INTRODUCTION

A critical issue for the phonological treatment of place assimilation is the amount of variability that an increasing body of experimental investigations has repeatedly shown to characterize the phonetic output of assimilation (e.g., Liski 1992; Fuchs & Hardcastle 2002, Stephenson & Harrington 2002; Kochetov & Pouplier 2008).

Variability takes the shape of:

- Optionality of the rule: cross-subject & within-subject variation
- Gradience in phonetic output: Intermediate forms between unassimilated and assimilated consonants demonstrate that assimilation processes may be incomplete and that articulatory gestures may be only partially assimilated or reduced.

BACKGROUND

Italian Nasal place assimilation in consonant clusters is context-induced and allophonic: Ns are said to categorically assimilate their PoA to that of the following consonant, both within and across words. In /n/ and /ŋ/ clusters, the N is generally held to be velar; a velar N does not exist as a phone; non-homorganic clusters tend to be avoided.

Articulatory evidence

Farnetani & Busa (1994), EPG study: assimilation appears to be categorical in Italian, i.e. complete in all its occurrences and for all the subjects (3). Calamai & Ricci (2010 in press), acoustic and EPG study of temporal / spatial reduction as a function of speech rate variation in Italian (/nN/), /ŋN/ / Nŋ/ / Nḫ/ clusters. In /ŋ/ clusters are almost categorically homorganic, with only a few "unusual patterns" in the fast speech of one of the subjects.

English differs structurally and articulatorily from Italian, inasmuch as it obeys an obligatory rule of place homorganicity in lexical clusters (e.g., /ðŋtʃ/, /æɡŋʃ/, /ʊŋɡ/), to an optional process of place assimilation in post-lexical contexts (e.g., /prɛŋf/ vs. /prɛŋfl/ or /prɛŋf/ vs. /ɡrɛŋf/). Several EPG studies have shown that postlexical assimilation is variable across speakers as well as in the speech of individual speakers, and can be gradually implemented (residual velar gestures in partially assimilated clusters) (Barry 1991; Stephenson & Hardcastle 2002; Ellis & Hardcastle 2002).

AIMS

In this study, we aim at verifying whether sources of variability may be found in Italian lingual gestural patterns involved in N-to-V assimilation, as a consequence of contextual and stylistic variables such as speech rate variations and presence/absence of a word boundary.

Predictions:

- Normal Speech should exhibit a higher degree of assimilation compared to slow careful speech; since intrinsic duration of segments and gestural integrity are reduced when speech rate is higher.
- Word-internal clusters should exhibit a higher degree of assimilation compared to postlexical clusters, insofar as an intervening boundary is expected to distorte segments coarticulation
- Variability can be explained by a dynamic picture of the gestural organization across the cluster, beyond strict nonmordirectionality of assimilation?

MATERIALS AND METHODS

Sixteen meaningful Italian words containing a N-to-V cluster were embedded in short isosyllabic frame sentences (e.g., ho momento davvero). Posth stops could either be voiced (N/hŋ/) or voiceless (N/hk/). Target words were selected in order to preserve an invariant vocal context (/Ca/t or /Ca/ɑ/). Clusters could be either in word internal position, or across a word boundary (e.g. /moca/ or /famoca/).

Subjects: Five native Italian speakers with no reported speech, language or hearing pathology, aged 30-35, speaking a Tuscan variety of Italian, were recorded separately in a...