Native and non-native production of Estonian quantity degrees: comparison of Estonian, Finnish and Russian subjects

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In the study the native (L1) production of Estonian quantity degrees is compared to the non-native (L2) production by two groups of subjects with different language backgrounds – Finnish (L2-FI) and Russian (L2-RU). Estonian and Finnish are typical examples of quantity languages both exploiting the duration cue contrastively. However, there are significant differences in the quantity systems of the two languages – binary opposition in Finnish vs. ternary opposition in Estonian. In Russian there are no duration based phonological contrasts, instead duration acts as the main cue for word stress.

Due to the different roles of duration in these three languages L2 speakers are expected to deviate from L1 speakers in the production of the Estonian ternary contrast referred to as short (Q1), long (Q2) and overlong (Q3) quantity degrees. The Qs are characterized by complex interaction of durational and tonal cues within a disyllabic foot, e.g. [1], [2]; there exist no similar prosodic patterns in Finnish or in Russian. Yet, L2-FI subjects should benefit from the binary contrast occurring in Finnish vowels and consonants (independently of each other), and in both stressed and unstressed syllables [3]. L2-RU subjects can rely on variable durational patterns of their L1 associated with word stress [4].

A subset of the Estonian Foreign Accent Corpus (27 read sentences involving triplets of segmentally identical disyllabic target words in the quantities Q1, Q2 and Q3, representing the structures CVCV, CVVCV and CVV:CV) was used in the study. The target words from the recordings of ten L1, twelve L2-FI and ten L2-RU subjects were segmented, the durations of V1 and V2 were measured, and the duration ratio V1/V2 was calculated for each word (27 words for each speaker). In the case of Q1 structure L1 and L2-FI subjects showed similar results – ANOVA did not report any differences in the duration of V1 and V2 as well as in V1/V2 ratio (p < 1). L1 and L2-RU groups differed significantly in V1 (p < 0.005), in V2 (p < 0.05), and in V1/V2 ratio (p < 0.001).

L1 and L2-FI groups showed different results in Q2 (p < 0.001), but not in Q3 structures (p < 1). Comparison of L1 and L2-RU subjects showed opposite results – no differences in Q2 (p < 1), but highly significant differences in Q3 words (p < 0.001).

Thus both L2 groups were unable to distinguish the Estonian Q2 – Q3 contrast in their production. However, the two groups exhibited different prosodic patterns. It will be discussed in the final paper why, in the production of Estonian Q2 vs. Q3 oppositions, L2-FI subjects produce for both Q2 and Q3 the temporal pattern close to Estonian Q3, and L2-RU subjects produce the pattern close to Estonian Q2.

References