

NURSE vowels in Scottish Standard English – still distinct or merged?

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While nearly all dialects on the British Isles have undergone the NURSE merger (Wells, 1982), a process which merged the five Middle English vowels /ε, ɪ, ʊ, ɜ, ə/ into the vowel /ɜ/ in prerhotic positions, Scottish Standard English (SSE) is traditionally described as having a three-way distinction in these contexts. This means that for words such as *fir*, *fern* and *fur*, separate vowels are pronounced, namely /ɪ/, /ε/, and /ʌ/ (e.g. Jones, 2002; Dyer, 2002). However, the loss of this contrast has for some time been cited as a possible feature of middle-class SSE (Lawson et al. 2018). While there is agreement that the three vowels are unstable in the prerhotic context, less is known about precise mechanisms of variation and merger; for example, some speakers rhyme *fir* and *fur*, showing only one vowel /ʌ/ or /ɪ/, while retaining *fern* as a distinct category (Giegerich, 1992; Trudgill et. al., 2003; Stuart-Smith, 2008). Possible reasons for the observed merger of /ɪ/, /ʌ/, and /ε/ in SSE are an assimilation towards RP phonology (see general comments in Aitken 1979), a prestigious pronunciation target promoted in the early twentieth century (Lawson et al. 2013), and coarticulatory pressure exerted by the middle-class speakers' bunched variants of the Scottish postvocalic /r/ (ibid.).

The NURSE merger and social stratification in the realisation of prerhotic vowels in SSE are still understudied. The present investigation aims at filling this gap by analysing the acoustic properties of vowels produced for the (RP) NURSE lexical set by $n = 65$ SSE speakers from all over Scotland. To this end, 35,000 words of broadcast news and broadcast talks from the Scottish component of the *International Corpus of English* were analysed in the following way: Automatic phonemic transcriptions were created with WebMAUS (Schiel, 2004), phoneme boundaries were corrected manually and the realisation of /r/ was checked and transcribed using Praat. For all speakers, F1 and F2 for all vowels of the NURSE lexical set ($n = 781$) as well as for 10 tokens each of the KIT, DRESS and STRUT lexical sets were measured, transformed into Bark and normalized following Lobanov (1971). A Bayesian linear mixed-effects regression model with speaker and word as random intercepts showed that in purely acoustic terms the vowels in *fir*, *fern* and *fur* are not merged but have a distinct F1 and F2. Female speakers are exceptional in showing an incipient merger of *fir* and *fur*. However, we do observe that prerhotic items are distinct from the reference categories KIT, DRESS and STRUT in being more centralised, and the data also confirm that *fir* and *fur* are much more strongly drawn towards the centre of the vowel space (and each other) than *fern*, which shows only incipient centralisation. In addition to the global picture based on purely acoustic data, we will look at the relationship between vowel quality and the realisation (or loss) of /r/, and we will also zoom in on individual speakers to learn more about specific patterns underlying the general picture.

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