

Temporal organization of initial fricative clusters in simultaneous bilingual speakers

Conceição Cunha, Lorenzo Spreafico,
Free University of Bozen-Bolzano
cunha@phonetik.uni-muenchen.de

The main aim of this paper is to investigate whether bilingual speakers use two different timing patterns for the same sequence of consonants as has been showed for monolingual speakers of the two languages they speak. Indeed, articulatory studies attested simplex timing of consonants in /sC(C)/ clusters (Hermes, 2013), while Tyrolean, in the light of its genetic and geographical proximity to German, is expected to present similar complex timing of consonants in sibilant clusters (Poupier, 2012). How bilingual speakers equally exposed to both languages since birth deal with these timing differences is completely unclear. This will be the main concern of the paper.

Unlike previous research, we examine timing patterns and possible physical correlates of syllabic organization in Italian and Tyrolean by means of the ultrasound tongue imaging technique (UTI). Data are collected using an Ultrasonix Tablet system (100 Hz, FOV 148°). Five female bilingual speakers born and living in the South Tyrolean Underland are asked to read real words three times from a randomized list. The list includes real Italian (n= 66) and Tyrolan (n= 93) words containing /C(C)/ and/sC(C)/ clusters in word initial position. Tongue contours are extracted from raw US images using the AAA software (Articulate Instruments, 2012). To extract dynamic information, gestural landmarks are identified using the PD-IWT algorithm (Vietti et al., *in preparation*). First results attested greater differences between /C(C)/ and/sC(C)/ sequences in Tyrolean than in Italian.

References:

- Articulate Instruments Ltd 2012. Articulate Assistant Advanced User Guide: Version 2.14. Edinburgh, UK: Articulate Instruments Ltd.
- Hermes, A., Mücke, D. & M. Grice 2013. Gestural coordination of Italian word initial clusters -The case of 'impure s'. *Phonology*. 30(1).
- Poupier, M. 2012. The gestural approach to syllable structure: Universal, language- and cluster-specific aspects. In Fuchs, Weihrich, Pape, Perrier (ed.s) *Speech Planning and Dynamics*. Peter Lang. 63-96.