

A coarticulatory account of historical r-vocalization in English

The pronunciation of coda /r/ in English is one of the main characteristics that help distinguish between dialects of the language. Traditionally these have been divided between rhotic dialects, i.e., those in which /r/ is pronounced in all positions, and non-rhotic dialects, i.e., those in which /r/ is only pronounced prevocally. Non-rhotic dialects are characteristic of most of England and areas settled by English speakers after the 18th century. Earlier settlements, such as those in Ireland or North America, have typically maintained rhoticity, which gives us a good indication as to when /r/ loss took place in England. Historical accounts of /r/ loss place the origin of the sound change in southern England some time during the late 17th and early 18th centuries. Even though at the time /r/ dropping was considered a sign of lack of refinement and was discouraged by grammarians (Beal, 1999), by the end of the 18th century it seems to have been widespread in educated London speech.

In standard accounts of the phonetics of non-rhotic dialects, the consequences of /r/ dropping are the appearance of a set of so-called 'centring' diphthongs and triphthongs, i.e., /ɪə/, /eə/, /ʊə/, /aɪə/ and /aʊə/, from earlier /ɪr/, /er/, /ur/, /aɪr/ and /aʊr/, and the coalescence of former /ar/ and /ɔr/ with /ɑ:/ and /ɔ:/ resulting from vowel lengthening, which created pairs of homophones of the *fort-fought* type. The two developments appear at first sight to be unconnected. However, a closer look at the articulatory nature of vowel+/r/ sequences in rhotic dialects of English seem to suggest otherwise. In this paper we provide experimental evidence that shows how the articulatory transitions present in vowel+/r/ sequences can be seen as being responsible for the dual development observed historically in non-rhotic dialects, thus providing a plausible unified account a historical /r/ dropping that is in accordance with the dynamic nature of speech production. Specifically, we show how the development of centring diphthongs and triphthongs correlates with the presence of clearly identifiable schwa-like elements in the transitions between high front/back vowels and the following /r/ in /ɪr/, /er/, /ur/, /aɪr/ and /aʊr/ sequences in American English. When the /r/ follows low back vowels, as in /ar/ and /ɔr/ sequences, the transitions are much less obvious and are sometimes absent altogether.

Evidence for the above findings has been obtained with an experiment that investigated the presence of a schwa-like element in the VC transitions of final V+/r/ sequences in American English as a function (i) of the phonetic/phonological nature of the preceding vowel and (ii) of speaking rate. Acoustic measurements (F1, F2, F3 and duration) were obtained for the transitional element from six speakers. The data were analyzed using factorial repeated measures ANOVAs with context and rate as independent variables and with F1, F2, F3 and duration as dependent variables. The results suggest (i) that this vocalic element is highly variable in terms of its formant and duration values depending on context and rate, and (ii) that there is a strong correlation between the type of vowel and the durational and spectral characteristics of this vocalic element, which are significantly more distinct when the preceding vowel is high and front/back than when it is low and back. These findings give support to the hypothesis formulated here that the reflexes of /r/ dropping are the result of articulatory dynamics and provide a unified account of historical /r/ loss in English.

REFERENCES

- Beal, J. (1999). *English Pronunciation in the Eighteenth Century. Thomas Spence's 'Grand Repository of the English Language'*. Oxford: Oxford University Press.