

FEDOR ROZHANSKIY (Tartu)

THE ILLATIVE MARKER OF MONOSYLLABIC WORDS IN SOIKKOLA INGRIAN*

Abstract. This article analyses the vowel in the illative marker of monosyllabic nouns which usually copies the quality of the stem vowels. The data come from different questionnaires recorded by Soikkola Ingrian speakers in the 21st century. The main point of interest is the contradiction between the fact that the vowel in the illative marker copies the stem vowel and the fact that existing descriptions often indicate raising of mid vowels in the stem but not in the illative suffix. Both auditory analysis and acoustic measurements are used to check the correspondence between the quality of the stem and suffix vowels in the illative forms of monosyllabic nouns. The research reveals that there is both interspeaker and intraspeaker variation in the quality of the vowels under discussion, and several different strategies can be used for building the illative marker. The rounded stem vowels *öö* and *oo* are opposed to the unrounded *ee*: if raised in the stem, the latter does not influence the quality of the suffix vowel. In most cases, the quality of the rounded stem and suffix vowels is the same, so a transcription where these vowels are denoted differently is not justified. Pronunciations where both the stem and suffix vowels are half-raised argue for an alternative variant of the Soikkola Ingrian phonological system.

Keywords: Ingrian, illative, vowel quality, morphology-phonology interface, variation.

1. Introduction

This paper analyses the illative form of monosyllabic nouns in Soikkola Ingrian.¹ This topic — at first glance, very local — is interesting from a theoretical point of view because it sheds light on the nature of a certain morphophonological mechanism.

Morphologically, the illative is probably the most diverse case in the Finnic languages as it can be formed via various markers, lengthening of the

* The research was supported by the University of Tartu grant PHVEE18904.

¹ See Лаанест 1966 for a detailed description of Ingrian dialects. Brief information about Ingrian dialects as well as general information about the Ingrian language can be found, for example, in Markus, Rozhanskiy 2022.

Received 30 December 2022, accepted 2 May 2023, available online 10 September 2023.

©2023 the Author. This is an Open Access article distributed under the terms and conditions of the Creative Commons Attribution 4.0 International Licence CC BY 4.0 (<http://creativecommons.org/licenses/by/4.0>).

final vowel and/or gemination of a stem consonant, cf. Finnish *veneeseen* 'boat-ILL', *vene-i-hin* 'boat-PL-ILL', *rukii-siin* 'rye-PL-ILL', *metsä-än* 'forest-ILL' (Hakulinen 1961 : 71–72), Vaipooli Votic *linna-se²* 'town-ILL', *kalana* 'fish-ILL' (Маркус, Рожанский 2017 : 37, 164), Estonian *liiva-sse* 'sand-ILL', *juur-de* 'root-ILL', *merre* 'sea-ILL' (Viitso 2007a : 40–41), Veps *ikna-ha* 'window-ILL', *venęhe-zę* 'boat-ILL' (Зайцева 1981 : 182), Soikkola Ingrian *kattoo* 'roof-ILL', *peręhe-sse* (Porkka 1885 : 68, 73). In some languages, a word can have two illative forms – long and short, cf. Estonian *majasse* ~ *majja* 'house-ILL', *keelde* ~ *keelesse* 'tongue-ILL' (Siiman 2018 : 143; ÕS 2018),³ Vaipooli Votic *kottose* ~ *kotto* 'house-ILL', *rihese* ~ *rihhe* 'log cabin-ILL' (Маркус, Рожанский 2017: 321).

In many Finnic varieties, the form of the illative correlates with the number of syllables in the stem. Monosyllabic nouns employ a special marker where the quality of the vowel depends on the quality of the root vowel, cf. Finnish *maa-han* 'country-ILL', *suo-hon* 'marsh-ILL', *puu-hun* 'tree-ILL', *pää-hän* 'head-ILL' (Hakulinen 1961 : 71), Estonian *ma-ha* 'land-ILL', *su-hu* 'mouth-ILL', *pä-he* 'head-ILL'⁴ (Viitso 2007b : 207), Veps *ma-ha* 'land-ILL', *so-ho* 'marsh-ILL' (Зайцева 1981 : 182), Ludic *puu-hu* 'tree-ILL', *mua-ha* 'land-ILL', *yö-hö* 'night-ILL' (Родионова 2018 : 287), Vaipooli Votic *ma-hase* 'land-ILL', *so-hose* 'marsh-ILL', *pu-hęse* 'tree-ILL' (Маркус, Рожанский 2017: 400).

Soikkola Ingrian is no exception – it has a similar *-hV* illative marker for monosyllabic nouns, e.g. *maa-ha⁵* 'land-ILL', *puu-hu* 'tree-ILL'. The Ingrian illative marker has two main differences from the corresponding Finnish marker: the final *-n* is lost, and the stem vowel *-i* triggers the vowel *-e* in the suffix: *piihe* 'prong-ILL',⁶ cf. with Finnish *piihin* (Hakulinen 1961 : 71).

This Finnic illative marker can be associated with several linguistic phenomena: vowel harmony, reduplication or echo vowels. However, none of them explains the form of this marker. Ingrian has palatal vowel harmony that distinguishes two variants of affixes: front- and back-vocalic, cf. *šääri-löi* 'shin-PL-ILL' and *šaari-loi* 'island-PL-ILL'. Unlike in harmonic variants, in the illative form, the choice is between many vowels and not between two. Formally, the illative marker is closer to distant reduplication (Рожанский 2011 : 50–51) but reduplication usually expresses a specific meaning.⁷ Also,

² Throughout this paper, standard orthography is used for Finnish and Estonian. In Votic transcription, *e* is the unrounded mid central vowel, and *l* is the velarized lateral approximant. In all languages, a full geminate is represented by the repetition of the symbol, e.g. *hh*, *ss*. A short geminate in Ingrian is marked with a breve above the first component, e.g. *šn̄*. Long vowels are normally represented by the repetition of the symbol (e.g. *oo*) but in some quoted sources the macron is used (e.g. *ō*), and Porkka (1985) sometimes uses the circumflex (e.g. *û*) for this purpose (note that the original transcription of the quoted sources is always preserved). The left arrowhead below a vowel marks a more back vowel (in Veps). The caron below indicates a lower vowel and the circumflex below indicates a higher vowel (e.g. *y* and *ø*).

³ Cf. also the variants *liiva* 'sand-ILL', *juure-sse* 'root-ILL', *mere-sse* 'sea-ILL' (<https://sonaveeb.ee/>) for the Estonian illative forms mentioned earlier in this paragraph.

⁴ In Estonian, all monosyllabic nouns have long illative forms with *-sse* and only some of these nouns have short illative forms with *-hV*.

⁵ The length of the final vowel is not always short (see Appendix 2). However, in this article, Ingrian illative forms are always spelled with a short final vowel.

⁶ A similar phenomenon is attested in other Finnic varieties, e.g. in the Mikhailovskoe variety of Ludic: *püi-he* 'prong-ILL' (data received from A. P. Rodionova, personal communication).

⁷ See, for example, Moravcsik 1978 about the meanings typically expressed with reduplication.

the cases where the stem and suffix vowels differ (*piihe* 'prong-ILL') can hardly be called reduplication. The third option, echo vowels, usually demonstrate some optionality, and are typically attested in a wider range of contexts than in one particular marker (see, for example, Dayley 1989 : 418–419), so the vowel in the Ingrian illative marker cannot be considered a proper echo vowel.⁸

A number of questions arise in relation to the mechanism that forms the illative marker. Is it productive or was the quality of the vowel chosen long ago and is now "frozen"?⁹ Does this mechanism work similarly for all vowels? Do native speakers use the same mechanism to define the vowel in the illative marker?

In the case of most Finnic languages, we can only guess how the mechanism, which forms the illative marker, works. However, there is one feature that distinguishes Soikkola Ingrian from other Finnic varieties. It is a reflex of the historic long mid vowels *oo*, *öö*, and *ee* in the initial syllable. In some Finnic varieties, these vowels are preserved (cf. Estonian *töö* 'work', *soo* 'marsh', *tee* 'road'). In other varieties, the vowels *oo*, *öö*, *ee* started to raise. Sometimes they changed to diphthongs as in Finnish or some Lower Luga Ingrian varieties (**töö* > *työ* 'work', **soo* > *suo* 'marsh', **tee* > *tie* 'road'). Such a change does not affect the vowel in the illative marker, as it is determined by the second part of the diphthong, which has the same quality as the original stem vowel. In Soikkola Ingrian, the original vowels were not diphthongized but raised. This process was neither completed nor uniform, so these vowels demonstrate a whole spectrum of pronunciations from mid to high, e.g. *oo* ~ *oø* ~ *yu* ~ *uu*.¹⁰ The raising of a vowel depends on a particular speaker and a particular word (Кузнецова 2009 : 127–133, 140–145). Thus, in Soikkola Ingrian (unlike in other Finnic languages) one can trace what happens with the suffix vowel when the stem vowel changes.¹¹ This gives an opportunity to check if the vowel in the illative suffix copies the stem vowel or if some other process is involved.

Thus, the main goal of this paper is to study how the vowel in the illative marker of Soikkola Ingrian monosyllabic nouns behaves. This goal requires the application of experimental phonetic techniques to measure the quality of vowels.

In previous publications on Ingrian, an experimental analysis of the illative marker was not performed, and as a whole information on the illative marker is rather scarce.¹² Porkka (1885 : 62) gives only one illative form of Soikkola monosyllabic nouns: *maaha* 'land.ILL'. He also mentions the posses-

⁸ The analysis presented in this paragraph is very brief and just shows the main directions of criticism against associating the Finnic illative marker with the three mentioned phenomena. A detailed analysis would be interesting from a theoretical point of view but it is beyond the scope of the current article.

⁹ A usual test for productivity is applying the mechanism to newly borrowed words. In our case this does not work because there are no borrowings that have the same structure (a consonant plus a long vowel) as the Finnic monosyllabic words.

¹⁰ The raising from *öö* > *üü* in Vaipooli Votic (cf. Vaipooli Votic *tüühe* 'work.ILL' with the form of Central Votic *tšhē(se)* indicated in Ariste 1968 : 41) does not lead to a change of the suffix vowel because the latter is never high there (Маркус, Рожанский 2017 : 421), cf. *suhhe* 'mouth.ILL', *pihhe* 'prong.ILL'.

¹¹ The same is not true for Lower Luga Ingrian because the stem vowel was either preserved in its original quality or changed to a diphthong. As a result, none of the variants that are attested in this dialect contain a raised vowel in the illative suffix, e.g. *tööhö* ~ *tüöhö* 'work.ILL'.

¹² The experimental phonetic research on Soikkola Ingrian (Sovijärvi 1944) does not analyse the quality of vowels in the illative forms of monosyllabic words.

sive forms with the illative marker $hV(n)$ ¹³ where V is equal to the preceding vowel except when the stem vowel is *i*, which requires *e* in the marker, e.g. *jalgoiheen* 'leg.ILL.POSS.3SG'. In the Oredeži dialect, the stem vowel *u* in monosyllabic nouns triggers *o* in the illative suffix: *pûhon* 'tree.ILL', *sûhon* 'mouth.ILL'. In Лаанест 1978 : 213 and Laanest 1986 : 100, we find a similar description of the monosyllabic illative forms without the possessive suffix: the vowel in the hV marker is the same as the stem vowel, except *i* which requires *e* in the marker. It is illustrated by the examples *moñne pihe* 'several times', *voihe* 'into the butter', *māha* 'into the land', *tõhõ* 'into the work', *lūhu nast* 'up to the bone', *pāhā* 'into the head'.

The specific structure of the illative marker in monosyllabic words is almost ignored in the grammar by Junus. Junus gives a paradigm of the word *maa* 'land' and says that other monosyllabic words decline in the same way (Junus 1936 : 66). Further on in the text, the forms *pāähä* 'head.ILL' and *tõöhõ* 'work.ILL' appear in examples (Junus 1936 : 73).

The dictionary by Nirvi (1971 : 79, 135, 200, 371 etc.) gives only forms with the mid-high stem vowel and mid affix vowel (e.g. *tõhõ* 'work.ILL') but never a form with a high affix vowel (i.e. *tõhü* or *tühü*).

Saar (2017 : 83) mentions that the vowel in the illative marker is similar to the stem vowel and gives the example *tõhõ* ~ *tühõ* 'work.ILL' where the stem vowel is raised but the illative marker remains unchanged.

Thus, the existing sources on Soikkola Ingrian vary in transcription of the stem vowel but are consistent in how they describe the vowel in the illative marker: it always preserves the quality of the original mid vowel. Examples with a raised stem vowel (like in Nirvi 1971 and Saar 2017) contradict the idea that the suffix vowel is a copy the stem vowel.

This article has the following structure: section 2 describes the data and method of the research; section 3 presents a preliminary auditory analysis, section 4 reports on the acoustic analysis, section 5 discusses the results, and section 6 presents the conclusions. Appendix 1 contains an additional representation of the data (box plots), as discussed in section 4. Some observations on the length of the final vowel in the illative forms are given in Appendix 2.

2. Data and method

Ideally, research on vowel quality requires recording special questionnaires in order to get a sufficient number of tokens. Ingrian is a moribund language with a very small number of speakers. Most of them cannot work as language consultants because of their age and poor health, and nowadays recording such questionnaires is no longer possible. For this reason, I use the data from the corpus of elicitations,¹⁴ though these data were not originally aimed at studying the quality of the vowel in the illative marker.

Two types of data were selected from the corpus. During the first stage of the research, I used a questionnaire, which was developed for the analysis of (sub)dialectal variation in Ingrian and was recorded mostly in 2006–2007. It consists of 175 sentences, of which one contains the illative form of the word *šoo* 'marsh'. This sentence was recorded from 28 speakers of Soikkola Ingrian.

¹³ The consonant $-n$ in the illative marker appears in the Hevaha and Oredeži dialects.

¹⁴ This corpus has been collected by me and other members of the Ingrian linguistic expeditions from 2006 until the present. It contains about 700 hours of recordings by more than 60 Soikkola Ingrian speakers.

In most cases, this form was pronounced only once, but 12 native speakers repeated this form between two to four times. Altogether 52 occurrences of this form were recorded. Unfortunately, some of these recordings are of rather poor quality, so analysis via phonetic software would be unreliable. Hence, these data were used only for a preliminary estimation of the vowel quality in the illative marker.

During the second stage, I used several phonetic questionnaires recorded during fieldwork with Ingrian native speakers from 2014–2019. These questionnaires pursued different research goals, so the number of recorded illative forms varies from speaker to speaker. This means that my data are not ideally balanced. However, they are sufficient for answering the research questions listed above.

The phonetic questionnaires under discussion were recorded by 6 native speakers of Soikkola Ingrian. Table 1 lists the speakers and their year and place of birth. Dialectal zones are indicated according to Кузнецова (2009 : 19). All speakers are females.

Table 1

List of native speakers

| Index of speaker | Year of birth | Place of birth | Place of recording | Dialectal zone |
|------------------|---------------|----------------|--------------------|----------------|
| AG | 1936 | Repola | Voloitsa | Northern |
| AL | 1933 | Hamala | Voloitsa | Northern |
| EI | 1929 | Vistina | Otsave | Southern |
| EN | 1932 | Venakontsa | Venakontsa | Southern |
| GI | 1936 | Vistina | Vistina | Transitional |
| ST | 1924 | Mättäsi | Savimäki | Northern |

I analyse three sets of words — one for each of the studied vowels: *öö*, *oo* and *ee*. Every set contains token forms and a few forms analysed for comparison. The token forms are the illative forms of monosyllabic words: *tööhö* 'work.ILL', *vööhö* 'belt' for *öö*, *šooho* 'marsh.ILL' for *oo*, and *teehe* 'road.ILL' for *ee*. In these words, the stem vowel (V1) and the suffix vowel (V2) are measured separately. These vowels are compared with the originally high vowels *üü*, *uu*, *ii* and with the mid vowels *ö*, *o*, *e*. The latter ones are short as they are not subjected to vowel raising (unlike the long mid vowels in the first syllable).

Table 2 describes the structure of the analysed data. Vowels that were measured (i.e. target vowels) are in boldface.

Table 2

Structure of data sets for different vowels

| Set 1 | | Set 2 | | Set 3 | |
|---------|---|---------|--------------------------|---------|-------------------------|
| Vowels | Example | Vowels | Example | Vowels | Example |
| üü | <i>tüüni</i> 'calm' | uu | <i>šuu</i> 'mouth' | ii | <i>pii</i> 'prong' |
| V1 (öö) | <i>tööhö</i> 'work.ILL', <i>vööhö</i> 'belt.ILL' | V1 (oo) | <i>šooho</i> 'marsh.ILL' | V1 (ee) | <i>teehe</i> 'road.ILL' |
| V2 (ö) | <i>tööhö</i> 'work.ILL', <i>vööhö</i> 'belt.ILL' | V2 (o) | <i>šooho</i> 'marsh.ILL' | V2 (e) | <i>teehe</i> 'road.ILL' |
| ö | <i>köhä</i> 'cough' | o | <i>kovašt</i> 'very' | e | <i>pehko</i> 'bush' |

In order to avoid any potential influence of a following word, only the illative forms recorded in sentence-final position were chosen for the analysis. Usually, 10–20 samples were measured for each token word. Other words used for comparison were recorded in sentence-final position or, occasionally, in phrase-internal position. No significant influence of the position on the vowel quality was attested.¹⁵ Usually, 10–15 samples of such words were measured. Though originally three formants of vowels were measured and analysed, only F1, which correlates with the openness of vowels, is considered in this article. Of course, raising of the original *öö/oo/ee* to *üü/uu/ii* also influences F2 and F3, because the difference between *öö* vs *üü*, *oo* vs *uu*, and *ee* vs *ii* is expressed in the whole formant structure of the vowel. However, these two formants either demonstrate the same differences/similarities between vowels as F1 does or just give a more blurred picture. Thus, for every target vowel (see Table 2) a sequence of F1 values from several samples was extracted, and statistical methods were applied to test the differences (or lack of differences) between them.

The Praat software (Boersma, Wenink 2020) was used for the acoustic analysis of the vowel formants. A single-factor ANOVA test was used to determine whether there are any statistically significant differences between the formant values. The vowels (i.e. sequences of F1 values from several samples) were compared in pairs.

For example, in Set 1 (Table 2),

- *öö* in *tööhõ/vööhõ* was compared with (a) *üü*¹⁶ in *tüüni*, (b) *õ* in *kõhã*, (c) *õ* in *tööhõ/vööhõ*;
- *õ* in *tööhõ/vööhõ* was compared with (a) *üü* in *tüüni*, (b) *õ* in *kõhã*;
- *üü* in *tüüni* was compared with *õ* in *kõhã* (as expected, the difference between these vowels was always significant).

The levels of significance of p-value were interpreted in the following way: $p > 0.05$ – no difference is attested, $0.01 < p < 0.05$ – the difference is questionable, $p < 0.01$ – the difference is significant.

3. Auditory analysis

The quality of the stem and affix vowels in 52 recordings of the form *š{oo/uu}h{o/u}* ‘marsh.ILL’ is summarized in Table 3. Here and below, I do not distinguish mid-high and high-mid vowels (i.e. *o̞* vs *u̞*) so only three grades of vowels are considered: non-raised *oo*, half-raised raised *o̞* and fully raised *uu*.

Table 3

Results of auditory analysis of vowels in the illative of *šoo* ‘marsh’

| | | V2 | | |
|----|-----------------|----------|---------------|---------|
| | | high (u) | mid-high (o̞) | mid (o) |
| V1 | high (uu) | 13 | 1 | 2 |
| | mid-high (o̞o̞) | 0 | 4 | 6 |
| | mid (oo) | 1 | 1 | 24 |

¹⁵ In all token words, the stem vowel is preceded by a consonant, so assimilation with the final vowel of the preceding word is not expected.

¹⁶ In other words, a sequence of F1 values from the samples containing *öö* (*tööhõ* ‘work.ILL’ or *vööhõ* ‘belt.ILL’) was compared with a sequence of F1 values from the samples containing *üü* (*tüüni* ‘calm’) in order to detect if there is a statistically significant difference between these sequences.

Table 3 shows that the number of cases where the stem vowel has raised to mid-high or high vowel (the 1st and 2nd rows in the table) is equal to the number of cases without such raising (26 vs 26). Often this raising leads to the raising of the affix vowel as well. Thus, the most typical situation is when the stem and affix vowels are similar (41 vs 11), as shaded grey in the table. However, eight occurrences demonstrate that the affix vowel can keep its quality even if the stem vowel has raised. Only one occurrence where the stem vowel is raised but the affix vowel was only partially raised is attested. There are two problematic cases when the affix vowel is more raised than the stem vowel. I consider these cases to be a hypercorrection: both cases were one of several examples recorded from a native speaker and in the other occurrences by the same speaker no such paradoxical raising of the affix vowel was attested.

This preliminary analysis shows that there is both interspeaker and intraspeaker variation in the quality of vowels in illative forms. A speaker can choose different strategies and sometimes we observe variation in the pronunciation of the same speaker. The two most popular strategies are: (1) both stem and suffix vowels remain non-raised, (2) both stem and suffix vowels are fully raised.

However, the results obtained through the analysis of the word *šoo* 'marsh' should not be considered as an accurate representation of the general situation regarding the reflexes of long mid vowels in the initial syllable. This word is often an exception that preserved the quality of the vowel unlike other words where the vowel has raised. Kuznetsova (2009 : 141–142) lists a number of idiolects where the word *šoo* 'marsh' is indeed such an exception and is not subject to raising. I propose the following explanation for this fact: the full raising of vowels in *šooho* 'marsh.ILL' makes it sound the same as *šuuhu* 'mouth.ILL'. It is very likely that some native speakers try to avoid such homonymy and preserve this form closer to its original shape. Thus, the general picture should contain less occurrences of the unraised stem vowel and, correspondingly, less occurrences of the unraised suffix vowel.

4. Acoustic analysis

Figures 1–3 plot the results of measurements for the three sets of vowels described in section 2. The upper part of every figure lists the indexes of the native speakers (see Table 1). For each speaker, the average F1 values in the samples measured for the four examined vowels are indicated on the Y-axis (the scale in Hertz is in the left part of every figure). If the statistical test shows that the difference between the formant values in these samples is not significant (p -value > 0.5), the corresponding vowels are framed with a solid line. In cases where statistical significance is questionable ($0.1 < p$ -value < 0.5), a dashed line is used.

More detailed information about the samples (the median value, quartiles, etc.) is presented as box plots in Appendix 1.

Figure 1 reveals that there are two groups of speakers: those with a bipartite contrast and those with a tripartite contrast. Most speakers — AL, EN, GI, and ST — belong to the first group. They distinguish the mid vowel *ö* and the high vowel *üü*. Both vowels of the illative form — in the stem and in the suffix — are high vowels. This means that raising of the stem vowel leads to its change from mid to high, and the suffix vowel changes accordingly.

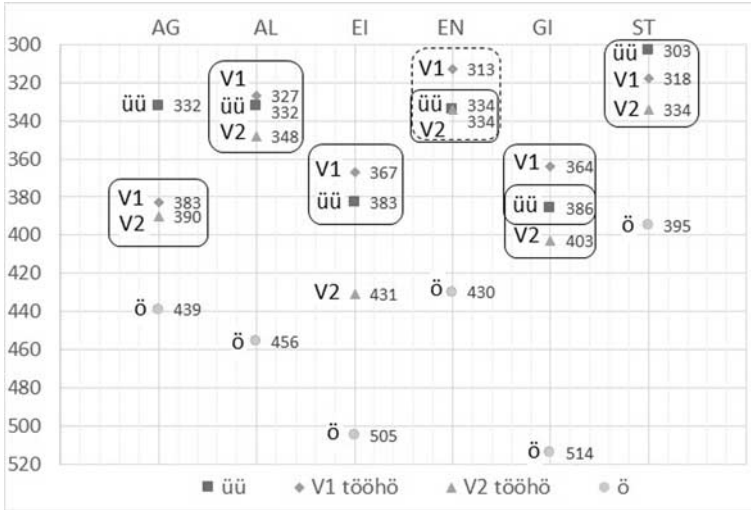


Figure 1. Average F1 (Hz) of rounded front vowels in different idiolects.

AG and EI demonstrate two different tripartite contrasts. AG distinguishes half-raised vowels of the illative form from both mid and high vowels. In the data recorded by EI, only the suffix vowel is half-raised, but the stem vowel is high (i.e. fully raised).

Thus, we observe three different strategies: the main one (used by four speakers) is the full raising of both stem and suffix vowels, the second strategy is the partial raising of both vowels, and the third one is the full raising of the stem vowel and the partial raising of the suffix vowel.

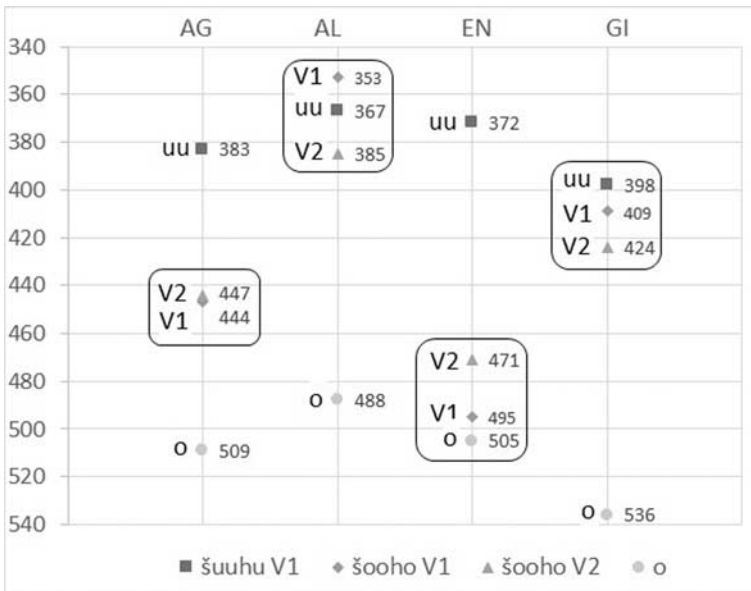


Figure 2. Average F1 (Hz) of rounded back vowels in different idiolects.

The distribution of the results in Figure 2 mostly corresponds to what we have seen in Figure 1. Native speakers AL and GI use the main strategy:

the full raising of both stem and suffix vowels. Partial raising of vowels is characteristic of the examples by AG. The results by EN seem unexpected at first glance: neither the stem nor suffix vowel were raised. However, as mentioned in section 3, the word *šoo* 'marsh' is an exception and is often not subject to vowel raising. In the case of EN, an additional significant factor might be her linguistic biography: she has a higher level of education compared to other speakers and is more likely to reflect on her native language, in particular, to notice the potential homonymy. She also used to live in Estonia; in Estonian, *soo* 'marsh' and *suu* 'mouth' are not homonyms.¹⁷

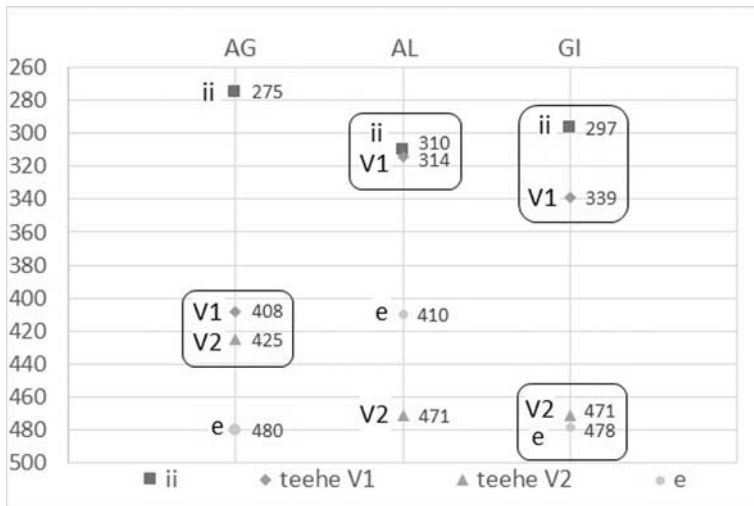


Figure 3. Average F1 (Hz) of unrounded vowels in different idiolects.

Figure 3 differs significantly from the two preceding figures: the strategy with the full raising of both vowels is not attested. AG demonstrates the same strategy as before: the partial raising of both vowels. Speakers AL and GI have a different strategy: the stem vowel is fully raised, and the suffix vowel is not raised.¹⁸

5. Discussion

Table 4 has the same structure as Table 3, but it is based only on the data analysed in section 4. Instead of the number of occurrences, this table contains a list of occurrences: it shows the correlation between native speakers, types of vowel (Ö vs O vs E) and strategy of raising (high vs mid-high vs mid).

¹⁷ In the speech of EN, some Estonian features were attested, e.g. occasional loss of vowel harmony, lack of the pronoun *tämä* 'this' (only *še* 'this, that' is used), occasional Estonian words and forms, etc.

¹⁸ I do not have an explanation as to why the suffix vowel is lower than a regular mid vowel *e* in the material recorded from AL. The latter one was measured in the first syllable and the suffix vowel is in the second syllable, but this factor did not influence the quality of *e* in other measurements.

Table 4

Combinations of the first and second vowels in the illative forms in different idiolects

| | | V2 | | |
|----|----------------------------------|------------------------------------|-------------------------------------|----------------------------|
| | | high (<i>iüü/uu/ii</i>) | mid-high (<i>ö̱ö̱/ö̱ö̱/ēē</i>) | mid (<i>öö/oo/ee</i>) |
| V1 | high (<i>iüü/uu/ii</i>) | AL Ö, O EN Ö GI Ö, O ST Ö | EI Ö | AL E GI E |
| | mid-high (<i>ö̱ö̱/ö̱ö̱/ēē</i>) | | AG Ö, O, E | |
| | mid (<i>öö/oo/ee</i>) | | | EN O |

The behaviour of the vowel in the illative suffix can be labelled as "unstable copying". This means that in general the suffix vowel copies the stem vowel, but sometimes this process is blocked.¹⁹ There are several factors that influence this mechanism.

The first factor is the quality of the vowel. The suffix vowels *o* and *ö* are prone to raising if the stem vowel is raised, while the vowel *e* is usually not raised²⁰ (however, AG uses the same strategy for all three vowels).

The second factor is the particular native speaker. Most speakers produce forms where the suffix vowel has the same quality as the stem vowel, but in the speech of some speakers one can observe forms where only the stem vowel is raised. Often there is variation between such forms and the more typical variants.

In fact, we deal with two types of variation in the illative forms. The first one is the variation of the stem vowel between unraised, partially raised and fully raised, and the second one is the variation in the suffix vowel which can copy the stem vowel or behave independently. As a result, quite a few variants of the illative forms are found in the speech of contemporary Soikkola speakers. Some minor factors make this picture even more diverse. For example, the lexical factor prevents EN from using the raised vowels in *šoo^ho* 'marsh-ILL', but in some earlier recordings that I have the same form is pronounced with a raised vowel, therefore this factor does not appear to be stable. In section 3, examples of hypercorrection when only the suffix vowel is raised were discussed.

Such a messy picture poses two questions. The first one is: How does this situation look from the point of view of phonology? In other words, it is

¹⁹ Occurrences when both the stem and suffix vowels are mid (i.e. not raised) are ambiguous. There are two possible interpretations. The suffix vowel can be considered as a copy of the unraised stem vowel or as a vowel that is independent from the stem vowel (instances where the stem vowel is raised and the suffix vowel is not, support the latter interpretation, see Table 3).

²⁰ My corpus of elicitations contains the form *tii-he* 'road-ILL' with the high stem vowel and mid suffix vowel recorded from four native speakers besides AL and GI. The form *tiihi* was never attested in my material, and I did not observe it in the material published by previous researchers. Cf. with form *piihe* 'prong-ILL' where the stem vowel originated from **ii* but not from **ee*. It is worth mentioning that I have this form recorded from three native speakers (AL, AG and one more speaker). The latter two articulated *piihi* as a spontaneous reaction to the stimulus presented for translation into Ingrian but then immediately corrected it to *piihe*.

a question of the phonological description of Soikkola Ingrian vocalism. The second question is related to the first one: What transcription of the illative forms should be used in a grammar of Soikkola Ingrian?

A more archaic variant of Soikkola Ingrian vocalism is presented in Table 5. It is preserved in some idiolects where the long mid vowels in the initial syllable did not undergo raising. In the idiolects where these vowels fully raised and coincided with the corresponding high vowels, the phonological system has not changed significantly: all phonemes are the same and only the phonotactical rules changed — the long *oo*, *öö*, and *ee* are not typical in the first syllable,²¹ though they are common in non-initial syllables, e.g. *mőkkooma* 'such', *le̋xnöö* 'be.FUT.3SG', *hőqmeen* 'tomorrow'.

Table 5

The original vocalism of Soikkola Ingrian

| | Front | | Back | |
|------|----------|--------|----------|--------|
| | Illabial | Labial | Illabial | Labial |
| High | i ii | ü üü | | u uu |
| Mid | e ee | ö öö | | o oo |
| Low | ä ää | | a aa | |

A problem appears regarding the idiolects where the mid long vowels raised partially (as in the idiolect of AG). In this case, they are phonetically different both from mid and high vowels. If we do not consider the illative forms, one can propose a simple phonological interpretation: the long mid vowels have two phonetic realisations (allophones), a mid and a mid-high. The latter is only found in the initial syllable (with a very limited number of exceptions). However, it is not clear how to deal with the mid-high vowels in the illative suffix of monosyllabic nouns. There are similar phonetic contexts where the final vowel is not raised (cf. *jauho* 'flour'²² with *š̌őqhő* 'marsh.ILL'), so there is no simple phonetic rule that could describe the distribution of allophones. This means that Soikkola vocalism should be reconsidered, and possibly mid-high vowels should be introduced as phonemes. I leave all potential solutions with their pros and cons aside and turn to the second — more practical — question concerning transcription.

If a form demonstrates significant variation on both interspeaker and intraspeaker levels, a grammarian should choose a standard that will be used in the grammar. As shown in section 1, the existing sources on Soikkola Ingrian use one of two standards: with mid vowels both in the stem and suffix (e.g. *tööhö* 'work.ILL') or with a mid-high vowel in the stem and a mid vowel in the suffix (e.g. *tö̋öhö*). The first variant corresponds to the more archaic idiolects and ignores the raising of vowels (which is in fact very widespread). In this system of transcription, the forms *meen* 'honey.GEN' and *peen* 'small' will be distinguished only by the initial consonant although in many idiolects the vowels

²¹ The mid vowels did not raise in the present forms of the verb *tulla* 'come' (*t⁰öön* 'come.PRS.1SG', *t⁰ööd* 'come.PRS.2SG', etc.) or in the nominal forms where the long vowels result from the null degree of consonant gradation: *reen* 'sledge.GEN' < *regi* 'sledge', *veen* 'water.GEN' < *veži* 'water', *meen* 'honey.GEN' < *meži* 'honey'.

²² The word *jauho* preserves the final mid vowel even pronounced by those Soikkola speakers who demonstrate a strong raising of long vowels in the first syllable. It was checked by both auditory and acoustic analysis.

in these forms are very different, cf. [mēn] and [p̄m̄n] respectively. The second variant of transcription seems inconsistent: although the pronunciation [t̄õh̄õ] is attested in some idiolects, it is much less frequent because in most idiolects the suffix vowel is similar to the stem vowel. A possible transcription variant *t̄iih̄ii*, which corresponds to the pronunciation in many existing idiolects, is also not the best solution, as it levels out the opposition of original high and mid vowels (e.g. *šuuhu* would have two meanings: 'mouth.ILL' and 'marsh.ILL'), which is still preserved in a significant number of idiolects. From my point of view, the most promising transcription is the one where both the stem and suffix vowel are transcribed with the symbol for the mid-high vowel, e.g. *t̄õh̄õ* 'work.ILL' or *šõh̄õ* 'marsh.ILL'. In this case, it is sufficient to make a comment in the grammar that the phonetic realization of *õ* can vary between a mid, a mid-high, a high-mid and a high vowel depending on the particular speaker and the particular pronunciation. For the forms with unrounded vowels, the final vowel should be transcribed as mid (e.g. *t̄eḡhe* 'road.ILL') as raising of the suffix vowel was not attested. Such a system of transcription preserves the distinction between raised and originally mid vowels (*p̄eḡn* 'small' but *meen* 'honey.GEN') and between raised and originally high vowels (*šõh̄õ* 'marsh.ILL' and *šuuhu* 'mouth.ILL'). The only flaw of this transcription is that it would not correspond to the rare occurrences where the stem vowel is raised but the suffix vowel is not.

6. Conclusions

This research has shown that the suffix vowel in the illative forms of monosyllabic nouns tends to copy the stem vowel even if this vowel is raised. The cases where the rounded stem vowel is raised but the suffix vowel keeps its original quality exist but are rather rare. If the vowel raising would eliminate the difference between a minimal pair, the phonetic changes in a particular word or form can be blocked in order to avoid homonymy.

The mechanism that copies the quality of the stem vowel to the suffix vowel is productive. However, it is not fully regular: sometimes the suffix vowel can differ from the stem vowel. Besides preserving the original quality, it can be half-raised. There are also occasional cases of hypercorrection when the suffix vowel is raised but the stem vowel is not. There is both interspeaker and intraspeaker variation in the phonetic shape of the illative forms. Speakers apply different strategies that determine the vowel in the illative suffix, and it often happens that the same speaker alternates between these strategies.

The vowel in the illative marker copies the stem vowel only for the rounded vowels (**õõ* and **oo*) but not for **ee*. If the latter is raised, the suffix vowel preserves its original quality.

The raising of the suffix vowel is a phenomenon that should be taken into account when creating a phonological description of Soikkola Ingrian. There are idiolects that require introducing the mid-high vowels as separate phonemes.

The transcription of the illative forms of Soikkola monosyllabic nouns should be reconsidered. I argue for a transcription where both the long vowel in the stem and the vowel in the illative suffix are transcribed as mid-high vowels, e.g. *šõh̄õ* 'marsh.ILL' and *t̄õh̄õ* 'work.ILL'. Such a transcription was not employed in previous sources but it better suits contemporary Soikkola Ingrian.

Acknowledgements. The publication costs of this article were covered by the Estonian Academy of Sciences.

Address

Fedor Rozhanskiy
University of Tartu
E-mail: handarey@yahoo.com

Abbreviations

GEN — genitive, FUT — future tense, ILL — illative, POSS — possessive marker, PRS — present tense, SG — singular, 1, 2, 3 — person.

ÕS 2018 — Eesti õigekeelsussõnaraamat ÕS 2018, Tallinn 2018. <https://www.eki.ee/dict/qs/>.

R E F E R E N C E S

- A r i s t e, P. 1968, *A Grammar of the Votic Language*, Bloomington—The Hague (UAS 68).
- B o e r s m a, P., W e e n i n k, D. 2020, Praat: doing phonetics by computer [Computer program]. Version 6.1.37. <http://www.praat.org>.
- D a y l e y, J. P. 1989, *Tümpisa (Panamint) Shoshone Grammar*, Berkeley—Los Angeles—Oxford (University of California Publications in Linguistics 115).
- H a k u l i n e n, L. 1961, *The Structure and Development of the Finnish Language*, Bloomington—The Hague (UAS 3).
- J u n u s, V. I. 1936, *Izoran keelen grammatikka: morfologia opettaijaa vart*, Leningrad—Moskova.
- L a a n e s t, A. 1986, *Isuri keele ajalooline foneetika ja morfoloogia*, Tallinn.
- M a r k u s, E. 2011, *The Phonetics and Phonology of a Disyllabic Foot in Soikkola Ingrian*. — LU XLVII, 103—119.
- M a r k u s, E., R o z h a n s k i y, F. 2022, *Ingrian*. — *The Oxford Guide to the Uralic Languages*, Oxford, 308—329.
- N i r v i, R. E. 1971, *Inkeröismurteiden sanakirja*, Helsinki (LSFU XVIII).
- P o r k k a, V. 1885, *Ueber den Ingrischen Dialekt mit Berücksichtigung der übrigen finnisch-ingermanländischen Dialekte*, Helsingfors.
- S a a r, E. 2017, *Isuri keele Soikkola murde sõnamuutmisüsteem*, Tartu (Dissertationes Philologiae Uralicae Universitatis Tartuensis 19).
- S i i m a n, A. 2018, *Variation of the Estonian Singular Long and Short Illative Form: A Multivariate Analysis*. — *SKY Journal of Linguistics* 31, 139—167.
- S o v i j ä r v i, A. 1944, *Foneettis-äännehistoriallinen tutkimus Soikkolan inkeröismurteesta*, Helsinki (Suomi-kirjan eripainoksia 5).
- V i i t s o, T.-R. 2007a, *Structure of the Estonian Language. Phonology, Morphology and Word Formation*. — *Estonian Language, Tallinn (Linguistica Uralica. Supplementary Series / Volume 1)*, 9—92. https://kirj.ee/wp-content/plugins/kirj/pub/ling-supplementary-series-Vol1-2007-1-413_20230327141725.pdf?v=a57b8491d1d8.
- — 2007b, *Rise and Development of the Estonian Language*. — *Estonian Language, Tallinn (Linguistica Uralica. Supplementary Series / Volume 1)*, 130—230. https://kirj.ee/wp-content/plugins/kirj/pub/ling-supplementary-series-Vol1-2007-1-413_20230327141725.pdf?v=a57b8491d1d8.
- З а й ц е в а М. И. 1981, *Грамматика вепского языка (фонетика и морфология)*, Ленинград.
- К у з н е ц о в а Н. В. 2009, *Фонологические системы ижорских диалектов. Диссертация на соискание ученой степени кандидата филологических наук*, Санкт-Петербург.
- Л а а н е с т А. 1966, *Ижорские диалекты. Лингвогеографическое исследование*, Таллин.

- Лаанест А. Х. 1978, Историческая фонетика и морфология ижорского языка. Диссертация на соискание ученой степени доктора филологических наук, Таллин.
- Маркус Е. Б., Рожанский Ф. И. 2017, Современный водский язык. Тексты и грамматический очерк. 2-е издание, Санкт-Петербург.
- Родионова А. П. 2018, О некоторых особенностях именного словоизменения в карельско-людиковской диалектной речи. — Вестник угроведения 8 (2), 284—293.
- Рожанский Ф. И. 2011, Редупликация. Опыт типологического исследования, Москва.

Appendix 1. Box plots

Figures 4—6 are box plots based on the same data that are presented in Figures 1—3. The latter give information only about average values and the statistical significance between sequences of samples, while Figures 4—6 demonstrate the average (cross) and median (line) values as well as the 1st and the 3rd quartiles and minimum and maximum values. The X-axis lists all sequences (four vowels for every native speaker), and the Y-axis shows the F1 value (Hz).

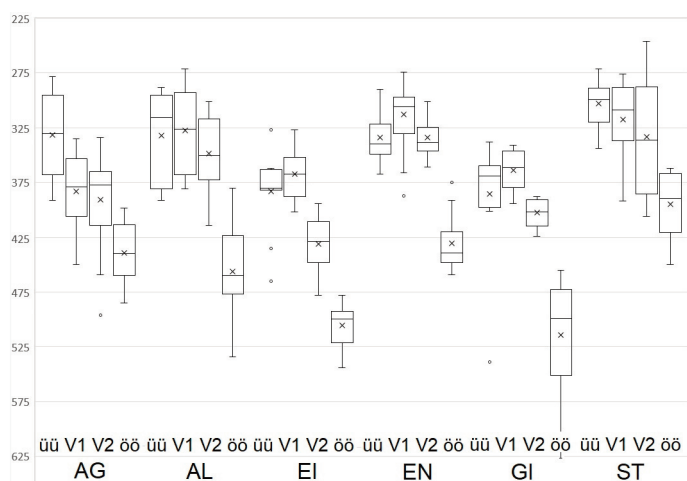


Figure 4. Box plot: F1 (Hz) of rounded front vowels in different idiolects.

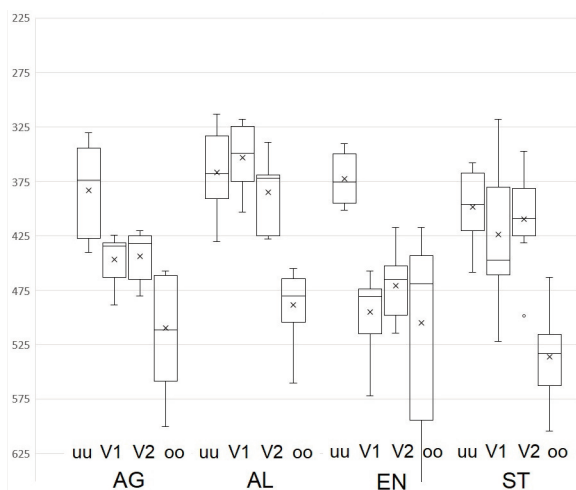


Figure 5. Box plot: F1 (Hz) of rounded back vowels in different idiolects.

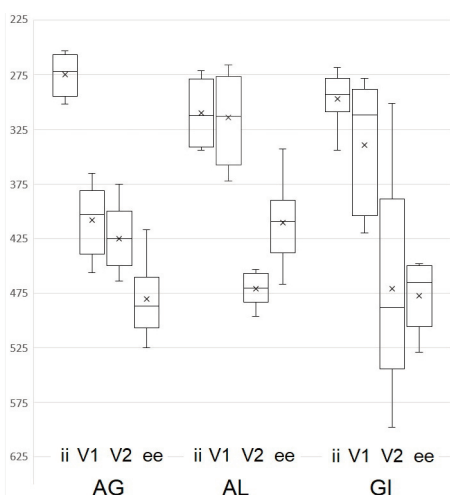


Figure 6. Box plot: F1 (Hz) of unrounded vowels in different idiolects.

Appendix 2. On the length of the suffix vowel in the illative forms

Кузнецова (2009 : 142) mentions variants of the illative forms *sū-hū/sō-ho* 'marsh-ILL.SG' where the quality of the suffix vowel can be interpreted as a factor of its length: the long suffix vowel is *ū* and the short suffix vowel is *o*. In fact, the question of the length of the final vowel in the illative forms is complicated because there is considerable variation in the duration of this vowel. I measured the duration of the final vowel in 52 samples of *šōqho* 'marsh.ILL' discussed in section 3. The duration of this vowel varies from 40 to 205 ms with the median value 100 ms. This means that both short and long vowels are attested in the measured samples of the illative suffix. However, it is difficult to make precise conclusions about the phonological length of the final vowel in each sample, because one has to consider the V1/V2 ratio typical for short and long V2. There is however not enough data on this ratio in the studied structure. Markus (2011 : 107–108) measured the duration of vowels in this structure only for two native speakers. Her results do not help to distinguish the short and long vowels in the illative because the V1/V2 ratio does not demonstrate a noticeable difference between short and long final vowels. In my data, I also do not observe two obvious peaks in the distribution of vowel durations, which otherwise could be the evidence that there is a clear distinction between short and long vowels in the illative suffix and that these vowels vary. The picture is blurred, and the duration of most vowels is somewhere between definitely short and definitely long.

However, my data unambiguously show that there is no correlation between the duration and the quality of the vowel. Both final *u* and *o* are attested among the shortest vowels and among the longest vowels of the illative suffix.

For my transcription, I have chosen a variant with the short final vowel as a standard.

ФЕДОР РОЖАНСКИЙ (Тарту)

ПОКАЗАТЕЛЬ ИЛЛАТИВА ОДНОСЛОЖНЫХ СЛОВ В СОЙКИНСКОМ ДИАЛЕКТЕ ИЖОРСКОГО ЯЗЫКА

В статье рассматривается гласный в показателе иллатива односложных существительных сойкинского диалекта ижорского языка. Этот гласный обычно копирует качество гласного основы слова. В работе используются данные из различ-

ных анкет, записанных от носителей сойкинского и жорского в XXI веке. Исследуемой проблемой становится противоречие между тем фактом, что гласный показатель склонен копировать гласный основы, и существующими описаниями, которые отмечают повышение долгих гласных среднего подъема в основе, но не в показателе иллатива. Для проверки соответствия между качеством гласных основы и показателя применяется как оценка на слух, так и анализ с использованием методов экспериментальной фонетики. Исследование показывает, что качество рассматриваемых гласных демонстрирует как междиалектное, так и внутридиалектное варьирование, а для выбора гласного в показателе могут применяться различные стратегии. Огубленные гласные основы *öö* и *oo* противопоставлены неогубленному *ee*: в случае повышения гласного основы огубленные гласные могут оказывать влияние на качество гласного в показателе, а неогубленный гласный, как правило, не может. В большинстве случаев качество огубленных гласных основы и показателя одинаково, поэтому различное обозначение этих гласных в транскрипции не выглядит оправданным. Для идиолектов, в которых гласные основы и показателя поднялись лишь частично, требуется разработка альтернативного варианта фонологической системы.

FJODOR ROŽANSKI (Tartu)

ISURI KEELE SOIKKOLA MURDE ÜHESILBILISTE SÕNADE ILLATIIVI KÄÄNDELÕPP

Artiklis analüüsitakse ühesilbiliste nimisõnade illatiivi käändelõpus olevat vokaali, mis tavaliselt langeb kokku türevokaaliga. Keeleainestik pärineb erinevatest küsimustikest, mille andmed on isuri keele Soikkola murde kõnelejatelt salvestatud XXI sajandil. Peamist huvi on pakkunud vastuolu, mis seisneb selles, et illatiivi lõpus olev vokaal langeb kokku türevokaaliga ja et olemasolevate kirjelduste järgi kesk-vokaalid kõrgenevad tüves, kuid mitte käändelõpus.

Ühesilbiliste nimisõnade illatiivivormide tüve ja käändelõpu vokaalide kvaliteedi vastavuse kontrollimiseks on kasutatatud nii auditoorset analüüsi kui ka akustilisi mõõtmisi. Uuringust selgub, et vaatluse all olevate vokaalide kvaliteedis on varieerumist nii eri kõnelejate vahel kui ka ühel ja samal kõnelejal ning et illatiivi käändelõpu moodustamiseks saab kasutada mitmesuguseid strateegiaid. Ümardatud türevokaalid *öö* ja *oo* vastanduvad ümardamata *ee*-le: türevokaali *ee* kõrgenemine ei mõjuta käändelõpu vokaali kvaliteeti. Enamasti on nii ümardatud tüve- kui ka sufiksivokaalide kvaliteet sama, mistõttu ei ole õigustatud transkriptsioon, milles neid vokaale tähistatakse erinevalt. Näited, kus nii tüve- kui ka sufiksi vokaal on pooleldi kõrgenenud, viitavad Soikkola murde fonoloogilise süsteemi alternatiivsele variandile.