

## **Social Networks and the Perceptual Relevance of Rhythm in Maori English: A New Zealand Case Study**

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Previous research has demonstrated that the two main ethnolects of New Zealand English display distinct rhythmic qualities (e.g., Warren 1998, Szakay 2006). Using the normalised vocalic Pairwise Variability Index (PVI) to measure rhythm, as suggested by Grabe & Low (2002), Szakay (2006) showed that Maori English is significantly more syllable-timed than Pakeha English, the main variety used by speakers of European descent. The present study set out to investigate whether listeners are aware of this prosodic difference and whether they are capable of tuning in to speaker rhythm to facilitate dialect identification.

A perception experiment was carried out using 20 speakers and 107 listeners, with nearly equal numbers of Maori and Pakeha participants. As the linguistic experience of participants has been shown to affect the perception of dialect variation (e.g., Preston 1986, Tamasi 2003, Clopper 2004), each listener was assigned a Maori Integration Index (MII) to measure their previous exposure to Maori English.

To isolate the precise features that listeners might attend to when identifying speaker ethnicity, various speech conditions were created, each retaining different prosodic information in the speech signal. Thus, listeners were asked to perform a forced choice ethnolect identification task in the following conditions:

- (a) unaltered speech
- (b) low-pass filtered speech at 400Hz
- (c) resynthesized rhythm and intonation together
- (d) resynthesized rhythm only

The results indicate that, overall, New Zealanders are in fact aware of the rhythmic difference between Maori English and Pakeha English, and are capable of attending to speaker rhythm in a dialect identification task, perceiving syllable-timed speakers as Maori-sounding, and stress-timed speakers as Pakeha-sounding. However, not all participants are equally good at exploiting speaker rhythm to facilitate dialect identification. Logistic regression analyses reveal that PVI interacting with MII is a significant predictor of perceived ethnicity in all conditions. The results demonstrate that listeners with a higher MII are significantly better at relying on rhythm than those participants who are less integrated into Maori social networks. These low MII participants only tend to use rhythm correctly in the unaltered and low-pass filtered speech conditions where many other cues are also available. In the more degraded listening conditions they either do not rely on rhythm as a cue or use it incorrectly.

The fact that highly integrated listeners are able to rely on rhythm more accurately than low-MII listeners confirms the hypothesis that greater exposure to a dialect facilitates the identification of not only segmental but also prosodic features as belonging to the particular dialect. The results in general also demonstrate the role of social network not just in terms of frequency of forms but also in terms of accuracy in identifying in-group vs. out-group members.