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DURATION OF LONG STRESSED VOWELS IN PRESENT-DAY
LITHUANIAN UTTERANCES

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ABSTRACT

This paper reports on the results of an investigation into the duration of acute and circumflex vowels and vocalic diphthongs in extended speech contexts. The results obtained lead us to the conclusion that duration is not the main factor in the differentiation of accent type.

In Lithuanian, long monophthongs, and vocalic or mixed diphthongs (vowel plus either liquid or nasal consonant) in stressed position may have falling or rising accent. The terms "falling" and "rising" retain musical connotations, and the actual nature of the intonation is in doubt, so for practical purposes it is better to use the neutral terms "acute" and "circumflex" /1/. These terms refer only to the names of the signs used to mark the accent /2/. Some investigators have proposed that the most notable prosodic feature of Lithuanian accent is vowel duration /3/, with the circumflex vowels being longer than acute ones /4/.

The duration of syllabic nuclei in the Lithuanian colloquial language has been experimentally investigated by many linguists. Previous studies used the following as test material: 1) isolated two-syllable words /5/, 2) minimal pairs in isolation and 3) minimal pairs placed at the beginning, in the middle, or at the end of short phrases /6/.

The purpose of this research was to study the duration of acute and circumflex vowels and vocalic diphthongs. The experimental data consisted of 128 utterances, typical of the Standard Lithuanian language, recorded on magnetic tape by 3 male and 2 female subjects. Measurements were obtained from intonograms.

In the experimental material the vowels and diphthongs under investigation are found in various phonetic environments and in various positions in the phrase. The vowels in question are found in all possible positions in the word and in the phrase. So as to compensate for the influence of the position of the word in the phrase the experimental phrases were constructed

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so that the vowel is found an equal number of times in each position. In order to compensate for differences in absolute duration in different positions computations are based on relative differences in duration. The data for each subject were individually analyzed, but since the same corpus was used for each subject we can also contrast the data on vowel and diphthong duration for all the subjects as a group. Previous studies which examined the duration of long stressed vowels revealed that: 1) in isolated two syllable words the duration of circumflex vowels is always greater than that of acute vowels /7/, 2) in short phrases material results indicated that duration of circumflex vowels is greater in 86.7% of the cases /8/. The results of the present research revealed that there is almost no difference in the duration of circumflex and acute vowels in extended speech contexts. Lehiste /9/ claims that in the range of the durations of speech sounds - usually from 30 to about 300 msec - the just-noticeable differences in duration are between 10 and 40 msec. In our experimental material the difference in duration of vowels with different accent types is less than 10 msec in 53.3% of the cases, is less than 20 msec in 40% of the cases, and slightly exceeds 20 msec in 6.7% of the cases. In subject 3 there is a substantial difference in duration between acute and

circumflex /i/ (1:1.23) but there is almost no difference for subjects 1 and 4 (1:1.02; 1:1.01). The two /u/'s with different accent types do not differ for subjects 3 and 4 (1:1.05; 1:1.04), but do differ substantially for subject 1 (1:1.2). There are no other cases of clear differences in duration between acute and circumflex vowels.

The results obtained revealed that there is no significant difference in duration of the acute and circumflex vowels. This leads us to the conclusion that duration is not the main factor in the differentiation of accent type in the Lithuanian colloquial language.

Some Lithuanian linguists /10/ claim that circumflex diphthongs are longer than acute ones. Pakerys, Plakunova and Urbelienė /11/ claim that the diphthongs /au/, /ai/, /ei/ are almost equal in duration, irrespective of the type of accent. The results of the present research revealed that the acute diphthongs are longer than the circumflex ones. Substantial difference in duration between different accent types is characteristic of the pronunciation of all the subjects in the case of the diphthong /ai/, for three subjects in the case of /au/ and for one subject in the case of /ei/. As only one case out of fifteen (i.e. 6.67% of the cases) shows substantial difference in the duration of the diphthongs /ei/, /ie/, /uo/ in favour of

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the acute accent type, we may claim that there is essentially no difference in the duration of the above mentioned circumflex and acute diphthongs. It should be noted that the range of duration of circumflex diphthongs in female subjects is very small, so that in their speech there is no significant difference in duration for all the circumflex diphthongs under investigation.

The given data allow us to arrange the diphthongs, irrespective of the accent type, in order of decreasing duration: au → ai → ei → uo → ie.

From the above evidence we may conclude that:

1. There is no significant difference in duration between acute and circumflex vowels.
2. There is a substantial difference in the duration of the diphthongs /ai/ and /au/ pronounced with different accent type.
3. Where (2) is relevant, acute diphthongs are longer than circumflex ones.
4. There is no significant difference in duration for the diphthongs /ei/, /uo/, /ie/ pronounced with different accent type.
5. According to their duration, diphthongs may be classified into three groups, irrespective of accent type: /au/, /ai/ - the longest, /ei/ - medium, /uo/, /ie/ - the shortest.

6. Circumflex diphthongs in the speech of female subjects show no difference in duration.

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