Development of single/geminate obstruent discrimination by Japanese infants

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Abstract

The Japanese language has single/geminate obstruents characterized by durational difference in closure/frication as part of the phonemic repertoire used to distinguish word meanings. We first evaluated infants' abilities to discriminate naturally uttered single/geminate obstruents (/pata/ and /patta/), using the visual habituation-dishabituation method. The results revealed that 9.5-month-old Japanese infants were able to make this discrimination, whereas 4-month-olds were not (Figure1). To examine how acoustic correlates (covarying cues) are associated with the contrast discrimination, we tested Japanese infants at 9.5 and 11.5 months of age with three combinations of natural and manipulated stimuli. The 11.5-month-olds were able to discriminate the naturally uttered pair (/pata/ vs. /patta/), neither group discriminated the natural /patta/ from the manipulated /pata/ created from natural /patta/ tokens, and only the 11.5-month-olds discriminated the natural /pata/ and the manipulated /patta/ created from /pata/ tokens. These results suggest that Japanese infants acquire a sensitivity to contrasts of single/geminate obstruents by 9.5 months of age, and that certain cues that covary with closure length either facilitate or interfere with contrast discrimination under particular conditions.

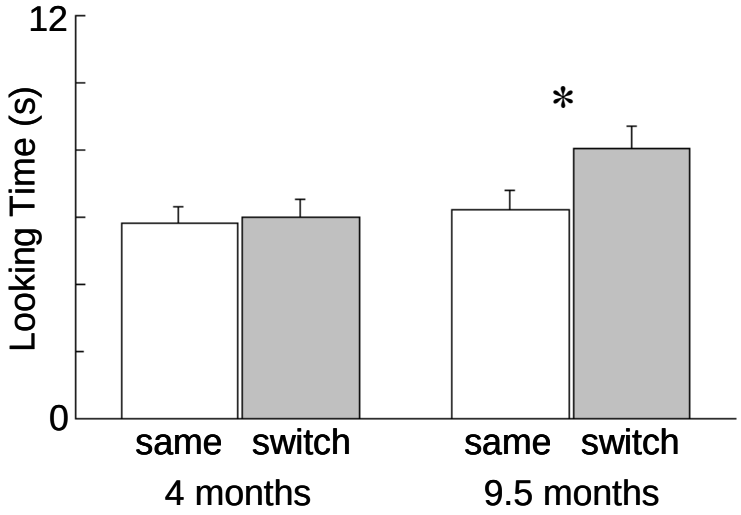

Figure 1. Mean looking times (with standard error bars) during the same and switch trials for naturally uttered /pata/ and /patta/ in 4- and 9.5-month-old infants. Nine and a half months group exhibited a significant difference in looking times between same and switch conditions, suggesting that they can discriminate the contrast.