

## Non-local conditioning of variation: Evidence and implications

This paper addresses the question of how variable phenomena are represented in the linguistic systems of individual speakers. We draw on data from two factors that have been found to condition variable phenomena: heaviness (Wasow 1997) and persistence (Gries 2005, Szmrecsanyi 2006). We argue that these effects, unlike phonological and morphological conditioning effects, are best interpreted as extra-grammatical. The implication is that variable phenomena must be the purview of at least two systems: the generative grammar, and a system for language use.

It has been observed that variable phenomena tend to be conditioned by the same factors that condition categorical phenomena (Guy 1997, Guy & Boberg 1997, Coetzee & Pater 2011). For example, Guy and Boberg argue that the Obligatory Contour Principle, known to trigger categorical phonological processes, also conditions variable t/d-deletion. They suggest that this constitutes evidence for inherent variability (Weinreich, Labov, & Herzog 1968), necessitating a unified treatment of variable and categorical phenomena within the grammar. This has motivated both sociolinguists and generative phonologists to incorporate linguistic variability into their grammatical models.

We point out that variable processes may also be conditioned by factors that are **not** found to condition categorical phenomena (see also Coetzee and Kawahara, to appear for some discussion). These factors do not lend themselves readily to a grammatical treatment, forcing us to recognize the possibility of additional loci of variation. In this talk we present two case studies that show both grammatical and extra-grammatical conditioning.

The first case study is an examination of contraction of the auxiliaries *has*, *is*, and *will* after non-pronoun subjects, in three corpora: Switchboard (Godfrey & Holliman 1997), Fisher (Cieri et al. 2004), and the Philadelphia Neighborhood Corpus (Labov & Rosenfelder 2011). Each auxiliary's subject was coded for heaviness as measured by length in words, as well as other linguistic factors that have been found previously to have an effect (e.g. Labov, 1969). The data reveal an effect of heaviness on contraction: the longer the subject, the less likely contraction is to occur (Figure 1). This apparent sensitivity to word count is not seen in categorical alternations, which are local in nature (Embick 2010).

The other case study we consider is the effect of persistence on two morphophonological variables, (TD) and (ING), in the Buckeye Corpus (Pitt et al. 2007). Persistence is the effect where a recently-used variant is more likely to be used again. In addition to the phonological and morphological factors known to condition these variables (e.g. Guy 1980 on TD, Labov 1994 on ING), both TD and ING show persistence effects that decay gradually over the course of about 16 seconds (Figure 2). This effect, like that of subject length on contraction, operates outside a local domain.

The graduality and non-locality of these effects are inconsistent with an analysis where all variation originates grammar-internally. We sketch a model of language that separates derivation and use, allowing either or both to be probabilistic. An implication for variationist research is that observed surface probabilities may reflect combinations of multiple underlying probabilities and should be modeled accordingly.

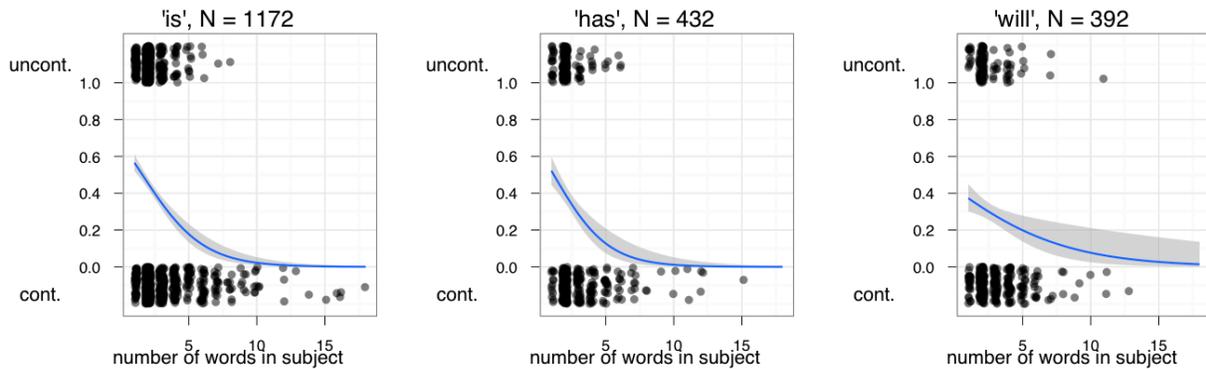


Figure 1. Effect of subject heaviness on contraction of three auxiliaries after non-pronoun subjects. Each point represents one token, coded as contracted (“cont.”) or not (“uncont.”). Values on the y-axis are for interpretation of the GLM smoothing line.

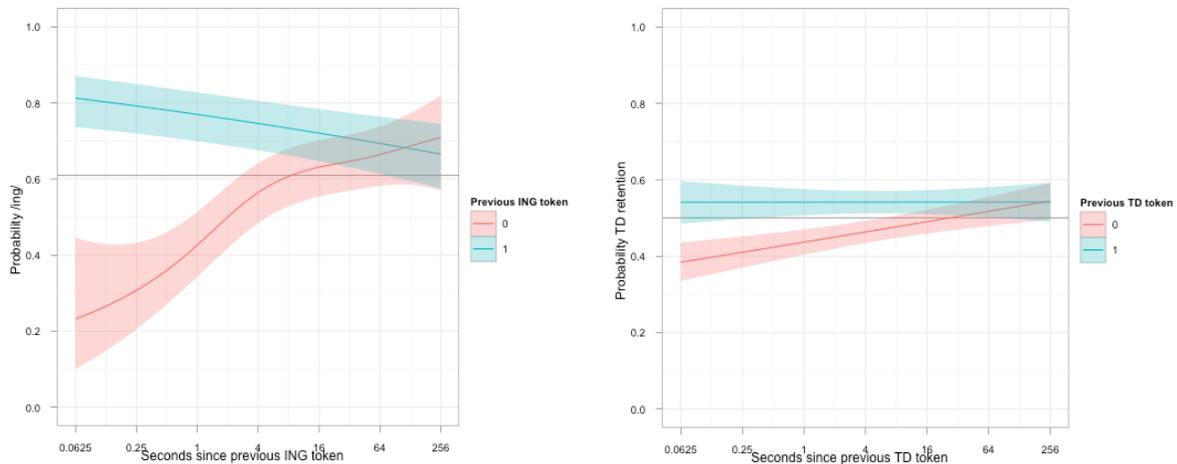


Figure 2. Time-decay of persistence effects on ING and TD in Buckeye; red and blue lines fit with cubic spline smoothing, gray line indicates overall application value.

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