The rhotics and derhotics of Scottish English

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In previous work, Scottish English /r/ was found to display acoustic weakening (derhoticisation), apparently due to gestural dissociation, in particular the delay of tongue tip and blade articulations in word-final codas pre-pausally [1], [2]. This paper explores Scottish English /r/ in a variety of environments using data from a 19 speaker sociolinguistically-stratified corpus (ECB08) of Scottish English collected from teenage speakers in the Eastern Central Belt of Scotland in 2008. The value of a socially-stratified corpus for phoneticians and phonologists is that it reveals systematic and learned rather than merely idiosyncratic or physiological interspeaker differences. We believe this to be the first articulatory corpus of this kind.

This work is of particular interest for ultrasound research, because some speakers’ behaviour is so different to that reported for rhotic production and onset-coda allophony in general American English [3]. In addition, we were able to show that the effect of ultrasound recordings on the production of vernacular speech was comparable to acoustic-only recordings [1].

We will discuss rhotics from the corpus after briefly discussing the structure of the corpus (spontaneous conversational speech as well as conventional wordlist), issues related to data collection of vernacular speech, and some results from other studies undertaken on the corpus (of vowel space, ejective stops and /l/). We will discuss the following three results relevant to rhotics.

Derhoticisation was found in some WC (working class) speakers, as expected, with weak acoustic correlates of rhoticity resulting from gestural delay. The delayed anterior gesture occurred in silence after the end of the word or during a following voiceless stop. After high vowels, derhoticised /r/ resembles a centralising or pharyngealised offglide. For lower vowels, it may be that pairs like hat and heart are distinguished acoustically by vowel quality since the loss of acoustic rhoticity is so extreme [4], giving Scottish English a new vowel /ɜː/. There can also be a near merger between WC hut and hurt at an acoustic level due to derhoticisation (without compensatory lengthening) although they remain distinct in articulation. It does not seem to matter whether the final /t/ is produced as [t] or [ʈ].

MC speakers were found to have merged birth and berth. They use a highly rhotic monophthongal vowel for both which might be developing into a new vowel /ɔː/.

Finally, MC speakers favour a bunched tongue shape with tip-down post-alveolar constriction and a pharyngeal constriction, whereas WC speakers favour a tip-up articulation. The existence of social class patterning suggests that tip-up and tip-down articulations can be audibly different in English (otherwise the social patterning would not be possible), contra [3], [5].

[427 words]
References:


