Is any type of input variability beneficial for mapping novel words to objects in 14-month-old infants?

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Speaker variability has been found to aid in the learning of novel words (Rost & McMurray, 2009). Children can also profit from visual variability when learning new words (Twomey, Ma & Westermann, 2017). Both studies differed in the age groups, tasks, stimuli and measures. Therefore, the results are difficult to compare. This study investigates the effect of acoustic and visual input variability on word learning by using the same task. We ask whether input variability is beneficial because it highlights invariant perceptual features or whether there are differences between acoustic/phonological and visual information.

The first experiment was designed to replicate Rost and McMurray's findings with German-learning infants. We tested 34 fourteen-month-old children using the habituation-switch paradigm. During habituation two novel objects from the NOUN database (Horst & Hout, 2016) were presented with a pseudoword each (Fig. 1). Half of the children listened to only one token for each word (no variation), whereas the other half listened to 54 tokens from 18 speakers (variation). The test comprised of three trials: a correct object-word pairing (same), an incorrect pairing (switch) and a new unknown object (novel). The results (Fig. 2) showed no differences in looking times for the no variation group (p's>.48) and for the variation group a trend for an increase between same and switch trials (p=.07). This replicates the overall pattern in Rost and McMurray's study.

In a second experiment, the visual stimuli were modified in size, orientation, distortion and background colour to yield 54 visual tokens for each of the objects. Currently, we are testing another group of 14-month-old children in a visual variation and a no variation group, both of which listen to only one acoustic token for each label. Findings from this experiment will be presented at the conference and discussed.
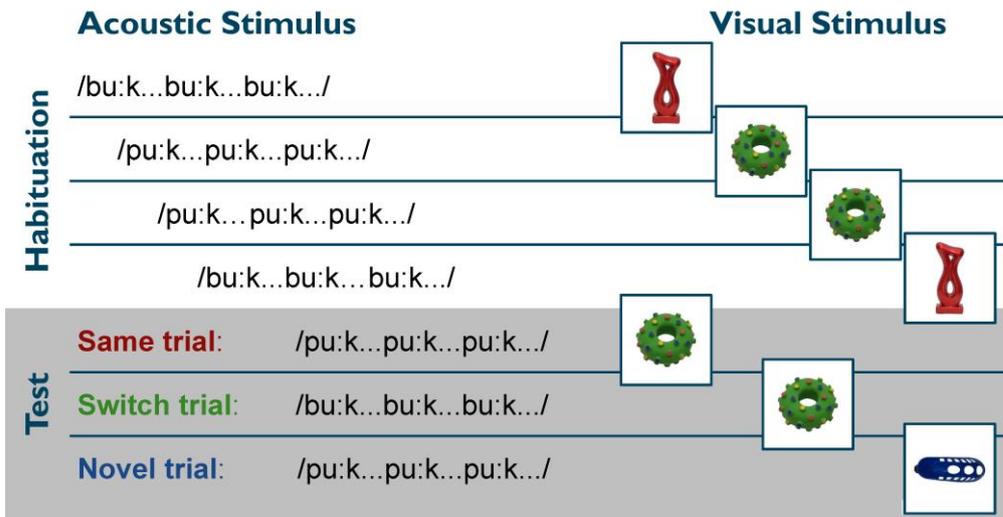
Figure 1. *Structure of the habituation-switch paradigm. The habituation phase consists of maximally 30 trials depending on how quickly the child habituates. In the test phase there are three trials.*
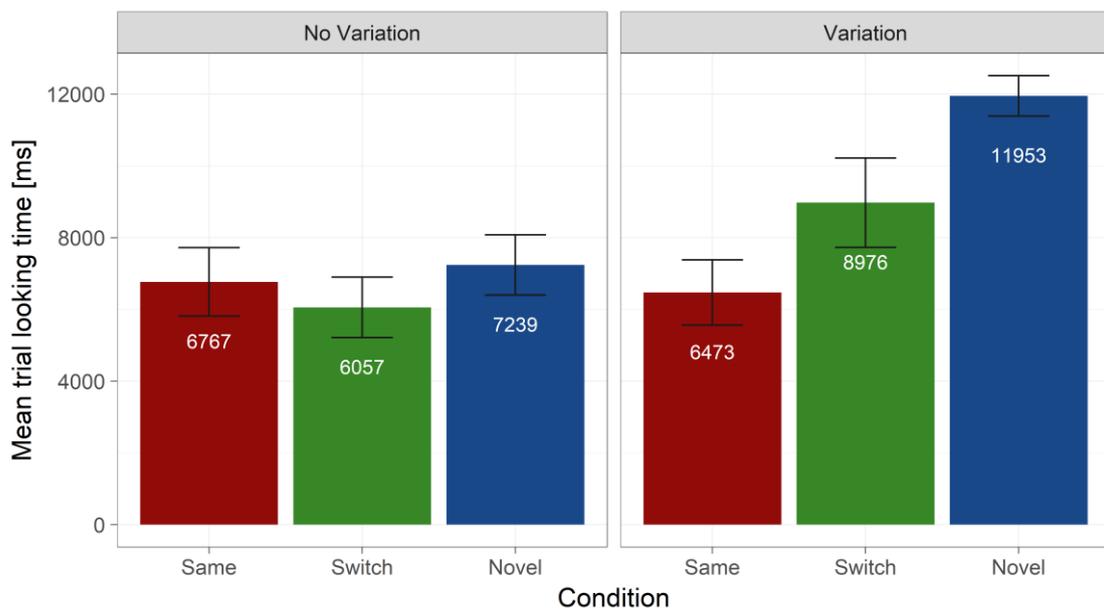

Figure 2. *Mean looking times in the three test trials after habituation in the «No Variation» (left panel) and «Variation» (right panel) group.*