

KARL PAJUSALU (Tartu)

VOWEL REDUCTION IN SOUTH ESTONIAN

Introduction

The article discusses reductive changes in the vowels of unstressed syllables in South Estonian dialects. It focuses on the comparative analysis of the vowel system of the Karksi and Vastseliina subdialects. The former is the central dialect of Mulgi and belongs to the western group of South Estonian dialects; the latter belongs to the Võru dialect, which is an eastern South Estonian dialect. Karksi has historically witnessed a number of reductive changes in non-initial syllables, e.g. from the third syllable the low vowels *ä* and *a* were reduced to the mid vowels *ɔ* and *e*, and *o* in non-initial syllables changed mostly into *u*. Such reduction of vowels in unstressed syllables resembles to some extent the vowel changes that are known in Germanic languages. In the case of the Vastseliina subdialect, as well as some other typical Võru subdialects, it has been thought that the vowel quality is determined by the wide vowel harmony, including velar vowel harmony. There are no other important quality changes in non-initial syllables (see e.g. Keem 1997 : 6–7). Thus the vowel system of Võru non-initial syllables is rather authentically Finnic. Below I am going to show that the entire South Estonian dialect area forms a whole that reveals similar tendency in unstressed syllables. As a generalization, this tendency could be regarded as a transformation of the Finnic vowel harmony system into a new vocalism with extensively reduced vowels.

The paper has been prepared within the framework of two projects that are being funded by the Estonian Science Foundation ("The phonetic, phonological and morphological analysis of the vowels in the Võru dialect" (ESF Grant No. 3027) and "The analysis of the South Estonian vowel system" (ESF Grant No. 3262)). In the case of Mulgi the work is based on the phonetic measurements and the analysis that I carried out at the Phonetics Laboratory of the University of Turku in 1995 and 1996 (see Pajusalu 1996 : 78–87). My study of the non-initial vowels in Mulgi grew out from the treatment of variation in the morphonology of Karksi verbs as the vowel system of non-initial syllables has a large impact on the morphonology of the dialect. The phonetic measurements of Võru vowels were made by Merike Parve and Pire Teras in 1997 and 1998 within the framework of the above-mentioned ESF projects (see Parve 1998; Teras 1998). The present article is a more detailed analysis of vowel reduction in Vastseliina on the basis of the measurements made by P. Teras in 1997 (the measurements by P. Teras were partly reported also by Rist 1997). The most important purpose of the project "The analysis of the South Eston-

ian vowel system" is to study the historical changes in the South Estonian dialects by relating the dynamics of the phonetic and phonological vowel features to the modification of the morphological functions. Below I am going to concentrate only on the first level, i.e. the phonetic characterization.

In order to detect vowel reduction in the non-initial syllables of Karksi I measured the duration of the short monophthongs and the frequencies of F1, F2, and F3 in the spontaneous dialect speech of a woman who came from the southern part of Karksi (b. 1924, recorded in Karksi-Nuia in 1984) and a man from the central part of Karksi (b. 1929, recorded in Karksi-Nuia in 1984). The analysis was carried out at the Phonetics Laboratory of the University of Turku on a Kay Elemetrics Corp. Model 5500 sonagraph. The speech samples were digitized at 8 kHz.

The data from Vastseliina are taken from the measurement by P. Teras of the spontaneous dialect speech of a woman from the central part of Vastseliina Parish (b. 1925, recorded by E. Org and K. Pajusalu at Tabina in 1994). Measurements were made of the duration of monophthongs and the frequencies of F1, F2, and F3. In this case the data were processed at the University of Tartu, using the Kay CSL 4300. The speech samples were digitized at 8 kHz.

The basic structure of the vowel system of non-initial syllables in Karksi and Vastseliina

Both in Karksi and Vastseliina the occurrence of vowels is determined by the position with relation to the syllable that carries the main stress. The mainstressed syllable is, as a rule, the first syllable of the word. It reveals all the short and long monophthongs and diphthongs. It is characteristic of both Karksi and Vastseliina that not only the vowel systems of the first and the non-initial syllables differ from each other, but the vowel systems of the various non-initial syllables are also different. The basic principle is the same — the farther from the syllable that carries the main stress, the more limited is the occurrence of different vowels. In Karksi, however, this tendency is manifested more strongly than in Vastseliina. In a simplified form the basic structure of short monophthongs in Karksi and Vastseliina is as follows:

Karksi (according to Pajusalu 1996):

1st syllable	2nd syllable	3rd syllable	4th syllable
<i>i ü u</i>	<i>i ü u</i>	<i>i ü u</i>	<i>i u</i>
<i>e ö ɛ o</i>	<i>e ə o</i>	<i>e ə</i>	<i>e ə</i>
<i>ä a</i>	<i>ä a</i>		

Vastseliina (According to Rist 1997):

1st syllable	2nd syllable	3rd (and 4th) syllable
<i>i j̥ ü u</i>	<i>i j̥ ü u</i>	<i>i ü u</i>
<i>e ö ɛ o</i>	<i>e ɛ o</i>	<i>e ɛ o</i>
<i>ä a</i>	<i>ä a</i>	<i>ä a</i>

The above schemes show that the vowel system of Vastseliina has a somewhat larger number of vowels in all syllables than Karksi. The difference is especially remarkable starting with the third syllable. Vastseliina has the high central vowel *j̥* in the first syllable (its quality resembles the Russian *ɨ*), which is widespread in

the Võru and Tartu dialects but does not reach Mulgi. The positions of *ɨ* and *ü* are problematic. Depending on the idiolect, *ü* and *ɨ* could change their places in the basic scheme (Rist 1997 : 34).

The most important difference in non-initial syllables is related to velar vowel harmony. In Vastseliina, where the velar vowel harmony occurs, in words with back vowels the back *ɛ* occurs instead of *e* and occasionally *ɨ* instead of *i* (the neutral *i* occurs more often in words with back vowels as well). As elsewhere in Mulgi, velar vowel harmony does not occur in Karksi, and *i* and *e* occur both in words with front and back vowels. The other conditions of vowel harmony are similar in both dialects. *ä* and *ü* occur in words with front vowels, *a* and *u* occur in words with back vowels; *o* is neutral. The harmony of *ö* that occurs in the eastern part of Vastseliina does not reach the central part of the dialect area (Wiik 1988 : 153) which is being described here.

One should mention the occurrence of *o* on a very limited scale in the second syllable in Karksi. In most cases the historical *o* has been replaced by *u*. *ə* corresponds mostly to the historical *e* in the second syllable, but occasionally also to *a* and *ä* in words with a stressed overlong first syllable.

In Vastseliina, the only difference in the basic structure of the vowel system of the non-initial syllables is the non-occurrence of *ɨ* starting with the third syllable. On the other hand, in Karksi there is a principal difference between the second and the following syllables — starting with the third syllable there are no low vowels, *a* and *ä* have reduced to *ə* or *e*. From the third syllable on, there is no *o* either. In Karksi, the third and the fourth syllable differ in that the harmony of *ü* does not include the fourth syllable any more; even in the words with front vowels one can find a generalized *u*. In Vastseliina, however, the vowels show a similarity in the third and fourth syllables. Nevertheless, in both dialects the vowels with a similar basic quality differ in different syllables as to the degree of reduction.

The relation between duration and the reduction of vowels in non-initial syllables

Proceeding from the premise that the reduction of vowels is related to their relative duration in an important way (cf. e.g. Lindblom 1963; Raimo 1968), I have classified the vowels in non-initial syllables (with the exception of Karksi *o* and Vastseliina *ɨ* which are extremely rare; in Karksi *ə* is considered a variant of *e*) into sublong (duration is more than 1.2 of the duration of the vowel of the initial syllable), short (0.8—1.2 of the vowel duration in the initial syllable), and subshort (less than 0.8 of the vowel duration in the first syllable). The mean frequencies of the vowel formants that have a different duration in non-initial syllables are presented in Table 1.

Table 1 indicates that in the speech of all informants there is a relation between the duration of vowels and the degree of reduction. In Karksi this relation is more general and more extensive; in Vastseliina it depends more clearly on the specific nature of the vowel. The relation between the vowel duration and reduction is especially clear in the speech of the male informant of Karksi. The degree of his vowel reduction and that of the other informants on the basis of the mean frequencies of F1 and F2 is illustrated by Charts 1—3.

All the subshort vowels are somewhat reduced in the speech of both Karksi informants, especially when compared to the values of sublong vowels. Certain differences can be found in the way these vowels are reduced. As expected, F1 of high vowels increases together with a decrease in duration. The mid *e* in Karksi behaves similarly to the low vowels, i.e. its F1 decreases together with a decrease in duration. The link between the decrease of F1 of the secondary *ä* and the decrease

in duration is stronger than in the case of *a*. The same happens to F2 in the pronunciation space of all the vowels — F2 of front vowels decrease as the duration shortens and F2 of the back vowels increases. This change, however, is minimal for *ä* and *e* in Karksi, where the quality difference is mostly linked to raising.

Table 1

Formant positions of vowels with varying duration in non-initial syllables
in Karksi and Vastseliina

	Karksi				Vastseliina							
	male		N	female		N	Vastseliina					
	F1	F2		F3	F1		F2	F3	N			
<i>ä</i>	580	1160	2315	9	650	1470	2680	5	660	1215	2245	11
<i>a</i>	540	1260	2375	5	565	1550	2590	4	640	1250	2305	21
<i>ä̃</i>	515	1400	2425	4	580	1600	2860	3	600	1235	2405	15
<i>ǟ</i>	605	1450	2360	5	635	1640	2665	3	645	1560	2405	13
<i>ä̇</i>	545	1515	2295	4	615	1655	2735	3	615	1510	2410	10
<i>ä̈</i>	465	1485	2405	3	570	1620	2560	2	525	1500	2290	5
<i>è</i>	500	1585	2395	7	565	2020	3030	9	465	1890	2585	5
<i>e</i>	435	1515	2360	15	495	2045	3080	17	510	1805	2655	24
<i>ẽ</i>	385	1495	2305	11	450	1960	3010	11	460	1750	2540	17
<i>ê</i>	—	—	—	—	—	—	—	—	475	1330	2315	8
<i>ē</i>	—	—	—	—	—	—	—	—	460	1345	2240	19
<i>ē̃</i>	—	—	—	—	—	—	—	—	490	1440	2305	14
<i>ò</i>	—	—	—	—	—	—	—	—	505	920	2270	5
<i>o</i>	—	—	—	—	—	—	—	—	440	925	2170	5
<i>õ</i>	—	—	—	—	—	—	—	—	405	810	2140	3
<i>ù</i>	340	935	2215	4	370	935	2380	4	405	910	2315	4
<i>u</i>	355	1025	2105	6	375	905	2420	6	380	840	2320	11
<i>ũ</i>	380	1140	1880	6	405	1005	2440	5	395	955	2370	8
<i>ü̃</i>	330	1750	2365	6	335	1850	2810	3	385	1805	2350	2
<i>ǖ</i>	345	1645	2290	3	340	1725	2795	3	355	1800	2355	3
<i>ü̇</i>	360	1680	2280	1	360	1610	2680	4	365	1775	2415	2
<i>ì</i>	310	2255	3200	6	310	2505	3325	6	390	2265	2885	7
<i>i</i>	320	1880	2705	6	325	2275	3145	3	360	2155	2630	22
<i>ĩ</i>	345	1585	2190	7	350	2100	3010	6	360	2120	2665	23

Most of the above-mentioned general tendencies are valid in the speech of the Vastseliina informant although the degree of reduction in subshort vowels is usually not that great. Thus, for example, the high vowels are less reduced than in Karksi. An unexpected result is that the half-long high vowels and the half-long mid *è* and the back *ê* are a little lower than the corresponding short vowels. In the non-initial syllables the high vowels of Vastseliina appear to be generally reduced in some degree.

As the strongest case of reduction, one should point out the assimilation of the subshort *õ* with *u*. This change has already been completed by now in Karksi. Another noteworthy difference concerns the back *ê*. Where one would assume the historical change *ê* > *ə*, *e* in Karksi, there the same change is underway in Vastseliina. The subshort back *ễ* is a little fronted and lower than its longer equivalents; the subshort *ẽ* is somewhat more back and higher than the longer *e* vowels.

North Estonian. Thus, it may indicate a Germanic influence from the west. As the results of this paper indicate, such reductive changes are also reaching a conservative dialect in the eastern part of South Estonian.

REFERENCES

- Keem, E. 1997, *Võru keel*. Tallinn.
- Lindblom, B. 1963, Spectrographic Study of Vowel Reduction. — *Journal of the Acoustical Society of America* 35, 1773–1781.
- Pajusalu, K. 1996, Multiple Linguistic Contacts in South Estonian. Variation of Verb Inflection in Karksi, Turku (Turun yliopiston suomalaisen ja yleisen kielitieteen laitoksen julkaisuja 54).
- Parve, M. 1998, About the Phonetic Peculiarities of Short Vowels in the Võru Dialect. — *LU XXXIV*, 241–246.
- Raimo, I. 1968, On Finnish and English Unstressed Vowels. *Turun yliopiston lisensiaatin-tutkimus*, Turku (Manuscript).
- Rist, M. 1997, Võru murde vokaalharmonia. Tartu ülikooli lõputöö, Tartu (Manuscript).
- Teras, P. 1998, About the Acoustics of Long and Overlong Vowels in the Võru Dialect. — *LU XXXIV*, 247–251.
- Vlasto, A. P. 1986, *A Linguistic History of Russia to the End of the Eighteenth Century*, Oxford.
- Wiik, K. 1988, *Viron vokaalisointu*, Helsinki.