

## Native and non-native vowel discrimination in 6-month-old Norwegian infants

Audun Rosslund<sup>1</sup>, Julien Mayor<sup>2</sup>, Alejandrina Cristia<sup>3</sup> & Natalia Kartushina<sup>1</sup>

<sup>1</sup>Center for Multilingualism in Society across the Lifespan, University of Oslo; <sup>2</sup>Department of Psychology, University of Oslo; <sup>3</sup>Department of Cognitive Studies, Paris Sciences et Lettres University

The theory of perceptual narrowing proposes that infants come into the world sensitive to a wide range of speech contrasts, and gradually become attuned to the speech in their native language, while losing the ability to discriminate contrasts not present in their language (Werker & Tees, 1984). However, the empirical evidence for this claim predominantly comes from English-speaking infants (Singh et al., 2022). To investigate perceptual narrowing in a so-far understudied language, this preregistered study examined N=67, monolingual, full-term, 6-month-old Norwegian infants' ability to discriminate a native /y-i/ and a non-native British /ʌ-æ/ vowel contrast, in two eye-tracking experiments using a habituation-dishabituation paradigm. As attunement towards the native language has been suggested to occur between 6-9 months of age (Tsuji & Cristia, 2014), we expected that infants would discriminate both contrasts. In the native-contrast experiment, infants were first exposed to /by/, and, after reaching a habituation criterion, proceeded to the test phase that alternated /by/ and /bi/. A similar procedure was used for the non-native /gæ/-/gʌ/ contrast. Infants' looking times to the novel vs. habituated test trials were used in mixed-effect models. These revealed that, on a group level, infants' looking times were not indicative of discrimination of either the native ( $\chi^2=0.74$ ,  $p=.39$ ) or non-native contrast ( $\chi^2=0.63$ ,  $p=.43$ ). Bayesian t-tests suggested moderate evidence in favor of the null (BF native=0.25; BF non-native=0.24). Yet, infants' discrimination-scores (proportion of looking to novel trials over total looking time; Bergmann & Cristia, 2018) correlated negatively between the native and non-native tasks (Spearman=-.36,  $p=.04$ ; Fig. 1). Thus, while we found no group effects of contrast discrimination, at 6 months, to the best of our knowledge, this is the first paper demonstrating evidence for perceptual reorganisation of the vowel space within the same infants.