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Versatility of phonemic pitch in affective iconicity and perceptual reorganisation

Zheng, T.

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Versatility of phonemic pitch

In affective iconicity and perceptual reorganisation

This dissertation examines the multifaceted role of pitch by focusing on two central issues. First, it investigates whether lexical tones in Standard Chinese exhibit affective iconicity—that is, to what extent their pitch characteristics (e.g., height, range, slope, and contour direction) systematically aid to signal human emotional expression (e.g., arousal and valence). Notably, while arousal appears to be driven by inherent physiological responses, valence is more influenced by lexical meaning and cultural conventions. Analyses of bi-syllabic and monosyllabic words reveal that higher pitch, wider pitch range, and steeper pitch slopes are linked to higher arousal, whereas lower pitch and falling contours are associated with negative valence. In addition, monosyllabic tonemes more strongly predict emotional arousal ratings than consonants, and emotional valence ratings than vowels. Furthermore, lexical tones show adaptive significance for both arousal and valence, suggesting a potential mechanism of affective iconicity.

Second, the dissertation explores the developmental hemispheric lateralization of pitch processing in infants learning different languages. Using functional near-infrared spectroscopy, cross-linguistic comparisons between Dutch (a stress-accent language) and Japanese (a pitch-accent language) infants reveal distinct lateralization patterns. Japanese infants, whose language uses pitch to signal lexical contrasts, exhibit early left-hemispheric specialization for speech stimuli, while Dutch infants exhibit a bilateral response. Together, these studies suggest that pitch perception in language and emotion is shaped by an interplay between the perceptual properties of pitch and linguistic, experiential, and contextual influences.

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Tingting Zheng

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