THE EFFECT OF LANGUAGE TYPE ON THE ACUITY OF THE PERCEPTION OF DURATION

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The aim of the following experiment is to establish to what extent the just-noticeable difference (JND) of duration changes in case identical stimuli are presented to listeners whose native languages have different word duration patterns.

Stimuli pairs were taken from the vowel /a/, pronounced monotonously and isolatedly, and after removal of its initial transition. All the stimuli begin at one and the same period of the /a/. Eight pair sequences (a+500 ms pause+a) were formed, each of them symmetrical with the reference stimulus. The duration was varied in 2 ms steps and only at the extreme ends of the sequence were the steps increased to 4 ms. The duration of the reference stimulus was increased from 40 to 320 ms in 40 ms steps (in all, 262 stimuli pairs were obtained). The listeners (Estonians - quantity language; Russians - stress language) were asked to mark whether the second /a/ in a pair was longer or shorter than the first /a/. To represent JND, we chose the level of 75% correct responses of the listener's smoothed perception curve, separately for two types of pairs (A - the second stimulus of the pair longer than the first one; B - the second stimulus shorter than the first one).

The JND is larger in the case of reference stimuli with a smaller duration, smaller for medium durations, and shows an increase for larger durations. The $\Delta T/T$ is largest for smaller durations (15-35%), relatively stable for medium durations (5-7%), and grows towards larger durations, staying, however, within its 40-120 ms region. With Estonians, the difference between the JND's of the A and B pairs is largest in the region of 80-160 ms (with the largest JND in A pairs). Russians have the largest asymmetry in the 160-240 ms region, where the JND is largest in the B pair. It is possible that the a+pause+a pairs are interpreted as disyllabic words (i.e. the pause is identified with a stop consonant). If this is really so, one can ascribe the asymmetry between A and B pairs partly to the different durational patterns of disyllabic words in the respective languages, viz. language specific phonetic structure manifests itself in the discrimination test.