

English with Brazilian melody?

The acquisition of English pre-final stress by Brazilian Portuguese native speakers

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In the present study we investigate the role of word recognition and stress pattern frequency in second language (henceforth L2) acquisition. Based on the findings by e.g. van Leyden & van Heuven (1996), we know that stress representation co-defines word identity in languages whose stress is assigned on non-fixed syllable positions, such as in English and Brazilian Portuguese (henceforth BP). In the learner's intermediate system, cognate words would activate bi-directional phonological representations (Dijkstra & van Heuven, 1998), both from L1 and L2 systems. BP and English belong to different rhythmic systems. The former is mainly syllable-timed while the latter is mainly stressed-timed. Pre-final stress is the most frequent word stress pattern in both lexicons (Post da Silveira, 2011). Thus, we expect learners to produce more L1 transfers in the phonetic realization of cognate words that bear pre-final stress in English and in BP than in non-cognate words that bear pre-final stress. The main objective of our first experiment set is to investigate cross-linguistic interference on cognate vs. non-cognate words in the acquisition of English pre-final word stress. Our experiment tests 4 English word types (2- and 3-syllable cognates, 2- and 3-syllable non-cognates), all of them stressed on the pre-final syllable. The words were included in the carrier sentence "Say...happily" performed by a native speaker of American English. The sentences were blocked in 4 different production conditions in the following fixed order: (i) monotonized speech, (ii) orthography only, (iii) natural speech and (iv) natural speech + orthography. Our informants are Brazilian advanced learners of English. They were blocked in 4 experimental groups. Their task was to repeat the audio stimuli after a beep (i, iii), reading from screen (ii) and both responding to the audio stimuli and reading from screen (iv). Measurements were performed on syllable duration, syllable mean and maximum intensity and F0 and the maximum F0 values at 25, 50 and 75 percent of the syllable duration in order to obtain the pitch contour. The results show that there is a significant interaction among the production condition, word type and experimental group factors with respect to F0, intensity and duration measurements. The difference in pitch contour productions of words in narrow focus in L1 and L2 English lie on the fact that the F0 peak is typically produced in advance in non-native English - on the antepenultimate syllable or between 25% and 50% of the pre-final syllable, while the target would be on the 75% of the pre-final syllable. The pitch contour pattern of non-native English resembles the pattern of BP, which is marked by a peak on the pre-tonic syllable and a dip on the stressed syllable. Those differences are significant; moreover, the effects are larger for cognate words than for non-cognates. Intensity and duration ratios do not differ significantly between L1 and L2 English, but differ from BP. Our preliminary results show that the high frequency of the pre-final pattern favors the production of L2 word stress on the correct syllable, though our data indicate that the acoustic correlates used in stress realization are closer to the patterns of the source language. Also, the transfer of acoustic correlates from L1 to L2 occurs more readily in words that share more phonological similarities in both lexicons. The findings of this study support the hypothesis that prosody representation and word identity are mutually implicated in the L1 system and bi-directionally implicated in the acquisition of a L2 system.

References

- Dijkstra, T. & van Heuven, W. (1998). The BIA model and bilingual word recognition. In J. Grainger & A.M. Jacobs (Eds.), *Localist connectionist approaches to human cognition* (pp. 189-225). Mahwah, NJ: Erlbaum.
- van Leyden, K. & van Heuven, V. (1996). Lexical stress and spoken word recognition: Dutch vs. English. In M. den Dikken & C. Cremers (eds.), *Linguistics in the Netherlands 1996*, Amsterdam: John Benjamins, 159-170.
- Post da Silveira, A. (2011). Frequency as (dis)advantage to word stress acquisition. In Lee, W.S. & Zee, E. (Eds.) *Proceedings of the 17th International Congress of Phonetic Sciences*, 1634-1637.