The dynamics of English vowels

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Vowels are typically characterized in terms of their static position in formant space, though vowels have also been long-known to undergo dynamic formant change over their timecourse. Recent studies have demonstrated that this change is highly informative for distinguishing vowels within a system, as well as providing additional resolution in characterizing differences between dialects. It remains unclear, however, how both static and dynamic representations capture the main dimensions of vowel variation across a large number of dialects. This study examines the role of static, dynamic, and duration information for 7 vowels across 30 British, Irish and North American English dialects, and observes that vowels exhibit highly structured variation across dialects, with dialects displaying similar patterns within a given vowel, broadly corresponding to a spectrum between traditional `monophthong' and `diphthong' characterizations. These findings highlight the importance of dynamic and duration information in capturing how vowels can systematically vary across a large number of dialects, and provide the first large-scale description of formant dynamics across many dialects of a single language.

Biodata

Jane Stuart-Smith has been Professor of Phonetics and Sociolinguistics at the University of Glasgow since 2013, first joining the University in 1997 as Lecturer in English Language, where she has worked with colleagues to develop the Glasgow University Laboratory of Phonetics (GULP). With members of GULP and collaborators outwith Glasgow, she considers the many relationships between speech and society, taking the rich linguistic variation in Scotland as the basis for her work (e.g. Sounds of the City), and more recently, phonetic and phonological variation over space and time in Englishes of the British Isles and North America (SPeech Across Dialects of English - SPADE). Jane also works closely with colleagues in Scotland to promote the public understanding of phonetics by developing accessible web resources for speech and accents (e.g. Seeing Speech; Dynamic Dialects).

James Tanner joined the University of Glasgow in 2023 as a British Academy Postdoctoral Fellow, after completing his PhD at McGill University in 2020 and working in the commercial speech technology industry. His research is focused on uncovering the patterns of phonological and phonetic variability across dialects and individual speakers, and how these patterns relate to linguistic structure and systems of speech processing. He is particularly interested in how computational and quantitative approaches can be used to 'scale up' phonetic research, and how recent technological advances in computational speech research can both complement and inform linguistic theory.