

## Lexical specificity and temporal decay in intraspeaker priming of sociolinguistic variables

Meredith Tamminga, University of Pennsylvania

tamminga@ling.upenn.edu

While the sociolinguistic study of intraspeaker variation has traditionally focused on community-level quantitative patterns, there is growing interest in the cognitive mechanisms underpinning the production of such variation by individual speakers. In this paper I take within-speaker self-priming effects in sociolinguistic variation (tendency to repeat the same variant recently used) as a window on the psycholinguistic processes involved in online sociolinguistic production. This perspective produces evidence for complexity of two types: multiple linguistic variables producing what looks on the surface like one variable, and multiple cognitive mechanisms leading to overall repetitiveness in quantitative patterns of variation. I argue 1) that the well-studied sociolinguistic variables ING (*workin' ~ working*) and TD (*ol' ~ old*) both involve distinct phonological and morphological processes; and 2) that what is usually called “priming” in sociolinguistics actually originates from two cognitive mechanisms: episodic memory for whole words, and repetition priming of affixes stored abstractly in the lexicon.

The data (ING: N=6,613, TD: N=6,188) are coded auditorily from 122 conversational sociolinguistic interviews with white Philadelphians in the Philadelphia Neighborhood Corpus (Labov & Rosenfelder 2011). All reported effects come from logistic mixed effects regression with variant-by-speaker random slopes to account for different baseline rates of variation across speakers. I show that within both variables, words where the variable is coterminous with a verbal suffix (*work-ing*, *kick-ed*) behave differently from words where the word containing the variable is monomorphemic (*ceiling*, *old*). Variant choice in polymorphemic words does not trigger re-use of the same variant in subsequent monomorphemic words, and vice versa; token pairs where the prime and target are both either polymorphemic or monomorphemic, however, do show priming. On this basis I argue that variation in the polymorphemic cases involves morphological alternations (e.g. for ING, an *-in'* allomorph and an *-ing* allomorph), while the variation in the monomorphemic cases arises from phonological variation (e.g. for TD, a probabilistic stop deletion rule).

I then show that the intraspeaker priming of morphological variation has two characteristics that set it apart from priming of phonological variation. First, in the polymorphemic conditions for both ING and TD, the priming effect generalizes across different lexical items (use of *-in'* in *working* promotes subsequent use of *-in'* in *talking*). Second, the priming effect in these cases decays significantly over about a minute (Figs. 1 & 3). The priming effect for monomorphemic TD, in contrast, show variant choice facilitation only when the prime and target are the same word, but this lexically-specific effect is much longer-lasting (Fig. 2). Monomorphemic ING prime-target pairs occur almost exclusively with lexical repetition due to the rarity of monomorphemic ING words, making it impossible to compare them directly to TD; the behavior of the lexical repetition pairs, however, is consistent with the TD case. I suggest that this distinction is attributable to the cognitive basis of persistence for morphological and phonological variables. When the variable is a suffix, the allomorphs (e.g. *-in'* and *-ing*) are stored abstractly in the lexicon and are subject to repetition priming in lexical access, just like non-variable lexical items; this is consistent with demonstrations that suffix repetition induces priming in lexical decision experiments (Marslen-Wilson et al. 1996, Van Wagenen 2005). Phonological variation, however, is retained only as part of episodic memories of the details of specific instances of whole words. The additional operation of episodic memory in the polymorphemic lexical repetition contexts (since the phonological variables may also apply in polymorphemes) then gives rise to an observed lexical boost, whereby *workin' — workin'* shows a stronger effect than *workin' — talkin'*.

The multifactorial account of intraspeaker priming in sociolinguistic variation is consistent with experimental results showing distinct roles for episodic and abstract factors in repetition and morphological priming (Forster & Davis 1984, Kouider & Dupoux 2009). It suggests hypotheses to be tested in laboratory phonology experiments, for example building on Sumner & Samuel 2009, and evinces caution in the interpretation of sociolinguistic variation in experimental contexts. Pursuing such an account, particularly using conversational data to detect the operation of psycholinguistic processing as a complement to experimental work, promises to advance our understanding of how intraspeaker sociolinguistic variation is represented and produced by speakers at different grammatical levels, and how these differences may interact with memory and speech processing.

## References

- Marslen-Wilson, W., Ford, M., Older, L., and Zhou, X. (1996). The combinatorial lexicon: priming derivational affixes. In *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society: July 12-15, 1996, University of California, San Diego*, volume 18, p. 223–227. Psychology Press.
- Forster, K. I. and Davis, C. (1984). Repetition priming and frequency attenuation in lexical access. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 10(4): 680–698.
- Kouider, S. and Dupoux, E. (2009). Episodic accessibility and morphological processing: Evidence from long-term auditory priming. *Acta Psychologica*, 130:38–47.
- Labov, W. and Rosenfelder, I. (2011). The Philadelphia Neighborhood Corpus of LING 560 studies, 1972–2010. With support of NSF contract 921643.
- Marslen-Wilson, W., Ford, M., Older, L., and Zhou, X. (1996). The combinatorial lexicon: priming derivational affixes. In *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society: July 12-15, 1996, University of California, San Diego*, volume 18, p. 223–227. Psychology Press.
- Sumner, M. and Samuel, A. (2009). The effect of experience in the perception and representation of dialect variants. *Journal of Memory and Language*, 60:487–501.
- VanWagenen, S. (2005). The morphologically organized mental lexicon: further experimental evidence. Master's thesis, UCLA.

At right - Figure 1: The decay of priming over time by lexical repetition conditions for polymorphic ING pairs

Bottom left - Figure 2: The decay of priming over time by lexical repetition conditions for monomorphemic TD pairs

Bottom right - Figure 3: The decay of priming over time by lexical repetition conditions for polymorphic TD pairs

