

Language dependence, speaker individuality, and discriminatory performance of long-term formant distributions

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In this talk, I present a study that investigates the language- and speaker-specific properties of long-term formant distributions (LTFDs), as well as explores the implications for the application of LTFDs in forensic speaker comparison, particularly in cases of cross-language comparison. Analysis of acoustic data from 60 Canadian English–French bilinguals shows that speakers produce LTFDs with systematically distinct realisations in each language, which are argued to be a reflection of the language specificity of both vowel inventories and phonetic settings. At the same time, speakers are found to maintain a high degree of within-speaker consistency across languages. Results from forensic testing demonstrate that, on the global level, LTFDs provide poorer speaker-discriminatory performance in cross-language speaker comparisons than in same-language comparisons. Probing into how the performance of LTFDs varies among speakers in same- and cross-language comparisons, I further discuss the complexity of the mapping between phonetic behaviour and discriminatory performance on the level of individual speakers.