

# Conversational Contrast and Conventional Parallel: Topic Implicatures and Additive Presuppositions

Kjell Johan Sæbø  
University of Oslo

## Abstract

Additive particles or adverbs like *too* or *again* are sometimes obligatory. This does not follow from the meaning commonly ascribed to them. I argue that the text without the additive is incoherent because the context contradicts a contrast implicature stemming from the additive's associate, and that the text with the additive is coherent because the presupposed alternative is added to the associate, so that the implicature does not concern that alternative. I show that this analysis is better than the account offered by Krifka 1999 and that, contra Zeevat 2003, the notion of a presupposition is essential.

## 1 Introduction

It has been noted several times (e.g. by Green 1973, Kaplan 1984, Krifka 1999) that additive particles and adverbs like *too* and *again* can be **necessary** in the sense that the discourse becomes incoherent if they are omitted. This necessity does not follow from any current analysis of these words. Standardly (cf., e.g., Fabricius-Hansen 1983, König 1991, Beaver 1997), they are described as pure presupposition triggers, and the contexts where they are necessary are contexts where the presuppositions are verified. Thus *prima facie*, they should be redundant precisely when instead, they seem to fulfil some important function, as in (1) or (2).

- (1) 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. To the north lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks. To the south #(too) he could see mountains.
- (2) The UN appointed a unique politician to head this new "World Commission on Environment and Development". Gro Harlem Brundtland had been environment minister of Norway, and from that post she had gone on to become prime minister. She likes to claim that she is the only politician ever to rise from the traditionally thankless and dead-end job of the environment portfolio to lead a nation, and that this gives her an insight most political leaders lack. Even more important, for the purposes of the new commission, she had lost the prime minister's job, and had time to devote to the commission. In 1986, in the middle of the commission's work, she became prime minister #(again), which forced greater respect from other countries for her and her commission as they travelled the globe studying the situation.

Krifka 1999 proposes to modify the standard analysis of *too* slightly so as to account for its necessity in cases like (3): In addition to its presupposition, the particle explicates an affirmative element, facilitating the violation of an implicature (the ‘distinctiveness constraint’) from the sentence verifying the presupposition.<sup>1</sup>

- (3) – What do Peter and Paul sing?  
– Peter sings tenor, and Paul sings tenor #(too).

In the first part of the answer in (3), as Krifka’s story goes, Peter – the presupposed **alternative** – is a contrastive topic, giving rise to the implicature that (as far as the speaker is aware) *only* Peter sings tenor; this, however, is contradicted (cancelled) in the second part, saying that Paul – the **associate** – sings tenor as well.

This diagnosis of the version without the additive rests on the assumption that the alternative is a contrastive topic in a sentence equivalent to the additive sentence modulo the substitution of the associate. This, however, is far from always the case. On the other hand, the associate is consistently a contrastive topic, and I will argue that in the absence of the additive, it gives rise to an implicature contradicted by any context verifying the presupposition of the additive. I will propose that the additive remedies this incoherence by causing the presupposed alternative to be added to the associate, so that the implicature does not concern that alternative.

The rest of the paper is organized as follows. In Section 2, I define the problem and assess the account proposed by Krifka 1999. In Section 3, I use elements of that account to develop my own account of why the additives are necessary, and in Section 4, I supplement an account of why they are sufficient.

## 2 The Problem: Why Additives are Necessary

In this section, I will determine the conditions under which an additive is necessary. I will also investigate one answer to the question what makes the additive necessary, the one given by Krifka 1999, and demonstrate that it depends on a too narrow notion of the conditions under which the necessity obtains.

Some basic terms and tools should be introduced right away.

### 2.1 Association and Presupposition

I use the noun **additive** as a cover term for additive particles, like *too*, and for additive adverbs, like *again*; these two words represent sets of items, in one language (including, e.g., *also* and *as well* in English) and across languages.

The additive introduces a **presupposition**: The sentence the additive occurs in with some alternative substituted for the constituent the additive associates with; i.e., some prior time or event (for *again*) or some alternative of any type (for *too*). For the presupposition to be verified, such a sentence must follow from the context. The alternative in the context will be referred to as the **presupposed alternative**, and the constituent the additive associates with will simply be called the **associate**.

---

<sup>1</sup>Krifka only considers that version without *too* where the VP inherits the accent from *too*. This version may be incoherent for the simple reason that second mention material cannot carry an accent. The issue of accentuation will be addressed in Section 3. – Also, the conjunction *and* in Krifka’s examples complicates the picture; if it has an accent, the version without *too* is better. To be on the safe side, one has to look at authentic cases without conjunctions, like (1) and (2).

Mostly, the associate is a constituent containing the one accent in the sentence beside the one on the additive. Additive particles have been called focus particles because they have been associated with focus (e.g. König 1991, Rooth 1985, 1992). Once one distinguishes between focus (comment focus, rheme focus) and topic (topic focus, theme focus), one may ask which one applies to the associate. Krifka 1999 assumes that it is the latter:

#### Contrastive Topic Hypothesis

The associated constituent of stressed postposed additive particles is the contrastive topic of the clause in which they occur. (Krifka 1999)

But what is a contrastive topic? First, it is an accented topic, a sentence topic in a tripartition of sentences assumed, i.a., by Büring 1999, a topic or theme focus in a two-level bipartition of sentences assumed, i.a., by Steedman 2000. Second, there is the criterion on alternatives:

Contrastive topics are **topics** – they refer to something about which information is required. But they are also **contrastive**, that is, they come with **alternatives** – there are other things about which information is required. (Krifka 1999)

This criterion is open to two interpretations: Any sentence topic (topic focus, theme focus), indeed, any topic or focus (topic or comment focus, theme or rheme focus) presupposes a class of alternatives (as assumed by Rooth 1992 or Büring 1999), or, a sentence topic is contrastive if the context activates alternatives. I only assume the latter, weak interpretation, on which one cannot tell from a sentence whether its topic has alternatives but one needs to consult the context. In fact, I assume a very simple and general Association with Topic hypothesis:<sup>2</sup>

#### Association with Topic

The associate of additives is the accented topic (topic focus, theme focus) of the clause in which they occur.

The ultimate reason for calling topics with alternatives contrastive is conversational: Asserting something about such a topic will implicate that the same assertion cannot be made about the alternatives. I will return to this issue in Section 2.3.

The assumption that the additive associates with the topic in the sentence makes it possible to define the semantics of, say, the additive particle *too* in a succinct way. Assume that  $\mathcal{T}$  is a (partial) function assigning to a sentence  $\phi$  its accented topic  $\mathcal{T}(\phi)$ . The contribution of *too* to the meaning of  $\phi$  consists in the presupposition that there is an alternative  $\alpha$  s.t.  $\phi$  holds under the substitution of  $\alpha$  for  $\mathcal{T}(\phi)$ :<sup>3</sup>

#### Semantics of *too*

$$too^* = \lambda\phi \phi[\alpha|\phi[\mathcal{T}(\phi)/\alpha]]$$

---

<sup>2</sup>This hypothesis is *too* general. The associate can be deaccented or covert; this is the typical case in connection with *again*. When additives with deaccented or covert associates are necessary, this has separate reasons (cf. (12) in Section 3), so we must really distinguish between accented and deaccented or covert topic associates. For perspicuity, I will not make this case distinction.

<sup>3</sup>I use the subscript notation for presuppositions familiar from e.g. Beaver 1997, and a pseudo set notation for Discourse Representation Structures (DRSs) familiar from e.g. Muskens 1996.

The value of the *too* function reduces to its argument,  $\phi$ , if the presupposition can be verified, and it is verified iff  $\alpha$  can be anchored to an introduced referent such that the context entails  $\phi$  under the substitution of that referent for  $\mathcal{T}(\phi)$  (cf. Section 4). In a case like (1), where *too* is necessary, this is indeed the case: The context entails “he could see mountains to the south [the south / the north]”. Now in the version without *too*, the only difference is that there is no need to verify a presupposition; whereas the sentence with the additive reduces to itself, the one without is itself from the outset, – and there is no *prima facie* reason that the additive should be necessary, the result being the same with or without it.

## 2.2 Association and Verification

The presuppositions of additives are not always verified straightforwardly. Although in general, ‘anaphoric’ presuppositions are more difficult to accommodate than, say, cleft or factive presuppositions (cf. Zeevat 1992: 406ff., Sæbø 1996: 188ff.), quite often, they require some measure of accommodation: The discourse referents are verified (bound) but some condition is accommodated. In these cases, the additives convey a message, and they are informationally necessary in the sense that without them, the discourse stays coherent but means something slightly different. Consider (4).

- (4) 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.

If in (4a) the adjective *Dutch* carries the focus accent carried by the particle in (4b), the discourse is coherent and it implies that Gianni Romme is not a Dutch skater in the same way as (4b) implies that Gianni Romme is a Dutch skater. The reason that *too* is not obligatory in (4b) is that the presupposition is not quite verified; Gianni Romme is not necessarily a Dutch skater.

It is when its presupposition is verified in a local verbal context that an additive is necessary. Note that a straightforward Gricean Quantity argument cannot be used to account for the infelicity of the versions without the additives, as indeed it has been used (e.g. by Gazdar 1979) to derive the implicature that the speaker does not herself believe the proposition if she reports someone’s propositional attitude with the verb *believe*. Consider (5): If the speaker believed that the 1500 m race was won by Gianni Romme, she should have used *knows* instead of *believes*.

- (5) Paul believes that the 1500 m race was won by Gianni Romme.

The reason that this implicature can be derived from the Maxim of Quantity is that the factive presupposition is regularly accommodated; the proposition will often not be in the common ground and presupposing it will often provide new information. By contrast, when an additive is necessary the presupposition is verified directly, so one cannot argue that adding the additive makes the contribution more informative.

## 2.3 Contrastive Implicature

The reason for calling topics with alternatives contrastive topics is **conversational**: If among the active alternatives you select one and make a predication about that,

you implicate that this does not hold for the other alternatives – or else you should have included them in the predication. This Quantity implicature corresponds to Krifka’s **Distinctiveness Constraint** (he attributes it to the maxim of manner):<sup>4</sup>

If [ ... T<sub>F</sub> ... C<sub>F</sub> ... ] is a contrastive answer to a question Q, then there is no alternative T’ of T such that the speaker is willing to assert [ ... T’<sub>F</sub> ... C<sub>F</sub> ... ]. (Krifka 1999)

Contrastive answers, in turn, are defined in terms of partial answers to questions. These definitions are intended to carry over to implicit questions. My general version is (assuming full knowledge on the part of the speaker):

### Contrastive Implicature

For any  $\phi$  and  $c$  such that  $\mathcal{T}(\phi)$  is defined and there are alternatives  $\alpha$  to  $\mathcal{T}(\phi)$  active in  $c$ , for all such  $\alpha$ ,  $\phi$  implicates  $\neg\phi[\mathcal{T}(\phi)/\alpha]$  in  $c$ .<sup>5</sup>

Normally, there is no need to cancel this implicature, it is often corroborated by the continuing context and marked by a contrastive particle, adverb, or conjunction:

- (6) On any other day there might have been people constantly coming and going, but not on Sunday morning.

## 2.4 Krifka 1999: Distinctiveness

However, sometimes the Distinctiveness implicature arising from a contrastive topic is cancelled, and then, an additive is added. According to Krifka 1999, an additive is added **to get around Distinctiveness**, that is, the additive is necessitated by the implicature arising from the sentence verifying the presupposition.

stressed additive particles ... realize an affirmative element explicitly ... and hence express a particular emphasis. This ... emphasis is motivated, as the first answer of [(3)] suggests that [Paul does not sing tenor], due to the condition of distinctiveness ...

The use of *too* allows to violate distinctiveness ... (Krifka 1999)

This analysis can be seen as an elaboration on a suggestion made by Kaplan 1984, who ascribes to *too* a ‘discourse function’ in addition to its conventional implicature, namely, to emphasize the similarity between contrasting constituents (p. 515):

That is, *too* is obligatory when we need to emphasize what is important about the content of a two-clause text, when what is important is that the same thing is predicated about two contrasting items.

---

<sup>4</sup>I follow Rooth 1992: 82f. (who only used the term focus) in assuming that this constraint is a scalar implicature to be derived from the Maxim of Quantity: For any relevant alternative  $\alpha$  to the topic of  $\phi$   $\mathcal{T}(\phi)$ , asserting  $\phi$  implicates the negation of  $\phi[\mathcal{T}(\phi)/\alpha \oplus \mathcal{T}(\phi)]$  because this is stronger; since  $\phi$  is in fact asserted, the negation of  $\phi[\mathcal{T}(\phi)/\alpha]$  is in effect implicated.

<sup>5</sup>These alternatives are supposed to be **distinct** (cf. Zeevat, this issue); an item does not, as in the theory of Rooth 1992, count as an alternative to itself.

Attractive as it may seem, there are two arguments that can be raised against this analysis. First, it does not seem to predict the **strength** of the necessity of the additive. When a conversational implicature – and Distinctiveness is one – arising from one sentence is cancelled in the next, some affirmative element is often called for, but it is normally not as necessary as is the necessary additive particle or adverb, and besides, it may be one among a number, including *indeed* and *in fact*; it is not clear why (3b) is not even nearly as good as (3a).

- (3) a. Peter sings tenor. Paul sings tenor, too.  
 b. #Peter sings tenor. Indeed / in fact, Paul sings tenor.

Second and more seriously, the sentence where the additive occurs far from always violates the Distinctiveness Constraint – far from always does it contradict a Contrastive Implicature arising from the context where the presupposition is verified.

## 2.5 Counterevidence

There are two cases to be distinguished: First, the presupposed alternative is a contrastive topic but the corresponding implicature is not strong enough to be contradicted by the additive sentence; and second, the presupposed alternative is not a contrastive topic in any reasonable sense of the term.

Consider (1), repeated below: In the relevant context sentence, the presupposed alternative, *to the north*, is arguably a contrastive topic; however, the difference from a case like (3) is that here, the relevant sentence is not equivalent to the *too* sentence modulo the substitution of the alternative for the associate, it is stronger (more informative). Therefore, the *too* sentence does not contradict the corresponding contrastive implicature.

- (1) 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. To the north lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks. To the south #(too) he could see mountains.

Asserting the relevant context sentence arguably implicates, in particular, that it is not the case 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 compatible with the continuation, the *too* sentence; all this sentence says is that to the south he could see mountains, not that they were distant blue ranges with sharp peaks. Similar examples, where the relevant context is stronger than it has to be to verify the presupposition, abound. Then the contrastive implicature is too weak for the additive sentence to contradict it.

This case often cooccurs with the case that the presupposed alternative is not a contrastive topic in the relevant context sentence. The presupposed alternative is often not an accented topic at all. In (7), for instance, there is no accent on the constituent *Swift Deer*, which is later on to act as a presupposed alternative:

- (7) a. – I want to see Son-of-Thunder. Fetch him.  
 So Good Care rose, fetched the newborn boy and held him out before his dying father. Swift Deer opened his eyes for the very last time, . . .

I do not think this in any way implicates, or even faintly suggests, that no other relevant being had her or his eyes open right then. Still, as the continuation shows, an additive particle, *too*, *also*, or *as well*, is necessary when the author goes on to state that another relevant being had his eyes open:

- (7) b. – I want to see Son-of-Thunder. Fetch him.  
So Good Care rose, fetched the newborn boy and held him out before his dying father. Swift Deer opened his eyes for the very last time, and Son-of-Thunder had his eyes open #(too).

The presupposed alternative may be a **continuing** topic in the relevant context sentence (cf. e.g. de Hoop 2003), as in (8). The first paragraph does not suggest that we can only form things out of Lego blocks.

- (8) So now you see what I meant about Lego blocks. They have more or less the same properties as those which Democritus ascribed to atoms. And that is what makes them so much fun to build with. They are first and foremost indivisible. Then they have different shapes and sizes. They are solid and impermeable. They also have “hooks” and “barbs” so that they can be connected to form every conceivable figure. These connections can later be broken so that new figures can be constructed from the same blocks. [...]  
We can form things out of clay #(too), but clay cannot be used over and over, because it can be broken up into smaller and smaller pieces.

The case that the additive is necessary although the alternative is not a contrastive topic seems to be particularly frequent when the associate and the alternative denote times in narrative discourse, as in (9). Here the presupposed alternative – the time when Loki averts the danger – is **implicit**, and there is no suggestion that this is the last time he does so.

- (9) 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, too, Loki saves the situation, explaining that the bride has not slept for a week for longing for Jotunheim.

In this light it is not surprising that situations where *again* is obligatory even though the presupposed alternative is not a contrastive topic are frequent; cf. (2) and (10):

- (10) Now married to Raisa ... , he was quickly promoted from the agitprop department to be first secretary of the Komsomol organisation in the city of Stavropol. The local capital and rail centre ... , the city was in effect run by its party committee, of which Gorbachev was now a member. [...]  
In 1958, he was promoted again, to be second secretary of the entire regional Komsomol, where his main task was to create the technical education facilities that would train a new generation of workers to exploit the vast natural gas deposits that had been discovered in the area.

The reason that this has gone unnoticed must be that linguists have only considered constructed examples and constructed examples of, say, *too* tend to consist of two sentences, so that the presupposing sentence is adjacent to the context verifying the presupposition. Cf. Kaplan 1984: 515: "... , *too* is obligatory when we need to emphasize what is important about **the content of a two-clause text**, ..." (my emphasis). And when the presupposing sentence is adjacent to the context verifying the presupposition, the presupposed alternative will usually be a contrastive topic. However, as (2), (8), (9), and (10) show, *too* or *again* can be obligatory even though the verifying context is several sentences away and the presupposed alternative is not a contrastive topic. The following claim by Kaplan 1984: 515 is thus wrong:

It makes sense, then, that where the difference between contrasting constituents is most marked is where *too* is most needed, to counterbalance the heightened effect of the contrast. Where the difference between contrasted constituents is hardly stressed, *too* is optional.

### 3 Why Additives are Necessary: The Diagnosis

So the sentence verifying the additive presupposition cannot be held responsible for the incoherence of a discourse like (1) if *too* is omitted.<sup>6</sup> Rather, we should suspect the sentence without the additive. But what is the sentence without the additive? Once accents are taken into account, this is far from obvious.

- (1) 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. To the north lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks. To the SOUTH #(TOO) he could see mountains.

Krifka 1999 implicitly assumes that in the sentence without *too* corresponding to the *too* sentence, some other constituent – in his examples, the object NP – carries the focus accent carried by *too* in the *too* sentence. This would correspond to (11a). ((11) is intended to be neutral with respect to prosody.)

- (11) ... To the south he could see mountains.  
 (11) a. ... To the SOUTH he could see MOUNTAINS.

However, this version is arguably incoherent for an independent reason, violating the more basic constraint that second mention material cannot carry an accent (cf. van Deemter 1994). To see that this part of the incoherence is independent of the context which necessitates the additive, consider the dialogue in (11b):

- (11) b. – Could he see mountains from where he was?  
 – # To the SOUTH he could see MOUNTAINS.

The proper prosody for the answer in (11b) is one where only *south* carries an accent. This may be what should be considered “the corresponding sentence without *too*”:

- (11) c. ... To the SOUTH he could see mountains.

---

<sup>6</sup>In a sense, of course, it does bear responsibility, as an accessory; but it is not actively or directly responsible in the sense that it generates a problematic inference.



Actually, one has to show that (11) will cause problems under **any** intonation. A version without a focus **or** a topic accent is, however, ruled out on more general, phonological grounds. Note, by the way, that when the associate is covert, as in (12), such an accentless version will be the only alternative to a version where second mention material is accented:

- (12) Female spiders are said to eat their mates. But in fact this happens only occasionally. One of the most notorious is the female black widow spider and it is probably true that a male black widow spider must approach a female with care. Usually, the male mates **SUCCESSFULLY** and lives to mate **#(AGAIN)**.

And, as we saw, the version where some other constituent inherits the accent from the additive, like (11a), violates at least the constraint that second mention material cannot carry an accent. The question is thus why (11c), where the additive takes its accent with it so that only its ‘former associate’ carries an accent, is infelicitous (in the context of (1)). Now this accent can in principle be or be interpreted as not a topic accent but a focus accent, as in the answer in (11d).

- (11) d. – Where could he see mountains from where he was?  
– To the **SOUTH** he could see mountains.

However, it does not matter much whether the accent in (11c) is or is interpreted as a focus accent or a topic accent, for, as assumed by Rooth 1992, who used an indiscriminate notion of focus, a topic and a focus will amount to basically the same as regards contrast, generating essentially the same contrastive (scalar) implicature.<sup>7</sup>

Intuitively, (11c) (in the context of (1)) is reminiscent of a self-correction; as if the author is no longer sure that Swift Deer could see mountains to the north. Note that what would be an obligatory *too* in monologue can be an optional, though informative, *too* in dialogue; in (13), the version without *too* reads as a correction. There is nothing incoherent about this version, but it implies that the second speaker disagrees with the first. The version with *too* implies that the second speaker agrees with the first but adds a piece of information.

- (13) Little Eagle and Son-of-Thunder lay safe and warm under a big fur.  
Swift Deer squatted down beside them.  
“He takes after you,” said Little Eagle.  
Swift Deer stroked her forehead gently.  
“He takes after you (too),” he said.

If the dialogue is recast as a monologue, we get the effect that the speaker corrects **herself**. This self-correction effect is especially pronounced when the associate is a demonstrative, as in (9). It is reasonable to assume that it results from a contrast between what is first said and what is subsequently implicated.

It can be shown that given Association with Topic (2.1), Semantics of *too* (2.1), and Contrastive Implicature (2.3), (11c) implicates, in particular, that he couldn’t see mountains to the north, which is of course ostensibly contradicted in the context; and that this is necessarily so because (11c) is in a context verifying the presupposition of the version with *too*.

---

<sup>7</sup>In an interesting study, Hetland 2002 concludes that in a language like English or German, every pitch accent can be used to signal contrast, if only the context provides a set of alternatives; but that the fall-rise accent is special in presupposing a set of alternatives and thus a contrast.

### Association with Topic

The associate of additives is the accented topic (topic focus, theme focus) of the clause in which they occur.

### Semantics of *too*

$$too^* = \lambda\phi \phi[\alpha | \phi[\mathcal{T}(\phi) / \alpha]]$$

### Contrastive Implicature

For any  $\phi$  and  $c$  such that  $\mathcal{T}(\phi)$  is defined and there are alternatives  $\alpha$  to  $\mathcal{T}(\phi)$  active in  $c$ , for all such  $\alpha$ ,  $\phi$  implicates  $\neg\phi[\mathcal{T}(\phi) / \alpha]$  in  $c$ .

So we see that Krifka was half right: The alternative is not consistently a contrastive topic, but the associate is (as he assumed all along); the context does not consistently generate a contrastive implicature contradicted by the *too* sentence, but it is the other way around: The *too* sentence generates a contrastive implicature contradicted by the context, and systematically so. The generalization is:

A sentence  $\phi$  for which *too* is defined in a context which verifies the presupposition of  $too(\phi)$  implicates

$$(1) \quad \neg\phi[\mathcal{T}(\phi) / \alpha] \text{ for every alternative } \alpha$$

and a context which verifies the presupposition of  $too(\phi)$  entails

$$(2) \quad \phi[\mathcal{T}(\phi) / \alpha] \text{ for some alternative } \alpha$$

By Association with Topic, if *too* is defined for  $\phi$  then so is  $\mathcal{T}$ ; by Semantics of *too*, if the presupposition of  $too(\phi)$  is verified then there are active alternatives  $\alpha$  in  $c$ ; by Contrastive Implicature, finally, (1). By the Semantics of *too*, (2).

Thus if the presupposition is verified whenever *too* is obligatory, whenever *too* is obligatory there is a contradiction between what the sentence without it implicates and what the context entails.<sup>8</sup>

Note that this does not amount to a cancellation. Cancellation is when you first generate an implicature and then go on to contradict it, and it is not supposed to cause a serious problem. Here it is the other way around: First you say something and then you generate an implicature contradicted by what you said.

## 4 The Remedy: Why Additives are Sufficient

So far, only half the question has been answered. It seems clear why the version without the additive is incoherent, but it is not yet clear why the version with the additive is coherent. In fact, the semantics of the additive as it stands does not, or not necessarily, suffice to answer the question why the additive is sufficient.

To see this, note that the contrastive implicature which causes the incoherence in the version without the additive is computed on the basis of the assertion. True, the presupposition can cause accommodation effects, but when no accommodation is necessary, as in the cases under consideration here, it acts as an admittance condition and is supposed to disappear once it is verified.

---

<sup>8</sup>But recall (from 2.1) that this is a simplified story, missing out the cases where the associate is not an *accented* topic, about which there is another, simpler story to be told (cf. (12) above).

One may want to say that contrastive implicatures are not computed solely on the basis of the assertion but on the basis of the assertion and the presupposition, and in the event of a conflict between a presupposition and a potential implicature the former overrules or alters the latter. After all, quantity implicatures have been assumed to be sensitive to presuppositional elements; for instance, the one triggered by the verb *believe* (cf. 2.2) is of course not triggered by the verb *know*, although the assertion is supposed to be invariant (Gazdar 1979).

However, that case seems to be special in two respects: First, since the factive presupposition is so regularly accommodated, it acts more like an assertion than an admittance condition. Second, the implicature triggered by *believe* can be argued to arise through a competition with *know*, as opposed to contrastive implicatures, which can hardly be said to arise through a competition with additives.

Still, one may wish to maintain that presuppositions can overrule or influence implicatures. But I do not think one should commit oneself to that assumption. Therefore, I would like to show how the problem can be solved even on the weak assumption that the contrastive implicature is computed solely on the basis of the (topic structured) assertion. This solution consists in having the presupposition affect the implicature indirectly, by way of affecting the assertion.

Reconsider (1) and the hitherto assumed semantics of *too*.

- (1) 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. To the north lay the yellow-brown desert, a low belt of green cactus-covered ridges and distant blue mountain ranges with sharp peaks. To the south #(too) he could see mountains.

Let us assume that  $\mathcal{T}(\phi)$  is here “(to) the south”. The alternative  $\alpha$  can be anchored to a location such that the context entails that Swift Deer could see mountains there. Once this has been established, the presupposition leaves the scene.

Intuitively, however, it makes the alternative escape the contrastive implicature. And in fact, there is a natural way to accomplish this: In the output of the additive, the topic of the assertion can be assumed to grow by the presupposed alternative.

**Semantics of *too*** (standard)

$$too^* = \lambda\phi \phi[\alpha | \phi[\mathcal{T}(\phi) / \alpha]]$$

**Semantics of *too*** (revised version)

$$too^* = \lambda\phi \phi[\mathcal{T}(\phi) / \alpha \oplus \mathcal{T}(\phi)] [\alpha | \phi[\mathcal{T}(\phi) / \alpha]]$$

where  $\mathcal{T}(\phi[\mathcal{T}(\phi) / \alpha \oplus \mathcal{T}(\phi)]) = \alpha \oplus \mathcal{T}(\phi)$ ; more precisely, the assertion of *too*( $\phi$ ) is equal to  $\phi$  except that its topic is not  $\mathcal{T}(\phi)$  but  $\alpha \oplus \mathcal{T}(\phi)$ . The topic of the output assertion is the sum of the associate and the alternative.<sup>9</sup>

To see how this revision affects the assertion and indirectly the implicature in the particular case, we need a precise notion of the verification of a presupposition (cf. e.g. Sæbø 1996: 190) (C, S, and P are DRs):

<sup>9</sup>Reis and Rosengren 1997 make a parallel proposal for independent reasons: German *auch* contributes a truth-relevant meaning component which they call ADD (for ‘in addition’), the most salient justification for this being its ability to be focused (Reis and Rosengren 1997: 273f.).

### Presupposition Verification

The update of a context  $C$  by an assertion  $S$  with a presupposition  $P$  is defined if there is a unique function  $f$  from the universe of  $P$  to the universe of  $C$  such that the picture of  $P$  under  $f$  is a logical consequence of  $C$ ; then it is the merge of  $C$  and the picture of  $S$  under  $f$ .

Following presupposition verification the assertion of the last sentence in (1) is the picture of “he could see mountains [to the south] <sub>$\mathcal{T}$</sub>  [the south /  $\alpha$  and the north]” under the function mapping  $\alpha$  onto “the north”, that is, (1a):

- (1) a. [To the south and to the north] <sub>$\mathcal{T}$</sub>  he could see mountains.

The revised formulation thus echoes the locution “as well as ...”; in connection with (1), “to the south **as well as to the north**, he could see mountains”.

This move is reminiscent of the way the assertion depends on the presupposition in cases of personal pronouns, definite descriptions, and so-called zero anaphora. Only here, it does not make a difference to the truth conditions of the discourse, since the addition to the assertion is already in the common ground. It only makes a difference for the conversational implicature generated by the assertion, as now, the presupposed alternative is not an alternative in terms of Contrastive Implicature.

### Contrastive Implicature

For any  $\phi$  and  $c$  such that  $\mathcal{T}(\phi)$  is defined and there are alternatives  $\alpha$  to  $\mathcal{T}(\phi)$  active in  $c$ , for all such  $\alpha$ ,  $\phi$  implicates  $\neg\phi[\mathcal{T}(\phi)/\alpha]$  in  $c$ .

If  $\mathcal{T}(\phi)$  is “to the south and to the north”, the only alternatives active in (1) is “to the east” and “to the west”; here the context confirms the implicature that he could not see mountains to the east or to the west.

To see why “to the north” is not an alternative to “to the south and the north” in the intended sense, recall that Contrastive Implicature ultimately derives from the Maxim of Quantity via a more elaborate formulation (cf. Rooth 1992: 82f.):

For all alternatives to  $\mathcal{T}(\phi)$   $\alpha$  – which can be of the form  $\alpha_1 \oplus \mathcal{T}(\phi)$  – such that  $\phi[\mathcal{T}(\phi)/\alpha]$  is stronger than  $\phi$ ,  $\phi$  implicates  $\neg\phi[\mathcal{T}(\phi)/\alpha]$ .

Thus “To the SOUTH he could see mountains” implicates the negation of the stronger “To the south and to the north he could see mountains” and thus also in effect the negation of “To the north he could see mountains”; but of course, “To the south and to the north he could see mountains” does not implicate the negation of itself. This reasoning shows that in general,  $\alpha$  does not count as an alternative to  $\alpha \oplus \mathcal{T}(\phi)$  in terms of Contrastive Implicature.

On the revised analysis, the assertion inherits part of its topic from the context – the topic accumulates, becoming an **aggregate contrastive topic**. To accomplish this, an anaphoric notion of presupposition verification, à la van der Sandt 1992, is necessary. Thus the proposed analysis argues against Zeevat 2003, who takes the necessity of discourse particles like *too*, inter alia, to indicate that they are not presupposition triggers at all but “context markers”. Until the notion of “additive marking” is made precise, it cannot predict much, and as preliminary formulations (e.g. p. 185) seem to indicate, once it is made precise it will probably come very close to the notion of additive presupposition proposed above.

## 5 Conclusions

It has long been a mystery what justifies the existence of pure presupposition triggers like additive particles or adverbs, seeing that the presuppositions are usually verified. What is the use of words which only make it more difficult for a sentence to fit into a context, and which only reflect what is already there if the sentence does fit into the context? The present paper provides a partial answer: Pure presupposition triggers can be useful, even necessary, as conventional devices for contracepting unwanted conversational effects – self-correction effects, contrastive implicatures.

Krifka 1999 made a proposal in this spirit, but was sidetracked by a too narrow empirical basis; in a constructed setting of two successive partial answers, where the second needs an additive, there is a perfect parallel between the verifying and the presupposing sentence, and both the associate in the latter and the alternative in the former will be a contrastive topic and cause a contrastive implicature contradicted by the other sentence.

Krifka concentrated on the implicature of the verifying sentence, but in general, the relation between the two sentences is asymmetric: The alternative in the verifying sentence is not always a contrastive topic, and when it is, the implicature is not always contradicted by the presupposing sentence. What is consistently the case is that the associate in the presupposing sentence (if it is accented; otherwise a necessary additive is necessary for there to be an accent at all in the sentence) is a contrastive topic and – in the absence of the additive – causes a contrastive implicature contradicted by the verifying sentence, resulting in a self-correction comparable to that in (14b):

- (14) a. The male pop stars wore caftans. The female pop stars did #(too).  
b. The pop stars wore caftans. The female pop stars did.

Now while the self-correction effect in (14b) can be alleviated, by adding *at least*, *at any rate*, or something like that, it cannot really be cured; the additive *too*, on the other hand, does cure the self-correction effect in (14a) if included. The reason must be sought in its semantics – as it stands, its standardly assumed semantics, or in a slightly modified form. While the possibility cannot be ruled out that the standardly assumed presupposition suffices to nullify or to mollify the implicature, it has also been shown how the big implicature can be appropriately reduced while maintaining that it is computed solely on the basis of the (topic – focus structured) assertion; by letting the presupposed alternative be added to the topic of the clause. Then the contrast will not concern that alternative.

Thus the function of these words is not just to make life harder for the sentences they occur in; they also serve to accumulate topics as parallel information is added in a text and so to steer clear of contrasts that would otherwise be communicated. It is not unreasonable to assume that this provides one reason for their existence.

## Acknowledgements

I am indebted to the participants at the PIONIER workshop “Contrast in Discourse” in Nijmegen in April 2003 and to the participants at the Computational Linguistics Colloquium in Saarbrücken in June 2003 for valuable comments and criticisms. Great thanks are due to Manfred Krifka, too, whose paper was a crucial inspiration.

## References

- Beaver, D.: 1997**, “Presupposition”, in J. van Benthem and A. ter Meulen (eds.), *Handbook of Logic and Language*, Amsterdam, 939–1008.
- Büring, D.: 1999**, “Topic”, in P. Bosch and R. van der Sandt (eds.) *Focus – Linguistic, Cognitive, and Computational Perspectives*, Cambridge, 142–165.
- Deemter, K. van: 1994**, “What’s New? A Semantic Perspective on Sentence Accent”, in *Journal of Semantics* **11**, 1–31.
- Fabricius-Hansen, C.: 1983**, “Wieder éin *wieder*? Zur Semantik von *wieder*”, in R. Bäuerle et al. (eds.), *Meaning, Use, and Interpretation of Language*, Berlin, 97–120.
- Gazdar, G.: 1979**, *Pragmatics: Implicature, Presupposition, and Logical Form*, New York.
- Green, G.: 1973**, “The Lexical Expression of Emphatic Conjunction: Theoretical Implications”, in *Foundations of Language* **9**, 197–248.
- Hetland, J.: 2002**, “Accent and the notion of contrast: A cross-linguistic approach”, in H. Hasselgård et al. (eds.), *Information Structure in a Cross-Linguistic Perspective*, Amsterdam, 163–178.
- Hoop, H. de: 2003**, “On the Interpretation of Stressed Pronouns”, in R. Blutner and H. Zeevat (eds.), *Optimality Theory and Pragmatics*, London 2003, 000–000.
- Kaplan, J.: 1984**, “Obligatory *too* in English”, *Language* **60**, 510–518.
- König, E.: 1991**, *The Meaning of Focus Particles*, London.
- Krifka, M.: 1999**, “Additive Particles under Stress”, in *Proceedings of SALT 8*, Cornell.
- Muskens, R.: 1996**, “Combining Montague Semantics and Discourse Representation”, in *Linguistics and Philosophy* **19**, 143–186.
- Reis, M. and Rosengren, I.: 1997**, “A Modular Approach to the Grammar of Additive Particles: the Case of German *Auch*”, in *Journal of Semantics* **14**, 237–309.
- Rooth, M.: 1985**, *Association with Focus*. Ph.D. thesis, University of Massachusetts.
- Rooth, M.: 1992**, “A Theory of Focus Interpretation”, in *Natural Language Semantics* **1**, 75–116.
- Sæbø, K.J.: 1996**, “Anaphoric Presuppositions and Zero Anaphora”, in *Linguistics and Philosophy* **19**, 187–209.
- Sandt, R.v.d.: 1992**, “Presupposition Projection as Anaphora Resolution”, in *Journal of Semantics* **9**, 333–377.
- Steedman, M.: 2000**, “Information Structure and the Syntax-Phonology Interface”, in *Linguistic Inquiry* **31**, 649–689.
- Zeevat, H.: 1992**, “Presupposition and Accommodation in Update Semantics”, *Journal of Semantics* **9**, 379–412.
- Zeevat, H.: 2003**, “Particles: Presupposition Triggers or Context Markers”, in R. Blutner and H. Zeevat (eds.), *Optimality Theory and Pragmatics*, London 2003, 163–199.
- Zeevat, H.: this issue**, “Contrastors”.