

## 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.