

Epistemic Narrowing from Maximize Presupposition
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1. Overview. At the heart of both *Scalar Implicature* (SI) and *Maximize Presupposition* (MP) is the concept of alternatives. We explore the application to MP of the complexity-based notion of structurally defined alternatives devised for SI in [Kt07], concluding that: (i) alternatives for MP must not be more complex than the assertion; (ii) there is a case for admitting alternatives for MP that are less complex than the assertion, derived by deletion; (iii) MP inferences arising under (ii) resemble SIs in being about *the speaker's* knowledge as opposed to *common* knowledge, a phenomenon we dub *Epistemic Narrowing*; (iv) Epistemic Narrowing suggests that, pressured by the demands motivating [Hr84]'s *R Principle*, speakers reason about the listeners' ability to accommodate presuppositions.

2. Background. MP ([Hm91], o.a.) demands that a cooperative speaker use the presuppositionally stronger of two Strawson equivalent alternatives if its presupposition P is entailed by the context set c . Use of the weaker alternative triggers the *antipresupposition* (AP , [Pr06]) that the stronger alternative's presupposition is not entailed by c . The classic case, illustrated in (1), is the use of the indefinite article instead of the presuppositionally stronger definite. The occurrence of a in an utterance of (1a) will cause the utterance to antipresuppose the presupposition triggered by *the* in (1b).

- (1) a. A Dutch student in my lab brought cake. $AP: c \not\subseteq \{w: \text{there is extl. 1 Dutch st. in my lab in } w\}$
b. The Dutch student in my lab brought cake. $P: c \subseteq \{w: \text{there is extl. 1 Dutch st. in my lab in } w\}$

[Kt07] defines the set of alternatives for a parse tree ϕ as containing all and only parse trees ψ which can be derived from ϕ through a finite series of (a) substitutions and (b) deletions. Replacing [Hr72]'s *Horn Scales*, [Kt07] applies this complexity-based notion of alternative to SI. The open question we address here is to what extent the same notion of alternatives applies correctly to MP.

3. Complexity and MP. The classic case of MP in (1) serves to demonstrate that alternatives for MP can arise via substitution, as expected under [Kt07]'s definition of alternatives: the definite article in (1b) can be seen as substituted for the indefinite in (1a). [Kt07]'s approach moreover predicts that structural complexity restricts the set of alternatives. We provide (2) as evidence that this prediction is correct for MP. Because (2b) cannot be derived from the presuppositionally weaker (but Strawson equivalent) (2a) using a finite series of substitutions and deletions, it is more complex than (2a). As predicted, (2a) does not trigger an antipresupposition supported by (2b).

- (2) a. The guests left. $AP: \text{none}$
b. The two guests left. $P: c \subseteq \{w: \text{there are exactly 2 guests in } w\}$

The remaining question is whether antipresuppositions can arise from less complex alternatives, obtained through deletion. We identify two types of cases of this kind. *Type 1*: deletion targets material in the scope of the presupposition trigger. Type 1 is exemplified by (3), where the disjunction in (3a) is judged to trigger symmetric antipresuppositions supported by the pair of alternatives in (3b).

- (3) a. The two or three points John scored impressed Sue. $AP: c \not\subseteq \{w: \text{J. scored extl. 2/3 points in } w\}$
b. The two points John scored impressed Sue. $P: c \subseteq \{w: \text{John scored extl. 2 points in } w\}$

The three points John scored impressed Sue. $P: c \subseteq \{w: \text{John scored extl. 3 points in } w\}$

Type 2: a presuppositionally stronger alternative arises from deletion of a subordinate clause that serves as a presupposition filter. For example, the presupposition carried by (4b) is filtered out in (4a). The presuppositionally stronger (4a) is judged to give rise to the expected antipresupposition.

- (4) a. Each boy who has a bike brought his bike. $AP: c \not\subseteq \{w: \text{each boy has a bike}\}$
b. Each boy brought his bike. $P: c \subseteq \{w: \text{each boy has a bike}\}$

In both (3) and (4), then, the expected antipresupposition is obtained from the presuppositionally weaker alternative, in support of [Kt07]'s definition of alternatives.

4. Epistemic Narrowing. Surprisingly, however, (3a) and (4a) do not merely *antipresuppose* their alternatives' presuppositions. Intuitions point to a stronger inference, with (3a) supporting the ignorance inference that *the speaker* is unaware of the exact number of friends John has, and (4a) suggesting that *the speaker* fails to believe that each boy has a bike. In this *Epistemic Narrowing*, the target of the MP inference is unexpectedly narrowed down from *common knowledge* to *the speaker's knowledge*. The example in (1) provides a baseline for MP, demonstrating that such Epistemic Narrowing is indeed exceptional. (1a) is correctly predicted to antipresuppose that there is exactly one Dutch student in the speaker's lab. A speaker can clearly utter (1a) felicitously despite knowing the presupposition of (1b), justified by her assumption that the *listener* lacks this knowledge. Given an

utterance of (1a), a listener would accordingly be unable to determine whether *the speaker* was herself unaware of there being exactly one Dutch lab member, or whether she merely took *the listener* to be ignorant of this fact. So a speaker's utterance of (1a) only supports the weaker inference that the presupposition of (1b) is not *common ground*, as opposed to the stronger inference that the *speaker's epistemic state* fails to entail that presupposition. That is, no Epistemic Narrowing is observed in (1).

5. Reasoning about accommodation. Our proposed explanation for the *Epistemic Narrowing* effect in (3) and (4) invokes the notion of presupposition accommodation: when a structurally less complex (Strawson equivalent) alternative is presuppositionally stronger than the assertion, speakers are assumed to maximize the amount of information that they expect the audience will accommodate. Thus, an utterance of (3a) will beg the question as to why the speaker did not utter the presuppositionally stronger (3b), whose presupposition the listener could very well have accommodated. Epistemic Narrowing then results from the answer that the speaker did not herself believe the presupposition of (3b) to be true.

The intriguing peculiarity of this proposed rationale is that its application must be restricted to inferences based on alternatives that are (strictly) less complex than the assertion. [Hr84]'s *R principle* in (5), can serve as a first pointer towards an explanation of this restriction.

(5) The R Principle: SAY NO MORE THAN YOU MUST

The R principle, which pressures speakers into being as communicatively efficient as possible, may require that they place the burden of presupposition accommodation upon the listener in cases where a simpler and presuppositionally stronger Strawson equivalent alternative is available. It seems natural to suggest that the speaker's gain in communicative efficiency obtained through the alternatives in (3b) and (4b) is sufficient for her to over-apply *Maximize Presupposition*, presupposing content that is not actually common ground, but merely accommodatable.

6. Assessing predictions. Our hypothesis invites us to identify cases where, for some reason or other, accommodation is expected to be unavailable in the structurally less complex of two Strawson equivalent alternatives. The prediction is that in such cases, *Epistemic Narrowing* is preempted, as a cooperative speaker will not impose upon the listener the accommodation required by the simpler alternative. One type of test case features so-called hard presupposition triggers, such as *it-clefts* and *also*. These hard triggers resist accommodation, producing infelicity in contexts where the audience is clearly ignorant of the presupposed content ([Rm15]). We must report, however, that proper test cases are difficult to construct, and that indeed those we have identified all proved confounded. To illustrate this difficulty, we present the two potential test cases in (6) and (7).

(6) a. (You didn't think anyone had died but) Bill was murdered and it was John who murdered Bill!

b. #(You didn't think anyone had died but) it was John who murdered Bill!

(7) a. If Tim goes on vacation and visits Ipswich, then I will also visit Ipswich.

b. #If Tim goes on vacation, then I will also visit Ipswich.

The oddness of the (b) examples confirms that the relevant presuppositions resist accommodation. However, the presence or absence of the relevant epistemic inference in the (a) examples can be attributed to some variable other than accommodation being unavailable. (6a) does not support the inference that the speaker's knowledge fails to entail that someone was murdered. This observation may appear encouraging. However, it surely cannot be attributed to the unavailability of presupposition accommodation in (6b) as it follows straightforwardly from the fact that the speaker *asserts* that someone was murdered. The converse problem occurs in (7). Here our prediction appears to fail since there is a clear intuition in (7a) that the speaker is not certain that Tim will visit Ipswich. But this inference can be understood as a case of clausal implicature in the sense of [Gz79], which presumably is independent of MP, and thus this example also proves confounded.

7. Conclusion. In investigating the application of [Kt07]'s structurally defined alternatives on *Maximize Presupposition*, it has not only been shown that (i) this theory adequately predicts antipresupposition, but more importantly that (ii) *Epistemic Narrowing* can strengthen an antipresupposition into a new type of implicature about the speaker's epistemic state, derived from an utterance for which there is a simpler and presuppositionally stronger alternative. Further research is required in order to assess the precise nature of this implicature, but (iii) we hypothesize that it involves reasoning about accommodation driven by [Hr84]'s R principle.

References: [Gz79] Gazdar, Pragmatics. [Hm91] Heim, Artikel und Definitheit. [Hr72] Horn, On the Semantic Properties of Logical Operators in English. [Hr84] Horn, Toward a New Taxonomy for Pragmatic Inference: Q-Based and R-Based

Implicature. [Kt07] **Katzir**, Structurally-Defined Alternatives. [Pr06] **Percus**, Antipresuppositions. [Rm15] **Romoli**, The Presuppositions of Soft Triggers are Obligatory Scalar Implicatures.