

Ao Chen

Universal Biases in the Perception of Mandarin tones, from infancy to adulthood

The dissertation investigates the possible innate perceptual biases that may shape the phonological rule in Mandarin, T3 sandhi. T3 sandhi restricts the co-occurrence of two T3s and requires the first T3 to change to a T2. A second goal of the dissertation is to examine the cross-domain perception of pitch from infancy to adulthood.

Mandarin and Dutch adult listeners participated in a categorical perception experiment and a speeded AX discrimination task. It is found that Mandarin listeners perceive Mandarin the T2-T3 contrast categorically while Dutch listeners perceive this contrast in a psycho-acoustical manner. Nevertheless, both groups of listeners are more accurate in discriminating T2 and T3 if T3 occurs first in the to-be-discriminated pair. This consistency provides strong evidence that there are innate perceptual biases favoring T3 sandhi to occur in such a positional and asymmetrical way. Dutch infants show easier categorization of T3 than of T2. Hence, the discrimination asymmetry can be a result that T3 works as a better referent in discrimination.

Positive significant correlation between musical pitch processing and Mandarin lexical tone discrimination is observed among Dutch adult listeners but not Mandarin adult listeners. Dutch young infants (4 and 6 months old) show facilitated processing of musical pitch while they keep showing difficulties in discriminating Mandarin T2-T3 contrast, which suggests separate music and speech processing from early infancy. Mandarin infants do not outperform Dutch infants in either musical pitch processing or lexical tone discrimination. No evidence has been found for the correlation between the perception of musical pitch and the perception of lexical tones in early infancy.

This dissertation is of interest to psycholinguists, phonologists, and those who work in early perception development in infancy.

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