Perception and Production of Phonetic Stress in Spanish: An Investigation of Native Speakers and Non-native Learners

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Is there a difference in the ability of native Spanish speakers and non-native learners to correctly perceive phonetic stress in Spanish non-words?

Do different syllabic structures in non-words affect phonetic stress perception in non-native learners? If so, why?

Both Spanish and English are considered to be free-stress languages: the position of phonetic stress is not predictable from the phonological shape of a word. Consequently, stress may be used contrastively in both languages, and the ability to correctly perceive and produce phonetic stress is vital to language usage.

Data shows that in Spanish, both stressed and unstressed vowels are given their full quality, while the stressing of a vowel in English is accompanied by the shortening of a vowel in one or more surrounding syllables (Romaneli 2015). Spanish uses suprasegmental cues such as intensity and pitch to distinguish stress from unstressed syllables, while English relies on segmental qualities of the word. These differences may cause problems for non-native learners of Spanish in perceiving stress in Spanish words.

Previous research has found that Spanish natives are better than learners at identifying phonetic stress in Spanish non-words, but that an immersion experience can lead to native-like perception of penultimate stress (Romaneli 2015). We seek to further explore if and how different syllabic structures affect learners’ ability to perceive stress compared to natives, eventually focusing on penultimately stressed words.

Methodology

Both native speakers of Spanish and non-native learners of Spanish were recruited at UNL to participate in the study. Participants were asked to listen to recordings of 54 non-words and mark the syllable on which they perceived the stress.

The non-words were broken down into categories of syllabic structure and stress placement. The three syllabic structures were CV.CV.CV, CV.CV.CVC, and CV.CV.CV (C = consonant, V = vowel). The two stress placements were on the penultimate and final syllable. The participants were scored on the number of words in each combination of syllabic pattern and stress placement category (shown below) of which they correctly identified the stress, giving them a score out of 9 for each category.

<table>
<thead>
<tr>
<th>Syllabic Structure</th>
<th>Penultimate Stress</th>
<th>Final Stress</th>
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The analysis was carried out using linear mixed effects models (LMMs) and data points were fitted to the model.

Results

Why is penultimate stress easiest to identify in CV.CV.CV structure?

1. The penultimate syllable is stressed with the addition of a consonant, and therefore learners can perceive the stress relatively easily.
2. When the penultimate syllable is stressed in Spanish, the pitch goes significantly lower and then starts higher in the final syllable (Figure 4). However, the pitch does not rise in the final syllable for CV.CV.CV or CV.CV.CVC words (Figures 5 and 6). It could be that native English speakers use pitch, a suprasegmental marker, as the marker for identifying stress.

Discussion Cont’d

Why is penultimate stress easier to identify in CV.CV.CV structure versus CV.CV.CV structure?

1. Spanish has weakened consonants at the end of a word. Thus, it would be easier to recognize that the stress is not on the final syllable of the CV.CV.CV structure.
2. The consonant at the end of the final syllable makes that syllable longer, so it is easier to pick out if the stress is in that syllable or not. CV.CV.CV has no such marker.
3. It is more common to end a syllable in a consonant in English than it is in Spanish, which could possibly add to the reason why penultimate stress is most difficult to identify in the CV.CV.CV structure.

Conclusions

Overall, these results show that learners and native speakers of Spanish differ in their ability to perceive stress patterns in non-words, with native speakers being better than learners in all categories.

Syllabic structures do affect non-native learners’ ability to perceive stress, as has been shown with the penultimate stress placement. Possible explanations include syllable length, pitch differences, and comparisons to English syllabic structure. Additional research can explore these possible explanations.

References


Figure 1: Penultimate and Final Stress Scores for CV.CV.CV Learners and Native Speakers

Figure 2: Penultimate and Final Stress Scores for CV.CV.CV Learners and Native Speakers

Figure 3: Penultimate and Final Stress Scores for CV.CV.CV Learners and Native Speakers

Figure 4: Spectrogram (showing pitch) for a CV.CV.CV Structure Word in Spanish

Figure 5: Spectrogram (showing pitch) for a CV.CV.CV Structure Word in Spanish

Figure 6: Spectrogram (showing pitch) for a CV.CV.CV Structure Word in Spanish