Gemination in the regional Italian of Piedmont

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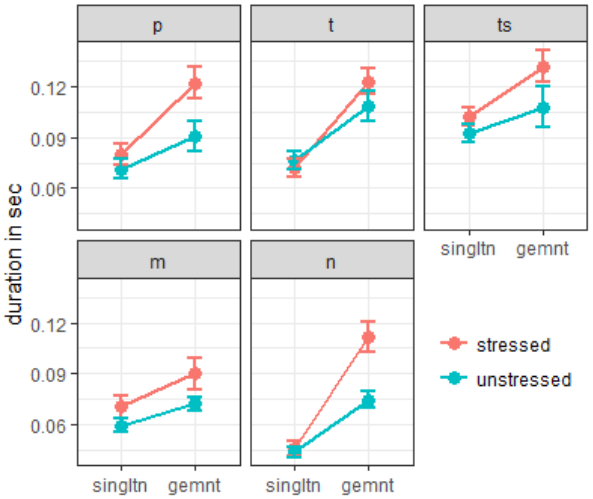
Motivation. Gemination is well described for standard Italian, as well as for regional varieties of central and southern Italy. Instead, information is sparse and sometimes anecdotal (e.g. '*many northern speakers do not produce geminates*', Payne, 2005:155) for varieties of northern Italian. Other reliable sources claim that speakers from north-western Italy do produce geminates, but differently from central and southern varieties. More specifically, geminates are said to be shorter in Turin than in Standard Italian (Canepari, 1980), and northern speakers are said to geminate according to spelling, thereby not entirely reflecting standard patterns for intrinsic geminates [t͡s], [dz], [ʃ], [ʎ], [ɲ] (Bertinetto & Loporcaro, 2005). Acoustic or articulatory measurements documenting gemination patterns in northern Italian (Stevens, 2011) are scant and, to the best of our knowledge, inexistent for the specific variety of regional Italian spoken in Piedmont (with the exception of one speaker in Zmarich & Gili Fivela, 2005). We aim here to examine gemination patterns for this variety with the intent to provide (a) a falsification of anecdotal/naive claims about (de-)gemination in northern Italian, and (b) a useful term of comparison for other regional and dialectal varieties.

Data and methodology. We tested gemination on controlled target words within read speech collected by us, and on dialogic productions from the CLIPS corpus (Albano Leoni, Cutugno & Savy, 2005). We recorded 15 relatively young speakers (age: 25.57 ±4.3, gender: 13F) of regional Italian who were born in western Piedmont (provinces of Turin, Cuneo and Asti – excl. Provençal or Franco-Provençal areas) and have lived there for their whole life. Three speakers reported speaking Piedmontese vernacular. All speakers read the same Italian text (419 words), in which we had inserted 48 target words with 24 singleton consonants ([p] [t] [m] [n], 6 each) and 24 geminate consonants in matching phonological contexts (number of syll, following and preceding V, stress condition), e.g. '*di<u>t</u>e-fri<u>tt</u>e*', '*la<u>t</u>itudine-a<u>tt</u>itudine*'. Since intrinsic geminates are by definition long in intervocalic position, we included 6 extra word pairs where [t͡s] was intervocalic vs. preceded by a sonorant, e.g. '*atten<u>z</u>ione-spedi<u>z</u>ioni*'. The text was construed so that target words would not be adjacent to predictable prosodic boundaries to avoid the confound of final lengthening. An expected phonemic transcription of the text[1] with geminates as they would be found in Standard Italian (except for *raddoppiamento fonosintattico*) was forced-aligned to the acoustic signal of each speaker via SPPAS, and then manually revised. The duration of target singletons and geminates was extracted with a Praat script developed by the first author, and imported into R for analysis. Additionally, we analysed geminates and singletons produced in a less controlled but more ecologic setting using dialogues from the CLIPS corpus. The durations of all singletons and geminates for Turin, Rome and Florence were extracted and compared.

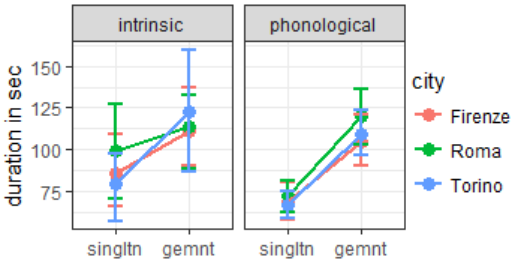
Results and discussion. Results for the 48 target geminates and singletons in our recordings are shown in figure 1, and clearly prove that geminates are longer than singletons, both in stressed and unstressed conditions. In order to test this result, we built a linear mixed-effect model with C duration as dependant variable; gemination, stress, consonant as fixed effects; participant and word as random effects.

[1] For better accuracy, we did not use the automatic transcriptions provided by SPASS; this tool was only used for the forced-alignment. Instead, the transcription was manually done by one of the authors.

We found that the effect of gemination was highly significant (p<.001). The charts also show that the opposition between geminates and singletons is more evident under stress, and in fact we found a significant interaction between stress and gemination (p<.01). Finally, post-hoc pairwise comparisons with Tukey correction revealed that the duration of geminates and singletons differs significantly in productions of every speaker (p<.05); it can therefore be said that all our participants produce a phonological opposition distinguishing singletons and geminates. On average, the 4 phonological geminates tested were 53% longer than singletons, with significant differences between them. The intrinsic geminate [t͡ːs] was 29% longer than [t͡s]. We also examined the effect of gemination on the preceding V and found it to be less systematic. Due to space constraints here, this will only be discussed at the conference.



As for dialogic data from CLIPS, the charts show that gemination in Turin is comparable to Florence and Rome. In these data, phonological geminates are 73%, 69%, 64% longer than singletons in Turin, Florence, Rome respectively. In order to test these results, we built a linear regression model for predicting consonant duration on the basis of gemination, consonant, and city. It is not surprising that all three predictors were highly significant (p<.001), while interestingly the interaction between city and gemination was not significant (p=.12); this suggests that gemination in Turin is not different from Florence and Rome, although admittedly a certain number of confounds may be affecting the dialogic data. Our results clearly confirm the presence of gemination in the regional Italian spoken in Piedmont, and CLIPS data seem to suggest that gemination in Turin is comparable to central varieties of Italian. Hopefully, such results can provide a useful baseline for future studies about production and perception patterns of gemination in Northern Italy.



References

Albano Leoni, F., Cutugno, F., & Savy, R. (2005) *CLIPS corpus* (Corpora e Lessici di Italiano Parlato e Scritto). Online at http://www.clips.unina.it.

Bertinetto, P.M. & Loporcaro, M. (2005) The sound pattern of Standard Italian, as compared with the varieties spoken in Florence, Milan and Rome. *JIPA*, 35(2), 131-151.

Canepari, L. (1980) *Italiano standard e pronunce regionali*. Cooperativa libraria editrice degli studenti dell'università di Padova.

Payne, E.M. (2005) Phonetic variation in Italian consonant gemination. *JIPA*, 35(2), 153-181.

Stevens, M. (2011) Consonant Length in Italian: Gemination, Degemination and Preaspiration. In: *Sel. Proc. of the 5th Conf. on Lab. Appr. to Romance Phonology*, 21-32.

Zmarich, C. & Gili Fivela, B. (2005) Consonanti scempie e geminate in italiano: studio cinematico e percettivo dell'articolazione bilabiale e labiodentale. *Proc. AISV2004*, 429-448.