

Vowel Insertion in Scottish English Liquid+Sonorant Clusters

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Overview: The current study describes the synchronic status of vowel insertion in Scottish English liquid+sonorant coda clusters and evaluates the classification of this phenomenon as a deliberate process of vowel *epenthesis* or the result of physiological artifact, *excrescence*. This study does so by utilizing acoustic information and patterns of distribution across varying morphophonological environments from a language production study.

Introduction: A process of vowel insertion has been reported in various historical linguistic accounts and linguistic surveys of Scottish Standard English and Broad Scots (for review, see Maguire, 2017), in which /rɫ/, /rɪm/, /lɪm/, and occasionally /lɪn/ and /rɪn/ consonant clusters in the coda position of a monosyllabic words surface as consonant + vowel + consonant ('CVC') sequences. Despite widespread reference to this process as a key component of the phonology (Scobbie, Gordeeva, & Matthews, 2006), absent from the literature are acoustic data on the phenomenon and proposed analyses of the process, as the only published data come from fieldworker transcriptions denoting the presence/absence of insertion in specific lexical items. Similar processes of vowel insertion in sonorant+sonorant coda clusters have received a substantial amount of attention in other languages (i.e., *in Dutch*, Kuijpers & van Donselaar, 1998, Warner et al., 2001; *in Irish*, Hickey, 1985, Sell, 2012; *in Scottish Gaelic*, Hammond et al., 2014), but not Scottish English, the absence of which motivated the current production study.

Research Questions: *Does the inserted vowel pattern more closely with phonological vowel epenthesis or physiologically-induced excrescence? What are the morphophonological environments which condition this vowel insertion?*

Experiment: 27 native Scottish English speakers from¹ the Larger Central Belt Region took part in a language production study at The University of Edinburgh. Participants read aloud from two word lists presented one word at a time while being recorded. The first word list varied the number of morphemes in the word (2: monomorphemic, bimorphemic) via suffixation (2: unsuffixed words, suffixed words). Suffixes were either consonant-initial (i.e., *-ed* [d], *-s* [s]) with the cluster situated in the coda position of a monosyllabic word (e.g., *farms* [fɑɹms]; *farmed* [fɑɹmd]), or vowel-initial (i.e., *-er* [əɹ], *-ing* [ɪŋ]) with the liquid+sonorant sequence situated across a syllable boundary (e.g., *farmer* [fɑɹ.məɹ]², *farming* [fɑɹ.mɪŋ]). The expectation was that monosyllabic, monomorphemic words and consonant-initial suffixed words would receive the most amount of insertion if the vowel is epenthetic, driven by a need to break up the coda cluster, since the liquid+sonorant sequence is not a part of a coda cluster when in vowel-initial suffixed words. This was also tested in the second word list, which contained Scottish place names and Scots slang words with the cluster situated within and across syllable boundaries in monomorphemic words with varying syllable counts, with the expectation again being that words which contained the cluster in the coda position of the syllable (i.e., monosyllabic and bisyllabic words with one morpheme) would receive the most amount of insertion when compared with polysyllabic words with the cluster broken up by a syllable boundary.

¹ At the time of the experiment in June 2017 speakers indicated that they were born in and currently residing in the Larger Central Belt region of Scotland, and had been living in Scotland consecutively for the last 10 years.

² “.” indicates a syllable boundary.

Results: Results from 12 speakers (F=6, Range=21-93, SD=18) revealed that the average duration of the inserted vowel was half that of underlying vowels in similar locations (e.g., *form* [fɔɹəm] versus *forum* [fɔɹʌm]). A near-significant positive correlation emerged when comparing the length of the inserted vowel with the length of the preceding vowel within the same word (e.g., *form* [fɔɹəm]). Lastly, our results were consistent with our expectations for morphophonological conditioning.

Discussion: These findings do not provide support for a classification of these vowels as physiologically-induced *excrescence*. Excrescent vowels are short in duration (e.g., 29 milliseconds in Spanish /Cr/ clusters, Quilis, 1981; 25 milliseconds in Tashlyt Berber, Coleman, 1999), resulting from a low degree of overlap between the gestures of adjacent consonants (Browman & Goldstein, 1992), while epenthetic vowels should have a duration closer to that of an underlying vowel as they serve to repair dispreferred sequences of segments, breaking them up phonotactically for the speaker and/or perceptually for the listener. The near-significant positive correlation between the length of the inserted vowel and that of the preceding vowel (e.g., *form* [fɔɹəm]) behaved similarly to words with underlying vowels in similar positions (e.g., *forum* [fɔɹʌm]), demonstrating that the lengthening processes that apply to the rest of the word operate on the inserted segment. This line of reasoning comes from extending speech rate literature that utilizes duration to distinguish between controlled phonological processes and mere physiological artifact (Solé, Sprouse, & Ohala, 2008). Distributionally, that the degree of vowel insertion varies across different morphophonological environments demonstrates that this vowel may be a phonologically visible epenthetic vowel.

Selected References

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