Optionally co-occurring additive expressions as a challenge for the *Maximize Presupposition* account of obligatory additives*

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1. Introduction

An empirical observation about additive particles (*also, too*) is that they are often obligatory in discourse, despite their contribution being entailed by their sentence's context:

(1) Adam sang. Janm #(**also**) sang.

Two theories have been proposed for why this is. The first claims that additives are obligatory whenever their presupposition is met, due to the principle *Maximize Presupposition* (MP); call this the 'MP account' of obligatory additives. The second claims that additives are obligatory to avoid unwanted but obligatory exhaustification; call this the 'OE account.'

The present paper reports on new empirical data problematizing the MP account. I start by observing that multiple additive expressions contributing the same meaning can be stacked in a single sentence:

(2) Adam sang. **In addition** to Adam singing, Janm (**also**) sang.

I then show that the MP account cannot explain that *also* is not obligatory in (2) and similar examples, because MP is evaluated locally (e.g., Percus 2006, Schlenker 2009, Singh 2011). The obligatoriness of *also* should persist without regard to the presence of other additive material higher in the sentence.

This paper is organized as follows. Section 2 outlines the two competing theories of obligatory additives, as well as an argument from Bade (2016) favouring the OE account over the MP account. Section 3 elaborates on the optional co-occurrence of different additives, and section 4 shows that this optional co-occurrence is a problem for the MP account. Section 5 concludes.

*I thank Bernhard Schwarz and the audience at NELS 53.

2. Two theories of obligatory additives

Some authors (e.g., Amsili and Beyssade 2006, Chemla 2008, Singh 2008) explain the obligatory nature of additives from the fact that they are presuppositional. In (3), *also* adds nothing to the assertion of the second sentence (S2).

(3) Adam sang. Janm #(also) sang.

For this paper, nothing will hinge on the particular nature of the presupposition; let's assume it is anaphoric (Kripke 2009). On this view, *also* in (3) is co-indexed with the sentence *Adam sang* and delivers the presupposition that Adam sang.

It has been argued independently of additives that presuppositionally strong(er) expressions must be used over non-presuppositional or presuppositionally weaker ones. Heim (1991) first made this case from the obligatory use of definite determiners:

(4) a. The sun is shining.
b. #A sun is shining.

Since the common ground entails that there is exactly one sun, (4a) and (4b) are equivalent contributions. Heim (1991) argues that (4a) is the only acceptable utterance due to a principle she calls *Maximize Presupposition* (MP). It states that, given a set of alternative utterances differing only in presuppositional strength, the expression with the strongest licensed presupposition must be used. The empirical scope of this maxim goes beyond determiners, as seen in the examples in (5), adapted from Chemla (2008).

(5) a. Adam is here and Janm {knows, #believes} it.
b. Adam painted {both, #all} his arms.

The principle of MP is usually assumed to be evaluated for utterances (or something like them; see section 4): speakers must choose utterances that presuppose as much as possible. The only exception is Percus (2006), who takes it to govern lexical choice. We return to this in sections 3 and 4.

Using MP to capture obligatory additives (3) creates the apparent conundrum that, while *also* has a presupposition, it does not have a presuppositionally weaker counterpart to compete with. Chemla (2008) simply takes *also* to compete with $\varnothing$, so that {*Janm sang*, *Janm also sang*} are alternatives. As pointed out by Singh (2008), the issue with this is that alternatives have independently been argued never to be more syntactically complex than the utterance (Katzir 2007). Thus, while *Janm sang* can be an alternative to the utterance *Janm also sang*, the utterance *Janm sang* does not have *Janm also sang* as an alternative. As such, we should be able to utter *Janm sang* with no additive in (3), since MP does not have any presuppositionally stronger alternative to consider. Rather than giving up on the MP account, Singh's response is to define additives in such a way that Rooth's (1992) $\sim$ operator is no longer required in their presence. From there, *Janm sang* and *Janm also sang*

can be taken to be of equal syntactic complexity (and therefore mutually valid alternatives), since the LFs are '$\sim$ [Janm sang]' and 'also [Janm sang]' respectively.

Putting aside the hiccup from structural complexity, recent work by Bade (2016) has brought up less theory-internal problems for the MP account. Consider discourses with negative S2s (6a) where *not* scopes above *also* (6b).

(6) a. Adam sang. Janm did not (also) sing.
b. not [also [Janm sang]].

Since *also*'s prejacent is just *Janm sang* (and not *Janm didn't sing*), its presupposition is a positive: Adam *did* sing. This explains why *also* is licensed in (6a). Since presuppositions project past negation, *also* contributes this positive presupposition to the utterance as a whole. On the MP account, however, a sentence should obligatorily have an additive whenever the additive presupposition is met. Clearly, this is an incorrect prediction for (6a).

Luckily, there is a second proposal for obligatory additive effects like (3). Krifka (1998) and Sæbø (2004) argue that *also* is obligatory in (3) because including it in the utterance circumvents a problem that would otherwise arise. For Krifka and Sæbø, the problem without *also* would be a Maxim of Manner violation; I will follow Bade (2016) and Aravind and Hackl (2017) in taking it to be an unwanted exhaustification effect, modelled through the Exh(aust) operator of Chierchia et al. (2012). Thus, the claim is that *also* is necessary in (3) because it thwarts an unwanted (but obligatory) exhaustivity effect. Without *also*, S2 in (3) would have the form and meaning in (7), contradicting the S1. On this theory, *Janm* is focused and bears *Adam* as an alternative due to Janm and Adam being contrastive topics.

(7) $[\![\text{Exh}_{\text{ALT}}\ [\text{Janm}_F\ \text{sang}]]\!] = 1$ iff only Janm sang $\Rightarrow$ contradiction with S1

Call this theory the 'obligatory exhaustification' (OE) account of obligatory additives. A central question for this approach is how additives can de-exhaustify sentences like the S2 in (3); I simply refer the reader to Paillé 2022 and citations therein. One of the merits of this approach is that, if *also* is a 'de-exhaustifier' as it suggests, (6a) no longer constitutes a puzzle: Exh is standardly assumed to be absent from negated sentences, so we do not expect *also* to be required to fix a problem caused by Exh. Hence, *also* is correctly expected to be optional in (6a) even while licensed.

The rest of this paper builds on Bade's case against the MP account. I first elaborate empirically on additives in section 3; then, in section 4, I show that the new data are fundamentally problematic for the MP account.

3. New data: CP and *v*P additives

We have already observed that additives can stop being obligatory due to material higher in a sentence, namely the negation in (6a). In this section, we observe a second area where *also* is no longer required due to the presence of other material higher up. The higher material in question is a set of other additive expressions, which adjoin to CP rather than *v*P, and can effectively replace *v*P *also*:

(8) Adam sang. { In addition / Additionally / What is more / Likewise / Furthermore }, Janm sang.

The additive *also* can adjoin to CP too (9a), but as already seen, it does not need to (9b).

(9) a. Adam sang. **Also**, Janm sang.
b. Adam sang. Janm **also** sang.

In this paper, I will use *in addition* as a stand-in for CP additives in general, and *also* as a stand-in for *v*P additives, putting aside the fact that *also* can also be adjoined to CP. What matters is the syntactic placement of an additive, not how it is lexicalized. I will also assume that all these additives have the same meaning, presupposing here that Adam sang.[1]

We just saw in (8) that in the presence of a CP additive, *v*P *also* is no longer obligatory. This leads one to wonder whether there is anything blocking *v*P *also*, or whether it can co-occur with the CP additive. That is, does stacking additives lead to semantic deviance? In fact, CP additives can co-occur with a *v*P additive:

(10) Adam sang. **In addition** (to Adam singing), Janm (**also**) sang.

Other examples of doubled additives include those in (11), both taken from online forums where users ask precisely whether it is (stylistically/prescriptively) acceptable to double additives. The answers given in those forums usually involve a reluctant 'yes,' with several different users noting that "many people" use this construction.[2]

(11) a. **In addition** to playing soccer, he (**also**) plays tennis and golf.
b. In this study, we assessed A. **In addition**, we (**also**) assessed B.

As such, there is no competition between CP and *v*P additives. In the presence of a CP additive, *v*P *also* is not obligatory, while still being licensed.

At first glance, this observation is compatible with both the MP and OE accounts, at least on some assumptions about MP. Let's start with the OE account. OE theorists would

[1]The anaphoric meaning is explicit with some CP additives like *in addition*; in its full form, *in addition* names the anaphoric antedecent explicitly:

(i) Adam sang. In addition to Adam singing, Janm sang.

[2](11a) (parentheses in original) is from: "In addition to . . . also". UsingEnglish.com. `https://www.usingenglish.com/forum/threads/in-addition-to-also.248369/`, accessed Aug. 14, 2022. (11b) (my parentheses) is from: "'In addition' plus 'also'". WordReference. `https://forum.wordreference.com/threads/in-addition-plus-also.1446357/`, accessed March 29, 2023. See also: "Can you use 'in addition' and 'also' in the same sentence?" Quora. `https://www.quora.com/Can-you-\use-in-addition-and-also-in-the-same-sentence`, accessed Aug. 14, 2022.

take (8) to show that *in addition* accomplishes the same de-exhaustification work as *also*. Since de-exhaustification only has to occur once, only one additive is required (while nothing goes wrong if there are two), and all three sentences in (12) are equally de-exhaustified.

(12) a. Janm also sang.
b. In addition, Janm sang.
c. In addition, Janm also sang.

As for the MP account, the sentences in (12) are all equally acceptable if MP is evaluated at the level of the utterance (but see section 4, where we will see that MP is in fact evaluated more locally). All the utterances in (12) presuppose that Adam sang; it does not matter for MP whether this presupposition is triggered by one or two additive expressions.

However, there is one theory of MP with which the MP account would not predict (12). Percus (2006) argues that MP is a principle governing lexical choice, rather than the presuppositions of utterances. Among a set of lexical items, one must always choose the one with the strongest licensed presupposition. In the competition between the non-presuppositional $\sim$ (or $\varnothing$) and additives, an additive would always have to be used if licensed. Thus, (12c) would be the only felicitous option among the sentences in (12): (12a) and (12b) choose fewer presuppositional lexical items than they could.

4. A problem for the MP account

We just saw that in order to account for (12), the MP account needs to assume that MP is evaluated at the level of the utterance. However, a general observation about MP is that it is in fact evaluated locally (e.g., Percus 2006, Schlenker 2009, Singh 2011). In this section, I identify two local domains of evaluation for MP, which I will label as α and β. The MP account predicts that *v*P adjuncts should remain obligatory in those local domains even in the presence of a CP additive higher up (i.e., outside of the domain). This prediction is not borne out.

4.1 The first local domain: the CP below CP additives

One way to observe that MP is evaluated locally is in examples like (13), which have one clause adjoined to another. In what follows, I label the CPs hosting a CP adjunct as α. The sentences in (13) require the presuppositionally strong *both* and *know*, despite these expressions not strengthening the global presupposition.

(13) a. When he meets two dogs, [$_\alpha$ Adam always pets {both, #all} of them].
b. When it rains, [$_\alpha$ Adam {knows, #believes} it.]

Thus, it must be that α in (13) is evaluated for MP by itself; if the whole sentence was evaluated as a unit, *both*/*all* and *know*/*believe* would be equally acceptable.

The same goes when the CP adjunct is an additive rather than a *when*-phrase:

(14) This is going to be a great party for Adam. In addition to there being two dogs, [$_{\alpha}$ he will get to pet {both, #all} of them].

Due to the CP additive, the second sentence in (14) globally presupposes that there are two dogs at the party regardless of whether one uses *both* or *all* in α. Thus, if MP was evaluated globally, *both* and *all* would be equally acceptable. Since they are not, it must be that α is evaluated for MP by itself.

The MP account of obligatory additives therefore makes the prediction that a licensed *v*P additive in a clause α hosting a CP additive should be obligatory. After all, α is evaluated for MP independently of the CP additive (14). But as we have seen, this is not the case:

(15) In addition to Adam singing, [$_{\alpha}$ Janm **(also)** sang].

Thus, we can infer from examples like (14) that the data in section 3 (15) are actually problematic for the MP account not just on Percus's lexical-choice approach. MP is evaluated so locally that a *v*P additive should remain obligatory even in the presence of a higher CP additive.

4.2 The second local domain: second conjuncts

A second way to observe the local evaluation of MP involves conjunctions like (16): these sentences require the presuppositionally strong *know*/*both* in the second conjunct, even though these expressions do not strengthen the global presupposition. As the second local domain of evaluation for MP we are discussing, I will label second conjuncts as β.

(16) a. It's raining and [$_{\beta}$ Adam {knows, #believes} it]. (cf. Singh 2011:165)
b. There are two dogs and [$_{\beta}$ {both, #all} of them are friendly].

On the MP account of obligatory additives, we expect that in a conjunction of clauses where an additive is licensed in β, it will be obligatory.

We will ultimately see that this prediction is not borne out in sentences where there is a CP additive above an entire conjunction. Before getting there, let's check a simpler case, namely conjunctions with no CP additive. Again, the MP account predicts that *also* would be required in the second conjunct. The datapoint is (17); the problem is that the judgment has not been agreed on in the literature.

(17) Adam sang and [$_{\beta}$ Janm #/?/✓(**also**) sang].

Due to the assertion of the first conjunct, the local context of β entails that Adam sang; as such, *also* is licensed and should be obligatory on the MP account. The OE account predicts the opposite (Bade 2016): Exh could scope globally (18), in which case Exh's prejacent entails both that Adam sang and that Janm sang, and neither of these meanings would be excluded by it. There would be no problem created by Exh that *also* would need to fix, so the additive would be optional.

(18) Exh_{ALT} [Adam$_F$ sang and Janm$_F$ sang].

The judgment that *also* is required in (17) has been a consensus in the literature since Kaplan 1984. On the other hand, Bade (2016) has suggested from experimental evidence that it is in fact optional. More informally, many people I have asked find it either fully optional, or at least less needed than in bisentential discourses. For the present paper, I simply note that the data are inconclusive. It might be that Kaplan (1984) and others are right, in which case (17) would constitute a win for the MP account.

This possible win for the MP account falls apart when one considers data similar to (17) but containing a CP additive. For the MP account, if *also* is licensed in a β, it will be obligatory even if there is a CP additive with the same presupposition at the top of the sentence. Schematically, if (19a) is possible (with both additives contributing the same presupposition), then (19b) should be blocked on the MP account due to β lacking a presupposition.

(19) a. additive $[p \wedge [_\beta$ additive $q]]$
b. additive $[p \wedge [_\beta\ q]]$

To get at this sort of construction, we must use conjunctions slightly different from (17). In (17), *also* refers anaphorically to the first conjunct, so it is impossible to have a global CP additive with the same presupposition. Adding a CP additive to (17) would yield *In addition to Adam singing, Adam sang and Janm also sang*, which is independently deviant due to presupposing that Adam sang before asserting it. As such, the CP and *v*P additives must refer to prior material altogether. We can get this by moving *Adam sang* in (17) from the first conjunct to a previous sentence, and then adding some filler material as the first conjunct. As such, the datapoint for our experiment is (20):

(20) Adam sang. In addition to Adam singing, Janm will wake up and [$_\beta$ he will **(also)** sing].

Problematically for the MP account, the lower additive *also* in β is optional in the presence of the higher additive *in addition*—despite β being evaluated for MP by itself.[3]

Naturally, (20) is also problematic for the MP account due to the other local domain of evaluation it contains discussed in section 4.1, namely the CP α hosting the CP additive. In (21), I write out explicitly the two local domains of evaluation for MP α and β, both of which independently lead to the expectation that the *v*P *also* should be obligatory.

(21) Adam sang. In addition to Adam singing, [$_\alpha$ [Janm will wake up] and [$_\beta$ he will **(also)** sing]].

[3] As a note on the judgment, while *he* is semantically focused in (20) regardless of whether *also* is present, I find clear intonational focus on *he* to be particularly important to accept the sentence without *also*. With *also*, the main focus can fall on either *he* or *also*.

As such, the central datapoint of this section (20) in fact follows entirely from the claim in section 4.1 that α (the CP hosting a CP additive) is evaluated for MP by itself. Still, this section has strengthened my case by defining a local domain of evaluation for MP independently of CP additives; the argumentation here stands up independently of the identification of α in section 4.1 as a local domain.

5. Conclusion

Are additives obligatory in all cases where their presupposition is met due to *Maximize Presupposition*, or only when they are necessary to avoid problematic exhaustification? In this paper, I have shown that *v*P additives like *also* can optionally co-occur with CP additives like *in addition*:

(22) Adam sang. In addition, Janm will (also) sing.

This is a problem for the MP account: since MP is evaluated locally, a *v*P additive should be obligatory regardless of what happens upstairs in the sentence that hosts it. Thus, *Maximize Presupposition* cannot be the principle determining when additives are obligatory or optional.

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