



Department of
Linguistics and Modern Languages
語言學及現代語言系

Early Perception of Lexical Tones by Non-tone-learning Infants: An Overview of Recent Studies

Linguistics Seminars

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The Chinese University of Hong Kong



Abstract

Infants start with a general sensitivity to speech sounds. They are able to discriminate a wide range of phonetic contrasts that do not exist in their native language. Between 6 and 10 months of age, infants' discrimination of non-native contrasts declines, while their discrimination of native contrasts increases. This process is called perceptual reorganization, or perceptual tuning (PT). Most previous work on PT has addressed consonants or vowels, while relatively few studies have considered PT for lexical tone.

Languages may contrast tone at different levels. For intonation, tone is contrastive at the utterance level. For lexical tone, tones contrast at the word level (only in tone languages). Crucially, intonation and lexical tone are both marked by variation in pitch (fundamental frequency, F0), which raises the issue how infants disentangle pitch contrasts at the word level from pitch at the utterance level.

Neonates are sensitive to prosody including pitch contours (Nazzi, Floccia, & Bertoncini, 1998). Yet as early as 4–6 months, differences in tone perception are observed between infants who are acquiring a tone language and infants who are not (Harrison, 2000; Yeung, Chen & Werker, 2013). Between 6–9 months, non-tone-language-acquiring infants gradually lose their sensitivity to tones (Mattock & Burnham, 2006; Mattock, Molnar, Polka & Burnham, 2008). Ongoing work at the BabyLab Utrecht in collaboration with Liquan Liu (Western Sydney), Ao Chen and others investigates PT for lexical tone by tracking the development of tone perception in Dutch non-tone-language-learning (NTL) infants during the two years of life. We are considering questions such as the following: How does sensitivity to tone develop after 9 months? Do NTL infants acquiring permanently lose their sensitivity to tone – can they “afford” it, while not losing their sensitivity to intonation? How irreversible are the effects of tonal PT in NTL infants? How is tonal PT related to developing knowledge of intonation? How does phonetic salience of pitch contrasts affect tonal PT? How does tonal PT affect word learning ability in NTL infants? How does bilingualism affect NTL infants' tone perception ability? How are pitch perception and musical perception related in NTL infants? Is pitch perception in NTL infants affected by cognitive maturation as well as exposure? In this talk I will present an overview the results of recent studies (2014-2018) from our lab which will address these questions.

Our results converge to show that the acoustic sensitivity and phonological sensitivity to non-native tones slowly dissociate from the second year of life onward. Infants' discrimination of a non-native tone contrast shows a U-shaped pattern, with an increase of tone discrimination early in the second year of life. Infants' ability to use the same tone contrast in word learning shows a declining pattern. Halfway their second year of life, Dutch infants' acoustic sensitivity to pitch variation increases, yet the linguistic (phonological) function lost. Nevertheless, there is some evidence that tone perception is also subject to cognitive maturation, relatively independently of exposure.

Speaker

René Kager is Professor of Phonology and Language Acquisition at Utrecht University and co-director of The Chinese University of Hong Kong (CUHK) – Utrecht University (UU) Joint Centre for Language, Mind and Brain (香港中文大學-荷蘭烏得勒支大學語言、認知及大腦聯合研究中心). He received his PhD in the Netherlands, and taught at UCLA and Stanford University before returning to Utrecht. His research relates linguistic theory and language acquisition. In his theoretical work, he focusses on metrical structure, word stress and rhythm. His acquisition research focusses on infants' perception of stress and rhythm, and over the last decade, on the early development of the perception of pitch and lexical tone. Professor Kager is the author of a well-known textbook on Optimality Theory, which has been translated into Chinese and Arabic. He has published in major journals, including *Journal of Memory and Language*, *Cognition* and *Journal of Experimental Child Psychology*. He has received a series of large national grants, including an NWO-VICI grant.

ALL ARE WELCOME

Enquiries

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