be the signature of a conversationally generated presupposition (p.384), taking factives as their central illustrative case.[12] Consider the following examples with *discover*:

(12)   If Jim discovers that I am in New York, there will be trouble. [spoken by Bill]

(13)   If I discover that Bill is in New York, there will be trouble. [spoken by Jim]

(14)   If Jim discovers that Bill is in New York, there will be trouble.

As Ch&McG observe, an utterance of (12) can only be understood as implying that Bill (the speaker) is in New York, while an utterance of (13) cannot give rise to that implication. And although (14), presented out of the blue, is easily read as implying that Bill is in New York, it is also easy to construct a context in which the implication does not arise: Suppose that it is common ground that neither speaker nor addressee knows where Bill is, but the interlocutors have just learned that Jim is looking for Bill, and are speculating as to what will happen when he finds him.[13]

Motivated by such observations, then, Ch&McG propose that the presupposition triggered by *discover* should be treated as a special kind of contextual implication, to be explained in broadly

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[12] The idea that contextual defeasibility is a marker of conversationally generated presuppositions is echoed in Simons 2001. Since Abusch 2002, expressions which introduce such defeasible presuppositions have been called *soft triggers*.

[13] Ch&McG note that this reading is facilatated by focal stress on *New York*; see also Beaver 2010 for many more examples of this type, and discussion of the relation to focus.

Gricean terms. But they also propose that this claim is tangential to claims about how presuppositions project:

> While presuppositions can arise from either conventional or pragmatic sources, we would expect that their projection properties are the same, since the context change potential of nonatomic sentences is independent of how the presuppositions are triggered.

But as noted, they do not observe that in order for a Karttunen/Heim mechanism to apply, the relevant implications must attach to the relevant constituent clause. And in fact, where they discuss these examples, they present the implication as a *global* one:

> *Discover* is a factive, which is to say that if *x* discovers *p*, *p* must be the case. A speaker who has reason to doubt that Bill is in New York typically has no reason to conjecture what would happen if somebody discovered it. Hence, asserting [(14)] will lead the hearer to infer [that Bill is in New York], on the assumption that the speaker is being cooperative. But by the same token, if the speaker knew Bill's whereabouts, he would have discovered whether Bill is in New York or not and hence would have no reason to utter [(13)], which implies that it is an open question whether she will discover that Bill is in New York. So again, on the assumption that the speaker is being cooperative, [(13)] does not license inferring [that Bill is in New York]. (2000: 354)

I quote this passage in full simply to illustrate that the account sketched here, of both projection *and* non-projection, is a Global Triggering account: it is an account of why utterance of the sentence *as a whole* does or does not give rise to the relevant implication. It is not an account of why the atomic clause *Jim discovers that Bill is in New York* presupposes that Bill is in New York; certainly, it is not an account of why the atomic clause *Jim discovers that Bill is in New York* can only be used to update a local context which entails that Bill is in New York. In fact, once the line of reasoning pursued here has been followed, the Heimian projection algorithm would have no work left to do.[14]

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[14] The account sketched here is reiterated in slightly different terms in a later section of the chapter. With respect to the later presentation, a somewhat different worry arises. There, the authors suggest that the various pragmatic assumptions which serve to suppress the presupposition are part of the context to be updated by the utterance, and that the "potential presupposition" is canceled when it is inconsistent with these assumptions. The problem is that the notion of a "potential

What we learn, I think, from examining Ch&McG's discussion, is that once we begin to think about inferential triggering of a presupposition, it is natural to extend that thinking to the projective case too, and hence to fall into a Global Triggering account. The familiar Gricean machinery does not easily lend itself to generating the type of local, context-blind implication that is needed for the combination of conversational triggering with Karttunen/Heim projection.

3.2.   Abrusan 2011

Abrusan 2011 proposes an interesting and innovative version of the Local Pragmatic Triggering + Compositional Projection view. The focus of her paper is on the pragmatic triggering mechanism[15]; projection is mentioned only in passing. While her proposal concerning triggering warrants a serious discussion in its own right, I shall focus here only on the issues that arise when we consider how her approach to triggering might combine with a projection algorithm.

Abrusan's proposal, in a nutshell, is this: Among the entailments of an (atomic) sentence, some are main point, and some are independent of the main point. These independent entailments are presuppositions. Utilizing an account of aboutness due to Demolombe and Fariñas del Cerro (2000), Abrusan argues that main point entailments are those which are "about" the event time of the matrix predicate. All other entailments are non-main-point, and presuppositional.

At the outset of her paper, Abrusan states:

> This paper looks only at unembedded sentences. I assume that presuppositions of complex sentences are derived from the presuppositions of atomic sentences they contain, via a separate projection mechanism.

presupposition" makes sense only for conventional triggering: if an implication is conversationally triggered, then either it is generated given contextual assumptions, or it is not.

[15] In particular, Abrusan's proposal concerns the triggering of *verbal* presuppositions only. Although similar intuitions about backgrounding apply to presuppositional entailments triggered by nominals, Abrusan's stratey for characterizing (non)-aboutness and hence predicting presuppositionality fails with respect to these cases.

One question which immediately arises is whether Abrusan has in mind a particular projection mechanism already proposed, or one which is as yet to be discovered. It will be clear from the discussion above why this matters: the choice of projection mechanism constrains what it must mean for these backgrounded entailments to be presupposed. As it is, there is already an explanatory gap in Abrusan's proposal: we don't know *why* an entailment which has the non-aboutness property she defines should be "presupposed" – whatever that is taken to mean.[16] This explanatory gap comes into sharper focus when we consider some particular interpretation of presupposition. Suppose Abrusan hopes to combine her account of triggering with a Karttunen/Heim projection mechanism. Then we must assume that backgrounded entailments of an atomic clause S are subject to the requirement that they be entailed by the local context of S. But it remains puzzling why this should be.[17]

A further problem arises when we start to consider generalizing Abrusan's proposal beyond unembedded sentences. Crucially, her account of triggering requires the identification of the entailments of a triggering clause; those which have the non-aboutness property are presupposed. Now, if the presuppositions of a complex clause are to be derived from the presuppositions of atomic clauses, identified via the triggering mechanism, we need to be able to identify the entailments of embedded clauses which are intuitively presupposition triggering.

For cases where an embedded clause denotes a proposition, this is not a problem. Consider the case of:

(15)   Jane is surprised that [John realizes that Abigail is upset].

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[16] Contrast this approach with that taken in Simons et al. 2010. There, it is proposed that projectivity is a consequence of not-at-issueness — essentially, informational backgrounding. But unlike Abrusan, Simons et al. propose that projection derives *directly* from not-at-issueness, eliminating talk of presuppositionality entirely from the discussion of projection (cf. Beaver & Clark's proposal re. focus related projection discussed above). Hence, there is no explanatory gap of the sort just noted.

[17] As far as I can tell, the least theoretically committed projection mechanism on the market is that of Schlenker 2008. This approach simply requires us to identify presuppositions as "special" implications of the triggering expressions. Abrusan's non-aboutness property would be one way to identify the relevant implications. However, to apply Schlenker's account, Abrusan would have to take on the assumption that backgrounded entailments are subject to Schlenker's *Be Articulate* constraint. By this assumption, there would be a pragmatic constraint requiring (in the absence of conflict with *Be Brief*) the explicit articulation of backgrounded content. Yet backgrounded content seems exactly the kind of thing that speakers should avoid making explicit if possible.

The embedded *realize* clause denotes a proposition, just as it would if it occured unembedded. Hence we can identify its entailments and, using Abrusan's triggering mechanism, can identify its presuppositions. But in other cases, an embedded clause may contain deictic or anaphoric expressions whose value is fixed either by the context or by the value of another expression higher in the sentence. An embedded clause may also contain variables bound by higher quantifiers.[18]

(16)   Jane$_i$ is surprised that [he$_j$ realizes that she$_i$ is upset].

(17)   We expect Jane [__ to realize that the performance has been canceled].

(18)   [Every ballerina in the corps]$_i$ fears that [she$_i$ will regret that [she$_i$ ate a donut for breakfast]].

The case in (16) is relatively straightforward to deal with, although it shows that we cannot determine the entailments of an embedded clause independently of the syntactic and discourse environment in which it occurs. For (17), some value must be fixed for the implicit subject; on some standard views, this is also essentially a matter of fixing a value for an anaphor. In addition, the temporal interpretation of the infinitival clause is dependent on the temporal interpretation of the main clause. This value would have to be fixed in order to identify entailments. Example (18), involving bound variable pronouns, is the more pivotal case. On Abrusan's account, the triggering mechanism should make available a presupposition generated by the clausal complement of *fears*, i.e.

(19)   [she$_i$ will regret that [she$_i$ ate a donut for breakfast]]

But the pronouns here are bound variables, so this clause does not denote a proposition, but a function.

Two solutions seem possible. One would be to develop some extended notion of entailment applicable to non-propositions, and to modify the definitions of (non)-aboutness accordingly. This would involve a substantial revision of the proposal, and I leave as an open question whether this can be done. It is worth noting that this issue will arise for any attempt to predict presuppositions locally on the basis of clausal entailments.

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[18] The issues I raise here for Abrusan do not originate with me. An anonymous reviewer of a manuscript from which this paper is descended raised these points as objections to a definition of projection which I attempted there. I subsequently realized that the very same objections apply to Abrusan's proposal. I'm grateful to that reviewer for the insights, and to Kai von Fintel for additional comments on this issue.

The secod solution would be to bite the bullet, and accept that in the case of quantified sentences, presuppositions attach to no constituent smaller than the quantified sentence itself. In general, it would seem to lead to the view that presuppositions – at least, the kind of verbally triggered presuppositions Abrusan deals with – are properties only of proposition-denoting constituents. This seems quite a reasonable move, given Abrusan's proposal that these presuppositions are derivable from content, rather than associated by convention with particular lexical items.

But we would then be left with the substantial question of how it is determined what the presuppositions of quantified sentences are. As is well known, the presuppositions of quantified sentences are hard to determine, and even harder to model. If Abrusan accepts the consequence that she cannot attach presuppositions to VPs, then she will need some non-compositional projection account to predict the presuppositions of quantified sentences.

4. Summary

I hope that the observations made here have properly supported the contention made in the introduction, that the triggering problem and the projection problem are not independent. It doesn't follow from this that the methodology of researching the two issues separately is unjustified. But it does follow that commitments one takes on about either problem have bearing on possible solutions to the other.

It might also seem that these observations leave us caught on the horns of a dilemma. The attempt to provide explanatory accounts of triggering seems to lead towards global accounts of presuppositions; but global accounts seem pretty hopeless as a way of accounting for the systematicity of presupposition behavior in complex sentences. To account for this behavior, we are best off with the assumption that presuppositions arise locally; but the most robust account of local triggering treats presuppositions as conventional properties of lexical items. To the extent that conventional lexical properties are expected to be arbitrary and idiosyncratic, such an approach seems unlikely to provide a satisfying explanation of the close relation between presuppositional and truth conditional content, or of cross-linguistic similarities in presuppositional contents.

A very different approach to triggering is proposed in Abusch 2002, 2009 which offers an interesting alternative. Abusch utilizes the notion of alternatives familiar from Rooth's (1985, 1992) alternative semantics for focus. The idea is roughly that the disjunction of all of the alternatives

triggered by an expression (at any level) corresponds to the limits of the domain currently under consideration. Anything that holds in this entire domain is intuitively presupposed. This idea is developed in the account of focus related projection in Beaver and Clark 2008, discussed above, and in related work on projection launched in Simons et al. 2010.

The generation of alternatives (although not treated as such by Abusch) has both pragmatic and conventional features: surface marking (particularly by focus) constrains the possibilities with respect to the alternatives under consideration, but so too do discourse factors. On the other hand, alternative semantics allows for alternatives at any syntactic level, from lexical items on up. The development of an account of triggering and projection utilizing alternatives might well resolve our dilemma.

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