

Consonant lenition and phonological recategorization

Even though Linguistics became a scientific discipline through the study of sound change, we still cannot say that we understand the phenomenon of sound change completely. In this paper we focus on a common reductive process, the lenition of intervocalic stops as found, for instance, in Western Romance. Even in the case of such frequent historical changes there are a number of unresolved questions:

1. How does phonological recategorization take place?
2. Is lenition restricted to word-internal contexts at the initial stages of the process?
3. Is there evidence for lexical diffusion or does lenition apply uniformly to all items with the relevant phonetic context?

To try to shed some light on these issues, in this paper we consider the incipient voicing of intervocalic stops that we find in some contemporary Spanish varieties. This is based on the hypothesis that the prelude to sound change can be found in synchronic variation and that the analysis of variation in speech may illuminate aspects of older, accomplished sound changes.

As our source of Spanish data we have used a corpus of high-quality recordings of both unscripted and scripted speech from the same 20 native speakers of Spanish from Spain. We have also analyzed unscripted speech from 12 speakers of High Navarrese Basque, a Basque variety where intervocalic /ptk/ are frequently voiced. Notice that, since intervocalic /bdg/ are approximants in Spanish (and Basque), the voiced realization of /ptk/ does not necessarily imply phonological merger. We then carry out an acoustic analysis intended to determine degree of weakening, especially among voiced tokens of /ptk/, and the degree of overlap of voiced realizations of /ptk/ with phonemic /bdg/ in different contexts. For this, we consider two acoustic correlates of degree of constriction, intensity difference in CV and maximum rising velocity in the intensity trajectory (measurement adapted from Kingston 2008, with some modifications), in addition to consonant duration. Figure 1 shows the results from one of our analyses.

Our results show that even though intervocalic /ptk/ are voiced with some frequency in unscripted Spanish speech, we cannot speak of generalized merger with /bdg/ in this language, since the two phonological series differ in constriction degree and duration even when /ptk/ are fully voiced. The smallest difference was found in the case of the velars. This was replicated for Basque.

Regarding the question of whether, at this early stage in the change, the voicing of stops is restricted to the word-internal context. The answer is negative: Voicing takes places equally inside words and across word-boundaries, as long as the target segment is in the intervocalic context. We thus find support for Weinrich's (1958) suggestion that the blocking of the sound change across word boundaries that we find in Western Romance voicing (e.g. LUPU > *lobo* vs. ILLA PORTA > *la puerta*, not ***la buerta*) must be a secondary development, linked to rephonologization, after a first stage where phonetic voicing applied without regard to word boundaries.

We believe we have evidence for a model of sound change where the online variable reduction and overlap of articulatory gestures in casual speech (see Browman and Goldstein 1991) is at some point conventionalized as a specific process of phonetic reduction. This conventionalization takes place as the Neogrammarians postulated: phonemes are affected in

specific contexts. The conventionalization of the phonetics may later be followed by phonemic recategorization. This recategorization, on the other hand, operates on specific lexical units, not on phonemes across-the-board.

The claim is thus that conventionalization is Neogrammarian, i.e., phonemes are affected; but recategorization is lexically gradual, i.e., words change. Conventionalized lenition processes apply across the board in a first stage. Lexical effects and word-boundary effects are produced by the recategorization of the most extreme variants generated by the lenition process.

References

- Browman, Catherine and Louis Goldstein. 1991. "Gestural structures: distinctiveness, phonological processes and historical change". In: I. Mattingly & M. Studdert-Kennedy, eds., *Modularity and the Motor Theory of Speech Perception*, pp. 313-338.
- Kingston, John. 2008. "Lenition." *Selected Proceedings of the 3rd Conference on Laboratory Approaches to Spanish Phonology*, ed. by Laura Colantoni and Jeffrey Steele, 1-31. Somerville, Mass.: Cascadia Proceedings Project.
- Weinrich, Harald. 1958. *Phonologische Studien zur Romanischen Sprachgeschichte*. Münster: Aschendorff.

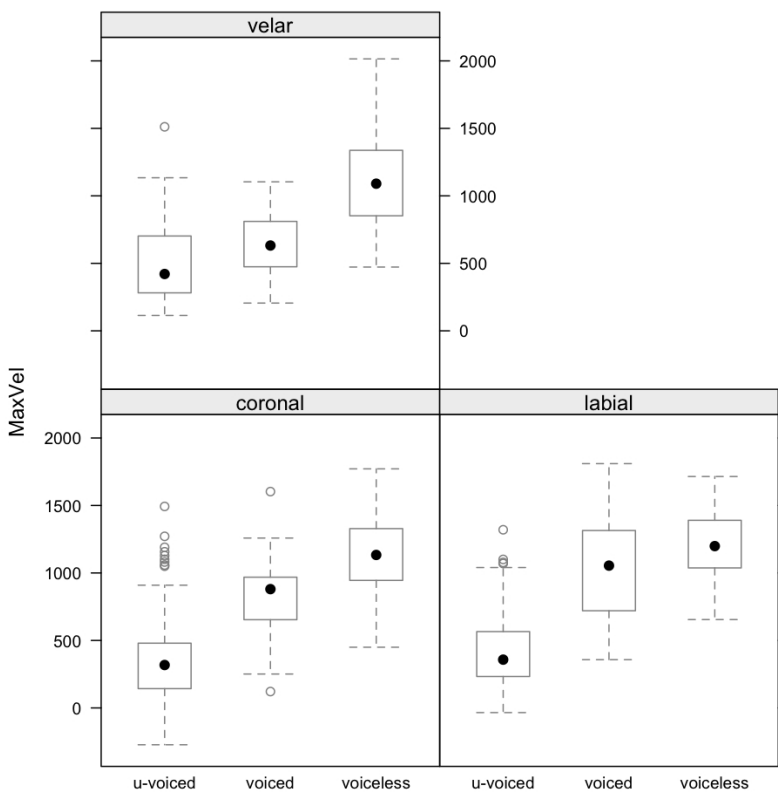


Figure 1. Spanish spontaneous speech. Boxplots of maximum rising velocity (MaxVel) in the intensity trajectory between the consonantal minimum and the vocalic maximum of /ptk/ (realized as voiceless or voiced allophones) and /bdg/ (u-voiced) as a function of place of articulation (velar /kg/, coronal /td/, bilabial /pb/).