

Talking humans in a social world: the importance of sociolinguistics to speech neuroscience.

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In this talk, I discuss how neuroscientists think the boundaries of our habitual vocal productions are learned, defined, and updated on the postlexical level. These neural models have proven useful in explaining the mechanics of (spoken) first language acquisition and speech error correction, but struggle to account for the social world in which we exist and how this drives short-term adaptation as well as long-term change in the way we speak.

Variation occurs across centuries and continents– but it also happens rapidly when people are in the same room. When two people talk to each other, their speech patterns may become more similar in rhythm, word choice, vowel space– almost any aspect of communicative behaviour.

Some talkers differ in their speech production abilities, and this too is a source of variation. People with neurological conditions such as stuttering have less voluntary control over their voice, meaning their speech varies in its timing, predictability, and other linguistic characteristics. Nevertheless, they experience the same drive to align as neurotypical talkers.

The process of conversational alignment (also known as entrainment, convergence and synchrony, among others) is well-attested but not yet fully understood. It is apparently transient, but may drive change on larger scales. It occurs frequently but not necessarily consistently: different talkers may align on different features in different tasks and on different timescales. And the very idea of changing your voice dynamically to match an external talker is at odds with the popular neuroscientific conception of speech production as an attempt to keep as closely as possible to predefined internal targets.

Here, I examine how relatively constrained neuroscientific models can be expanded to accommodate and predict the flexibility and variability of human conversation in the real world, and what this variability means for talkers with communication differences.