

Allophonic Change in Newfoundland: an acoustic and articulatory look at /l/

In contrast with standard North American English, which has a dark [ɫ] in word-final position and light [l] initially, Irish-settled areas of Newfoundland have been reported to exhibit light /l/ in both word-initial and final positions (e.g. Atkinson 1982, Bartlett 1977, Paddock 1982). Since these early studies, major socio-economic changes in Newfoundland have led to suppression of certain dialect features (Clarke 2012). Using both acoustic and ultrasound methods, we investigate whether the standard allophonic pattern is displacing the traditional Irish /l/ pattern in Newfoundland English.

Data come from 45 speakers who read two repetitions of 12 phrases where /l/ appeared in either initial or final position (*steal assets* vs. *see lapses*; *coil amp* vs. *toy lamp*). Recordings were aligned using the Prosodylab-aligner (Gorman, Howell, Wagner 2011) and F1 and F2 measurements taken at five points across the duration of the /l/ using Praat (Boersma, Weenink 2014). We report here on an acoustic measure of /l/ darkness (F2 - F1) taken from the temporal midpoint of /l/ (N=957) and normalized using the Lobanov method. We also report on a subset of speakers (sixteen) whose utterances were captured using a Sonosite Titan C11/8-5 MHz ultrasound transducer secured below each speaker's chin. Tongue contours from ultrasound images were subjected to an SSANOVA test (Davidson 2006) to examine the gestures used in production of /l/.

Results of the articulatory study reveal that speakers distinguished word-initial and final /l/ using either tongue retraction or tongue height gestures (Sproat & Fujimura 1993). These distinctions occurred variably in all but two individuals, with significantly different gestures found in 64% of the comparisons overall. A logistic regression analysis (Johnson 2009) showed males to be significantly more likely (0.64) than females (0.36) to exhibit differences.

For the acoustic analysis, competing linear mixed effects models, with participant and stimulus item as random factors, were tested for statistical significance using a likelihood ratio test (ANOVA). This revealed significant interactions between position and region ($p=0.004$), and position and gender ($p<0.001$). While initial /l/s were lighter (+1.62) than final /l/s overall, in accordance with the standard allophonic pattern, men had lighter word-final /l/s (+0.47) compared to women. Lighter final /l/s were also found in the Irish-settled Southern Shore communities (+0.47) relative to locales with little Irish influence. The Northern Shore Line (English-dominant) had the next lightest final /l/s (+0.27) with St. John's, the culturally mixed capital city, exhibiting the darkest (+0.14) of the three fixed locations. These articulatory and acoustic results present a clearer picture of /l/-allophony in present-day Newfoundland English that is governed by both gender and region with women showing, overall, a more standard, North American pattern. This is consistent with sociolinguistic patterns in which men retain local variants while women adopt prestigious variants (Clarke 1991; Van Herk, Childs, Thorburn 2007). Lighter final /l/ in Irish settled areas suggests more retention of the traditional pattern in regions of sustained Irish identity.

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