

Cross-linguistic patterns of intrinsic F0 and sibilant dynamics

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I present two studies contributing to a growing line of research that maps systematic phonetic variation across languages using large speech corpora, to address a general question: how much does “the same” phonetic phenomenon vary across languages, and what do these cross-linguistic patterns reveal about the forces shaping speech variation and change? Both studies build on open-source tools for large-scale phonetic analysis (PolyglotDB, Montreal Forced Aligner), which make it possible to scale up traditional workflows. The first study examines effects of vowel height and consonant voicing on F0 (“intrinsic F0 effects”) across 20 languages. Consonant-induced effects are larger and more variable than vowel-height effects, suggesting a possible explanation for why only the former commonly leads to sound change. The second study models /s/ trajectories (spectral-peak movement) across 30+ languages and 4,000+ speakers using functional PCA. Languages differ in both static and dynamic aspects, while speakers differ primarily in static level, suggesting that cross-language variation in /s/ dynamics may reflect learned, language-specific control.