

In search of the default Spanish vowel – evidence from perception

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Unlike some of its related languages (e.g. Catalan or Portuguese, cf. Mateus & Andrade 2000, Mascaró 1978), Spanish seems to have a stable, not particularly crowded, vowel inventory. While a vast majority of Spanish dialects present significant consonant weakening, vowel reduction is particularly rare. The only instances of vowel weakening reported by linguists involve devoicing in certain parts of Mexico and the Andes, interestingly with no accompanying consonant lenition (Lope Blanch 1972, Sessarego 2012, Delforge 2008). Given this asymmetry, it is worth examining whether there is a correlation between stress and reduction processes.

The primary assumption contemplated here is that a language's stress pattern and the nature of its vowel inventory are strictly connected with the freedom of reduction. This, in turn, is related to the well-known distinction between stress-timed and syllable-timed languages. In the latter case, it is assumed, a disruption of the stress pattern might inhibit comprehension and speech perceptibility, vowels being the principal stress and melody carriers. Limited or inexistent vowel reduction levels are less costly in the process of communication, hence vowel weakening remains largely unattested in such languages.

To account for the limited perceptibility of (non-native) vowel contrasts and Spanish speakers' sensitivity to stress shift and unstressed vowel quality and duration changes, a series of perception tests have been conducted on Spanish speakers. The interpretation of the reduced vowel signal by Spanish native speakers was of special interest here. Particularly, it was speculated to what degree the changes in quality and duration of the unstressed vowel would affect its perceptibility and how the reduced vowel would be interpreted with respect to the native inventory. Given the fact that Spanish lacks centralised vowels, its inventory being limited to corner + mid vowels /i, e, a, o, u/, it is interesting to investigate whether centralised vowels are perceived by native speakers and if so, how they are identified with respect to native vocalic segments. Another important question is whether Spanish words modified in terms of stress and vowel reduction are identifiable i.e. retrievable from the lexicon.

The preliminary study of these questions involved the use of both Spanish native words with vocalic modifications and nonce words imitating Spanish syllabification and stress pattern. The results of both parts of the experiment suggest a possible emergence-of-the-unmarked effect. Although the perception of schwa follows the patterns reported by researchers studying ESL acquisition (e.g. Gómez Lacabex & García Lecumberri 2005, Diettes 2010) in that many instances of the centralised vowel are simply inaudible for the average native speaker (with a mean 62% success rate in a group of 32 individuals), an intriguing tendency toward identifying schwa as the mid front vowel /e/ was revealed (70% of the cases). Several variables seem to indicate the existence of a default vowel across all contexts. The gathered data suggest that schwa is not simply perceived as the mid front vowel *per se*, given certain inconsistencies in pretonic syllables as opposed to word-final position. What is more, apart from the highly predictable context of pre-/s/ final position (which has been reported as the default word-final, and especially plural value by numerous researchers investigating Spanish varieties), /e/ was identified in some unpredictable environments, which cannot be justified by retrieval from the lexicon or other native speaker bias. This is confirmed by the results from the nonce word test that outright excludes lexical identification. Thus, while perception tests confirm that changes in stress and vowel quality inhibit comprehension and word identification in Spanish speakers, they also suggest that unknown phonetic categories are interpreted as default segments.

The status of /e/ as a default vowel in Spanish is further confirmed by morphology, as

well as a series of historical and synchronic phonetic and phonological phenomena, especially vowel epenthesis. The latter takes the form of prothesis (Harris 1969) to repair marked cluster structures in words such as *estadio* 'stadium' or *escándalo* 'scandal' (SSG violations), as well as *esmaltar* 'to enamel' (minimal sonority distance) or *eslavo* 'slave'. Most of these changes are historical, but new words and loanwords undergo the same process, which is not always reflected in spelling (e.g. *snob*, *esnob* 'snob', *status* 'status', Alfaro 1964). The same applies to second language acquisition: Spanish speakers consistently insert /e/ before sC clusters (although exceptions of dialectal nature can be found in Latin America, but see Carlisle 1998). The mid front vowel is also the epenthetic plural marker in words ending in consonant (e.g. Colina 2006a). Certain dialectal processes also point to its default status, Dominican 'double plural' being an especially prominent example: *mujeres* 'women' is realised as [muherese], *palomas* 'pigeons' as [palomase] in this dialect (Jimenez Sabater 1975, Nuñez-Cedeño 1980, Colina 2006b).

The aim of this paper is to present the results of the preliminary perception experiment together with the results of a follow-up experiment focused specifically on the perception of schwa and word identification in correlation with centralised reduction (changes in both duration and quality). The experiment has been designed with the possible counterindications in mind, namely consonantal contexts, syllable position (initial, pretonic, post-tonic), morphological and lexical predictability, word frequency effects as well as auditory and acoustic similarity between schwa and the mid front vowel. The test will also be controlled for possible multilingual or L2 effects (e.g. command of Catalan and similar languages). As with the first experiment, the stimuli will be collected in a silent room setting and manipulated in PRAAT (Boersma & Weenink 2010). The results will show whether the hypothesised existence of a default vowel in reduction contexts is confirmed by native speaker perception.

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