The Role of Quantity Sensitivity in the Perception of English Lexical Stress by Predictable-stress Language Speakers: Arabic L2 Learners of English

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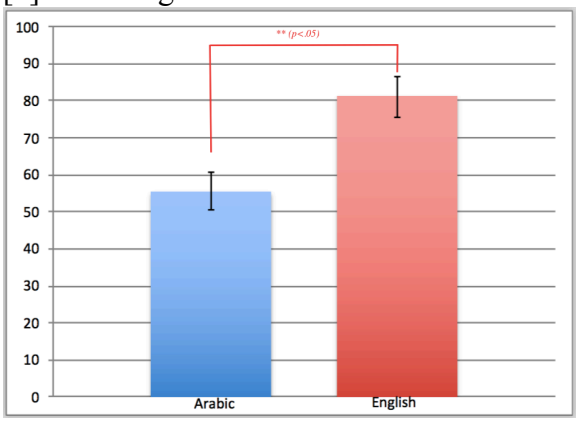
This research presents experimental data from Arabic speakers testing the hypothesis that Arabic learners of English have difficulties with perceiving English stress and thus are 'stress deaf'. Recent crosslinguistic studies have mainly addressed the influence of fixed vs. variable stress, considering only fixed stress for stress deafness where languages with regular stress that always falls on utterance edges like French yield a higher degree of 'stress deafness' than other fixed languages [2-6]. However, attention should be also given to languages with stress that is variable but predictable by means of metrical structure like Arabic. Arabic is quantity-sensitive in which the parsing of syllables into feet is sensitive to syllabic weight. Specifically, stress is assigned to the rightmost heavy syllable except for the final syllable, which should be superheavy to be stressed (i.e., CVVC or CVCC) [7]. Therefore, while predictability impedes listeners from perceiving the location of stress, quantity sensitivity has been proposed as an additional factor contributing to the difficulty in perceiving stress [8,9]. Neurolinguistic studies on word stress perception in Cairene Arabic have reported such effect of quantity sensitivity on the perception of stress in which Arabic participants where insensitive to violations when stress was on a heavy syllable but not when it was light, none of which has been found for the German or Turkish participants [10-12]. In this study, I investigate whether L1 metrical system affects the perception of L2 stress by examining stress responses to different structures of words with the assumptions that Arabic speakers will show very poor perception of stress in general and sensitivity to the word structure in particular.

The participants were 10 advanced Saudi Arabic learners of English and 10 native speakers of English (avg. age: 25.4 years). The test stimuli consisted of 90 English nonce three-syllable words that were recorded by a phonetically-trained native speaker of English. All words contained only open syllables. The syllables were classified as either light (weak) or heavy (strong) depending on the kind of vowel (i.e. a light syllable contains a schwa, and a heavy syllable contains diphthong or tense vowel). The position of stress was systematically varied in the different types of words resulting in 9 structure types, 3 for each stressed syllable (i.e. stress on 1st syllable: SSW, SWS, SWW 'doo.be.na'; stress on 2nd syllable: SSW, WSW, WSS; stress on the 3rd syllable; WSS, WWS, SWS). For example, *fay.soo.ca* 'SSW', *se.goi.za* 'WSW' and *za.dow.moi* 'WSS'. Using Praat Software, the perception test featured an identification task, in which the participants were instructed in English to listen to the stimulus two times and then to click on the syllable that they felt had the most stress or prominence. The test Responses were collected from each speaker and accuracy (correct responses) was determined according to whether the identified stress is the intended stress as pronounced by the speaker. Incorrect responses were also analyzed as to where subjects indicated the location of main stress.

The results revealed both effects of predictability in general and quantity sensitivity in particular. Arabic speakers had significantly more difficulties in locating word stress than English speakers whose performance was close to ceiling with an accuracy of more than 80% [1]. In addition, Arabic speakers showed more insensitivity to stress when two heavy syllables occur in a word with a tendency to respond to heavy syllables as stress even if they were not. These results were compared to Altman's results in which I reanalyzed the stress responses data from the three predictable languages she tested (Arabic, Turkish and French), considering only three syllable words and measuring stress responses to each syllable in every structure [9].The results obtained

from the reanalyzed data revealed that the occurrence of more than one heavy syllable in a word appeared to affect Arabic speakers' perception of stress as they tended to hear stress in unstressed heavy syllables as well as heavy stressed syllables. No tendency toward perceiving stress in heavy unstressed syllables was found among speakers of L1 with quantity-insensitive stress, although they were reported to perform as poorly as Arabic in stress perception. The results from this study and Altman's suggest that syllable weight seems to play a vital role in the perception of stress by speakers of L1 with quantity-sensitive stress.

[1] Percentages and standard error of correct responses by the two groups.



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