

Do 2.5-year-olds understand presupposition? An eye-tracking study of the discourse particles *too* and *again*.

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Background of the topic

Pragmatic inferences appear to develop later than other linguistic abilities (e.g., Noveck, 2001 for implicatures and Gibbs, 1994, for a review on metaphor and irony). Recently, it has been shown that young children's performance with some linguistic pragmatic phenomena improves when the experimental task is made less complex or more appropriate to young communicators (see, among many others, Pouscoulous, Noveck, Politzer & Bastide, 2007 for scalar inferences, and Conroy, Takahashi, Lidz & Phillips, 2009 for Principle B violation). It is unclear whether this pattern extends to all other types of pragmatic inferences. Of particular interests are presuppositions, which have been extensively studied theoretically, but on which there are few developmental findings.

Discourse particles such as *too*, *again* and *only* are particularly interesting for such an investigation. Their semantics and pragmatics are non-trivial, and although they have given rise to little empirical data (though see Beaver, 2010; Kim, 2008; Schwarz, 2008 and Spenader, 2002), they have been extensively studied in the theoretical literature (e.g., van der Sandt & Geurts, 2001; Stalnaker, 2002 and Zeekat, 2003 on *too*; van der Sandt & Huitink, 2003, on *again*). Most interestingly, in many languages, children seem to master the use of these discourse particles extremely early (see, Matsuoka, Miyoshi, Hoshi, Ueda, Yabu & Hirata, 2006 for Japanese-speaking children; Mueller, Höhle, Schmitz & Weissenborn, 2009 and Nederstigt, 2003, on the production of German *auch*, and the literature findings mentioned therein on other languages). The developmental literature on discourse particles has mainly been directed towards children's understanding of expressions like *too* (and its German and Dutch counterparts) in contexts where their focus (on the subject or object of the action) is ambiguous (e.g., see; Bergsma, 2006; Hüttner, Drenhaus, van de Vijver & Weissenborn, 2004). These studies are concerned with relatively old children (typically 4-to-10-year-olds) and tend to show that while children's production of discourse particles is proficient from very early on, their understanding lags behind until school age.

Lately, a few studies have altered this picture. First, two developmental studies (Berger, Müller, Höhle & Weissenborn, 2007 and Höhle, Berger, Müller, Schmitz, & Weissenborn, 2009) indicate an earlier and better understanding than previously established. Berger, Höhle and their colleagues used an eye-tracking paradigm: taking eye-movements as an implicit measure this methodology overcomes many task-specific constraints of other experimental paradigms which might hide younger children's real abilities. It does so by precisely measuring where children look, notably that they look longer where they expect the next event to happen. Action measures perhaps suffer from inhibitory control, for example, when children reach to the last object they saw. Secondly, two sets of experiments investigate the comprehension presupposition linked to the German discourse particles *auch* (also) and *nur* (only) (Berger & Höhle, submitted) and *auch* and *nochmal* (again) (Pouscoulous, Lieven & Tomasello, in preparation). Both studies used simple conversationally savvy tasks and indicate that children as young as three years old understand the presuppositional content of these discourse particles. Pouscoulous and her colleagues also tested younger children (2.5-year-olds), but found they performed at chance level. Since children of this age use discourse particles such as *auch* extensively and that the only semantic function of these words is their presuppositional import, this finding raises an interesting question: is it due to task constraints (despite the simplicity of the design), or are younger children truly incapable of understanding the presupposition linked to these expressions? We intend to investigate whether younger children understand the presuppositions linked to these discourse particles using an eye-tracking system.

Goals of the study

The proposed study addresses the question how and when children learn to deal with the presupposed content of an utterance. The aim of this work is to refine the findings of Berger et al. (submitted) and Pouscoulous et al. (in preparation) and establish whether very young children are able to draw the presuppositional inferences associated with the expressions *too* and *again* ('*auch*' and '*nochmal*' in German). From the age of two, if not earlier, children are proficient in their use of these expressions, but it is not clear that they fully appreciate their semantic and pragmatic import. To investigate this, we will conduct an eye-tracking experiment with German children aged two and a half, and even younger if this proves possible.