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語言學及現代語言系

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Modern Languages

# Perceptual Similarity as a Filter on Tonal Variation and Change

**Prof. James KIRBY**  
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**Date:** April 1, 2025 (Tuesday)  
**Time:** 4:30pm - 6:15pm (Hong Kong Time, UTC +8)  
**Venue:** Y C Liang Hall, LHC G04 (G/F),  
The Chinese University of Hong Kong



**01**  
**APRIL**  
**TUESDAY**

## Abstract

To date, most work on diachronic tone change has involved comparison of  $f_0$  trajectories in real or apparent time, or the analysis of patterns of contextual tonal variation, to try and reason about the nature of directionality constraints on tone change. In practice, such comparisons often operate under the assumption of a linear perceptual space, wherein acoustic distance is assumed to more or less directly correlate with perceptual (dis)similarity. However, it is important to validate this assumption to ensure reliable inferences about tonal variation and change.

In this talk, we present our ongoing work into probing the perceptual space of lexical tone representations, focusing on tonal contours. Using data from a similarity judgment task conducted with listeners of four tonal languages, we show that differences of the same acoustic magnitude are perceived differently depending on their location in the  $f_0$  trajectory. In general, listeners show greater sensitivity to differences at tonal offsets, consistent with hypotheses put forth in previous work. However, we also find a significant effect of linguistic experience on the structuring of the similarity space. These findings show us that tonal similarity, and hence confusability, cannot be straightforwardly inferred from linear acoustic distance. We discuss the implication of these findings for our understanding of the mechanisms underlying tonal variation and change.

## Speaker

Prof. James Kirby is a linguist and speech scientist. His research focuses on tone and register, sound change, computational and statistical methods for speech processing, and language and music, with an areal focus on languages of East and Southeast Asia.

He received an MA from the University of California-San Diego in 2005 completed his PhD at the University of Chicago in 2010 under the supervision of Alan Yu and John Goldsmith. He spent the next 10 years in the Department of Linguistics and English Language at the University of Edinburgh, where he remain an Honorary Fellow. In 2021, he moved to the LMU Munich to take up the Bavarian AI Chair in Spoken Language Processing at the Institute of Phonetics and Speech Processing.

He has previously been the recipient of an AHRC Early Career fellowship (2015-2017) to study tonal text-setting, and together with Marc Brunelle, an AHRC Research Grant to investigate the evolution of register in Southeast Asia (2017-2021). He is currently Principle Investigator of the ERC-funded EVOTONE project, studying the emergence and evolution of linguistic tone.

All Are Welcome

Enquiries

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