

Stress matters: The effect of stress on change in the KIT vowel in New Zealand English

The behaviour of unstressed vowels is often neglected in language change research. This paper focusses on the comparative behaviour of unstressed and stressed KIT in New Zealand English. In NZE there has been a well-documented chain shift involving the front vowels, which has resulted in the centralisation and lowering of KIT (Watson et al, 2000; Langstrof, 2006; Hay et al 2008). So far, research has predominantly focused on stressed vowels, and little is known about the involvement of unstressed vowels in this change. In traditional descriptions of English, KIT is one of the few vowels said to be able to appear in unstressed syllables (Gimson, 1962). This makes NZE an ideal test site to explore to what extent unstressed vowels take part in an ongoing vowel shift.

The data analysed is from 569 speakers in the Origins of New Zealand English corpus (Gordon et al, 2007). The data comes from three collections contained within ONZE, the mobile unit (MU), intermediate archive (IA) and Canterbury Corpus (CC), from first to last recorded respectively. The unstressed vowels analysed were lexically unstressed vowels in non-final word position that were transcribed as /ɪ/ in CELEX (n=87985). Stressed /ɪ/ was examined for comparison (n=96390). F1 and F2 were automatically extracted from vowel midpoints using LaBB-CAT (Fromont and Hay, 2012), and were Lobanov normalised. Data was analysed using mixed effects models, with random intercepts for word and speaker.

Like stressed KIT, unstressed KIT has undergone significant lowering and backing, but to a significantly lesser extent (figure 1) and at a slower rate (figures 2 and 3) on both the F1 and F2 dimension. During the course of the shift, stressed and unstressed KIT actually reverse in terms of relative F2. For the oldest speakers stressed KIT is higher in F2 than unstressed KIT but becomes comparatively lower in F2 as the vowel change progresses (figure 3). As a result, in present day NZE, unstressed KIT is significantly lower in F1 and higher in F2 than stressed KIT.

These results show that unstressed vowels can and do participate in ongoing vowel shifts, but this may not always be at the same speed or to the same degree as their stressed counterparts. Such is the case that, currently, in NZE, stressed KIT is lower and more centralised than unstressed KIT. This is interesting phonologically, as a reduction in stress is commonly associated with centralisation (e.g. Barry, 1998) but as a result of the vowel shift in NZE unstressed KIT is actually now more peripheral than stressed KIT.

Further analysis explores the effect of additional variables such as word frequency, and the differing spellings that represent unstressed KIT (as spelling is a good general guide to the historic pronunciation in unstressed vowels). We examine to what extent these variables enable us to understand the reasons behind this stress-based variation. In addition, we look at the relationship between individual speaker's degree of lowering and centralisation for unstressed and stressed KIT, to understand the relationship between changes in these two groups.

Figure 1: Vowel plot ellipses by corpus

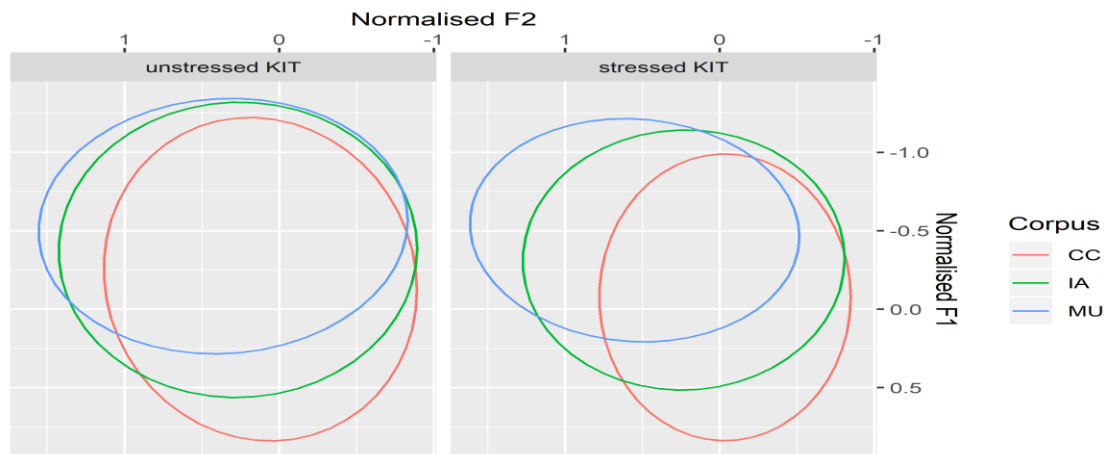


Figure 2: F1 by year of birth

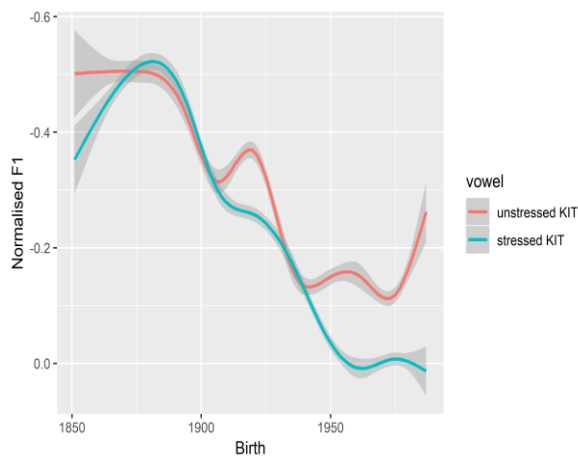
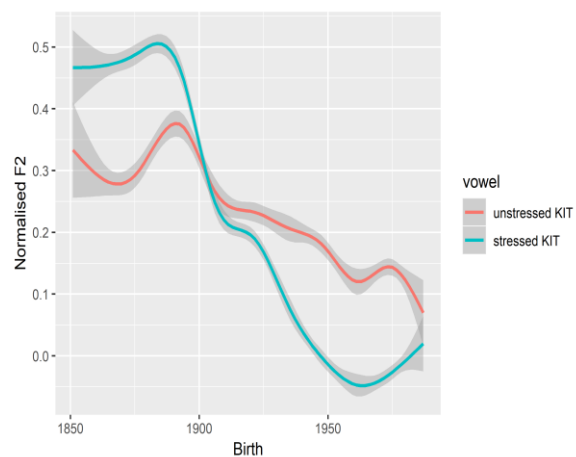


Figure 3: F2 by year of birth



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