

Perception of stress and vowel reduction in Spanish: word identification, native speaker bias and the default vowel

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Unlike some of its related languages (e.g. Catalan or Portuguese) Spanish seems to have a stable, not particularly crowded, vowel inventory and despite significant consonant weakening, it rarely exhibits vowel reduction. It is thus worth examining whether there is a correlation between stress and reduction processes. The primary assumption here is that a language's stress pattern and the nature of its vowel inventory are strictly connected with the freedom of reduction. A disruption of the stress pattern in a syllable-timed language, such as Spanish, may inhibit comprehension and speech perceptibility, vowels being the principal stress and melody carriers.

Two perception tests have been conducted among Spanish speakers to examine the perceptibility of vowel contrasts and speakers' sensitivity to stress shift and unstressed vowel quality/duration changes. One of the principal aims of the experiments was to see whether stress shifts affect comprehension and word retrieval from the lexicon. Also, given the fact that Spanish lacks centralised vowels, its inventory being limited: /i, e, a, o, u/, another goal was to investigate whether they are perceived by native speakers and if so, how they are identified with respect to the native segments.

The two studies 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 point to the fact that stress shift inhibits comprehension and, more interestingly, stress perception alone seems to be better than stress-based word identification (results were different for nonce words and existing words, pointing to a native lexicon bias; naturally, word frequency effects were also observed). What is more, the two experiments 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 2005) in that many instances of the centralised vowel are 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 point to the possible 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, /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 aim of this paper is to present the results of both the preliminary online perception experiment and the extended follow-up study focused specifically on the perception of unstressed vowel reduction across all contexts.

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