

Lexical competition, frequency and the fronting of back vowels in Northern British Englishes

A guiding principle of vowel change is the maintenance of contrast between lexical sets. Mergers are hypothesised to be more likely where functional load is low (Martinet 1955), and the preservation of contrasts underlies coordinated chain shifts (Labov 1994). It has also been argued that lexical frequency plays a role in pronunciation variation, and thus potentially in change (e.g. Pierrehumbert 2002). Rare items are more likely to be realised with canonical forms, while more frequent lexical items have greater phonetic freedom and are therefore more likely to be lenited or to attract less predictable innovative variants.

Despite these claims, the lexical-functional role of vowel contrasts as a predictor of change has received little detailed attention (Hay et al 2010 and Flynn 2012 are exceptions). To what extent are particular contrasts genuinely threatened by a change in progress? Is there quantitative evidence for an effect of functional load? Do words with many lexical competitors change at different rates from those with few or none? Are contrasts between frequent items maintained more or less robustly than contrasts between rarely used words?

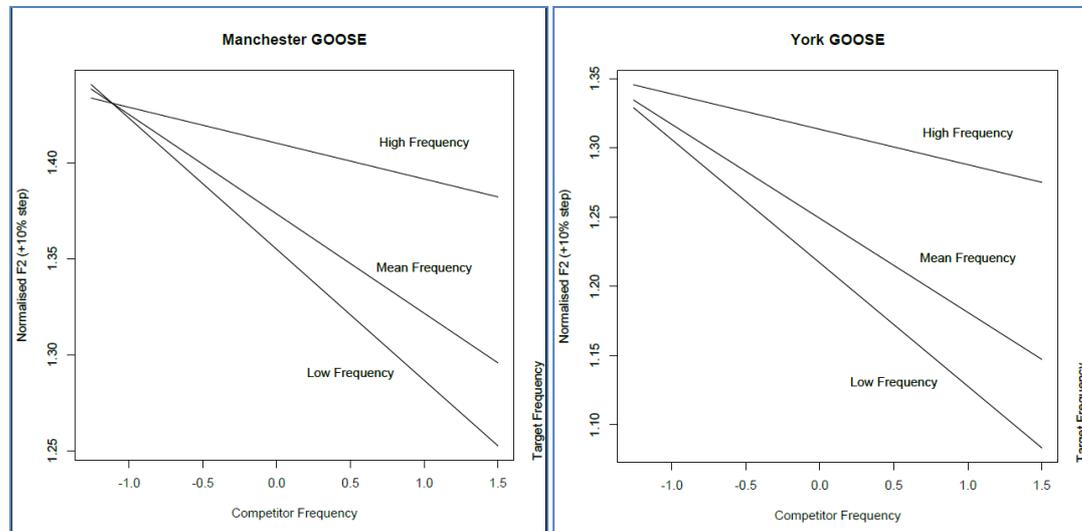
In Authors (2012) we presented preliminary results showing significant effects of lexical competition on GOOSE and GOAT fronting in Manchester and York. The Manchester data consist of 16 speakers (8 male) aged 18-21 and 62-82. The York data contain 18 young speakers (8 male) recorded in 2008 and 16 older speakers (8 male) recorded in 1998 (Tagliamonte 1996-98). Dynamic time-normalised values of each vowel (mean 41 per speaker) were extracted at +10% steps from the F1 and F2 trajectories. Values were normalised following Fabricius et al (2009). The maximum F2 value of GOOSE in York was significantly lower for lexical items with a FLEECE and/or KIT competitor (e.g. *goose~geese*), compared with competitor-absent conditions (e.g. *spoon~speen*). In both cities, GOAT fronting was promoted for target words with no lexical competitor.

In this paper we explore more systematically the role of lexical-functional factors in GOOSE and GOAT fronting, considering all potential competitors across the vowel phoneme inventory. Fronting is analysed at different points in the F2 trajectory according to (i) the frequency of each competitor item, (ii) summed frequencies of all competitors for each word, and (iii) the total number of lexical competitors. We also considered the frequency of the target word itself. The interaction between predictors is analysed with reference to the phonetic distance between the target and competitor, and the syntactic categories of the target and competitor.

Word frequencies were generated from the Celex English Lexical Database. We manually corrected phonemic transcriptions, added competitors not identified by Celex, and removed cases of implausible lexical confusion. As a metric of phonetic distance we computed Euclidean distances between all lexical sets from scalar phonemic classification (front-back, open-close etc).

Preliminary results show that competitor frequency is significant for GOOSE in both cities. GOOSE words with many or frequent competitors have lower F2 – i.e. they remain backer – than those with few or rare competitors. This effect is strongest where the target item is rare, but weakened where the target item itself is frequent (Figure 1). The results support predictions that maintenance of contrast is a factor in promoting or inhibiting change, tied to the relative frequency of both target and competitor word.

Figure 1: fronting effects for GOOSE in Manchester (left) and York (right). Y-axis: normalised F2 at 10% measurement point. X-axis: standardised frequency of all competitor items. Low/Mean/High = 1st/2nd/3rd quartile frequencies of target items.



References

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