Background

/u/ is fronting towards /i/ in the acoustic vowel space in Standard Southern British English, American English (Labov et al. 2006), New Zealand English (Maclagan et al. 2009). What about Scottish English? Auditorily, /u/ has been reported to be fronted, and/or central in the vowel space for a long time (McAllister 1938, Macaulay 1977, Johnston and Speitel 1983). Recent acoustic and articulatory analysis suggests that /u/ is front and low (Scobbie et al. forthcoming).

Method

| Tab.1: Structure of the whole corpus and data presented here (indicated by red) |
|---------------------------------|-----------------|-----------------|-----------------|
| Decade of recording         | G1: young        | G2: adult        | G3: old          |
| 70s                           | 4m, 4f           | 4m, 4f          | 2m, 2f          |
| 80s                           | 3m, 6f           | 7m, 1f          | 6m, 6f          |
| 90s                           | > 6m, 6f         | 4m, 4f          | > 6m, 6f        |
| 00s                           | 2m               | 2m              |                 |

• only syllables bearing prominence (stress or accent)
• phonetic context coded (place and manner of articulation)
• lexical set noted (standard or Scots)
• syllables with /r/-offset were excluded

Research outline

We start to tackle this question using the analysis of a real-time corpus of naturally-occurring spontaneous speech. We draw on recordings of Glaswegian vernacular speech made in 2003 (Stuart-Smith 2006) and 1972 (Macaulay 1977). The recordings were made using different equipment and various scenarios. In order to gain an appreciation of shifts in vowel quality over time which are independent of factors to do with the recordings themselves, we consider the data using two LPC algorithms as implemented in Praat and EMU. We look at the relative placement of /u/ in the auditory space defined by formant frequencies of /i/, /a/, /u/ in Bark (cf. Harrington et al. 2011).

Preliminary results

![Fig. 1: F2/F1 formant plot of tokens measured for young speakers using EMU vs. Praat](image1)

![Fig. 2: F2/F1 formant plot of tokens measured for adult speakers using EMU vs. Praat](image2)

![Fig. 3: F2/F1 formant plot of tokens measured in young speakers (left panel: 70s; right panel: 00s). Ellipses include 70% of the data.](image3)

![Fig. 4: F2/F1 formant plot of tokens measured in adult speakers (left panel: 70s; right panel: 00s). Ellipses include 70% of the data.](image4)

![Fig. 5: Mean du between /u/ and /i/, /a/ in G1 speakers across two decades](image5)

![Fig. 6: Mean du between /u/ and /i/, /a/ in G2 speakers across two decades](image6)

Summary

- Our preliminary results for both age groups in the 1970s are in line with the reports based on auditory analysis stating that /u/ in Scottish English vernacular was very front (Macafee 1983, Macaulay 1977).
- In apparent time for the 1970s, /u/ is lowering and fronting in younger speakers. In apparent time for 2000s, we see the same tendency for lowering in younger speakers. Both groups show a retracted vowel.
- In real-time, we find a slight lowering and stronger retraction of /u/ for both age groups. The retraction is more apparent in the younger group.

Discussion

- Are we observing real-time change in /u/ in Scottish English vernacular?
- So far, we have analysed a very small part of the dataset.
- The data present challenges for measurement with respect to levels of background noise and recording quality. We are starting with the most difficult part of the dataset first in order to find solutions for dealing with technical issues.

If these results are indicative of real-time change, the interesting point is that Scottish English is diverging from other accents of English in its trajectory for /u/.

References


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