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On the role of glottal stop: from boundary marker to correlate of focus

An experimental study on native and non-native Italian and French



Bianca Maria De Paolis*
Bianca Abbà* Valentina De Iacovo*

*LFSAG - Università degli studi di Torino

*SFL - CNRS/Université Paris 8



1. Introduction

Glottalization is a common marker of **prosodic boundaries** in many languages (Gordon & Ladefoged 2001), and its presence has been observed in Romance as well (Contini *et al.* 2005).

In IT and FR, glottalization can occur in presence of **pitch accents** and **“emphatic words”** (Van Santen & D’Imperio 1999), which are usually described as prosodic markers of **focus**.

Is there a **direct link** between **focus** and **glottalization**?

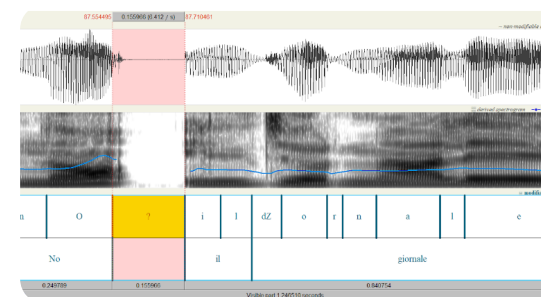
$$\text{occurrence of glottalization} = \text{phrase level} < \text{phrase level} + \text{focus}$$

2. Materials & metrics

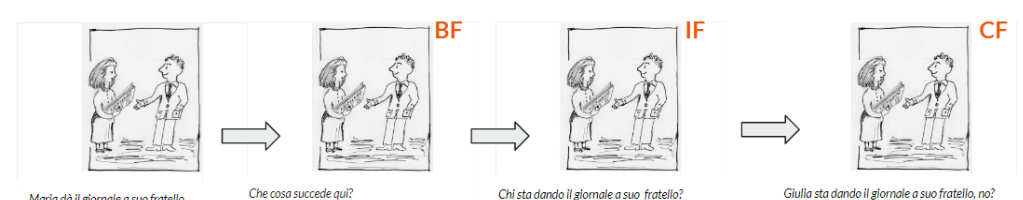
4 groups: **native Italian sp.** (ITL1), **native French sp.** (FRL1), French learners of **Italian L2** (ITL2), Italian learners of **French L2** (FRL2).

Task-elicited speech (stimuli adapted from Gabriel 2010).
3 **focus conditions**: *broad foc.* (bf), *narrow identificational foc.* (if), *narrow corrective foc.* (cf).
different **syntactic roles** (and positions): *subject, object, verb, other arguments*.

| Group | N. of speakers |
|-------|----------------|
| ITL1 | 15 |
| FRL1 | 15 |
| ITL2 | 5 |
| FRL2 | 5 |

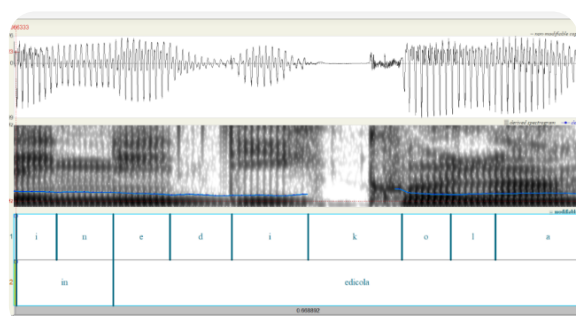


Example of GS between the vowels [o] and [i] in a corrective-focus utterance “No, il giornale” (“No, the newspaper”)

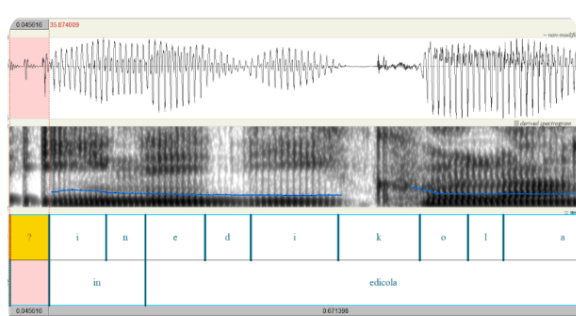


Manual detection of **glottal stops** (GS): presence of **at least two acoustic cues** among *aperiodicity, diplophonia, creak, silent gap* (Dilley *et al.* 1996).

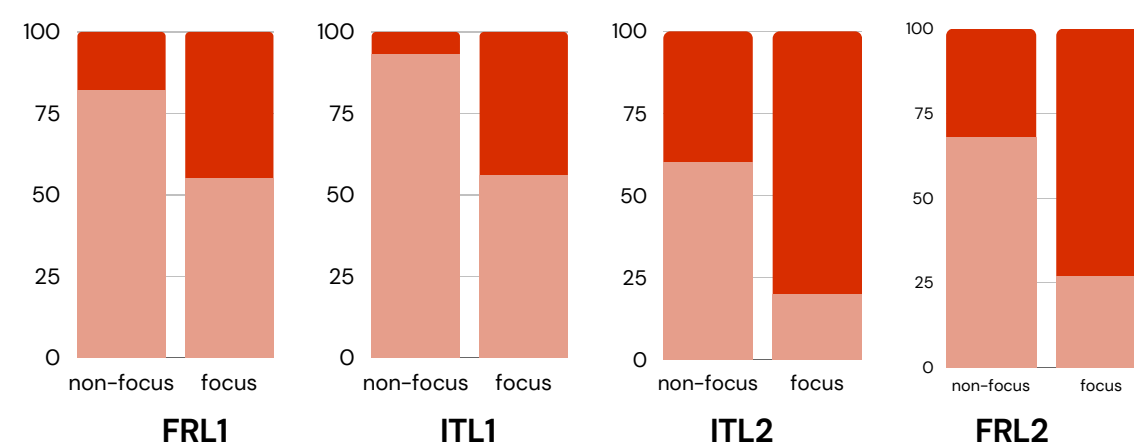
3. Results



Spectrogram of the phrase “in edicola” (“at the newsstand”) uttered by an Italian speaker in a **non-focus** context.



Spectrogram of the phrase “in edicola” (“at the newsstand”) uttered by an Italian speaker in a **narrow focus** context, with **initial GS**.

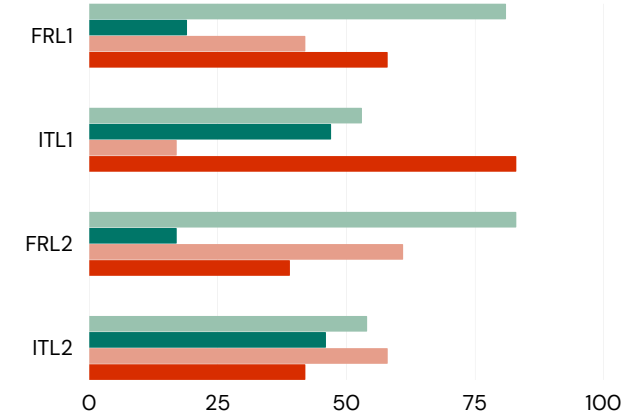


Presence (orange) and absence (pink) of **glottal stops** in correspondence of **prosodic boundaries** for 2 conditions: non-focus and narrow focus (identification or correction)

Likelihood ratio & a posteriori probability (Bayes' Theorem):

Italian L1: 6.28; 89%
French L1: 2.68; 69%

Focus & F0 movement



Unmarked and **marked** F0 contours produced by the 4 groups in 2 conditions: **non-focus** vs **narrow focus** (see De Paolis *et al.* 2022)

4. Conclusions

The results are highly significant for all groups, although with **differences between L1 and L2**.

When a phrase is under focus, the probability of observing a GS in correspondence with its boundaries increases considerably.

Glottal stop does not necessarily occur in presence of pitch accents: opposedly, it often surfaces as the **only phonetic correlate** of *in-situ* focalization (in absence of major FO movements).

Since it is not the consequence of pitch accent, its presence could be linked to other physiological reasons (see Lennes 2006).

Our findings go in the direction of Féry (2013) and her definition of “focus as prosodic alignment”. A possible strategy for realising alignment is then the **insertion or strengthening of a prosodic boundary**, and it is achieved through the use of GS.

L2 groups: more occurrences of GS, but in correspondence of **pauses** and **self-repairs**

References

- Contini, M., Carpitelli, E., Romano, A. 2005. Des occlusives glottales dans l'espace roman. *Estudios Ofrecidos a A. Quilis*, 1.
- De Paolis, B. M., Santiago, F., Andorno, C. 2022. Syntaxe ou prosodie? Une étude préliminaire sur l'expression de la focalisation étroite par les apprenants italo-phones de français L2. *Proc. XXXIVe Journées d'Études sur la Parole - JEP 2022*.
- Dilley, L., Shattuck-Hufnagel, S., Ostendorf, M. 1996. Glottalization of word-initial vowels as a function of prosodic structure. *Journal of Phonetics*, 24.
- Féry, C. 2013. Focus as prosodic alignment. *Natural Language & Linguistic Theory*, 31 (3).
- Gabriel, C. 2010. On focus, prosody, and word order in Argentinean Spanish: A minimalist OT account. *Revista virtual de estudios da linguagem*, 4.
- Gordon, M., Ladefoged, P. 2001. Phonation types: a cross-linguistic overview. *Journal of Phonetics*, 29.
- Lennes, M., Aho, E., Toivola, M., Wahlberg, L. 2006. On the use of glottal stop in Finnish conversational speech. In: Aulanko, R., Wahlberg, L., Vainio, M. (eds), *Fonetiikan päivät - The Phonetics Symposium 2006*.
- van Santen, J., D'Imperio, M. 1999. Positional effects on stressed vowel duration in Standard Italian. *Proc. 14th ICPhS San Francisco*.



De Paolis *et al.* 2022