

A Perceptual Study of Incomplete Neutralization in Andalusian Spanish

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A number of studies over the past two decades suggest that neutralization of phonological contrasts may sometimes be phonetically incomplete. Investigations of incomplete neutralization have focused primarily on languages that have final devoicing. Typically, such studies report small but statistically significant durational differences in the production of various acoustic parameters that would be expected if the underlying segment were permitted to surface. Piroth & Janker (2004), for example, report that German speakers produced vowels slightly longer before phonemically voiced final obstruents than before phonemically voiceless ones – despite the fact that in German, all such obstruents surface as voiceless word-finally (see also Port & O’Dell 1985 for additional evidence from German; Dinnsen & Charles-Luce 1984 report on Catalan, and Slowiaczek & Dinnsen 1985 on Polish). Furthermore, perceptual studies have shown that these small durational differences can be useful to listeners in recovering the neutralized contrast (Port & O’Dell 1985 and Janker & Prioth 1999 offer perceptual evidence from German, and Warner et al. 2004 for Dutch).

Incomplete neutralization has also been reported by Gerfen & Hall (2001) for the Eastern Andalusian dialect of Spanish (EAS), spoken in the southernmost region of Spain. EAS exhibits the phenomenon of /s/-aspiration, the replacement of underlying syllable-final /s/ with aspiration, common in several varieties of Spanish in Spain as well as in Latin America (Narbona Jiménez & Morillo-Verlarde Pérez 1987, Romero 1995, Penny 2000). Of interest in EAS is the fact that all obstruents, not merely /s/, are replaced by aspiration in coda position and, if word-medial, will trigger gemination of a following consonant. This results in words contrasting only in an underlying word medial coda to surface as apparent homophones. For example, the words /asta/ (*until*), /akta/ (*act*) and /apta/ (*apt*) all surface in EAS as [a^ht:a]. Gerfen & Hall (2001) and Gerfen (2002), however, find durational differences distinguishing underlying /s/ from underlying /p/ and /k/. In those production studies, underlying coda /s/ was pronounced as a longer period of aspiration.

However, it is unclear that the small but consistent durational difference in production reported for /s/-aspiration in EAS is actually used by listeners to recover the underlying coda consonant. Addressing this issue is the purpose of the present study. In particular, this study tests one prediction which follows from results discussed in Gerfen (2002) and other investigations of incomplete neutralization: namely, that [a^ht:a] tokens with longer rates of aspiration may result in listeners hearing /s/ (and thus /asta/) more often, while tokens with shorter aspiration will result in more /p/ or /k/ decisions (i.e., /apta/ or /akta/). By presenting listeners with forms such as /a^ht:a/, acoustically manipulated so as to create a continua for aspiration duration, this study also more generally addresses issues of phonological contrast, the relationship of production to perception and the relevance of fine-grained phonetic detail in phonological analysis.

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