Obligatory triggers under negation

Summary In this paper we present an experimental study which tests the different predictions of two theories for the obligatory occurrence of the presupposition trigger "again". One theory assumes that "again" is inserted to avoid a mandatory exhaustivity implicature that contradicts the context. A second theory assumes that the insertion of "again" follows from a principle *Maximize Presupposition* (Heim 1991). These theories make different predictions with regard to the obligatoriness of "again" under negation. We provide experimental evidence that shows that "again" is not obligatory under negation. This supports a view that works with obligatory exhaustivity implicatures and speaks against an analysis using *Maximize Presupposition*.
Theoretical Background The obligatory insertion of presupposition triggers as in (1) has standardly been explained by exploiting a principle *Maximize Presupposition* ("Presuppose as much as possible", Heim 1991).

(1)   Peter went to Norway last year. He went to Norway this year, #(again).

Recent accounts (Percus 2006, Chemla 2008, Singh 2011) assume presupposition triggers like "again", "too/also" and the definite determiner each to be ordered on a scale of presuppositional strength. According to these theories, stronger items on the scale have to be used when their presuppositions are fulfilled in the context. Items which are presuppositionally weaker will yield a special inference that the presupposition does not hold ("antipressupposition").

An alternative proposal by Bade (2014) extends ideas from Saeboe (2004) and Krifka (1999) that the obligatory insertion of "too" follows from a contrastive implicature. Bade (2014) argues that the presupposition triggers "too", "again" and "know" all are inserted obligatorily to avoid an implicature that arises due to the mandatory presence of a covert exhaustivity operator with a meaning similar to *only* (Fox 2007). This mandatory presence is assumed to be triggered by focus. In (1), for example, exhaustification is mandatory in the second sentence due to obligatory focus on *this year*. Focus is assumed to establish the Question Under Discussion (QUD) (Roberts 1996). The sentence is interpreted exhaustively with respect to the implicit QUD "When was Peter in Norway?". The exhaustivity operator marks "Peter was in Norway this year" as the most informative answer out of the possible answers in the question set which makes "Peter was in Norway only this year" an obligatory implicature of the sentence. This implicature contradicts what is in the context. By inserting the trigger, the contradiction and the related oddness are avoided. The exhausitivity operator is not inserted mandatorily since "again" already makes use of the focus alternatives.

Maximize Presupposition makes the prediction that all presupposition triggers are obligatory both in affirmative sentences like in (1) and under negation, as shown in (2).

(2)   a. Jenna went ice skating yesterday. Today she didn't go #(again).
          b. Mary came to the party. It's not the case that Peter came #(too).
          c. Mary is married. Joe does not #believe/ know she is.
          d. #A/The father of the victim did not arrive at the crime scene.

Since presuppositions project, the negated sentence with the trigger is considered the stronger alternative under *Maximize Presupposition*. Under the alternative analysis (Bade 2014) the triggers "know", "again" and "too" are considered to be obligatory in simple affirmatives but not to be obligatory under negation. The assumption behind this prediction is that in the negated sentences in (2a) to (2c) the QUD changes to a polar question. Exhaustification of this question will not result in a contradiction with the context. Since the insertion of the trigger is supposed to be a consequence of a contradiction under Bade's analysis it is not expected to obligatory for the examples in (2a) to (2c).

Rating Study We created a rating study on the German trigger "wieder" ("again") which tested the prediction of both theories that "again" is obligatory when its presupposition is

satisfied in the context. Furthermore, it tested the different predictions of the two theories presented above regarding the obligatory insertion of "again" under negation. The study had a 2x2 design with the two factors AGAIN and NEGATION; both factors appeared in two conditions (with/out negation and with/out "again"). First, a general context was introduced; an example is given in (3).

(3)   Sara und Lisa sind Kolleginnen. Sie unterhalten sich über Freizeitaktivitäten, die sie in der letzten Woche gemeinsam unternommen haben. Sara sagt:
'Sara and Lisa are colleagues. They are talking about activities they did together last week. Sara says:'

Then two target sentences were presented. The first one satisfied the presupposition of "again". The second sentence appeared in four different conditions: without negation and with "again" (4a), without negation and without "again" (4b) with negation and without "again" (4c), with "again" and with negation (4d). Subjects were asked to judge the acceptability of the whole utterance on a scale from 1 (very bad) to 5 (very good).

(4)
 a. Wir waren am Dienstag schwimmen. Am Freitag waren wir wieder schwimmen.
     'We went swimming on Tuesday. Friday we went swimming again.'
 b. Wir waren am Dienstag schwimmen. Am Freitag waren wir schwimmen.
     'We went swimming on Tuesday. Friday we went swimming. '
 c. Wir waren am Dienstag schwimmen. Am Freitag waren wir nicht schwimmen.
     'We went swimming on Tuesday. Friday, we did not go swimming.'
 d. Wir waren am Dienstag schwimmen Am Freitag waren wir nicht wieder schwimmen.
     'We went swimming on Tuesday. Friday, we did not go swimming again.'

Results The analyses were carried out using the R programming as linear mixed models, using the program lmer (Bates, 2005). A significant interaction was found between negation and the insertion of "again" ($p<0.01$). Whereas without negation the acceptability of the sentence increased with the insertion of "again", it decreased the acceptability of sentences with negation, see table below.

	again	no again
negation	2,8	3,2
no negation	3,6	1,8

Theoretical Consequences The result that the sentence without the trigger and without negation should be degraded in a context where the presupposition of "again" is satisfied is predicted by both theories discussed. However, the decrease of acceptability when the trigger is inserted into the negated sentence is only predicted by a theory that assumes the insertion of "again" to be driven by exhaustification. The results of this experiment hence suggest that the trigger "again" is not ordered on a scale of presuppositional strength. As opposed to what *Maximize Presupposition* would predict, no "antipresuppositions" which lead to oddness are yielded by the sentences with negation. The results also show that not all presuppositional phenomena should be treated uniformly when it comes to obligatory insertion of presupposition triggers. The definite determiner is still obligatory in both affirmative and negative sentences, as can be seen in (2d), and predicted to be so under both theories presented.

Selected References: Chemla, Emmanuel (2008). An epistemic step for antipresuppositions. In: Journal of Semantics 25 (2), pp. 141-173.**Fox, Danny (2007).** Free choice and the theory of scalar implicatures. In: Presupposition and Implicature in Compositional Semantics. Ed. by U. und Penka Stateva Sauerland. Palgrave Macmillan. **Percus, O. (2006)**. Antipresuppositions. In: Theoretical and Empirical Studies of Reference and Anaphora. Japan Society for the Promotion of Science. **Saeboe, Kjell Johan (2004)**. Conversational Contrast and Conventional Parallel: Topic Implicatures and Additive Presuppositions. In: Journal of Semantics 21, pp. 199-217.