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# What is the fate of Scottish Vowel Length Rule in Glasgow?

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## Abstract

This paper studies the longitudinal development of a vowel timing alternation known as the “Scottish Vowel Length Rule” in a distinctive variety of Scottish English spoken in Glasgow by working-class men and women. Combining apparent-time and real-time evidence, we show that the implementation of the Rule has changed over time, though unlike in many other varieties of Scottish English, the factors shaping its fate seem to be internal rather than external. Overall, Glaswegian English behaves like a quantity language and controls for prosodic timing effects while preserving the phonological timing alternation; and this is despite a marginal, quasi-phonemic status of the Rule.

**Index Terms:** SVLR, sociolinguistic real-time corpus, sound change, prosodic timing, Glaswegian

## 1. Introduction

Glaswegian English, like many other varieties of Scottish English, is well known for its quasi-phonemic patterning of the vowel duration, the so-called ‘Scottish Vowel Length Rule’ (SVLR, [1]). SVLR-vowels are generally short, and lengthen only before voiced fricatives, /r/ and at morpheme boundaries. Aitken’s [1] original formulation applied the Rule to all vowels, but more recently Scobbie et al [2] only found evidence for /i u/ and /ai/ participating in this timing alternation. SVLR stands in contrast to the Postvocalic Voicing Effect (PVE) frequently observed in other varieties of English, e.g. spoken in England and North America, where a vowel is lengthened before voiced consonants but shortened before voiceless ones ([3]). The primary difference between SVLR and PVE concerns the complexity of their constraints: while PVE requires just one constraint, namely the voicing of postvocalic consonants, SVLR additionally relies on the specification of the manner of articulation of the consonants (fricative vs nasal/oral stop) and, if the consonant is a sonorant, its place of articulation (central vs. lateral).

The complexity of the SVLR-constraints is possibly one of the main reasons why the Rule has often been documented to be weakening in situations of high contact with Anglo-English, and giving place to the timing alternations of PVE (e.g. [4, 5]). However, the number of real-time studies addressing this type of sound change is still limited, and there has been little research into potential internal factors influencing this change. Since the timing alternations of SVLR are considered to result in quasi-phonemic vowel quantity in Scottish English ([6]), we might expect SVLR to interact with prosodic timing as in other quantity languages ([7]). In many quantity languages, prosodic timing as well as phonemic vowel quantity place different

functional demands on the implementation of vowel duration which might reach ceiling effects due to a combination of accentual, phrase-final and quantity-related lengthening ([8]). Accordingly, durational demarcation of some of the linguistic functions may be compromised. Due to a high functional load of duration for phonology, some quantity languages show only marginal prosodic timing effects (e.g. [7]). However, sound changes towards vowel quantity neutralization in phrase-final positions have also been documented (e.g. [8]).

In this paper, we are wondering about the fate of SVLR in Glasgow where the dialect contact to other varieties of English is traditionally rather limited and where we could expect SVLR to be more resistant to change induced by the external factors ([2]). In a previous investigation ([9]), we addressed this question using a sample of young and middle-aged male speakers recorded in the 1970s and 2000s. The present paper extends the previous results to a larger sample that includes female (as well as male) speakers of the two age groups and decades of recording.

## 2. Method

### 2.1. Corpus and speakers

The sample for this paper was drawn from a real-time corpus of Glaswegian vernacular; it contains recordings of spontaneous speech made as early as 1917 as well as more recent ones from 2000s and is stratified by speaker age ([9]).

Our speakers were men (*m*) and women (*f*) in their teens (*Y*-group) and forties (*M*-group) who were recorded for sociolinguistic projects in Glasgow in 1970s (*70*) and 2000s (*00*). We analysed the data of 16 male speakers (4 per group, [9]) and 12 female speakers (3 per group, [10]). 2 out of the 12 females and 5 out of the 16 males had high levels of contact to Anglo-English.

### 2.2. Data annotation and analysis

All sentences containing words with the SVLR-monophthongs /i u/ in stressed positions were analysed, though words with a postvocalic /r/ were not included. We followed the same labelling routine as in our previous study ([9]) and coded for the SVLR- and the PVE-environments as well as prosodic timing factors (prominence and position within the phrase). The first author annotated the male speaker set ([9]), the second author the female speaker set ([10]).

With the measured vowel duration as the dependent variable, linear mixed effects models were fitted. *Speaker* and *word* were random factors; the predictors were speaker *group*, dialect *contact*, *vowel*, *PVE* and *SVLR* environment, phrasal

position and prominence levels; the covariates were lexical frequency, number of syllables per target word and number of segments per target syllable. We tested for all meaningful 3- and 2-way interactions of the main predictors.

### 3. Results and Discussion

Significant results relevant to the research questions of this study are displayed in Figures 1-3a/b. With regards to the external influence of the dialect contact to Anglo-English (Figure 1), t-tests showed no statistically reliable difference between PVE-long and PVE-short contexts in high-contact speakers and even slightly longer vowels in PVE-short than PVE-long contexts in low-contact speakers ( $t=2.0$ ,  $p<0.05$ ). These findings reinforce the conclusion we discussed in our previous work ([9]) that dialect contact is an unlikely factor to influence the longitudinal development of vowel timing in Glasgow, in contrast to other Scottish English varieties ([4, 5]).

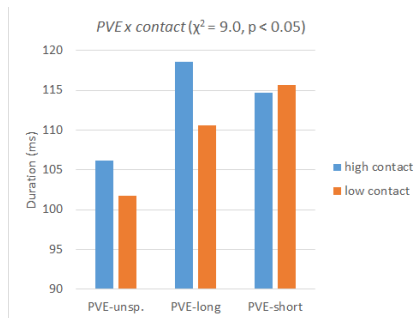


Figure 1: 2-way interaction of dialect contact and PVE.

As expected, SVLR interacts with prosodic timing in many ways. The short/long distinction reaches a larger magnitude under increased prominence: SVLR-long vowels are substantially longer when accented (20 ms,  $t=7.5$ ,  $p<0.001$ ) whereas SVLR-short vowel show only a small lengthening effect (10 ms,  $t=2.3$ ,  $p<0.001$ ).

Unlike in our previous study ([9]), we do not find evidence for a neutralized short/long SVLR-contrast in phrase-medial, unaccented positions; this might be related to a relatively small number of such vowels, and the lack of a consistency check across male and female datasets.

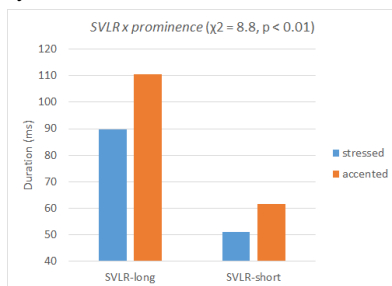


Figure 2: 2-way interaction of prominence and SVLR.

The results in Figure 3 corroborate our previous finding and show that middle-age male and female speakers born in 1920s have significantly longer SVLR-vowels in phrase-final positions than all other groups (all comparisons  $t>2.0$ ,  $p<0.05$ ). This finding is indicative of an internally induced change ([8]).

Overall, Scottish English spoken in Glasgow behaves like a true quantity language and controls for the amount of prosodically induced lengthening, despite a rather marginal, quasi-phonemic status of SVLR.

### 4. Acknowledgements

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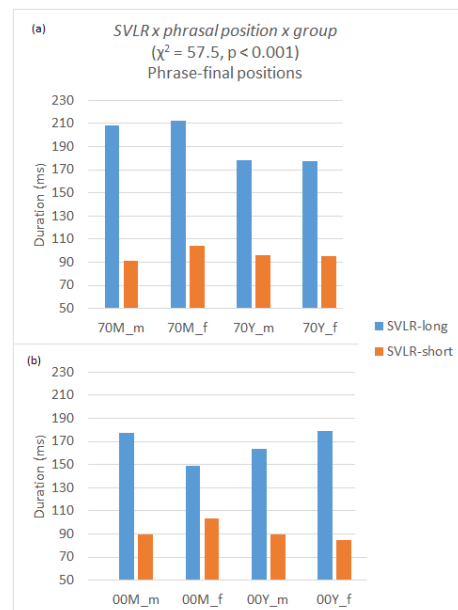


Figure 3: 3-way interaction of SVLR, phrasal position and speaker group.