

## The Role of Intonation in Language Discrimination by 4.5-month-olds

Rhythm plays a critical role in infants' ability to tell languages apart. Newborns have no trouble discriminating between languages belonging to different rhythm classes, but fail to discriminate between languages belonging to the same rhythm class (Nazzi, Bertoncini, & Mehler, 1998). For example, French-learning newborns readily discriminate a mora-timed language (e.g. Japanese) and a stress-timed language (e.g. English), but they fail to discriminate between two syllable-timed languages (e.g. Spanish and Italian). It is not until 4 to 5 months of age that infants first begin to demonstrate the ability to discriminate between rhythmically similar languages (Bosch & Sebastian-Galles, 1997). But even at this age, infants have only been shown to succeed at discriminating rhythmically similar languages if one of the two languages is their own native language (Nazzi, Jusczyk, & Johnson, 2000). For example, English-learning 5-month-olds can discriminate between the two stress-timed languages English from Dutch, but then cannot discriminate between the two stress-timed languages German from Dutch. In combination, these studies suggest that rhythm and language familiarity play the crucial role in predicting whether infants will be able to discriminate between two languages. However, all past studies with this age group have presented children with languages that are similar in both rhythm and intonation. In this study we will consider the role of intonation in predicting language discrimination performance in 4.5-month-olds.

In Experiment 1 the Headturn Preference Procedure was used to habituate twenty 4.5-month-old English-learning infants to sentences spoken by two native speakers of either Norwegian or English. Following habituation, infants were presented

with new sentences produced by two new speakers of the language they were habituated to as well as new sentences produced by two new speakers of the language they had not heard yet. As predicted, infants exhibited a significant novelty preference, looking longer to the Norwegian sentences if they had been habituated to English, or longer to the English sentences if they had been habituated to Norwegian (see Figure). This finding replicates past studies demonstrating that 4.5-month-olds can discriminate between their native language and another rhythmically similar language.

In Experiment 2 we are currently testing 4.5-month-olds on their ability to discriminate Norwegian from German. This comparison is interesting because although these languages are rhythmically similar, they have distinct intonation patterns. Norwegian, unlike English or German, is a pitch accent language. This is why many English speakers perceive Norwegian as having a singsong intonation. If infants succeed in discriminating these two languages, then this would suggest that infants can discriminate unfamiliar languages belonging to the same rhythm class if those two languages have different characteristic intonation patterns. If infants fail at discriminating these two languages, then this would provide further evidence that language familiarity is essential to enabling 4.5-month-olds to discriminate rhythmically similar languages. Preliminary results suggest that English-learning 4.5-month-olds can discriminate Norwegian and German. Depending on the final outcome of this study, future work may test German learning infants on the same stimuli used in Experiments 1 and 2.