

Obligatory presupposition in discourse

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Some presupposition triggers, like *too*, seem to be obligatory in discourses where the presupposition they induce is explicitly expressed. We show that this phenomenon concerns a larger class than is usually acknowledged, and suggest that this class corresponds to the class of presupposition triggers that have no asserted content. We then propose a pragmatic explanation relying on the neo-gricean notion of antipresupposition. We also show that the phenomenon has a complex interaction with discourse relations.

1. Introduction

The starting point of this work is a number of situations where some presupposition triggers seem obligatory in discourse. Here are two examples.

- (1) a. Jean est allé il y a deux ans au Canada. Il n'ira plus là-bas.
John went to Canada two years ago. He won't go there anymore
- b. #Jean est allé il y a deux ans au Canada. Il n'ira pas là-bas.
John went to Canada two years ago. He won't go there
- c. Léa a fait une bêtise. Elle ne la refera pas.
Lea did a silly thing. She won't re-do it.
- d. #Léa a fait une bêtise. Elle ne la fera pas.
Lea did a silly thing. She won't do it.

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In (1a-b), the presupposition trigger *ne... plus* (not anymore) is clearly preferred over the simple negation *ne... pas* (not).¹ However, both have the same asserted content, and the presuppositional content conveyed by *ne... plus* does not add anything in this particular context, because (1a) is a clear instance of presupposition binding (van der Sandt 1992; Kamp 2001): what *ne... plus* could add with respect to *ne... pas* (i.e. John went to Canada) is part of the common ground since it was already asserted in the first clause. In other words, we are here in a situation where the speaker seems to be “forced to presuppose”, forced to use a presupposition trigger, even if this trigger doesn’t bring any new information in the context.

To put it differently, we could say that in such cases, a form of informational redundancy seems obligatory, which is unexpected, redundancy being usually banned when, say, the same content is asserted twice, or even when already presupposed material is asserted. Here the redundancy has to be achieved by means of a presupposition trigger.

Our aim in this paper is first to show that the phenomenon, which has already been described in the literature for several particles, is more general than is usually acknowledged (Section 2), then to propose a pragmatic explanation for it (Section 3), and finally to take into account the interaction of the phenomenon with discourse in general (Section 4).

2. Data

We first survey in this section previous accounts of similar obligatoriness (§ 2.1), before trying to define the relevant class of presupposition triggers (§ 2.3), after having said a few more words on the importance of presupposition (§ 2.2).

2.1 Background: Obligatoriness of *too* and other additives

2.1.1 *Kaplan*

Although it was not presented exactly as we have just done, this phenomenon was first observed quite a long time ago, with respect to the “obligatoriness of *too*”. According to (Kaplan 1984), this observation traces back to (Green 1968). The relevant examples include the contrast in (2).

1. It turns out that in French, *pas* and *plus* are really interchangeable and cannot occur together in such contexts. So we have a strong suggestion that they form an alternative, that the speaker has to choose between the two, whereas in English, for instance, the choice would be between adding *anymore* or not. But we believe that what we are dealing in this paper does not depend on this idiosyncratic property of French.

- (2) a. Jo had fish and Mo did too
 b. *Jo had fish and Mo did (Kaplan 1984, p. 510)

The simplest cases may suggest that we deal with syntactic constraints. However, semantics clearly plays a role, as can be seen with the next pair of examples. Here, *too* is not strictly obligatory, and the sentence (3b) is syntactically and semantically well-formed. However, it is pragmatically deviant, since it is suggesting that beeing seventeen is not beeing old enough to have a driver's licence.

- (3) a. Barb is seventeen, and WENDY is old enough to have a driver's license, too
 b. #Barb is seventeen, and WENDY is old enough to have a driver's license
 (Green 1968)

Kaplan's proposal, in a nutshell, derives the obligatoriness of *too* from its discourse function, which is to "emphasize the similarity between members of a pair of contrasting items" (p. 516). This proposal relies crucially on the presence of a contrast, and applies only to examples like (2) where a conjunction (with *and* or *but*) is involved.

2.1.2 Krifka

In a paper about stressed additive particles, (Krifka 1999) makes several comments about the obligatoriness of *too*. It should be noted that his paper is concerned mainly with German particles, in the particular case where they occur after their focus, as in (4).

- (4) Peter invited Pia for dinner, *tò*

In such configurations, according to Krifka, the additive particle is always stressed (bearing a focus stress, noted with a grave accent), and it associates with a contrastive topic, itself stressed with a topic accent, noted with an acute accent.

His analysis of the reason why *too* is obligatory in such cases relies crucially on two facts:

1. the distinction between two types of accent, the focus accent, and the contrastive topic accent (following Büring's work (Büring 1998) and the classical distinction from (Jackendoff 1972) between A and B accents in English)
2. the existence of an implicature, derived from a distinctiveness constraint

Let us recall that the placement of the focus accent is determined by the so-called discourse coherence constraint, which stipulates that the focus accent falls on the constituent which provides a congruent answer to the question (direct and exhaustive) as in (5).

- (5) a. A: What did Peter eat?
 b. B: Peter ate *pà*sta
 c. B': *Péter ate pasta

When the answer is partial, there is an additional accent, the topic accent, and it is obligatory:

- (6) a. A: What did Peter and Pia eat?
 b. B: *Péter ate pàsta
 c. B': Péter ate pàsta

Büring has shown that answers in which there is a topic accent are answers which leave open a number of questions. So for instance, in (6), the question of what Pia ate is left open. According to Büring, such uses of the topic accent are subject to a constraint called condition of disputability. Krifka claims that another constraint comes with contrastive answers, what he calls the distinctiveness constraint, which is defined as follows:

- (7) If [... T...C...] is a contrastive answer to a question, then there is no alternative T' of T such that the speaker is willing to assert [... T' ... C ...].

This constraint explains why *too* is obligatory in contexts like (8).

- (8) a. A: What did Peter and Pia eat?
 b. B: *Péter ate pàsta, and Píá ate pàsta
 c. B': Péter ate pàsta, and Píá ate pasta, tòo

The reasoning goes as follows. The first member of the answer 'Péter ate pàsta' is a partial answer to the question and therefore bears a topic accent. This triggers the implicature, through application of the distinctiveness constraint, that there is no alternative α to *Peter* such that the speaker is willing to assert ' α ate pasta'. So, by the epistemic step usual in such reasoning, it follows that no one else but Peter ate pasta. The speaker cannot then resume his discourse with 'Pia ate pasta' without plainly contradicting himself. Krifka's proposal is that the semantics of *too* is such that it allows the violation of distinctiveness by explicitly stating a discourse relation. According to Krifka, *too* is stressed in such contexts, because it brings a strong assertion. As a side remark, Krifka notes that another way to answer the question in (8) would be to use a conjunction as in (9). In such a case, there is no contrastive topic accent, and the speaker conforms to the maxim of manner, by preferring (9b) over (8b).

- (9) a. A: What did Peter and Pia eat?
 b. B: Peter and Pia ate pàsta

We note that Krifka's reasoning relies crucially on the presence of a topic accent in the first part of the answer, and on the idea that this very accent triggers a distinctiveness implicature, which then has to be canceled via the use of the additive particle. The presuppositional nature of *too* (and of other additive particles) doesn't play any role.

2.1.3 *Sæbϕ*

The recent paper (Sæbϕ 2004) is directly concerned with the obligatoriness of *too*, and it brings several objections to Krifka's proposal. First, it is noted that there are contexts in which *too* is obligatory, even though there is no contrastive topic. It is the case, in particular, in narrative discourses like in (10).

- (10) When the gods arrive at Jotunheim, the giants prepare the wedding feast. But during the feast, the bride —Thor, that is— devours an entire ox and eight salmon. He also drinks three barrels of beer. This astonishes Thrym. But Loki averts the danger by explaining that Freyja has been looking forward to coming to Jotunheim so much that she has not eaten for a week. When Thrym lifts the bridal veil to kiss the bride, he is startled to find himself looking into Thor's burning eyes. This time, (# \emptyset /too), Loki saves the situation, explaining that the bride has not slept for a week for longing for Jotunheim.

Sæbϕ also shows that even if one wants to take advantage of the presence of contrastive topics and the idea that they trigger a distinctiveness implicature, the computation should not be done from the first sentence, but from the second one. Thus, for instance, Krifka's reasoning does not explain why *too* is compulsory in an example like (11).

- (11) Swift Deer could see pine-clad mountains on the other side of the Rain Valley. Far away to the east and west the dry prairies stretched out as far as the eye could see. (i) To the north lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks. (ii) To the south (# \emptyset /too) he could see mountains.

In this example, the speaker establishes a contrast between north and south. Let us assume that Krifka's analysis applies, and that there is a contrastive accent on *To the north*. Then it could be inferred, by application of the distinctiveness constraint on the sentence (i), that there is no alternative α such that the speaker would be willing to say that *to α lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks*. So, the constraint says that the speaker is not willing to assert, in particular, that *to the south lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks*. But this is not incompatible with what is said in the following sentence (ii). So there is no reason why *too* would be necessary, since there is no violation of the constraint.

So, Sæbϕ claims that to account for the obligatoriness of *too*, it is not necessary to bring in to play the presence of a contrast in the context, nor to appeal to a distinctiveness implicature. Rather, it is sufficient to analyze the proper meaning of *too*: adding the particle would introduce information meant to cancel an implicature that would otherwise be triggered by the sentence without *too*, and which

is in contradiction with the context. We won't present here the details of Sæbø's analysis, but we retain two elements from it:

- first, the idea that the presuppositional character of *too* is more important than the fact that it associates with a contrastive topic;
- second, the idea that the reasoning takes as a starting point the implicatures and presuppositions triggered by the **second** sentence rather than by the first one.

Our proposal, relying on an implicature triggered, not by the presence of an accent in the first sentence, but by the possibility of use of *too* in the second one, is more in line with Sæbø's work than with Krifka's, and accounts for examples like (10) and (11).

2.1.4 *Intermediate conclusion*

What we take from the accounts very briefly summarized here is firstly that a proper account of the phenomenon has to take into account the fact that it is not limited to the well-known case of *too*; a much larger class of particles (or presupposition triggers) exhibits the same behavior. Secondly, we also consider, after Sæbø, that even though contrast seems indeed to play a role, the presuppositional aspect (which has to do with discourse linking) should be investigated further.

This is why we try in the following sections to characterize as precisely as possible the class of items proving obligatory in the kind of contexts we have seen. But before doing so, we want to show why we consider that presupposition plays a bigger role than usually acknowledged.

2.2 The role of presupposition

2.2.1 *Discourse particles*

Zeevat's work (Zeevat 2002; Zeevat 2003) is also concerned with the class of obligatory items, proposing (among many other things) that the obligatoriness of *too* (and various other phenomena) be accounted for by considering a larger class of *discourse particles*, presupposition no longer playing a crucial role in the explanation. The argument relies in part on the observation that there is a set of particles that have in common (1) that they are obligatory (or, rather, not optional), (2) that they have a "minimal meaning", and (3) that they give rise to an accessibility anomaly. This class would contain *too*, but also particles like *indeed*.

It turns out that the class of triggers we want to consider have indeed the first two properties (see Section 2.3). As for accessibility, a few more words are necessary.

2.2.2 Accessibility differences

Zeevat proposes a list of obligatory triggers (Zeevat 2002, p. 85) which might serve as a starting point, but his list does not contain several presupposition triggers we want to consider, and contains particles which are not presuppositional and that we do not want to consider here. Let us start with these.

A good example is *indeed* (Zeevat 2003). We do not consider such a particle as triggering a presupposition, and we claim that there are two reasons why it should be kept separated from the triggers we consider.

Firstly, what Zeevat calls accessibility constraints do not apply identically for *indeed* and for *too*:

- (12) a. *Mary dreamt that night that she would fail the exam and John will fail too
 b. Mary dreamt that night that she would fail the exam and indeed she did

Here it is expected that *too* is not licensed because the antecedent is not accessible. *Indeed*, on the contrary, as a discourse particle, seems able to access the very same “antecedent”.

Secondly, on the contrary, *too*, as a presupposition trigger, is not sensitive to embeddings that are presupposition holes, as in (13a–b).² As a consequence, *too* is obligatory even inside an embedding, as soon as its presupposition is satisfied. Compare with (13c).

- (13) a. Jean est malade. Paul croit que Marie est malade (# \emptyset / aussi)
John is sick. Paul believes that Marie is sick (\emptyset / too)
 b. Jean est malade. Est-ce que Marie est malade (# \emptyset / aussi) ?
John is sick. Is Marie sick (\emptyset / too) ?
 c. ?John is probably sick and Mary believes that he is indeed.

These examples seem to us harder to account for if it is considered that *too* (for example) is a discourse connective, since we expect discourse connectives to work differently when they are embedded (roughly, discourse connectives are sensitive to embedding, whereas presupposition triggers are not—leaving aside the well-known projection problem cases).

2.3 Generalization

Even though it may be the case that the phenomenon we are dealing with here is not limited to presupposition triggers, we still think that it is worth trying to define

2. It turns out that the embedding under negation of many of the triggers involved here cannot be done easily because they are polarity items (negative for *plus*, positive for *aussi*, *encore*).

precisely the sub-class of presupposition triggers that are obligatory, and that is what we try to do in this section.

2.3.1 *Inventory*

We have already seen many examples involving additive particles, and as is made clear by (zeevat 2002), they all clearly prove obligatory:

- (14) a. Jean est malade, Marie est malade (# \emptyset / aussi)
John is sick, Mary is sick (\emptyset / too)
- b. Il était là hier, il est (# \emptyset / encore) là.
He was there yesterday, he is (\emptyset / still) there
- c. Paul est parti en Turquie l'an dernier, il ira (# \emptyset / de nouveau) cette année.
Paul went to Turkey last year, he will go (\emptyset / again) this year
- d. Jean est allé il y a deux ans au Canada. Il n'ira (# pas / plus) là-bas. =(la-b)
John went to Canada two years ago. He won't go there (\emptyset / anymore)
- e. Léa a fait une bêtise. Elle ne la (# \emptyset / re-)fera pas. =(lc-d)
Lea did a silly thing. She won't (\emptyset / re-) do it.

The presuppositional complementizer of the (factive) verb *to know* exhibits the same behavior (even though it is harder to provide an appropriate context) (15). This trigger is usually not considered as additive. It should be noted that in French the class of (factive) verbs capable of introducing either a clause (with the complementizer *que*) or a question (with the complementizer *si*) seems to be very small, comprising in addition to *savoir* (*to know*) *ignorer* (*not to know*), *vérifier* (*check*), *comprendre* (*understand*) but not *découvrir* (*discover*), *réaliser* (*realize*)... In English the class is different (comprising *realize that* vs. *realize whether*, *be aware of/that* vs. *be aware whether*, at least for some speakers). We conjecture that the same obligatoriness can be shown for those verbs.

- (15) a. [Léa est partie en Afrique.] Jean ne le dit à personne, bien qu'il sache
 (# si/que) elle est partie là-bas.
 [Lea's gone to Africa.] John tells no one, even though he knows
 (whether/that) she's gone there
- b. Jean est revenu de vacances. Mais comme il n'a téléphoné à personne, au bureau, tout le monde ignore (? si/que) il est chez lui.
John has come back from vacation. But since he called no one, at his office everybody 'ignores' (whether/that) he is at home.
- c. Il y a eu une fuite d'eau, mais quelqu'un l'a réparée. Jean a appelé le plombier pour qu'il vérifie (? si/que) la fuite est réparée.
There was a leakage, but somebody fixed it. Jean called the plumber so that he checks (whether/that) leak is fixed

As for cleft constructions, data is more intricate, because in most situations where the presupposition associated with clefts is satisfied (e.g., in (16a)), it is very natural, at least in English, to use stress instead of a cleft construction. So, for instance, (16b) is quite acceptable and probably even more frequent than (16a).

- (16) a. Someone fixed the dinner. It is John who did it.
 b. Someone fixed the dinner. JOHN did it.

So, in a way, cleft constructions are not obligatory. But here what permits us to dispense of the cleft construction is the presence of another trigger: intonation, in such contexts, is usually considered to trigger a presupposition (in English at least) (Beaver 2001, p. 11, e.g.). Besides, the presupposition triggered by 'JOHN VP-ed' and by 'It is John who VP-ed' is the same. We conclude that what is compulsory is the use of one of the available triggers, which is confirmed by (17) where in the absence of any presupposition trigger, the discourse becomes deviant.

- (17) #Someone fixed the dinner. John did it.

In French, it is not so clear that intonation behaves as a presupposition trigger, because of general properties of the French intonation system. For instance, in (18), there does not seem to be a way of stressing *Jean* that could render the example acceptable.

- (18) a. Quelqu'un a préparé le dîner. Ce n'est pas Jean qui l'a fait/# Jean ne l'a pas fait.
Someone fixed the dinner. It is not Jean who did it/Jean did not do it

In other cases, the behavior of French is closer to that of English:

- (19) a. Quelqu'un a préparé le dîner. (C'est Jean qui / JEAN / # Jean) l'a fait.
Someone fixed the dinner. (It is Jean who / JEAN / Jean) did it.
 b. Paul n'a pas préparé le dîner. (C'est Jean qui / JEAN / # Jean) l'a fait.
Paul hasn't fixed the dinner. (It is Jean who / JEAN / Jean) did it

So, we have to add to our inventory both cleft constructions and presuppositional intonation, which share the same presuppositional content, and which are such that when their presupposition is satisfied, it is obligatory to use one of them (so, in a way, obligatoriness is not attached to a specific lexical item or construction, but rather to the set of available means to express one given presupposition).

Despite the large number of different triggers involved, it is clear however that all are not obligatory.

Consider for instance the trigger *regret*. For the sake of the argument, we can assume that (20a) presupposes (20b) and asserts (20c). If this trigger behaved similarly to the ones we have considered so far, then (20d) would be out, the only option being (20e). But both options are available.

- (20) a. Bob regrets that it is raining
 b. It is raining
 c. Bob doesn't like it when it rains
 d. It is raining. Bob doesn't like it when it rains.
 e. It is raining. Bob regrets that it's raining.

Similarly, the restriction trigger *only* can be analyzed as presupposing its prejacent (21b) and asserting the exclusion (21c). Then again, it is possible to form a discourse with both pieces of information without being forced to use the trigger (21d), while the version with the trigger is also possible (21e).

- (21) a. Only Max owns a red car
 b. Max owns a red car
 c. No one else (than Max) owns a red car
 d. Max owns a red car, and no one else does
 e. Max owns a red car, and only Max does.

So we can't find situations where a trigger like *regret*, or *only*, is obligatory, and this is not really a surprise, because such triggers can't be added or removed without altering the asserted content of the host sentence.

2.3.2 Definition of the class

Let us try now to find a characteristic property of the triggers that give rise to this obligatoriness phenomenon. We take additivity, as Krifka defines it, as a starting point.

(22) **Additivity**

$$[\text{ADD}[\dots F \dots]] : \underbrace{[\dots F \dots]}_{\text{asserted}} \underbrace{(\exists F' \neq F [\dots F' \dots])}_{\text{presupposed}} \quad (\text{Krifka 1999, p. 1})$$

An additive particle (ADD) is a particle such that when added to a proposition in which a constituent F is focused, it yields an interpretation that can be divided into two parts, an asserted content which is exactly the initial proposition (without ADD), and a presupposed content stating that there is an alternative F' such that replacing F with F' in the initial proposition gives a true proposition.³

It is quite easy to check that *aussi*, *non plus* (negative polarity version of *aussi*) fit with this definition (F' can be an individual, or a property, depending on what is focused).

3. In the case of *too*, which most of the time is anaphoric (in the sense that it cannot freely accommodate), there might be an additional constraint: F' has to be given, rather than just exist.

When it comes to other triggers usually considered as additive, like *encore*, *de nouveau*, *toujours*, the above definition has to be slightly amended. For instance, with *encore* (*still*), assuming an underlying event (*à la* (Davidson 1967)), or a state, or a time interval, the presupposed part would rather be something like $\exists F' < F$ [...*F'* ...], saying that there is another eventuality not only different from *F* but also temporally located before *F* in the past.

The previous definition assumes that we can easily separate the additive particle and the rest of the sentence (noted [... *F* ...]). When it comes to *ne... plus* in French, things become slightly more complicated, since simply removing *plus* would lead to an ungrammatical sentence (at least in modern French), and we have to admit that (23a) can be analyzed as being composed of a sentential negation (historically brought by *ne*) and an additive adverb (*plus* (*more*)). This seems reasonable, when considering other languages where the equivalent of *ne... plus* is a compound with a negation and an additive particle (*no more*, *nichtmehr*, *nonpiu...*).

- (23) a. Il n'ira plus là-bas
He won't go there anymore

Cleft constructions are much harder to analyze as additive in Krifka's sense: the problem comes from the presupposition, where there is no alternative (*F'*) involved: if (24) was additive in the previous sense, the presupposed part would state that somebody **other than Jean** came, but it is not what a cleft sentence like this presupposes. On the contrary, it only presupposes that somebody came, and there is a strong tendency to pragmatically reinforce such a sentence to the reading that Jean is the only one who came. So cleft constructions do not fit the above definition of additive particles, unless one removes the difference condition (24b).

- (24) a. C'est Jean qui est venu
It is Jean who came
- b. [CLEFT [Jean_F came]]: $\underbrace{[\text{Jean}(= F) \text{ came}]}_{\text{asserted}} \left(\underbrace{(\exists F' \neq F [F' \text{ came}])}_{\text{presupposed}} \right)$

For *to know whether/if*, it is intuitively easy to separate the asserted part from the presupposed part, but again, it is not possible to have it fit with Krifka's definition.⁴ To have it fit, we have to stipulate that *to know that* is a compound form : *to know whether* + *factivity*.

- (25) a. Jean knows that it is raining
- b. [FACT [Jean knows whether *P*]]: $\underbrace{[\text{Jean knows whether } P]}_{\text{asserted}} \left(\underbrace{[P]}_{\text{presupposed}} \right)$

4. As noted by an anonymous reviewer, a similar argument would apply to a verb like *manage*, not obligatory in a context where its presupposition is satisfied.

So it is not possible to gather all the triggers here in the class of additive triggers, but they still have a common property, which can be stated as follows: their asserted content is reduced to their *clausal scope* (Krifka 1999), *i.e.* the clause to which they are added. As for their presupposed content, it is much more complex than in the definition (22) above.

(26) **Triggers with no asserted content**

$$\text{TR}[\dots F \dots]: \underbrace{[\dots F \dots]}_{\text{asserted}} \underbrace{[\Phi]}_{\text{presupposed}}$$

The class of triggers with no asserted content comprises:

Pure additive items *aussi, non plus*. Presupposition: there is an alternative different from *F*.

Aspectual items *re-, encore, de nouveau, ne... plus*. Presupposition: there is an alternative eventuality located in the past.

Cleft and intonation Presupposition: the proposition is true or one member of an alternative set (not necessarily different from *F*).

Some factive verbs *savoir + que/si, ignorer + que/si, vérifier + que/si, realize, be aware*. Presupposition: the embedded proposition is true (factivity).

To sum up, this property defines a sub-class of presupposition triggers (not restricted to particles, neither to additive triggers) which are obligatory as soon as their conditions of use (presupposition) are (linguistically) satisfied.

3. Pragmatic explanation

We are looking for a general explanation, not relying on the semantics of a particular presupposition trigger, since the phenomenon involves an apparently heterogeneous class of triggers.

One common point in all our examples is that they somehow involve redundancy. Presupposition is a well-known tool for expressing redundancy (Roberts 1998, *e.g.*); we can thus characterize our examples as cases where redundancy is obligatory.

This is reminiscent of a classical test for presupposition, namely the fact that a proposition cannot be *asserted* after it has been *presupposed*, whereas the contrary (first an assertion, then a presupposition) is possible: see (27) (van der Sandt 1988, p. 161).

- (27) a. Mary used to beat her husband. She has now stopped doing so.
 b. #Mary has now stopped beating her husband. She used to beat him.

The usual explanation for this contrast has a pragmatic flavor: roughly, the speech act associated with assertion (bringing new information) cannot be felicitously

performed in a context where this information is already in the common ground. In contrast, the speech act associated with a presupposition is compatible (by definition) with a context where the presupposition is in the common ground.

This pragmatic flavor motivates the explanation we are elaborating in this section ; but it is worth noting that the phenomenon also interacts with discourse structure, which is dealt with in Section 4.

To explain the data, we can compare it with those studied in (Heim 1991) (we use Sauerland's (Sauerland 2003) presentation). Let us consider (28).

- (28) a. #A wife of John's is intelligent
 b. The wife of John's is intelligent
 c. #A father of the victim arrived at the scene
 d. The father of the victim arrived at the scene

Heim's proposal is to get inspiration from Hawkins' proposal: just like the classical scalar alternative set in (29a), which gives rise to the famous gricean quantity based implicature, the pair ⟨a, the⟩ forms a scalar alternative pair, when taking presupposition into account.

- (29) "Scalar alternatives"
 a. ⟨some, all⟩ assertion
 b. ⟨a, the⟩ presupposition (Hawkins 1978)

More precisely, *the* bears more presuppositions (uniqueness presupposition) than *a*. Then the use of *a* implicates that the presuppositions of the other term of the scale are not satisfied (namely, that it is not true that John has only one wife, for the example (28a)), which is incompatible with world knowledge. This behavior is supposed to derive from a general principle labeled "maximize presupposition" in (Sauerland 2003): *make your contribution presuppose as much as possible* (see also (Percus 2006; Schlenker 2008)).

We use a similar method to explain our data, with the difference that the phenomenon at hand occurs in discourse and not in isolation. Let us consider the example given in (14a) (repeated in (30a)), where *aussi* is obligatory.

We start with the familiar scalar implicature computation. First, there is an (asymmetric) entailment relation given in (30b).⁵ For expository reasons, we write this down as in (30c), where *A* stands for assertion, and *P* for presupposition.

5. This is true if, in a Russelian treatment of presupposition, we conjoin the assertive part and the presupposed part, as noted in (30c). This notation may be controversial, but we use it here for simplicity reasons and we believe that nothing important hinges on it.

We can then consider the two propositions in (30b) as forming a scalar alternative.⁶ Then by a classical computation we get that by uttering *A* the speaker implicates that $(A \wedge P)$ is not appropriate (30d). An additional step is required: uttering *A* and implicating $\neg(A \wedge P)$ leads to the conclusion that the presupposition does not hold (30e).

- (30) a. John is sick, Mary is sick too
 b. Mary is sick too \rightarrow Mary is sick
 c. $(A \wedge P) \rightarrow A$
 d. $A \rightsquigarrow \neg(A \wedge P)$
 e. $\neg P =$ No one else than Mary (in the appropriate context) is sick

Now this implicature is in turn incompatible with the first part of the discourse (30a), namely, John is sick. So, it appears that the contrasts above can all be predicted if sentences with and without presupposition triggers are considered as scalar alternatives. More precisely, we would have the following scales, with cases where the alternative is between the form with or without the trigger, and other cases where the alternative is really between two interchangeable items.

- (31) a. $\langle \text{pas (not)}, \text{plus (no more)} \rangle$
 b. $\langle \emptyset, \text{aussi (too)} \rangle$
 c. $\langle \text{si (whether)}, \text{que (that)} \rangle$

Let us come back to the comparison between our line of explanation and the one proposed in (Krifka 1999).

Let us start with Krifka's computation. The sentence *John is sick* (let us assume we have the appropriate context in terms of topic/focus) will give rise to the distinctiveness implicature: 'no one else is sick'. Then uttering *Mary is sick* would result in a plain contradiction (leaving aside the fact that this second sentence would normally in turn give rise to a distinctiveness implicature). Then *too* has to be added, as a sort of reparation resort: it indicates that for some reason, the speaker doesn't want the distinctiveness implicature to go through.

Our proposal makes different assumptions. After the first sentence is uttered, the question of whether or not to add *too* arises (since it might form an alternative with not adding anything), but its presupposition is not satisfied, and so there is no real alternative, *too* is not added. Then the second sentence is uttered, and the alternative is once more considered. In this case, the presupposition of *too* is

6. Leaving aside the traditional problem of deciding why the two propositions are "natural" competitors.

satisfied in the context, so that the speaker really has a choice between adding the particle or not.

If the speaker chooses not to add *too*, then by the scalar reasoning given above, it would lead the hearer to infer that the speaker is reluctant to add *too*, thus that the presupposition is not satisfied, that is nobody else is sick, and this is contradictory with the context. Therefore, to prevent the hearer from making a contradictory implicature, the speaker is obliged to use *too*.

Our proposal accounts for several cases presented above, which are problematic for Krifka's account. Namely, the example in (3), where there is no identity between the first element (Bart is 17) and the second one (Wendy is old enough to have a driver's licence). Sæbø's examples are also accounted for. We can add the following very nice example, where *too* is not obligatory, but depending on its presence, two different readings are possible, and this is predicted by our account.

- (32) a. The 5000 m race was won by Gianni Romme. The 1500 m race was won by a Dutch skater.
 b. The 5000 m race was won by Gianni Romme. The 1500 m race was won by a Dutch skater too. (Sæbø 2004)

There remains several questions to be answered. First, one may ask where the "maximize presupposition" principle come from. It seems however reasonable to assume that it comes from Grice's (Grice 1975) maxim of quantity. The second question is harder to answer: how can we predict that the couple (*s, s + too*) forms a (scalar) alternative? In other words, why is *plus* a natural competitor of *pas* (to take a case where it is relatively easy in French, since the two words are strictly interchangeable)? We do not have a final answer to this question, but we think a lead worth considering is precisely the fact that all the triggers involved here have no asserted contribution. See (Zeevat 2002).

Finally, a question that deserves more development is the connection with accommodation of the presupposition. It is well known that, to put it in the words of van der Sandt and Geurts's (van der Sandt & Geurts 2001), "the presupposition of *too* is reluctant to accommodate" (see also (Zeevat 2003)). This property is not shared by all the triggers in our class (for instance, *again* seems to be quite capable of giving rise to accommodation) ; but it might help distinguish among the triggers we have grouped together, to get a better understanding of what makes them fit together. It is quite interesting to remark that, roughly, *too can* only be used when the presupposition is there (Zeevat 2003, p. 169), and it *has to* be used when the presupposition is there.

We turn now to discourse considerations, and set out in the next section how our proposal can be implemented within a Discourse Coherence perspective.

4. Interaction with discourse structure

It turns out that the obligatoriness of presupposition can be removed in some contexts, and we first try to describe precisely the relevant contexts in § 4.1, before trying to implement an analysis in the framework of SDRT (§ 4.2).

4.1 Discourse sensitivity

There are a number of apparent counter-examples that we have to deal with:

- (33) a. Jean est malade, Marie est malade, Paul est malade, tout le monde est malade alors!
John is sick, Marie is sick, Paul is sick, everybody is sick then!
- b. Il était là hier, il est là aujourd'hui
He was there yesterday, he is there today

These examples are fine, and no trigger seems necessary. What these examples have in common is that a discourse relation is readily available, *enumeration* in (a), and some sort of *contrast/parallel* in (b). This seems to be responsible for the non obligatoriness of the trigger. It should be noted, however, that the triggers are not forbidden either:

- (34) a. Jean est malade, Marie aussi, Paul aussi, tout le monde est malade alors!
John is sick, Marie too, Paul too, everybody is sick then!

One could draw from this data the conclusion that the availability of a discourse relation somehow blocks the requirement of the principle advocated for above. But this is not the case: in the following examples, a discourse relation is explicitly stated (by the connective *c'est pourquoi*), without preventing the presupposition trigger from being obligatory.

- (35) a. Jean est allé il y a deux ans au Canada. C'est pourquoi il n'ira plus là-bas.
John went to Canada two years ago. That's why he won't go there anymore
- b. #Jean est allé il y a deux ans au Canada. C'est pourquoi il n'ira pas là-bas.
John went to Canada two years ago. That's why he won't go there

4.2 Preliminary “implementation” in SDRT

We want to make here an additional observation: in the following example, there are two similar triggers, each presupposing the same thing, and they are neither obligatory (only one is), nor forbidden.

- (36) Lea a fait une bêtise. Elle ne la refera plus.
Lea made a mistake. She won't re-do it again

This is predicted by our principle: applied recursively, the principle compares the presupposed contents to tell whether we have an alternative. Once a trigger is inserted, the other alternative forms have exactly the same presupposed content, and thus they are not required, but they are not banned either, for it is expected that a presupposition trigger with no asserted content is licit as soon as its presupposition is satisfied.

So, what we'll try to implement now is a general principle which can be stated as in (37).

- (37) A trigger (with no asserted content) is compulsory only if it brings strictly more satisfied presuppositions than the sentence without the trigger

Let us take the discourse relation *enumeration* as a starting point (38). Roughly, our hypothesis is that enumeration forces the second sentence *Mary is sick* to be linked to the context, in a way similar (if not identical) to what *too* would do. So, the trigger *too* does not bring strictly more presuppositions, and is therefore not required any more.

- (38) *John is sick* + contour \rightsquigarrow "Enumeration" \rightsquigarrow $\exists x(x = j \wedge \text{sick}(x))$ "cataphoric presupposition"

It is then possible to sketch an update rule which takes into account all that we've said earlier.

- (39) – When trying to attach a DRS K_β to a context K_τ :
 – Let s be the sentence corresponding to K_β ; let $\{a_1, a_2, \dots, a_k\}$ be the set of *presupposition triggers without asserted content* that can be adjoined to s .
 – For each pair $\langle \emptyset, a_i \rangle$, compare the number of satisfied presuppositions of the two members: to this effect, try to link/accommodate $psp(a_i)$ against the context K_τ via the usual procedure (Asher & Lascarides 1998).
 – If – $psp(a_i)$ is satisfied
 – there is a difference in the pair $\langle \emptyset, a_i \rangle$ in the number of presuppositions
 Then the choice of \emptyset gives rise to the implicature that the presupposition is false (antipresupposition *à la* (Percus 2006)).

The predictions that we get are the following : in most cases, the sentence s has fewer presuppositions than $s + a_p$ so the principle applies. But what this rule predicts is that when, for any reason, the sentence s in itself already triggers a presupposition, then the principle no longer applies. This explains why it is not obligatory to use several triggers when they are available. This also explains what happens in *enumeration* cases : we consider that enumeration forces this forward link (be it presuppositional or not), so that the second sentence in the enumeration has to be linked to the context. Then there is no difference in the form with or without *too*.

As for example (b), we can consider it a special case of enumeration, but we can also see it as a contrast, and then we have to provide the semantic definition of contrast with this forward link.

5. Conclusion

Starting from the obligatoriness of some presupposition triggers in discourse (when their presuppositions are satisfied in the context), we have shown that this phenomenon is not limited to additive particles, as has been previously assumed. We claim that obligatoriness defines a sub-class of presupposition triggers, characterized by the fact that they have no asserted content. The general explanation we provide then relies on a general pragmatic principle, which could be summarized as “maximize redundancy via presupposition binding”. Finally, we have also tried to provide a general explanation to account for the fact that the obligatoriness of presupposition triggers seems to be sensitive to discourse relations.

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