

Conditions on Mergers' Success in Dialect Contact: Revisiting the Case of New Zealand English

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Language change often favor mergers over distinctions (Herold 1997, Johnson 2007). Yang (to appear) develops a mathematical model that predicts the proportions of speakers necessary for a given merger to spread in a situation of dialect contact. This paper applies Yang's model to a subset of the mergers present in the dialects forming the input to 19th Century New Zealand English [NZE] (table 1). We show that the model accurately predicts the numerical conditions for these mergers' success in early NZE.

Following Yang (2000), we analyze language change as competition between alternative linguistic hypotheses (grammars) in first language acquisition, leading to updates in the distribution of grammars in a population over generations of learners. A grammar's fitness is its advantage over its competitors, formalized as the proportion of input tokens in a learner's linguistic environment incompatible with the hypothesized grammar. As in Yang (*forth.*), the fitness of the merged vs. the non-merged grammars is defined in terms of homophone processing load (Swinney 1979, Caramazza et al. 2001). The merged grammar's fitness is given by the sum of the frequencies of all minimal pairs in a language affected by the merger. The non-merged grammar's fitness also takes into account the two sounds' inherent confusability-probabilities, defined acoustically (Hillenbrand et al. 1995).

The data on the outcome in NZE is based on Trudgill et al.'s (2000) analysis of recordings of 83 speakers (born 1850-1889) in the ONZE-corpus.¹ The two grammars' fitness and the critical mass of merged speakers necessary for the merger to be successful in a dialect contact situation were derived computationally, by running a script simulating Yang's model over a list of all minimal pairs in English with token frequencies, from the SUBTLEX-us corpus (Brysbaert & New 2009). The predictions made by the model were confirmed by comparing, by merger, the proportion of merged speakers (based on the demographic data based on census figures reported by Trudgill et al. (2000: 303) with the simulated minimum proportion of speakers required for the merger to spread, summarized in Table 1.

This paper uses mergers in early New Zealand English as a novel case-study for Yang's model of language change. The study also offers insights into the work of Trudgill (1986) et seq, who takes New Zealand English (and other sociolinguistically comparable varieties, such as South African and Australian English) to be formed by a deterministic process (*New Dialect Formation*), such that for dialects formed by the intermixing of groups of speakers of mutually intelligible dialects, features in a numerical majority always win. Trudgill et al. (2000) however, identify mergers as an exception to this principle, due to some inherent

¹Origins of New Zealand English, Dept. of Linguistics at the University of Canterbury at Christchurch.

| Merger (M+) in Input Dialects | Direction of Merger | Ratio M+ Speakers in Input Dialects | Critical Mass for M+ Success | Outcome in NZE |
|-------------------------------|---------------------|-------------------------------------|------------------------------|----------------|
| KIT-schwa | ɪ, ə → ə | 32% | 33% | Merger |
| FOOT-GOAT | ʊ, əʊ → ʊ | 12%* | 26% | Split |
| FOOT-STRUT | ʊ, ʌ → ʊ | 1.2% | 37% | Split |
| VEST-WEST | v, w → w | > 49%** | 56% | Split |

Table 1: Mergers in the input dialects to NZE, reported frequency of merged immigrant speakers, critical mass required for the mergers’ success, and outcome in NZE. (*estimate, **data due to Charles Yang, pc.)

advantage, such that a large minority of merged speakers may be sufficient for success. Yang’s model allows us to quantify over this advantage and make precise predictions about the exact numerical conditions necessary for a given merger’s success.

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