

Spanish nasal assimilation revisited: A cross-dialect electropalatographic study

Recent instrumental investigations of place assimilation in a variety of languages revealed that these processes can be implemented categorically or gradiently, depending on various general and language-specific factors (Farnetani & Busá, 1994; Ellis & Hardcastle, 2002, among others). In the only systematic articulatory study of Spanish nasal assimilation, Honorof (1999) found that the process varied between categorical and gradient as a function of the coronal/noncoronal place of articulation of the following consonant. Specifically, his EMMA data collected from 4 Peninsular Spanish speakers showed that the tongue tip gesture of the nasal /n/ seemed to assume the exact place and stricture of the following noncoronal gesture (e.g. *digan paja* → *diga*[m p]*aja*) and to blend variably with the place and stricture targets of the following coronal gesture (e.g. *digan tajo* → *diga*[ⁿɲ t]*ajo*, *digan saga* → *diga*[ⁿʃ s]*aga*). The apparent partly-categorical/partly-gradient status of the process presents a challenge for current models of assimilation which predict either discrete feature spreading or continuous gestural blending (e.g. Padgett, 1995; Browman & Goldstein, 1992), while also questioning some aspects of previous auditorily-based descriptions of Spanish (Navarro Tomás, 1970; Harris, 1969). Honorof's findings with respect to gradience, however, may not be conclusive, as the set of coronals used in the study was limited to dentals/alveolars, and the EMMA method provides a rather indirect record of stricture assimilation, particularly before coronal fricatives.

In this study we use electropalatography (EPG) to investigate Spanish nasal assimilation in two dialects that differ in the realization of syllable-final nasals – as alveolar [n] in Argentine, and as velar [ŋ] in Cuban. Across words, these nasals can occur before various consonants, including coronals that differ in place and stricture, thus allowing for a systematic investigation of assimilation patterns. Five speakers from Buenos Aires and 3 speakers from Havana were recruited for the study. The stimuli included meaningful phrases with across-word sequences of the type an#Ca, where C was noncoronal (/p f k x Ø/) or coronal (Argentine /t s ʃ sʃ/, Cuban /t s ʃ j/), and stress falling on either the preceding or following vowel. A WinEPG system with custom-made artificial palates was used to collect simultaneous articulatory and acoustic data. The analysis involved a standard set of measures of location and degree of lingual constriction (Fontdevila et al., 1994) taken at the point of maximum contact during the acoustically determined nasal interval.

The results confirmed that single word-final nasals were realized as alveolar or velar in Argentine and Cuban Spanish respectively (with some exceptions for one Cuban speaker) (Fig. 1a). When followed by a non-coronal, the nasal completely lacked the coronal constriction, presumably taking on the place and stricture of the following labial or dorsal gesture (however, less consistently for some Argentine speakers) (Fig. 1b). The realization of the nasal before coronals was most variable, yet strongly conditioned by place and stricture of the following gesture (Fig. 1c). The nasal had a more posterior constriction and higher tongue body before post-alveolars than before alveolars ($p < .001$; Fig. 2a); it also had greater constriction width (being fully or partly deocclusivized) before fricatives than before stops or affricates ($p < .001$; Fig. 2b). The differences were in general greater for Cuban than Argentine speakers, reflecting the dialect-specific realizations of coronal consonants. Overall, the patterns of nasal assimilation in both dialects showed a similar coronal/non-coronal asymmetry, despite the different place of articulation of final single nasals. As such, these patterns are inconsistent with the gestural blending analysis, particularly in the case of velar-to-alveolar shifts by Cuban speakers. The results thus suggest that in these two dialects, assimilation is mainly categorical, with gradient effects arising before certain coronal consonants.

Final nasal	a. $_]\sigma$		b. $_ \text{noncoronal}$					c. $_ \text{coronal}$			
	$_ \#a$		$_ \#p$	$_ \#f$	$_ \#k$	$_ \#x$	$_ \#t$	$_ \#s$	$_ \#\text{ʃ/ʎ}$	$_ \#\text{ʝ/j}$	
A2	alveolar										
	velar										
C1	alveolar										
	velar										

Figure 1. Mean linguopalatal contact of nasals in various across-word contexts for representative speakers of Argentine (A2) and Cuban Spanish (C1) (based on the first 6 tokens; black = 100%, white = 0% activation).

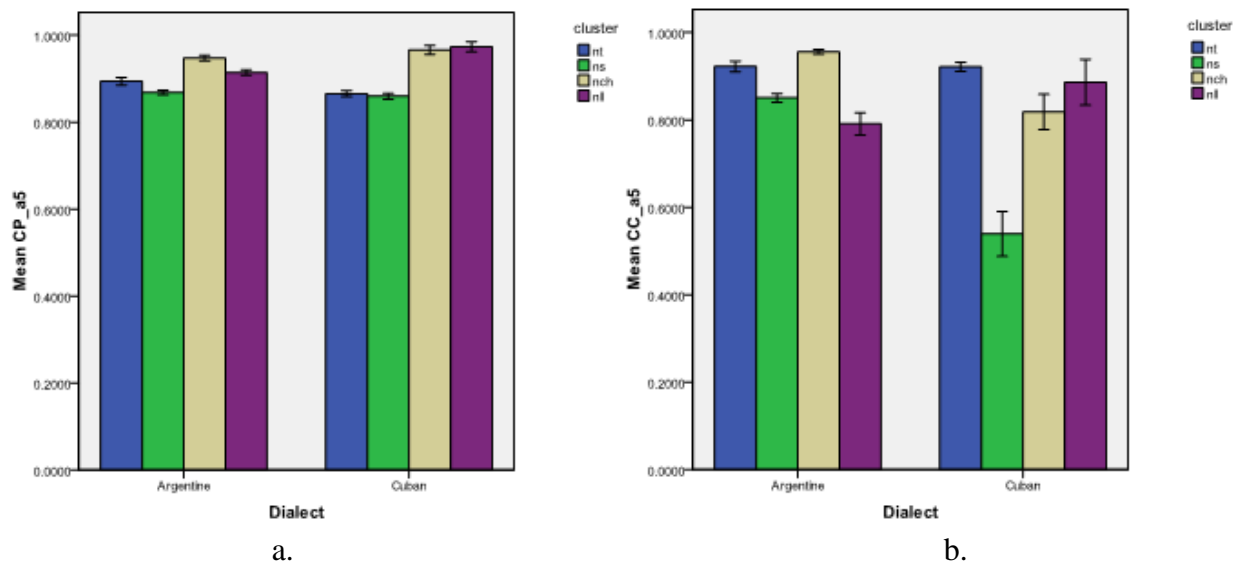


Figure 2. Mean contact posteriority (CP) and contact centrality (CC) of the nasal before /t/, /s/, /ʃ/ or /ʎ/ (*ch*), and /ʝ/ or /j/ (*ll*) by dialect (based on the currently analyzed data from 7 speakers).

References

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