Influence of situational context on word learning in 14- and 19-month-old children

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During early language acquisition, children's word usage is highly bound to situational and thus visual contexts (Bloom, 2002): time of day, routine… Moreover, Axelsson & Horst (2014) showed that 3-year-olds learn a novel word for an object more easily when it is presented with the same other objects than when it is presented with multiple other objects. 2 ½- to 3-year-olds also perform better in a test of generalization to new exemplars when background color doesn't change during learning compared to a change (Vlach & Sandhofer, 2011). This suggests that a certain invariance of visual context helps young children when learning new words. However, to our knowledge, this has never been tested experimentally during the very beginnings of word learning from the first birthday.

Our study therefore compares word learning in French-learning 14- and 19-month-olds using visually distinct (Condition 1: with a change in object orientation and background) and identical (Condition 2) object pictures in a fast-mapping eye-tracking paradigm. We present infants with four blocks of two novel object-pseudoword associations in each condition (see examples in Table 1). During the learning phase, each object is presented three times with its label. During the following test phase, the two novel objects appear side-by-side with one pseudo-word in two trials. We compare pre- and post-naming looking times towards the target object in the test phase after 3 and 6 expositions (in order to assess possible subtle learning effects). Figure 1 recapitulates this procedure schematically.

In our analysis, we calculate the mean proportion of target looking (PTL) for each trial in pre- and post-naming phases and average it by subject. If children have learned to associate meaning to form in the learning phase, we expect a naming-effect to manifest as an increase in PTL in the post-naming phase. If infants indeed find it difficult to generalize across contexts, they should perform better in Condition 2. Furthermore, in Condition 1, older children might outperform their younger peers who have not yet gone through vocabulary spurt. Preliminary analysis of 35 subjects (22 14 m.o.; 13 19 m.o.) suggests that 14-month-olds and 19-month-olds might actually benefit from context change when learning new words (see Figure 2). If this tendency remains with a full sample, it could be due to an increase in attention during learning (i.e.similar to a familiarization effect decreasing attention in Condition 2). Alternatively, changing the background might help children better infer the target concept by separating it from its context. We are still collecting data and hope to present at least 23 participants for each age group. Final analyses will consist of logistic regressions. We will discuss our results in light of other research on language development showing enhanced learning under conditions of variability.

Tab. 1: A pair of visual & auditive stimuli in 2 different contexts

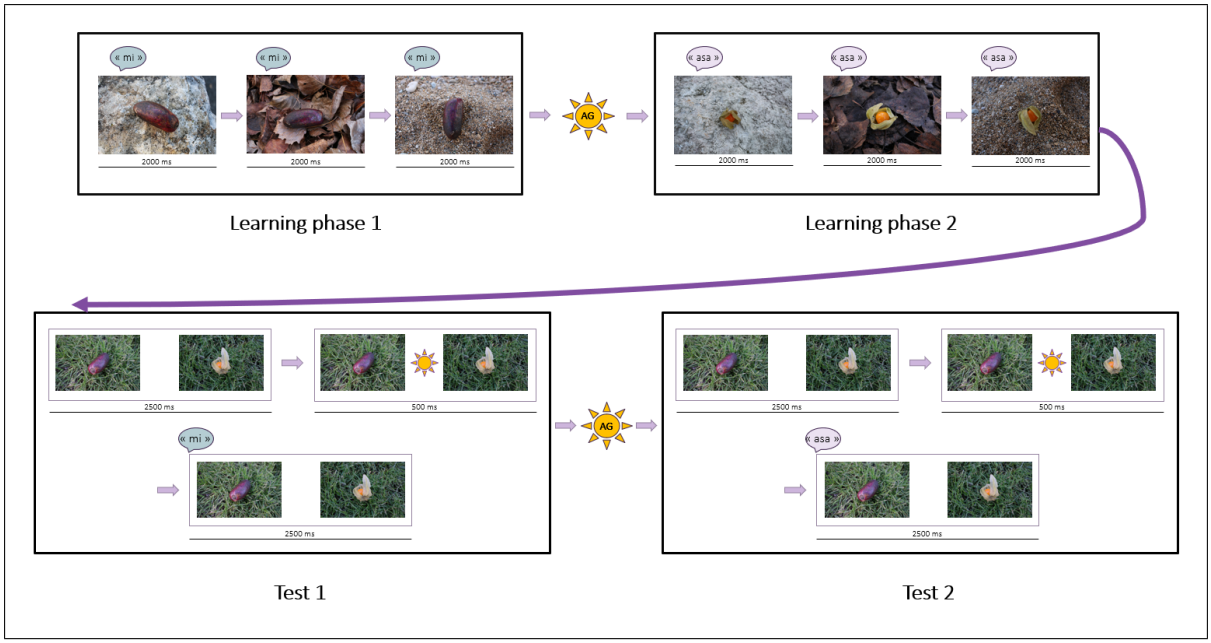

Fig. 1: Procedure of a context-change trial for 3 expositions

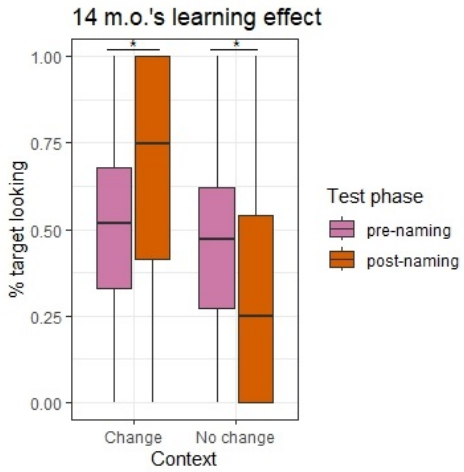

Fig. 2: 14m.o's naming effect by context condition

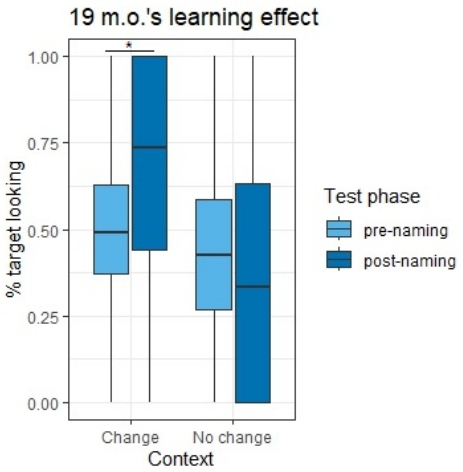

Fig. 3: 19m.o's naming effect by context condition

References

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