

Syntactic Priming and Visual Attention Effects on Passive Production in German-Speaking Children With DLD

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Children with developmental language disorder (DLD) demonstrate difficulties in the production and comprehension of complex syntactic structures such as passives. German children with DLD show reduced use of these structures [1] and more errors in both production [1] and comprehension [2]. Previous research has shown that syntactic priming, that is a speaker's tendency to repeat the same syntactic structure previously used by an interlocutor, can increase the number of produced passives in children with DLD [e.g. 3], although to a lesser degree than in typically-developing children. This reduced effectiveness of syntactic priming in children with DLD has been interpreted as a reduced capacity to learn from syntactic experience [3]. For neuro-typical adults, previous research has shown an increased propensity to use the passive in describing event scenes when the prominence of the patient is raised, i.e. when it is animate rather than inanimate, visually cued rather than non-cued, and located to the left rather than to the right of the agent [4]. In this research, we set out to investigate whether a combination of the priming paradigm with factors that raise the prominence of the patient character in a depicted transitive event scene can boost implicit syntactic learning in children with DLD, thus providing a basis for an interventional concept.

Method. In this ongoing study, we test monolingual German-speaking children with DLD in an event description task. Here, we report data from five children (age 3;11 to 10;7) that were tested twice with one week in between. For the event description task, we created 48 transitive event scenes, including 24 prime pictures and 24 target pictures, and defined three conditions (eight items per condition): active, passive, and passive-cued. During the experiment, the experimenter and the child sit together in front of a computer and alternately describe the pictures that appear. First, a prime picture appears (e.g., vampire hitting king), which is described by the experimenter using, depending on condition, an active (Figure 1a) or passive (Figure 2b, c) sentence. Next, a target picture appears (e.g., clown pushing dwarf), and the child is prompted to describe it. In the passive-prominence condition, we raised the prominence of the patient by a visual cue (a 700 ms red dot appearing at the location where the patient subsequently appeared) and by presenting it on the left side of the agent (Figure 1c). After each target picture, two filler pictures showing simple objects follow (e.g., a chair; see Figure 1d). Again, the first filler picture is named by the experimenter and the second by the child.

Analysis. We analysed all utterances that contained at least a subject and a verb (229 utterances) and coded these utterances as active, passive, or as utterances that contained passive morphology without changing the mapping of thematic role and syntactic function (here called passive structure). The latter utterance type is a typical step in the acquisition of passives [5,6]. Incomplete utterances or utterances not describing the picture were excluded (11 utterances). We will also examine the effects of raising the prominence of the patient by analysing children's eye gaze.

Results. Here we report preliminary results that suggest a measurable effect of our combined priming/prominence paradigm on the production of passives in children with DLD. The data indicate a clear increase in the number of produced passives or clauses with passive structure from the first to the second half of the experiment (from 15% to 26%, see Figure 2) and from the first to the second test session (from 21% to 65%, see Figure 3). Although the strength of the effect varies between children due to differences in age and syntactic development, an increase can be observed in all tested children. Data acquisition is ongoing, as is the analysis of the eye-tracking data.

Discussion. Our preliminary results suggest that a combination of the syntactic priming paradigm with raising the prominence of the patient in a transitive event scene is effective in boosting the production of passives by German-speaking children with DLD. Also, the rise in utterances that contain passive morphology although the mapping of the thematic roles to syntactic functions was not altered, indicates a clear increase in attempts to produce the primed grammatical structure. Note in this respect, that this sentence type constitutes a typical step in the acquisition of passives [5,6]. Moreover, the increase in efficacy of the paradigm over the time of one week suggests that the paradigm may offer a fruitful method to target deficits in the acquisition of complex syntactic structures in language therapy.

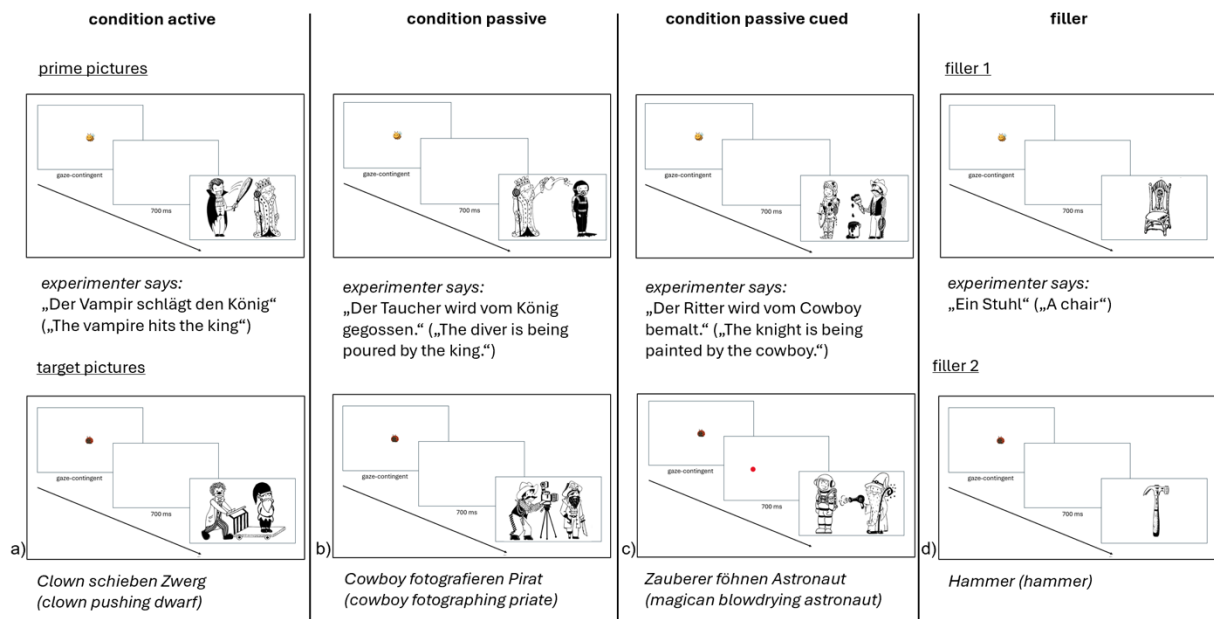


Figure 1: examples of the three experimental conditions and the fillers (presented after every target picture)

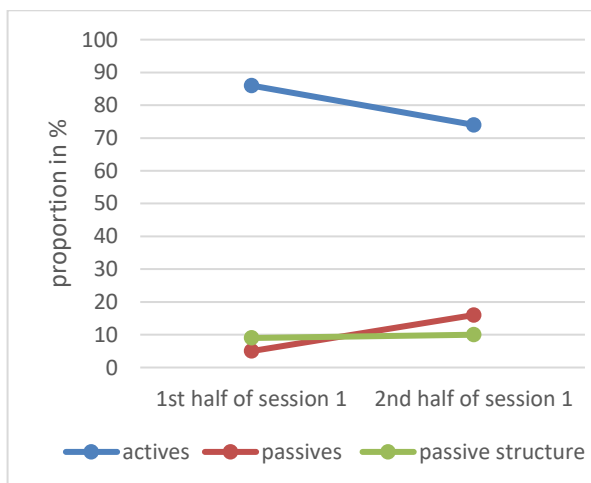


Figure 2: Proportion of produced structures during the first experimental session

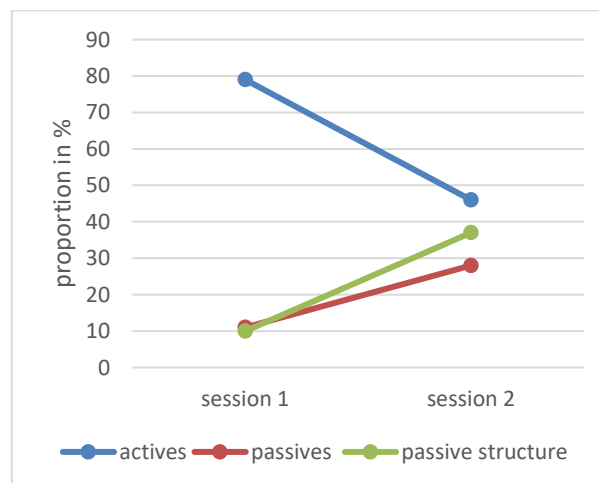


Figure 3: Proportion of produced structures during the first and second experimental session

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