Losing light /l/: an acoustic and articulatory investigation of Newfoundland English

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This paper reports on the first acoustic and articulatory study of the allophonic distribution of /l/ in Newfoundland, where Irish-settled areas are reported to exhibit light /l/ in both syllable-initial and syllable-final positions. This contrasts with the standard North American English pattern which has a dark [ɫ] in coda position and light [l] in onsets. Since earlier studies (Atkinson 1982, Bartlett 1977, Paddock 1982) Newfoundland has experienced major social and economic changes, which have in turn affected local dialects and have led to the loss of certain features (Clarke 2012). Our study uses instrumental methods to investigate the extent to which the Irish, light /l/ pattern persists and how different patterns of /l/ allophony are distributed among the population.

/l/ productions from twenty-two speakers were elicited in a controlled laboratory environment. Each participant produced six items in which the position of /l/ relative to the word boundary varies within a phrase (e.g. steal assets vs. see lapses) and six items which compare initial and final /l/s within compounds (e.g. coil amp vs. toy lamp). Items were controlled for preceding and following vowels. All items were repeated yielding two repetitions of each utterance. Recordings were automatically aligned using the Prosodylab-aligner (Gorman, Howell, Wagner 2011) and F1 and F2 measurements were taken at five points across the duration of the /l/ using Praat (Boersma, Weenink 2014). We report here on the z-score normalized acoustic measure of /l/ darkness (F2 - F1) taken from the temporal midpoint of /l/. When our speakers are considered as a group, t-tests show a significant difference between /l/s in initial and final position with word-final /l/s being darker under both compound and phrasal stress (p<0.001). Patterns of individual speakers vary widely, however, with some speakers failing to show an initial-final distinction. A gender difference was found with women showing significantly darker /l/s in final (p<0.001) position. This is consistent with sociolinguistic patterns in which men retain more local variants while women adopt more standard patterns (Van Herk, Childs, Thorburn 2007).

We also report on a subset of speakers (sixteen) who were analyzed using ultrasound tongue imaging. Results from an SSANOVA (Davidson 2006) show 64% of the 168 pairwise comparisons from these speakers to have a statistically significant difference between the tongue root retraction or tongue body height (Sproat, Fujimura 1993) of word-initial /l/ and that of final /l/. These results indicate that our sample shows articulatorily distinct patterns across these positions. For all but two speakers, the distinctions are not obligatory and are realized at different rates. A logistic regression analysis Rbrul (Johnson 2009), which assessed the effect of external factors on these articulatory patterns, reveals that gender has a significant effect (p=0.008) on distinctions across word-initial and word-final positions. Specifically, male speakers are more likely (centred factor weight = 0.642) than females (0.358) to exhibit differences. We also found a significant effect of age on positional variation to the effect that older speakers are more likely to show allophonic variation at the level of articulation.

Given these results, we report a relative absence of light /l/ of the type described by (Clarke 2010). On the other hand, not everyone shows the standard Canadian English pattern, namely acoustically and articulatorily distinct /l/s in initial and final position. This points to a variable situation in NL that may be due to first, the historical presence of coda light /l/ and second, the levelling of this traditional feature. The loss of light /l/ appears to be gradual and not replaced in all cases simultaneously.