

IASCL2017

Title of poster:

Perception of level tones and contour tones by French-learning infants

Authors:

Santos, Elsa < > Université du Québec à Montréal < > email: santos.elsa@courrier.uqam.ca

Shi, Rushen < > Université du Québec à Montréal < > email: shi.rushen@uqam.ca

Abstract:

Studies with non-tone-learning infants reported early discrimination of lexical tones and decline in tonal discrimination from around 6 months of age (e.g., Mattock, et al., 2008, Yeung, et al. 2013; Liu & Kager, 2014), but no decline in some studies (Shi et al. 2017; Tsao, 2017). The tonal contrasts in those studies were between level and contour tones or between contour tones. Level tones and contour tones are treated differently in linguistic theory (e.g., Yip, 2002). Level tones are simpler in phonological structure (e.g., high and low features) than contour tones (containing combined features, e.g., low-high for rise). However, contour tones may be acoustically more distinct and auditory more salient than level tones. We hypothesized that towards age one non-tone-learners process lexical tones non-phonologically, and perceive contour tones better than level tones.

To examine these factors (phonological versus acoustic saliency), we tested French-learning 11-month-olds' perception of a level-tone contrast (high versus low) and a contour-tone contrast (rise versus fall) in Mandarin, using HPP. Stimuli were monosyllables (*fa*, *qie*, *peng*, *wang*) each in high, low, rise and fall tones, sliced from bi-syllabic words (the adjacent second syllables being a high tone). The context was necessary for obtaining the low tone. Infants were either in the level-tone group or contour-tone group. Within each group, half of the infants were familiarized with one tone (e.g., high), and the other half with the other (e.g., low); all infants were tested with new exemplars of the two tones (e.g., high versus low).

Results show that looking times to familiarized versus non-familiarized tones in test trials differed for contour tones ($p=.01$), but not for level tones. Thus, infants focused on acoustic saliency of the tones rather than their phonological characteristics. Contour tones were discriminable despite segmental variability. Segmental variability seemed more costly for level tone discrimination.

References

- Mattock, K., Molnar, M., Polka, L., & Burnham, D. (2008). The developmental course of lexical tone perception in the first year of life. *Cognition*, 106, 1367–1381.
- Shi, R., Santos, E., Gao, J., & Li, A. (2017). Perception of similar and dissimilar lexical tones by non-tone-learning infants. *Infancy*. doi: 10.1111/infa.12191
- Tsao F-M (2017) Perceptual Improvement of Lexical Tones in Infants: Effects of Tone Language Experience. *Front. Psychol.* 8:558. doi: 10.3389/fpsyg.2017.00558
- Yeung, H. H., Chen, K. H., & Werker, J. F. (2013). When does native language input affect phonetic perception? The precocious case of lexical tone. *Journal of Memory and Language*, 68(2), 123–139.
- Yip, M. (2002). *Tone*. Cambridge: Cambridge University Press.