

# Recency effects on word-medial /t/ in New Zealand English: initial observations

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**Index Terms:** priming, medial /t/, New Zealand English

## 1. Introduction

When we talk, we have a strong tendency to repeat language structures that we have recently produced or heard ([1], [2]). This phenomenon is known as ‘recency’, ‘persistence’ or ‘priming’, and it shows that where variation exists in language, an alternative form, once used, persists in working memory and has a greater chance of reuse next time. The majority of research on whether, how and why speakers repeat linguistic material in quick succession has come from an experimental paradigm, with a particular focus on grammatical variation. The question of whether *phonological* priming can be thought to affect variation in *natural* speech has received much less attention (although see recently [3] and [4]). Here we present early results from a study exploring the role of recency in accent variation.

## 2. Methods

The data for this study comes from a new corpus of New Zealand English monologues. The QuakeBox corpus is a collection of 723 earthquake stories told by people recounting their memories of the devastating Canterbury earthquakes of 2010-11. This is a collection of monologues, on a single topic, in which the speakers are unusually engaged. This collection is therefore uniquely suited to this research because we can explore genuine priming behavior by avoiding phonetic and phonological convergence between interlocutors, or repetition for other reasons such as an association of a particular topic with a particular linguistic form [5].

We examine variation in the realization of word medial, intervocalic /t/ in this data set. This is a variable which is currently undergoing change in New Zealand English [5]. Except in the onset of a stressed syllable, this phonological environment provides a range of allophonic variation, including [t], [ts], [s], [d] and [r]. Recent studies of this variation in New Zealand English (e.g. [5]) have focused on the change from voiceless variants (T) to voiced variants (D) and so we replicate this method here in order to facilitate comparison between studies.

5075 tokens of word medial, intervocalic /t/ were extracted from 163 speakers in the corpus. Time-codes for each instance, speech rate and lexical frequency information were automatically generated

## 3. Results

If structural repetition takes place in natural speech, we should expect a speaker’s realisation of a variable to be somewhat predictable from their previous realisation of the same variable. When we correlate each speaker’s realization of medial /t/ (T = voiceless, D = voiced) with their previous realization of medial /t/ using a generalized linear model (incorporating random intercepts where possible [7]), we find a significant relationship between the two. This relationship remains significant even when additional factors known to constrain this variable in NZ English [6] are included in the model (see table 1).

	Estimate	Std. Error	z	Pr(> z )	Sig.
(Intercept)	-0.73	0.39	-1.87	0.06	.
<b>Previous /t/ = D</b>	<b>0.29</b>	<b>0.12</b>	<b>2.47</b>	<b>0.13</b>	<b>*</b>
Time difference between instances of medial /t/	0.01	0.00	3.38	0.00	***
Gender = M	1.53	0.18	8.42	<0.00	***
Age	-0.03	0.01	-6.39	<0.00	***
Log lexical frequency	0.58	0.05	12.2	<0.00	***
Speech rate	0.17	0.04	8	<0.00	***
Inflectional affix juncture	0.64	0.09	7.39	<0.00	***
<b>Previous /t/ = D : repetition of word in discourse = TRUE</b>	<b>0.58</b>	<b>0.14</b>	<b>4.17</b>	<b>&lt;0.00</b>	<b>***</b>
<b>Previous /t/ = D : Time difference between instances of medial /t/</b>	<b>-0.01</b>	<b>0.00</b>	<b>-3.38</b>	<b>&lt;0.00</b>	<b>***</b>

Table 1. Logistic regression mixed effects model. The estimate column shows the effect of each significant dependent variable on the log odds of medial /t/ = D; non-significant main effects have been removed.

Interestingly, there is an additional boost to this effect when the prime word has already appeared in the discourse, which fits in well with discussions of ‘lexical boost’ in the experimental priming literature [8]. There is also a predictable interaction which we might not expect to see if this variation were not affected by priming: the likelihood of clusters of variants appearing in the discourse decreases as the time between these variants increases. These early results therefore provide evidence that phonological priming affects variation in natural speech and it mirrors patterns found in the experimental literature on grammatical priming.

## 4. References

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