

Dynamic variation in laterals: An acoustic study of Liverpool and Manchester English

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Variation in the lateral allophony of English is well attested and a number of studies have revealed the extent of between-dialect differences in its implementation (Carter & Local 2007; Turton 2014; Kirkham 2017). The aims of this study are (1) to examine the contribution of formant dynamics to patterns of dialect variation in lateral-vowel sequences (Carter & Local 2007; Stuart-Smith et al. 2015); and (2) to determine the nature of phonetic detail and positional contrast in the laterals of Liverpool English. We compare the results of the dynamic formant analysis to a single time-point analysis in order to determine whether formant dynamics reveal additional acoustic distinctions between dialects and speakers.

Data were collected from 24 Liverpool English (12F, 12M) and 22 Manchester English (13F, 9M) speakers aged 19–27. Laterals in four positional contexts (initial; medial trochaic; morpheme boundary; final) were elicited via words embedded in a carrier phrase. Two acoustic intervals were labelled: (1) F2 steady state during the lateral; (2) entire lateral-vowel period. We report measurements of F2-F1 as a proxy for clearness/darkness, with lower values indicating darker /l/s (Sproat & Fujimura 1993), as well as measurements of F3. The steady state data are analysed using Linear Mixed Models (LMMs), while the dynamic data are analysed using Generalised Additive Mixed Models (GAMMs).

The LMM steady-state analysis shows that Liverpool produces a positional contrast between non-final and final /l/, with non-final tokens having higher F2-F1, whereas Manchester speakers are more variable: Manchester males produce a small initial/final contrast, but Manchester females produce no such contrast. Liverpool also produces higher F2-F1 values than Manchester across all non-final contexts. The GAMM dynamic analysis shows that while dialects do differ in the height of the F2-F1 trajectory (Liverpool typically has higher values), they do not substantially differ in trajectory shape in any positional context.

In summary, our results show that, in this particular case, dynamic information on lateral-vowel sequences does not appear to significantly differentiate between dialects much better than single time-points from lateral steady states. However, dynamic measures do reveal more subtle within-dialect realisations of positional contrast, which may partly interact with dialect variation in vowel quality.

References

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