

DURATIONAL EFFECTS OF BOUNDARIES IN ITALIAN FRICATIVES

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INTRODUCTION

GOAL OF THE STUDY

To systematically examine durational effects in Italian fricatives as a function of two positional factors: position with respect to 1. stress and 2. to Intonational phrase (IP) boundary.

CONSONANT DURATION in ITALIAN

Consonant (C) duration in Italian is used for:

- Lexical contrast (gemination) [1] [4]
 - *pala* vs. *palla* – ‘ball vs. shovel’
 - Post-lexical effects *Raddoppiamento Sintattico* (RS) [1-4].
 - [par'lo l'a'ti:no] - ‘spoke Latin’
 - ['tre 'k:a:se] - ‘three houses’
- => Is it also used in marking IP boundary?

RESEARCH QUESTION

Do native speakers of RS varieties of Italian show durational differences both in relation to RS and to IP boundary?

HYPOTHESES

- H1: C duration varies with respect to:
 - i. stress: longer duration in **adjacent stress position** ('σ 'σ) relative to non-adjacent ('σ σ 'σ) [4][5].
 - ii. IP-position: longer duration in IP-initial position relative to non-IP-initial [7 for Korean], only for non-adjacent stress condition [6].
- H2: C duration varies only with respect to (i).

METHOD

MATERIALS

	C in non-IP-initial position	C in IP-initial position
Adjacent stress (AS)	<i>Alla festa Nicolò [por'to 'feta] e olive con cinque bottiglie di vino. (RS)</i>	<i>Di specialità Nicolò ne [por'to]. ['feta] e olive furono divorate rapidamente.</i>
Non-adjacent stress (nonAS)	<i>Alla festa Nicolò ha [por'tato 'feta] e olive con cinque bottiglie di vino.</i>	<i>Di specialità Nicolò ne ha [por'tate]. ['feta] e olive sono state divorate rapidamente.</i>

Tested word-initial consonants

- Singleton onset fricatives: [f]-[s] and Cluster onset fricatives: [fr]-[sp]-[sk]

PARTICIPANTS – PROCEDURE – ANALYSES

8 Italian native speakers (7 f.) participated in the recordings:

- 4 from Rome, 1 from Florence.
- 2 from Naples, 1 from Marsala (Sicily).

Presentation of sentences:

- in two blocked lists.
- in a pseudo-randomized order.

Annotations

- semi-automatic annotation in SPPAS [8]
- checked for alignment errors.

Statistical analyses: linear mixed-effects models [9]

RESULTS

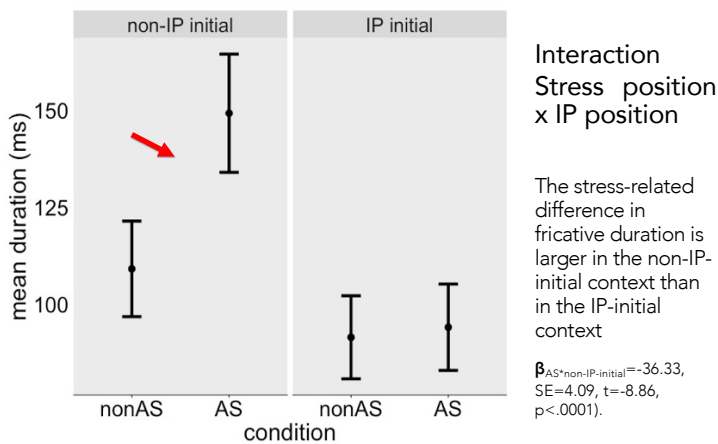


Fig. 1. Mean fricative duration as a function of stress position (adjacent vs. non-adjacent) and type of boundary (non-IP initial vs. IP initial).

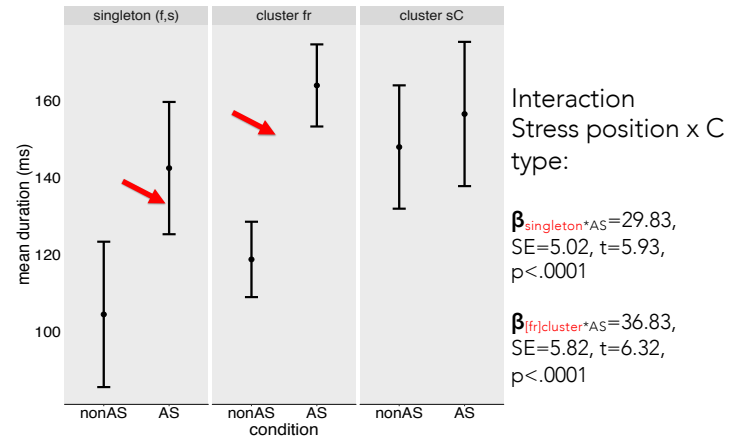


Fig. 2. Mean fricative duration as a function of stress position (adjacent vs. non-adjacent) and type of consonant (singleton [f], [s], cluster [fr], cluster [sC]) in non-IP initial position.

DISCUSSION AND CONCLUSION

- The results support H2: duration signals proximity to stress (cf. [2][4]) for all onset types except the so called ‘impure’ [s] in [sC] clusters (cf. [3]).
 - Fricatives are not longer in IP-initial position, even outside the context of RS.
- In these RS varieties of Italian, prosodic strengthening is not realized through increased fricative duration. Rather, duration marks morphological word boundaries via RS [3][6].

[1] Bertinetto, Loporcaro (2005) The sound pattern of standard Italian, as compared with the varieties spoken in Florence, Milan and Rome. *JIPA* 35. 131-151 / [2] Marotta (1986) Rhythmical constraints on syntactic doubling. *Journal of Italian Linguistics* 8. 35-52 / [3] McCrary (2004) Reassessing the role of the syllable in Italian phonology: An experimental study of consonant cluster syllabification, definite article allomorphy and segment duration. PhD dissertation, UCLA / [4] Payne (2005) Phonetic variation in Italian consonant gemination. *JIPA* 35/2. 153-181 / [5] Grice, D’Imperio, Savino, Avesani (2005) Strategies of intonation labelling across varieties of Italian. In Sun-Ah Jun (Ed.) *Prosodic typology I*. Oxford UP. 362-389 / [6] D’Imperio, Gili-Fivela (2003) How many levels of phrasing? Evidence from two varieties of Italian. In Local, Ogden, Temple (Eds.) *Papers in Laboratory Phonology VI*. Cambridge UP. 130-144 / [7] Cho, Keating (2001) Articulatory and acoustic studies on domain-initial strengthening in Korean. *Journal of Phonetics* 29. 155-190 / [8] Bigi (2015) SPPAS - Multi-lingual Approaches to the Automatic Annotation of Speech. *The Phonetics – International Society of Phonetic Sciences* 111-112. 54-69. [9] Bates, Mächler, Bolker, Walker (2014) Package lme4: Linear Mixed-Effects Models using Eigen and S4. R package version 67.