Identification of stress, quantity and tonal word accent in Swedish

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In addition to 9 vowel and 18 consonant phonemes, Swedish has three prosodic phonemic contrasts: word stress, quantity and tonal word accent. The word stress contrast, as in ˈ*armen* 'the arm' - *ar*ˈ*men* 'the army', is mainly signaled by syllable duration, while the quantity contrast is realized mainly by duration of vowel and the following consonant, as in *vila* 'rest' and *villa* 'villa', (see Thorén, 2008). Whereas, the tonal word accent, as in ´*anden* 'the duck' - `*anden* 'the spirit' is signaled with different tonal patterns. When making curriculums for second language learners, it is helpful to know which phonetic or phonological features are more or less crucial for the intelligibility of speech. Regarding this pedagogical point, Abelin & Thorén, (2015a & b) examined the relative importance of correct realization of word stress compared to correct tonal word accent. They found that misplaced word stress caused many more non-identifications and larger loss than mispronounced tonal word accent.

The present study seeks to extend the findings of the previous studies, by adding the perceptual weight of the quantity contrast. It thus aims to create a ranking list for the perceptual weights of all three Swedish prosodic phonemic contrasts.

A lexical decision experiment was performed, where 20 native Swedish listeners were exposed to 50 intact words representing combinations of trochaic, iambic, accent 1, accent 2 as well as /V:C/ and /VC:/ categories. The test words were 10 originally trochaic words pronounced with iambic stress patterns, 10 original accent 1 words pronounced with accent 2 and 10 trochaic /V:C/ words pronounced as /VC:/. 60 nonsense words with the same combinations of phonologic categories served as distractors. The participants were instructed to judge as quickly as possible whether or not the words they heard were real words. The number of yes/no answers and non-responses (answers that exceeded the reaction time limit) were counted and reaction times were measured.

Preliminary results show that participants tended to judge words as non-real to a higher degree when pronounced with distorted quantity than when pronounced with distorted word accent. The frequency of non-responses and non-word decisions for distorted word stress was slightly lower than for distorted quantity but still much higher than for distorted word accent. This seems to indicate that distorted quantity is more detrimental to word identification than distortions of both word stress and tonal word accent. We therefore suggest that both word stress and quantity should be given high priority when teaching Swedish pronunciation.

References:

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