

## Enhanced co-articulatory labialization of /t<sup>s</sup>/ in Argentine Danish

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This paper presents an acoustic study of the Argentine Danish affricate /t<sup>s</sup>/. It suggests that an enhanced co-articulatory effect (Hyman 2015) has taken place in Argentine Danish. In my talk will discuss the factors that may have led to this development in, considering a possible influence from Spanish vis-à-vis the possibility of a language internal development in a heritage language like Argentine Danish (Kühl et al. 2019).

The study is based on an acoustic analysis of 2,283 occurrences of /t<sup>s</sup>/, extracted from the speech of 42 speakers (26 women, 16 men). The Hertz-based measure Centre of Gravity (CoG) is used as the acoustic measure as it has been shown to be useful for measuring differences in frication noise for fricatives (Levon et al. 2017). The different auditory characteristics of an alveolar affricate /ts/ and a palatal affricate /tʃ/ is dependent on the difference in the size of the space between the place of contact and the place of exit of the airstream, the lips. (Palatal /tʃ/ may sound ‘darker’ than an alveolar or a dental affricate). The difference in the frication noise is reflected by CoG values; palatal affricates will have low CoG values, alveolar affricates higher CoG values.

From auditory inspection, Argentine Danish /t<sup>s</sup>/ resembles phonetically a palatalized /t<sup>s</sup>/, [t<sup>ɕ</sup>]. However, the CoG values for the 2,283 tokens are significantly lower before the rounded vowels /y ø œ u o ɔ ʌ ɒ/ than before the unrounded vowels /i e ε a α/. This effect of labialization significantly overrides the effect of vowel height and vowel position (front vs back), pointing to labialization rather than palatalization as the important coarticulatory gesture of the phonetic characteristics of Argentine Danish /t<sup>s</sup>/.

Coarticulatory labialization on a consonant from a following rounded vowel is expected but a supplementary study of comparison with /t<sup>s</sup>/ in Denmark Danish showed that the effect of labialization of /t<sup>s</sup>/ was significant greater in Argentine Danish. Moreover, the average CoG for /t<sup>s</sup>/ in Argentine Danish before rounded vowels is lower than before the palatal affricate /t<sup>ɕ</sup>/. This suggests that it is the rounding (or protrusion) of the lips in the context of rounded vowels that gives Argentine Danish /t<sup>s</sup>/ its phonetic characteristics, giving the allophone [t<sup>sw</sup>] a special status in the phonetic system.

Hyman, Larry M. 2015. Enlarging the scope of phonologization. In Alan C.L. Yu (ed.), *Origins of Sound Change: Approaches to Phonologization*, 3–28. Oxford University Press: Oxford.

Kühl, Karoline, Jan Heegård Petersen & Gert Foget Hansen. 2019. The Corpus of American Danish: A language resource of spoken immigrant Danish in North and South America. *Language Resources and Evaluation* 54, 831–849. <https://doi.org/10.1007/s10579-019-09473-5>

Levon, Erez, Marie Maegaard & Nicolai Pharao. 2017. Introduction: Tracing the origin of /s/ variation. *Linguistics* 55(5), 979–992. <https://doi.org/10.1515/ling-2017-0016>.