

Durational conditionings in historical assibilation of rhotics

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Rhotics are known to vary both synchronically and diachronically in ways that are surprisingly similar cross-linguistically. Changes in the place of articulation of trills, from alveolar to uvular/velar are attested historically in languages like French, German, Danish, northern dialects of Italian and Puerto Rican Spanish. In other languages, like English and Costa Rican Spanish, a historical alveolar trill has changed into an alveolar/retroflex approximant with varying degrees of affrication depending on the context. Yet another common process affecting rhotics is assibilation, by which an alveolar trill develops into some kind of (post)alveolar or retroflex fricative; this change is attested in southern Swedish and in various Caribbean and Andean Spanish dialects. These changes have been ascribed to a variety of causes, including sociolinguistic, language contact, and acoustic/articulatory. Concerning assibilation in particular, an explanation in phonetic terms is provided by Widdison (1998), who, based on Recasens (1991), claims that assibilation might be conditioned by the inherent complexity of trill articulation so that failure to maintain the strict articulatory and aerodynamic configuration required for trilling can result in a fricative.

The present study follows up on Widdison (1991)'s proposal that the complexity of trills and the difficulty in maintaining articulatory tension and position is at the root of assibilation. However, a new dimension is added that is assumed to play an important role in this, as well as many other articulatory reduction processes, namely, duration. The temporal dimension has been shown to be a crucial aspect of gestural organization (Browman & Goldstein, 1992). Romero & Martín (2003) showed the possible perceptual effects of duration changes in the perception of tongue-tip consonants as a basis for historical rhotacism. Along similar lines, the current study hypothesizes that historical rhotic assibilation may have been the result of a significant reduction in the duration of trills, which in turn can cause the above-mentioned difficulty in maintaining articulatory tension and position. In order to test this hypothesis an experiment was devised that manipulated speaker rate with the prediction that a faster rate would induce the collapse of articulatory cohesion for trills, which would result in fricatives.

Acoustic data were gathered from three native speakers of peninsular Spanish. The data consisted of real words which included the sequences VrV, VrV, VrnV and VrlV where V was one of the five vowels of the language /i, e, a, o, u/. Speakers were instructed to read the words in carrier sentences at three different speeds, normal, fast and superfast at intervals of 3 seconds, 2 seconds, and 1 second respectively. Preliminary results show clear failure to maintain trilling in the fast and superfast speaking rates, as shown by lack of the characteristic tongue-tip contact pattern. This failure, however, was also present in the normal speaking rate, especially in the context of high vowels, mostly /i/. These results are taken as evidence that, while assibilation may indeed be the result of the overall collapse of trill articulation, it is likely that the process could be initially triggered by a reduction in duration.

References

- Browman, Catherine & Louis Goldstein (1992). Articulatory Phonology: An overview. *Phonetica* 49:3-4, 155-180.
- Recasens, Daniel (1991). On the production characteristics of apicoalveolar taps and trills. *Journal of phonetics* 19, 267-280.
- Romero, Joaquín & Sidney Martín (2003). Articulatory weakening as basis of historical rhotacism. In M.J. Solé, D. Recasens & J. Romero (Eds) *Proceedings of 15th International Congress of Phonetics Sciences*. Barcelona: Causal Productions, 2825-2828.
- Widdison, Kirk. (1998). Phonetic motivation in Spanish trills. *Orbis: bulletin international de documentation linguistique* 140, 51- 61.