

**Do 2.5-year-olds understand presupposition?
An eye-tracking study of the particles „too“ and „again“.**
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SCIENTIFIC REPORT FOR THE THIRD VISIT:
Frauke Berger went to London, 22 October – 28 October 2012.

Description of the proposed project

In this project we aim to test the comprehension of the additive particles „too“ and „again“ in young children. Since the distinct additive meaning contribution of each of both particles is strictly presuppositional, we therefore test children on their ability to take presuppositionally conveyed information into account in sentence interpretation. Previous research indicates, that children up to school age might perform poor on interpreting sentences containing „too“, although they produce the particle from very early on (around their second birthday). However, in our opinion, poor performance on comprehension tasks is likely to be task-related and motivated by an experimental setup which masks the linguistic competence of children. We already pushed forward this view in our own previous work on „too“ (Berger & Höhle, 2012) and „too“ and „again“ (Pouscoulous, Lieven & Tomasello, in prep.). These studies had demonstrated that children as young as 3 years do consider the presuppositions triggered by „too“ and „again“ in sentence interpretation. In the current project, we aim to refine the findings of our previous studies and to further narrow down the exact onset age of understanding sentences with the two presupposition triggering particles. In order to do so, we need to design an experimental task and technique that allows for testing children’s comprehension in an (a) felicitous, and (b) toddler appropriate (discourse) context and experimental setting. We will therefore adapt the paradigm designed by Pouscoulous and her colleagues as an act-out task and use it with an eye-tracker. In that study, children were presented with two toy characters, one of which performed an action (e.g., dance). They then heard either the phrase, “Anna wants to dance, too“, or “Anna wants to dance again“, where, crucially, the name “Anna” hadn’t been used before. The child was asked to help Anna perform the action. Thus, in order to assign the correct referent to “Anna“, pick up the corresponding puppet and make her dance, for instance, the child had to make an inference based on the presupposition triggered by either „too“ or „again“.

In our experiment, German 2;6-year-olds will see the same basic pattern: two similar nameless characters, each performing an action, followed by a sentence containing „too“ or „again“. The study will use a 2-alternative forced-choice paradigm. Specifically, we expect differing proportions of looks to the same character after „too“, compared to „again“, resulting from children’s anticipation of the event, announced by the test sentence.

Aim of the third visit

The purpose of this visit was to discuss the data of eight children collected so far with the final version of the experiment, to agree upon the exact type of statistical analysis, and to start with writing up the study.

Description of the work carried out during the visit and of the main results obtained

- First, we looked at the preliminary results of eight children tested so far, which turn out to be promising: Within the predefined time window of two seconds after the utterance of the test sentence, the children indeed predominantly looked at that character which can be inferred to be the referent of “Anna” when taking the presupposition triggered by *too* and *again* into account in sentence interpretation. Hence, results indicate that the 2;06-year-olds interpret both *auch* and *nochmal* in a target-like fashion. This finding already seemed quite robust despite the fact, due to a technical error, the data on some trials was unusable.
- However, there seems to be a tendency, that children’s initially clear looking preferences in the two conditions become more fuzzy in the course of the experiment, i.e. they become more prone to carry over effects. In order to reduce these experiment related effects, we agreed on presentencing the four experimental trials in a bloc design in the following orders:
(1) AB AB (2) BA BA (3) AA BB (4) BB AA (5) AB BA (6) BA AB
- In order to reduce carry over effects, we agreed that the first two trials presented in the experiment will be followed by a 5 minutes interruption of the experiment, before the last two trials are presented. During the interruption another non-related eye-tracking experiment will be presented to the children.
- Finally, we worked on the counterbalancing of the design: the correct expectation side was counterbalanced, the type of animal was counterbalanced over the two conditions, and color of the performing animal was randomised. In this way we created 24 lists, which will be used for testing 24 participants during the coming months. We expect that to reach our target of having 24 2;06-year-old participants whose data we can use, we will have to test a few more. We plan to have completed testing by mid-February.
- In addition to extensive meetings between Frauke Berger and Nausicaa Pouscoulous, during this visit, Frauke Berger also presented the preliminary data at the Pragmatics reading group seminar of UCL on Wednesday, October 24th, 1:00-3:00 pm. This was both an opportunity to present all the study in a talk format and to gather valuable feedback. Several members of staff, PhD students and Masters students from the UCL Linguistics department were present and provided interesting comments. Richard Breheny was particularly helpful with the planned stats and design of the study.

Future collaboration with host institution

A final visit of Frauke Berger to the linguistics department of UCL is planned for February 2013. The aim of this visit is two-fold. First, time will be spent on the detailed descriptive and statistical data analyses of the full data set of 24 children – a time-consuming process when dealing with eye-tracking data. Secondly, once the data has been properly analysed and the specific findings of the study are clear, we will start writing up the study in the format of an experimental paper to be submitted to a developmental journal. To help us in this process, we anticipate another presentation to a group of UCL linguists.