

/u/ fronting and /t/ aspiration in Maori and New Zealand English

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This paper examines the relationship between the frontness of /u/ and the aspiration of /t/ in both Maori and New Zealand English (NZE) and investigates changes in both features over time. NZE /u/ has been central for some time (Gordon et al. 2004; Maclagan 1982; Maclagan and Hay 2007). In contrast, older Maori speakers analysed by MAONZE (Maori and NZE Project) produce relatively back /u/ sounds, but younger speakers front /u/ (Maclagan et al., 2004; Watson et al. 2006). Maori speakers' English /u/ sounds also front over time, with young speakers producing fronter /u/ than comparable Pakeha speakers. The paper provides further insight into the sound changes in Maori over the last 100 years (e.g. Harlow et al. in press) and demonstrates how an indigenous language has been influenced by English.

Maori stops are traditionally unaspirated (Bauer, 1993; Harlow 2007) but are becoming more aspirated, with /t/ becoming noticeably aspirated before /i/ and /u/ (Maclagan and King 2007). This makes articulatory sense, as the plosive is released into the small space in front of the tongue with the high front vowel /i/. As /u/ fronts, aspiration is similarly facilitated.

Twenty Maori speakers were analysed for Maori and English: four Mobile Unit (MU) speakers (born 1880s), 8 kaumātua (elders born 1920s and 1930s) and 8 young speakers (born 1970s and 1980s). F1 and F2 at the vowel target were obtained from approximately 30 /u/ tokens with variable numbers following /t/ and other consonants. The VOT of /t/ was measured from spectrograms and waveforms. Approximately 30 tokens each were measured before /i:, i, u:, u, a: a/.

All speakers produce fronter versions of /u:/ and /u/ after /t/ than after other vowels in Maori (Maclagan et al. 2005). They produce fronter /u/ after /t/ in English (see Stevens and House 1963 for consonantal effects on /u/ for American English), but the difference is less than in Maori. For the young L2 speakers of Maori, there is no difference. For a comparison, /u/ vowels of 10 MU Pakeha/European speakers, born in the 1880s (Gordon et al. 2004) and 10 older and 10 younger Pakeha speakers who do not speak Maori were analysed. /u/ was fronter after /t/ than after other consonants, but the difference was smaller than for the comparable Maori speakers.

For the MAONZE MU speakers, VOT for /t/ before short and long /i/ and /u/ (the 'aspiration contexts') is the same as for /t/ before short and long /a/. For the kaumātua, VOT for /t/ before /u~/u:/ and /i~/i:/ is longer than before /a~/a:/ and the young speakers produce VOT typical of English for /t/ before /i~/i:/ and /u~/u:/. Their VOT before /a~/a:/ is longer than the older speakers, but still shorter than before /i~/i:/ and /u~/u:/.

We see a reciprocal relation: as /u/ fronts for Maori speakers in both Maori and English, so there is more /t/ aspiration, and the greater the /t/ aspiration, the further /u/ is (see Hay and Maclagan, in press, for a similar situation with /r/ for NZE).

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