On the focus-sensitive presupposition triggers *too, again, also, even*

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Abstract. This paper proposes to derive the presupposition of additive particles *too, as well, also* and the temporal particle *again*. It argues that the presuppositions of these particles can be predicted by the same presupposition triggering mechanism that was proposed for so-called soft triggers in Abrusán (2011). It is shown that presupposition suspension facts, characteristic of soft triggers, do not arise with additive particles because of their anaphoric and focus-sensitive nature. Finally, the paper proposes that the soft-hard presupposition distinction can be explained not in terms of differences in the nature of the presupposition but rather as a consequence of the anaphoric/focus-sensitive nature of various triggers.

Keywords: presuppositions, anaphora, focus

1. Introduction

Additive particles such as *too, also, as well* and *again* presuppose the truth of some alternative proposition. For example, the sentence in (1) presupposes that John ate pizza at a previous time:

(1)   John ate pizza again.
        presupposes: John ate pizza at some previous time.

Why is this content presupposed? After all, it could simply be part of the 'at issue' content of *again*. Such *why*-questions are not often asked in the presupposition literature. Traditionally, most research on presuppositions was concerned with the projection problem, and the *why*-question, i.e. the triggering problem has been mostly neglected or deemed too difficult to address. More recently, however, there have been attempts to explain the presuppositions of so-called soft triggers such as factives or questions (cf. Simons 2001, Abusch 2005, 2010, Abrusán 2011). Yet none of these works address the problem of predicting the presupposition of additive particles.

This paper shows that the presupposition of these items can be explained by Abrusán's (2011) mechanism. The second aim of this paper is to discuss why cases of presupposition suspension can or cannot be observed. It will be shown that at least some such examples can be related to focus (cf. Beaver 2010) and that differences in the anaphoric properties and the focus-sensitivity of triggers might explain a big part of the differences in suspension data. As an upshot of this discussion I suggest that the often cited soft vs. hard presupposition trigger distinction, based on differences in the suspendability of presuppositions of the various triggers, can be reduced to differences in focus-sensitivity and anaphoricity.

2. Background: Verbal presuppositions (Abrusán 2011)

Abrusán (2011) has proposed a triggering mechanism that can predict the presuppositions of attitude predicates, aspectual predicates and various 'happens-before' entailments of verbs. The central idea behind this paper was that presuppositions of such triggers arise from the way our attention structures the informational content of a sentence. Some aspects of the information conveyed are such that we pay attention to them by default, even in the absence of contextual information. On the other hand, contextual cues or conversational goals can divert attention to types of information that we would not pay attention to by default. Either way, whatever we do not pay attention to, be it by default, or in context, is what ends up presupposed.

More precisely, I have argued that any information that is also conveyed by the sentence but is not about the main event described is presupposed, unless there is some contextual factor that directs attention to this information as well. When this happens, what would normally be presupposed is not presupposed any more: i.e we have presupposition suspension. Note that what happens is not that attention is completely diverted, rather, extra information is brought under the spotlight of attention as well.

The central intuition behind the paper was that presuppositional assertions describe complex states of events, some parts of which are independent from the main events. So what we want to achieve is to tell independent events apart: select the main event described by the sentence, and decide what other information conveyed by the sentence describe independent events from the main one. But because of the complex mereological structure of events and further ontological difficulties with events corresponding to negated sentences or mathematical truths, etc., rather than making reference to events themselves, I have used event times. The idea of looking at event times instead of events themselves serves the purpose of making independence more tractable: events that might happen at different times are clearly different events.

Thus Abrusán (2011) assumed that the default main point of a sentence is given by those entailments that are by nature about the event time of the matrix predicate. Propositions that describe events that are not (or do not have to be) about the event time of the matrix predicate of S are independent, and hence presupposed. Let's illustrate the idea with a simple example. Consider (2), in which t_1 denotes the event time interval of the matrix predicate, and t_2 is some interval before t_1, given by the context. Let's look at the sentence S and two of its (many) entailments, φ and ψ:

(2)   S=John knows (at t_1) that it was raining (at t_2).
      a. φ= John believes (at t_1) that it was raining (at t_2).
      b. ψ= It was raining (at t_2).

In an intuitive sense, φ is about the time denoted by t_1, but ψ is not: changing the properties of

the world at t_1 will not affect the truth value of ψ but it might affect the truth value of φ.[1] But with this simple example the obvious question arises: what about sentences such as (3)? The embedded proposition in (3) is not temporally independent from the main assertion, yet it seems to be presupposed:

(3)   John knows (at t_1) that it is raining (at t_1).

      a. φ= John believes (at t_1) that it is raining (at t_1).
      b. ψ= It is raining (at t_1).

However, we need to distinguish accidental co-temporaneity from non-accidental one. In the above example, though it so happens that the embedded proposition and the matrix proposition are true at the same time, this is only an accident, it could be otherwise. But the co-temporaneity of the matrix time of φ with the matrix time of S is not an accident, but follows from the lexical interpretation of *know*.

For this reason, Abrusán (2011) assumed that the default presupposition triggering mechanism looks beyond the actual sentence and assesses the properties of alternative sentences called temporal-alternatives (or just T-alternatives for short). T-alternatives are obtained by replacing the temporal arguments of the matrix and embedded predicates with different ones. More precisely, we replace the temporal variables with ones which the assignment function maps to different intervals than the original time of the matrix predicate. E.g:

(4)   John knows (at time t_1) that it was raining (at time t_1)
        T-alternative: John knows (at time t_1) that it was raining (at time t_2)

(5)   John managed (at time t_1) to solve the exercise (at t_1)
        T-alternative: *John managed (at time t_1) to solve the exercise (at t_2)

Let's say that p and p' are corresponding entailments if they can be expressed by sentences that only differ in their temporal arguments. Take an entailment p of S. If there is a well formed alternative S' to S such that the corresponding entailment to p (namely p' of S') can be expressed by a sentence that is not about the event time of the matrix clause of S', then I will say that p is only accidentally about the matrix event time of S. In (4), the entailment that it was raining (at time t_1) of the original sentence is only accidentally about t_1, because there is a T-alternative (*John knows (at time t_1) that it was raining (at time t_2)*) whose corresponding entailment (that it was raining at t_2) is not about the matrix tense of the T-alternative. On the other hand, (5) does not have a well formed T-alternative where the two temporal arguments differ (cf. Karttunen 1971a on temporal restrictions of implicatives): for this reason the entailment of the original sentence in (5) that John solved the exercise at t_1 is non-accidentally about the matrix event time. The default

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[1] Abrusán (2011) assumed that event times denote salient intervals whose value is assigned by the context. As such, they are rather like pronouns (cf. Partee 1973). *Aboutness* is defined as in Demolombe and Fariñas del Cerro (2000). See also Abrusán (2011) for details.

triggering mechanism is given in (6). In virtue of (6), the veridical entailment of (3) is predicted to be presupposed because although it is about t_1, it is only accidentally so.

(6)   *Presupposition triggering (to be revised)*
        Entailments of a sentence S that can be expressed by sentences that are not necessarily about the event time of the matrix predicate of S (i.e. they are either not about it, or only accidentally so) are presupposed.

Besides the default, grammatically defined main point, it is possible that the context or the intentions of the participants of the conversation raise interest in aspects of the entailed meaning of the sentence that would otherwise 'pass under the radar', and be presupposed. One factor that can bring extra elements under the spotlight of attention is focus. As Beaver (2010) observes, (7) does not suggest that the student has plagiarized his work, despite the fact that discover is normally factive.

(7)   If the TA discovers that [your work is plagiarized]$_F$, I will be [forced to notify the Dean]

Focus is usually taken to be the part of a sentence that conveys the new or highlighted information, thus the information that directly answers a background question. In this sense, focus grammatically signals the presence of a background question. Abrusán (2011) proposed that grammatically marked background questions can introduce a secondary (or pragmatic) main point. Secondary main points concern the event time of the sentence expressing the most direct proposition that answers the background question. The presupposition triggering mechanism looks both at the default (grammatical) and the secondary (pragmatic) main points and requires the presupposition to be independent from both of these. This derives the above data in the present framework.

(8)   *Presupposition triggering (final version)*
        Entailments of a sentence S that can be expressed by sentences that are neither necessarily about the event time of the matrix predicate of S nor about the event time of the sentence expressing the most direct answer to the (grammatically signaled) background question are presupposed.

Put more simply, the proposal above requires that presuppositions be independent from both the default and the secondary (pragmatic) main points. Secondary main points can be introduced by grammatical markers such as focus and evidential verbs (and presumably others). In (7), focusing the embedded clause indicates that the background question is *What will I discover?* The direct answer to this question is a proposition, namely the proposition denoted by the embedded clause *your work is plagiarized*. The pragmatic, secondary main point therefore concerns the information that is about the tense argument of the sentence expressing this proposition, i.e. the tense argument of the embedded clause. Thus the information conveyed by the embedded clause is not independent from the secondary main point, and is not predicted to be presupposed.

3. The presuppositions of additive particles *too, again, also, as well*

The mechanism presented above can be extended to explain the presuppositions of additive particles such as *too, again, also, even*. The presuppositions of these items have been shown in the literature to be special in various ways (cf. Kripke 2009, Krifka 1998, van der Sandt and Huitink 2003, van der Sandt and Geurts 2001, Zeevat 2003, Saebo 2004, Amsili and Beyssade 2010, Eckardt and Frankel 2012, Winterstein 2011 among others). I list their most important properties below.

3.1. Characteristic properties of additive particles

Association with focus/contrastive topics   The first special property of additive particles is that they associate with an element in the sentence: the actual presupposition is determined by the interaction of this element and the particle (cf. Rooth 1985, 1992, Krifka 1998, Saebo 2004, among others). Traditionally, this associate was assumed to be the focused constituent in the sentence, cf. e.g. Rooth (1985, 1992), which is why they are also called focus particles. Krifka (1998), however, has argued that in the case of stressed additive particles the prosodic stress involved corresponds to contrastive topic. In (9a) the additive particle *too* associates with the subject. The presupposition is generated by replacing the subject with an existentially quantified variable that cannot take the referent of the subject as value. In (9b), the associate of the additive particle is *dinner*: the presupposition changes accordingly: this sentence presupposes that Peter invited Mary for something other than dinner.

(9)   a.   [Peter]$_F$ invited Mary for dinner, too.
             presupposes: Somebody other than Peter had invited Mary for dinner.
       b.   Peter invited Mary for [dinner]$_F$, too.
             presupposes: Peter had invited Mary for something other than dinner.

Following Krifka (1999), I represent the meaning of additive particles schematically as below:

(10)   ADD$_1$ [...F$_1$ ...]]:   *asserts*: [... F ...]   *presupposes*: $\exists F' \neq F$ [...F'...]

In this representation, F stands for the associated constituent. [...F...] stands for the scope of the particle. F' ranges over alternatives of F that are semantically of the same type as F, and may be further restricted contextually.

The particles *also, as well* behave similarly to *too* exemplified above. The temporal particle *again* does not associate with contrastive topics (or foci) in a similar way. Although the constituent in its scope might contain a focused element, in the presupposition generated the focused element is not replaced by an alternative. Thus the presupposition of (11) is not that Fido ate somebody else's shoes on a previous occasion, but that he ate mine.[2]

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[2]It is possible that the constituent focused in the sentence is also understood as being focused in the presupposition.

(11)   Fido ate [my]$_F$ shoes again
         presupposes: Fido ate my shoes on a previous occasion.

The anaphoric requirement   A characteristic property of the presuppositions of additive parti-
cles is that they have an anaphoric component, cf. Heim (1990), Kripke (2009). This is shown by
the following examples:[3]

(12)   a.   Sam had dinner in New York too.
                presupposes: Somebody other than Sam had dinner in New York.
         b.   Sam also had dinner in New York.
                presupposes: Somebody other than Sam had dinner in New York.
         c.   Sam ordered dessert again.
                presupposes: Sam ordered dessert on some previous occasion.

The point made in Heim (1990) and Kripke (2009) was that if the presuppositions of the above
examples were simple existential statements, they should be felicitous even without any particular
background context. This is because in a typical context the presuppositions above are trivially
satisfied simply by our world knowledge: on any given night, many people are having dinner in
New York. Similarly, it is most likely Sam ordered dessert on some previous occasion too. Yet,
the examples strike us as infelicitous if uttered out of the blue. They are only felicitous if the
content of the presupposition has been mentioned recently, or is otherwise part of what Kripke
calls the 'active context' of the conversational partners. For the moment, I will mark the anaphoric
requirement informally with a subscript C on the existential quantifier in the description of the
presuppositions.

Anaphora resolution   The resolution of the anaphora in the presupposition of additive particles
shows some surprising properties.[4] First, additive particles are able to establish an anaphoric link
with antecedents in positions that are normally unavailable for anaphors, cf. van der Sandt and
Geurts (2001), van der Sandt and Huitink (2003), Zeevat (2003):

(13)   A: Harry may well have dinner in New York.
         B: John is having dinner in New York, too. (van der Sandt and Geurts 2001, p2)

Second, the presupposition of these particles can escape being 'plugged' by attitude contexts, and
can thus be understood as if it had wide scope, cf. Heim (1992), van der Sandt and Geurts (2001):

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[3]M. Wagner (2013) presents examples of non-anaphoric *too* (partly based on a talk by Ruys 2012):

(i)   This, too, shall pass (example of E. Ruys)

[4]NB: This issue is connected to how we resolve the anaphora, not to what is actually triggered.

(14)   *Context:* Two children talking on the phone.
         A: I am already in bed.
         B: My parents think I am in bed too.

The point about the above example is that the utterance of B can be understood in such a way that its presupposition that somebody other than B is in bed is not satisfied in the belief context of the parents, but in the matrix context. In other words, the parents do not have to have any idea about anybody other than their own child being in bed.

Third, the resolution of the anaphora is also sensitive to various discourse factors, in particular a parallelism between the antecedent and the sentence with which the additive particle associates with is required (cf. Asher 1993, Amsili and Beyssade 2010, Winterstein 2011).

Redundancy/obligatoriness   The last interesting property of additive particles I mention here is their obligatoriness (cf. Krifka 1998, Zeevat 2003, Saebo 2004, Amsili and Beyssade 2010, Winterstein 2011). In a sentence such as (15a) the presupposition of the second clause is satisfied by the content of the first clause. Since the additive particle is usually assumed to only add its presupposed content to the meaning of the sentence, it is somewhat surprising that it cannot be omitted without the sentence becoming pragmatically infelicitous, as shown in (15b):

(15)   a.   John ate pizza, and Mary ate pizza, too.
         b.   #John ate pizza, and Mary ate pizza.

One promising path to resolve this question connects the infelicity of the sentence without the additive particle to the implicature arising from the contrastive focus on the first or the second constituent (Krifka 1998, Saebo 2004). Simplifying somewhat, the reasoning is that contrastively focusing a constituent normally suggests that the speaker was not in the position to supply a more complete answer to the background question. The second assertion however contradicts this implicature. The rationale behind inserting the additive particle is to avoid the infelicity that would arise from the clash between the implicature and the asserted meaning, by explicitly denying the implicature.

3.2. Basic proposal

I propose that presuppositions of additive particles can be derived similarly to the presuppositions of verbs, by applying essentially the same mechanism. I argue first that the presupposed content is also entailed (3.2.1). Given this, the overall reasoning is the following: the additive particle is inserted in order to avoid a clash between the content and implicatures (as suggested in Krifka 1998 / Saebo 2004). The particle contributes to the entailed meaning that there is a true, non-identical alternative to the sentence, as described in (16) below:

(16)   ADD$_1$ [...F$_1$ ...]]:   [... F ...] & $\exists_C$ F'$\neq$ F [...F'...]

As before, F stands for the associated constituent, [...F...] stands for the scope of the particle and F' ranges over alternatives of F that are semantically of the same type as F, and may be further restricted contextually, which I represent by a subscript C on the quantifier. Once the particle is inserted, contributing its requirement for an anaphoric alternative, the presupposition triggering mechanism kicks in and turns the entailment that there is a true anaphoric alternative into a presupposition (3.2.3).

Entailment vs. presupposition   There are reasons to assume that the presupposition of additive particles is also part of their entailed meaning. Crediting H. Kamp, van der Sandt and Huitink (2003) observe that (17a) is contradictory, while (17b) is not.

(17)   a.   #Floppy will be on the run at Christmas, but she will never be on the run.
         b.   Floppy will be on the run at Christmas, but she will never be on the run again.

If the implication of the second clause was simply presupposed, the entailed meaning of (17b) should be contradictory just like (17a). The fact that it is not, suggests that the temporal condition, namely that Floppy was on the run at some contextually given previous time, is also part of the entailed meaning. This suggests that the presupposition of *again* is also entailed. Similar examples can be reproduced with other additive particles as well:

(18)   a.   #Mary went to the shop, but it is not the case that somebody went there.
         b.   Mary went to the shop, but it is not the case that somebody went there as well.

Note that assuming that the presupposition is also entailed does not change the observed behaviour of additive particles. In non-embedded cases, it is not possible to tell presuppositions and entailed meanings apart. In embedded cases, since the presupposition is *both* entailed and presupposed, it still projects (or not), and thus we observe the same behaviour as if the meaning in question was only presupposed. Given these arguments, and following Stalnaker (1974) and others, I will assume that the presupposed part of the meaning is also entailed.

If the implication that a salient alternative is true in the context is part of the entailed meaning, the triggering question in connection with additive particles becomes: why does a part of the entailed meaning become presupposed, and which part is it? Below, I propose an answer to this question.

Representation   In the above descriptions (cf. (16)) I have used a contextually restricted existential quantifier to represent the individual time or entity that the alternative proposition has to be true of. The contextual restriction on the quantifier could be thought of as an anaphoric pronominal item that might be resolved in accordance with the observations on the availability of the antecedent that were made above.

Another possibility is to represent the individual (entity or time) of which the alternative proposition is true with an anaphoric pronoun that has to be resolved in context, cf. Heim (1992), van der Sandt and Geurts (2001), van der Sandt and Huitink (2003), among others. A schematic representation is given below, where F'_C represents the anaphoric pronoun that needs to be resolved in discourse, and $F'_C \neq F$ is the condition that an anaphor cannot be resolved to the entity mentioned in the sentence:

(19) $ADD_1 [\varphi(F_1)]$: $\varphi(F)$ & $[\varphi(F'_C)$ and $F'_C \neq F]$

In what follows I will use the representation with anaphoric pronouns. [5]

Proposal   Let us now extend the mechanism presented in Section 2 to triggers such as *too, again, also, even*. Observe first (20a), and the informal representation of its meaning in (20b), with x_C standing for an anaphoric free variable that has to be resolved in context (e.g. according to the rules of anaphora resolution proposed by DRT, cf. e.g. van der Sandt and Geurts 2001).

(20)   a. $[Peter]_{TF}$ invited Mary for dinner, too.
        b.   Peter invited Mary for dinner & x_C invited Mary for dinner, where $x_C \neq$ Peter

Interestingly, if we restrict the time-frame of the matrix clause with a temporal adverb such as *yesterday*, the temporal span of the additive component does not have to be contained in this temporal restriction. This is shown by the acceptability of the sentence in (21).

(21)   Two days ago, John invited Mary for dinner, and yesterday Peter invited Mary for dinner, too.

In fact, not even the tense on the matrix verb must be respected in the presupposition, as shown by (22):

(22)   At this moment, John is inviting Mary for dinner, and yesterday Peter invited her for dinner, too.

This suggests that the additive meaning import of *too* is not restricted by the tense on the matrix verb. In fact, this was already demonstrated by examples such as (13), in which the antecedent

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[5]In van der Sandt and Geurts (2001) and van der Sandt and Huitink (2003) the anaphoricity of the free variable inside the presupposition is captured as a presupposition, i.e. the presupposed proposition contains an anaphoric (presuppositional) pronoun. Thus there are two presuppositions that need to be resolved. In this paper I have nothing to say about the derivation of the presupposition of the anaphoric pronoun inside the presupposed proposition. The present paper is only interested in the explanation of why the alternative proposition introduced by additive particles becomes presupposed. The question of why this alternative has an anaphoric pronoun in it, or indeed how the anaphor is resolved is tangential to this. For solutions concerning the idiosyncratic anaphora resolution properties of additive particles see Heim (1992), van der Sandt and Geurts (2001), van der Sandt and Huitink (2003).

(besides not being accessible) is also not in the same tense. For this reason, I will assume that the additive import of *too* is temporally insensitive:[6] Accordingly, the meaning of (20b) should be more properly described as in (23), where lack of inflection on the verb in the additive meaning component is taken to represent a lack of tense restriction.

(23)   Yesterday Peter invited Mary for dinner & x_C invite Mary for dinner, where $x_C \neq$ Peter.

Recall now that the presupposition triggering mechanism described in Section 2 stated that entailments of a sentence S that can be expressed by sentences that are not necessarily about the event time of the matrix predicate of S (i.e. they are either not about it, or only accidentally so) are presupposed. Given that, as we have just seen, the additive meaning component does not have to be true at the matrix event time, it is predicted to be presupposed by the mechanism described in the previous section. It is easy to see that additive particles such as *as well, also* will work similarly to *too*. The particle *again* requires that there be a previous time at which the prejacent is true, as described in (24b):

(24)   a.   Last week John climbed Mount Kilimanjaro again.
         b.   Last week John climbed Mount Kilimanjaro & John climbed Mount Kilimanjaro at some time t_C, where $t_C <$ last week.

The additive meaning component of *again* fulfils the requirement for being a presupposition by definition, and is thus also predicted to be presupposed.

4. Presupposition suspension: The role of anaphoricity and question-answer congruence

It has been observed since the seventies that presuppositions in embedded contexts are cancellable cf. Karttunen (1971b), Stalnaker (1974), Gazdar (1979), van der Sandt (1992), Chierchia and McConnell-Ginet (2000), Simons (2001), Beaver (2010), Abbott (2006), Romoli (2011), among others. Examples of direct cancellation are in (25a,b). Unembedded presuppositions are normally not cancellable, cf. (25c):

(25)   a.   The king of France did not eat the cake: there is no king of France.
         b.   A: Did the king of France eat the cake?
               B: I doubt it: there is no king of France.
         c.   #The king of France ate the cake, but there is no king of France.

Certain triggers can be understood as non-presuppositional in embedded contexts even without explicit cancellation of their presupposition. This phenomenon has been called presupposition

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[6]The future however might be excluded:

(i)   ?John will invite Mary for dinner, and yesterday Peter invited Mary for dinner, too.

suspension (also as *contextual neutralization*, see Abbott 2006). Most typically, examples of pre-supposition suspension cited in the literature involve verbal triggers such as *discover* or *realize*. (26) is a classic example from Karttunen (1971b):

(26)   If I discover/realize later that I have not told the truth, I will confess it to everyone.

Suspension data in the literature have been mostly given with verbal triggers and focus. Triggers such as *too, again* have been shown to resist suspension, usually available with factives:

(27)   a.   I have no idea whether John read the proposal. # But if Bill read it too, let's ask them
                to confer and simply give us a yes/no response. (Abusch 2010)
          b.   I have no idea whether Jane ever rented Manhattan, #but perhaps she is renting it
                again. (Simons 2001)

This difference in suspendability of the various presuppositions have been argued by Abusch (2010), (and also some extent by Simons 2001, Abbott 2006) to show that there are two classes of presuppositions (or presupposition triggers): soft and hard presuppositions.

The oldest explanation as for why presuppositions of certain triggers can be suspended is that this happens when the presupposition clashes with an implicature. The most influential accounts in this spirit have been given by Stalnaker (1974), Gazdar (1979), van der Sandt (1992) (cf. also Chierchia and McConnell-Ginet 2000, Kadmon 2001, Simons 2001, Beaver 2010, 2001, Abbott 2006, Abusch 2010, Klinedinst 2009 and references therein for further discussion). Take the classic example from Karttunen (1971b) in (26) above. In this case the implicature of the conditional is that the speaker is ignorant about the truth of the antecedent of the conditional, namely whether (s)he will discover/realize that (s)he has not told the truth. This is in clash with the presupposition that the speaker assumes the truth of the complement of *discover/realize* to be true, therefore the presupposition is suspended. Examples such as (27) contrast with (28), which is hard to understand as non-presuppositional.

(28)   If I regret later that I have not told the truth, I will confess it to everyone.

The reason for this, according to some of the above authors, is that in these cases the presupposition of the antecedent clause (that the speaker believes that he has not told the truth) does not clash with the ignorance implicature of the conditional (that it is open whether he will come to regret that he has not told the truth). The difference between examples such as (28) and (27) is also the prime reason why some presuppositional verbs such as *regret* are often not classified among soft triggers.

The idea that presupposition suspension is a result of a clash between presuppositions and impli-catures has been challenged since the seventies. For once, a clash between presupposition and implicature is not predicted if the antecedent clause is in the 3rd person. Beaver (2010) however cites many naturally occurring examples where suspension occurs with the 3rd person as well:

(29)   a.   If anyone discovers that Cook-n-Stirs are available to the US market please let the
              list know.
        b.   If scientists discover that worms with ultra-long life spans are metabolically dynamic
              and not just hibernating in super-suspended animation, they could then attempt to
              induce similarly efficient metabolic activity, or a dauer stage, in humans.

Second, as it was already mentioned in Section 2, Beaver (2010) also suggests that the informa-
tional, focus structure of the sentence seems to be the determining factor for whether suspension
is observed, rather than a clash with implicatures (cf. also Kadmon 2001). As Beaver observes,
(30b), in which the verb is focused, suggests that the student is guilty. This contrasts with (30a), in
which the embedded clause is focused, where there is no such implication:[7]

(30)   a.   If the TA discovers that [your work is plagiarized]$_F$, I will be [forced to notify the
              Dean]$_F$.
        b.   If the TA [discovers]$_F$ that your work is plagiarized, I will be [forced to notify the
              Dean]$_F$.

Beaver also notes that focusing the verb in the classic examples discussed above has the effect that
either the presupposition projects, or the sentence is quite odd. Thus he concludes that focusing
and information structure plays the crucial part in presupposition suspension, rather than a clash
with implicatures.

Abrusán (2011) has described how the projection mechanism proposed there can explain presup-
position suspension in the case of so-called soft triggers (see also section 2 of this paper for a brief
summary). The remainder of this section presents the predictions of Abrusán's system for presup-
positions of additive particles. It is shown that presupposition suspension facts are not observed
because of the anaphoricity and the topic (/contrastive topic) sensitivity of these items.

Let's first look at a case of an unstressed additive particle that associates with focus:

(31)   A: Bill ate broccolis. Who else ate broccolis?
        B: [John]$_F$ also ate broccolis.
        implies: x_c ate broccolis & $x_c \neq$ John.

The additive implication is that somebody other than John ate broccolis. In the context provided
above, the anaphoric pronoun in this implication will be resolved to Bill. The focus structure
indicates that the question that B answers is *Who else ate broccolis?*, which is also the question that
was asked by A, and where *else* is understood as relating to Bill. Thus the question is understood
as *Who other than Bill ate broccolis?* Note that (31B) would be infelicitous as an answer to *Who*

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[7]Example (30a) is slightly modified from the original, the focused part being the entire embedded clause in the
present discussion, but only the verb *plagiarized* in the original version. These two cases are hard to tell apart phonet-
ically in English, but Hungarian indicates that more likely the latter is the case.

ate broccolis? The additive entailment that Bill ate the broccolis cannot answer the background question of the sentence, and therefore this entailment is neither about the default main point (i.e. about the matrix time), nor about the secondary main point (the event time of the most direct answer to the question under discussion), and is therefore predicted to be presupposed. Note that one crucial assumption was that the anaphoric pronoun needs to resolved first before the entailment is turned into a presupposition. But this is entirely natural: first we need to understand what is being said before the question of what is presupposed even pops up.

If the associate of the additive particle such as *too* is shifted, the entailed meaning of the whole sentence shifts as well. Suppose the associate of the additive particle is the object:

(32)   A: John ate broccolis. What else did he eat?
        B: He also ate [beans]$_F$.
        implies: John ate x_c & $x_c \neq$ beans.

The reasoning is entirely parallel to the one above. In this case the additive implication is that John ate something other than the beans. In the particular context provided above, the anaphora resolution will resolve the anaphoric pronoun to the broccolis. The question under discussion that can be recovered from the focus structure is *What else did John eat?*, where *else* is understood in relation to the broccolis. In other words the QUD for (32B) in the above context is *What did John eat other than the broccolis?* The entailment of the answer that John ate the beans directly answers this question. The additive entailment of the answer in (32B) that John ate the broccolis does not answer this question. Since this entailment is neither necessarily about the default main point (the matrix event time) nor about the secondary main point (the event time of the most direct answer to the question under discussion) it is predicted to be presupposed, just as in the previous section.

Let's turn to cases of a stressed additive particle that associates with a contrastive topic. The exact analysis of contrastive topics is controversial, but most researchers agree that sentences with contrastive topics evoke two different background questions (Roberts 1996, Büring 1997, Büring 2003, Kadmon 2001, Wagner 2012, etc.). For example, (33c), in which the constituent *John* is contrastively focused can be related to the questions in (33a,b). The question to which (33c) is a direct (and complete) answer is (33b). But it also indirectly (and partially) answers another, larger question, namely (33a).

(33)   a.   Who ate what?
        b.   What did John eat?
        c.   [John]$_{CT}$ ate the [beans]$_F$.

(33a) can be assumed to correspond to a set of questions of the form *Who did a eat*, where *a* can range over any individual in some contextually supplied set. If John is a member of this set, then a complete answer to (33b) also provides a partial answer to this larger question in (33a). Since contrastive focus evokes both questions, uttering (33c) as an answer to (33b) in some context

suggests that there were other eaters as well: this is because (33a) would not be felicitous if it only contained one element (in this case, one question) in its denotation. Thus, answering the question in (33b) with (33c) indicates that the answer is partial along the dimension indicated by the contrastive topic: this larger dimension is captured by (33a).

Recall now that the present proposal predicts that an entailment of a sentence will not be presupposed if it is a direct answer to a question under discussion that can be recovered from the focus structure of the sentence. In other words cases of so-called suspension arise because the presupposition is not generated to begin with. Observe now the question-answer pair in (33):

(34)   A: Fred ate the beans. What did John eat?
        B: $[John]_{CT}$ ate the $[beans]_F$, too.

(35)   SEMANTIC CONTENT OF *[John]$_{CT}$ ate the [beans]$_F$, too* :
        John ate the beans & x_C ate the beans & $x_C \neq$ John.

That John ate the beans is a direct answer to the question *What did John eat?*, but the additive component of B's answer, namely that x_C ate the beans is not a direct answer to this question. (In contrast, both the prejacent and the additive component are partial answers to the larger question *Who ate what?* This question is also signalled by the assertion preceding the question in (34A).)

The presence of focus and contrastive topic introduces a secondary main point: secondary main points concern the event time of the sentence expressing the proposition that most directly answers the background question. The presupposition triggering mechanism looks both at the default (grammatical) and the secondary (pragmatic) main points and requires the presupposition to be independent from both of these. In the case of additive particles such as *too* the focus structure of the answer will not interfere with the presupposition generating mechanism, and the additive component is predicted to be presupposed even by the context-sensitive version of the triggering mechanism just as in the basic version of the proposal presented in the previous section.

Coming back to the cases at the beginning of this subsection, suspension in these examples is not possible because of the anaphoric requirement of *too* or *again*. Observe the case of (27a), repeated below for convenience:

(36)   I have no idea whether John read the proposal. # But if Bill read it too, let's ask them to confer and simply give us a yes/no response. (Abusch 2010)

The introductory sentence (*I have no idea whether John read the proposal*) makes it clear that the associate of *too* is the subject, Bill. This arises from the anaphoric and the discourse properties of the meaning of *too* discussed in the previous sections: it needs an antecedent in the previous ('active') context, and the resolution of the antecedent needs to respect discourse parallelism. Given

this, the antecedent of the conditional can be analysed as follows:

(37) $[Bill]_{CT}$ read $[it]_F$, too.
         SEMANTIC CONTENT OF *[Bill]$_{CT}$ read [the proposal]$_F$, too* :
         Bill read the proposal & x_C read the proposal & $x_C \neq$ Bill.

The direct background question that can be grammatically generated from the contrastive topic marking is *What did Bill read?*, while the indirect background question is *Who read what?* As in the previous cases in this section, the presupposition will not be suspended (i.e. will not fail to be generated), because the implication that x_C read the proposal does not answer the first background question (and it only indirectly answers the second background question). Therefore the additive implication will be turned into a presupposition by the present mechanism, and it should project out of the antecedent of the conditional (by some projection mechanism). Nevertheless, pragmatically the discourse presented in (37) will be a failure: On the one hand, the anaphor will try to resolve to *John* in the previous sentence, observing the requirements of parallelism and discourse salience. However, the negative content of first clause (*I have no idea...*) will make this antecedent unavailable. This results in a contradiction, and therefore the discourse in (37) is infelicitous.

In general, the anaphoricity of the additive entailment precludes it from being a direct answer to the question under discussion. As a consequence, the focus-sensitive suspension discussed in connection with soft triggers will not happen in the case of additive particles: it will never be the case that the additive entailment directly answers the secondary main point, indicated by the focus / question under discussion. For this reason, the presupposition of additive particles will not be suspended.

5. Soft vs. Hard triggers

It has been claimed that there are two types of presuppositions: soft and hard (cf. Abusch 2005, 2010 and also Simons 2001, Abbott 2006, Romoli 2011 among others). The reasons for distinguishing the two were mainly based on the data pertaining to the suspendability of presuppositions in embedded contexts, discussed above. The explanation for the difference in the behaviour of soft-triggers from hard-triggers was that soft triggers are pragmatically triggered, while hard triggers are lexically given. But in this paper we have seen that the same mechanism can trigger both types of presuppositions and that this is also compatible with the differences in suspendability.

The upshot of the previous section has been that the observed difference in suspendability is a consequence of the fact that additive particles have an anaphoric presupposition. An anaphoric presupposition, in the sense employed here, means that the presupposition contains an anaphoric pronoun that needs to be resolved in the preceding discourse (i.e. it is anaphoric whether or not one thinks presuppositions are anaphoric in general, à la van der Sandt). The presuppositions of factives or change of state verbs are not anaphoric in this sense. Additive presuppositions cannot be suspended because the additive inference is constructed from the focus structure (/contrastive

topic structure) of the sentence by filling in an anaphoric pronoun in the place of the associate of the particle. As argued by Asher (1993), the anaphor in the additive implication needs to be resolved to an antecedent that is in a semantically and structurally parallel sentence. As a consequence though, it will never be the case that the additive implication is a direct answer to the background question signalled by focus. Given this, additive implications will not be suspended, i.e. they will not fail to be presupposed, as they cannot be the secondary main point. Changing the focus structure of the sentence will not suspend the presupposition either, only change it to become a different presupposition.

Thus the observed differences that motivated the soft-hard preposition distinction boil down to differences in focus sensitivity and anaphoricity of the two groups: soft triggers such as factives and change of state verbs are not anaphoric or focus sensitive. There is no reason to assume two different types of presuppositions, soft and hard, or pragmatic and semantic.

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