The Multilingual Mind: lecture series on multilingualism across disciplines

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Patterned effects of acoustically varied input on vocabulary learning and speech processing

Abstract

Acoustic variability refers to variations in speech that do not alter linguistic content, such as when a word is produced by multiple talkers instead of a single talker. This presentation focuses on research and theoretical advances on how acoustic variability affects both lexical acquisition and speech processing. We first consider how vocabulary learning is positively affected by most, but not all, of the following five sources of variability: talker, speaking style, speaking rate, amplitude, and fundamental frequency (F_0). We then indicate how each of these sources of variability affects speech processing, based on studies on accuracy and reaction time for word identification. An interesting pattern emerges in that only those sources found to positively affect vocabulary learning also pose costs during speech processing whereas sources that do not positively affect vocabulary do not pose costs to speech processing. This pattern of effects is consistent with predictions of the *extended phonetic relevance hypothesis* (EPRH), which posits that acoustic variability based only on linguistically relevant sources affects both vocabulary learning and speech processing. The final part of the presentation spotlights studies designed to test the EPRH directly and shares a model of how phonetically relevant acoustic variability affects developing mental representations of word forms and processing of spoken words across the lifespan.