

The use of coarticulatory cues for syllable-final minimal pair word-learning by 14-month-old infants

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Discrimination of the consonant place of articulation contrast in word-final coda position (bat vs back) is acquired late compared to word-initial consonants (Swingley, 2005). Multiple acoustic-phonetic cues code the place contrast, but their informativeness heavily depends on the coarticulatory context or the particular vowel-consonant combination: formant trajectories (reflecting dynamic coarticulation) in the vowel preceding the /p-t/ final place contrast are qualitatively more similar for /i/ (e.g., heap-heat) than for /u:/ (hoop-hoot), which increases perceptual confusion (Ohala & Ohala, 1998). Similarly, cue strength of the burst (reflecting articulator position) differs across contexts (Walley & Carrell, 1983). Infants' use of different cue types in word-learning is not yet well understood, particularly for coda contrasts (Nazzi & Bertoncini, 2009). Using the habituation-switch procedure, the current study compares infants' (N=40, mean 13.5 months [range: 13.3-14.9]) learning of object-label associations for the non-word pair /ba:p-ba:k/ — a context where both formants and burst are presumably informative— in conditions of differing cue availability during habituation. Experiment 1's habituation phase included exemplars from 10 speakers containing only the formant cue and no burst, while Experiment 2 included both. Test phases were identical and included both cues. We compared looking times when the object-label pairing during habituation was switched at test versus when the object-label pairing remained the same. In the two test trials following habituation, infants in Exp. 1 looked significantly longer to the Same than to the Switch pair (11.9s vs. 9.7s), whereas infants in Exp. 2 showed the opposite pattern (Same: 5.7s, Switch: 9s). The unexpected direction of the effect in Exp. 1 could be caused by the presence of the burst at test that was missing during habituation. Overall, the results indicate that infants are able to learn minimal pairs using a single acoustic coarticulatory formant cue.