The flock and the individual: Priming as an artifact of individual variation

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Studies of language variation and change have repeatedly found a strong conditioning effect where the use of one variant of a linguistic variable increases the probability of a subsequent occurrence of the same variant (Gries 2005, Poplack 1980, Scherre & Naro 1991, Szmrecsanyi 2005, Travis 2007, among many others). The purpose of this study is to demonstrate the importance of accounting for speaker-level variation in order to get an accurate measurement of such priming effects in variationist studies.

This paper studies this issue in data from the reduction of *para* to *pa'* in a corpus of the Spanish of Caracas (Bentivoglio & Sedano 1987). Only speakers that exhibited both the unreduced form *para* and the reduced form *pa'* were included, reducing the total number of speakers represented from 160 to 138.

The first step in this study was to look at evidence of priming for each speaker. Speakers in the data set can be classified according to whether they use both variants consecutively or they only use one variant consecutively. Some 37 speakers (26.8%) only produced one variant in a serial manner, meaning that more than a quarter of the data show no evidence of priming. Fisher's exact tests were then used to determine that only 15 (10.9%) speakers exhibited statistically significant patterns with respect to preceding occurrence. Consequently, few speakers in the sample present convincing priming effects when taken individually.

The second portion of this study looked at priming using generalized linear (mixed-effects) models with *para* reduction as the response variable. The predictor variables considered were frequency of *para* and the following word (*para que*, *para el*, etc.), grammatical function, following sound, following stress, following grammatical category, and previous occurrence. In the single-level GLM model, the previous occurrence predictor was highly significant with a preceding variant favoring the subsequent use of an identical variant. When a random effect for speaker was introduced in a mixed-effects model, previous occurrence still yielded a significant effect, but the associated coefficent was reduced in magnitude, suggesting that the priming effect is not as strong as the single-level model suggests. Additional models were fitted using data from only the 37 speakers that used only one variant sequentially. In the single-level GLM model, previous occurrence was again highly significant, but the mixed-effects model with a speaker random effect failed to exhibit such an effect.

The data for *para* reduction in Caraqueño Spanish do exhibit a priming effect; however, this effect is neither as strong nor as general as suggested by single-level models. A large portion of the effect identified by the single-level model should instead be attributed to the wide range of reduction rates observed from different speakers, which is uncontrolled. The mixed-effects model can account for the behavior of different speakers and, therefore, it provides a more realistic estimation of the priming effect on the data. Consequently, previous findings with respect to priming that do not account for individual variation should be reexamined accordingly.

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