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Uncertainty in word learning in 14-month-olds

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Abstract

Hearing words uttered by multiple speakers can help infants learn similar-sounding words. However, speaker variability can hinder learning when multiple cues jointly signal auditory label identity (e.g., speaker gender and voicing), even though they make the words acoustically more distinct. We hypothesize that learning in these contexts is harder because infants face uncertainty about which cues matter. To test this, we manipulated uncertainty in a word-learning task (eye-tracking) by varying how speaker gender and consonant voicing predicted visual referents, while keeping the number of auditory labels, referents, and speakers constant across participants. Consistent with the Hick–Hyman law from adult perceptuo-motor tasks, greater uncertainty delayed 14-month-old infants' (N=50) verification of the correct referent in preferential looking-time trials and linearly increased looking to incorrect competitors. Word-learning situations with more relevant stimulus dimensions—more possible label–referent mappings and consequently more uncertainty—are more difficult, even when the auditory labels become acoustically more distinct.