

# Ambiguity and Variable Phonological Rules: The challenge of TD Deletion in American English

This study examines the implications of pursuing a functional explanation for variable phonological rules, focusing on TD Deletion in American English. The phonological process whereby a final /t/ or /d/ is deleted in a consonant cluster has been a topic of intense scrutiny for decades, as it appears to be a prime example of a variable rule with non-phonological conditioning factors (e.g. Bybee, 2000; Twaddell, 1935). One such factor is morphological class, whereby monomorphemes, e.g. *mist*, exhibit higher rates of TD Deletion than regular past tense forms, e.g. *missed* (Labov, 1989). One attempt to explain this variability comes from the functionalist framework and involves positing a general linguistic strategy for ambiguity avoidance (Kiparsky, 1972). Consider the following two sentences:

- (a) The city was covered in *mist*.
- (b) I *missed* my grandmother.

According to this functionalist approach a speaker would be less likely to delete the final stop in (b) than in (a) since doing so eliminates crucial grammatical information and modifies the meaning (from past to present tense). Deleting the final stop in (a) does not cause a similar level of ambiguity since the truncated form does not introduce an alternative grammatical reading. Thus, as predicted by the theory for ambiguity avoidance, (a) is a better target for TD Deletion (Kiparsky, 1972).

If one extends this reasoning, a general strategy for ambiguity avoidance could also influence levels of TD Deletion within the morphological class of monomorphemes. For example, if a monomorpheme undergoes deletion and the resulting form is a homophone of another word then this also introduces potential ambiguity. Thus this functional approach to TD Deletion would predict speakers to have lower rates of TD Deletion for monomorphemes where the truncated form has homophones. This study examines this prediction using data from the Buckeye corpus and the CMU Pronouncing Dictionary (Lenzo, 2007; Pitt et al., 2007). The analysis compares rates of TD Deletion across monomorphemes that have homophones and monomorphemes that do not have homophones. The phonetic representation for the class of monomorphemes were accessed using the CMU Pronunciation Dictionary and the final t/d were removed in target words. The resulting truncated forms were then compared to the other words in the corpus to find homomorphic relations. The results indicate that the presence of homophones do not straightforwardly affect rates of TD Deletion in monomorphemes (see Figure 1 and Figure 2). Explanations for this, including context dependent disambiguation, the relative frequency of the original word compared to the frequency of the resulting homophones and numbers of homophones, are discussed.

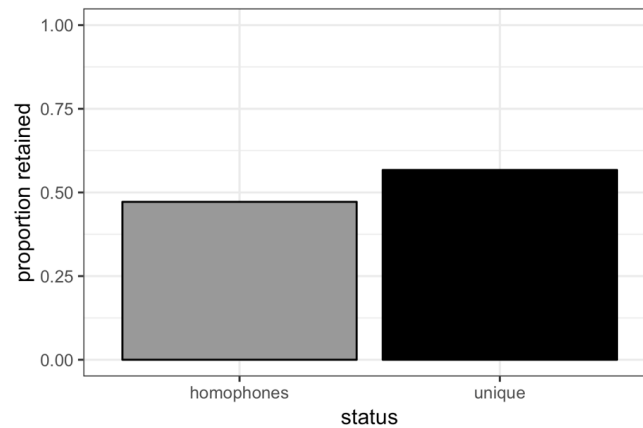


Figure 1: Levels of final-stop retention across monomorphemes that have homophones vs monomorphemes where the truncated form is unique.

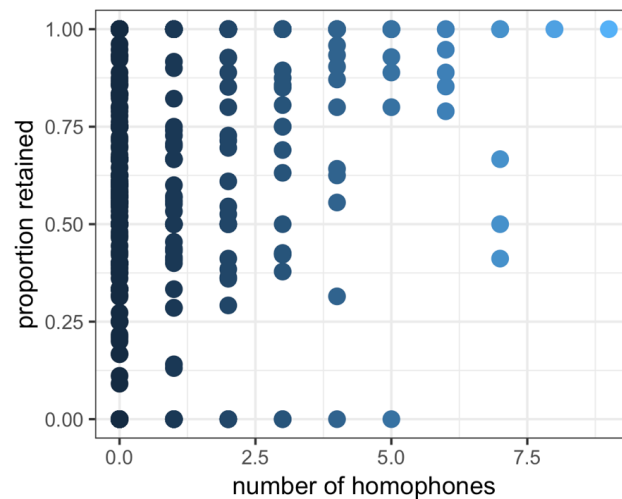


Figure 2: Levels of retention plotted over number of homophones of each truncated word.

## References

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