

ILDIKÓ TAMÁS

The Lule Saami vocalism

“Why there is no vowel harmony in Lappish” was the title of a 1976 paper by István Bátori. His opinion – that there is no vowel harmony in the Saami (Lappish) language – is widely accepted among Finno-Ugrists even today. In this paper I will try to prove that there is vowel harmony (at least) in the Lule Saami dialect. I think that in the Lule dialect of the Saami language the vowels of the first syllable are conditioned by the vowels of the second syllable – not only historically, but by means of two different kinds of vowel harmony processes in present-day Lule Saami, too: (a) a very limited progressive å-harmony, and (b) a general regressive height harmony. Among the Saami dialects, Lule Saami is in an endangered position, with less than two thousand speakers. In spite of this, research on this dialect is not very intensive and no detailed description of Lule Saami phonology has been provided to date (as opposed to most of the other Saami dialects). Certainly, this study can only be the starting point of this work.

In this paper I will make an attempt to present the paradigmatic vowel alternations observable in the first and second syllables in Lule Saami that may seem to be chaotic at first sight. Phonological descriptions of the vowel system have already been made in the case of most Saami dialects; however, Lule has been left out so far (Itkonen, E. – Itkonen, T. – Korhonen – Sammallahti 1971, Sammallahti 1998). Therefore, the description of the Lule Saami vocalism cannot simply be regarded as something imperfect, but rather as something totally missing. From the literature which formed the basis of this research I can only mention three works – a descriptive grammar, a practice book and a monograph giving a general introduction to Saami dialects – that tangentially deal with vowel alternations in Lule Saami, but the background of this phenomenon is not mentioned at all in any of them (Spiik 1977, Nystø – Johnsen 2001, Sammallahti 1998). For establishing the sound values of phonemes, I used some tape recordings and was helped by two Lule Saami informants, one of whom is a co-author of the practice book referred to above (Nystø – Johnsen 2001).

In this paper I attempt to prove that it is not just historically the case that the quality of the vowel in the second syllable has influenced that of the vowel in the first syllable – similarly to Permian languages – but we cannot ignore this

phenomenon¹ in a synchronic description, either. The literature does not list the Saami language among languages with vowel harmony, which is quite justified in the case of most dialects (cf. Bátori 1976: 276, 178–280).

In Lule Saami, however, I believe that the existence of two types of vowel harmony can be proved: a limited progressive *â*-harmony,² and another, more wide-spread, regressive one according to vowel height. In the final part of this paper I demonstrate a vowel alternation pattern that was previously not very much taken into account, together with my tentative description of the background of this phenomenon.

1. Lule Saami vowels

Lule Saami vowels can be classified in terms of four different tongue heights and two places of articulation. The inventory of Lule Saami vowels contains eight vowels and three diphthongs (completed by two further diphthongs with a weaker status, which, however, are not regarded as independent vowels but as variant pronunciations of the mid vowels³). The orthography established in 1982 is phonematic, so one does not always get a real notion of the precise phonetic values of the individual phones. Furthermore, the fact that there are phonetic and phonological differences across Lule Saami subdialects has the result that not all graphemes have the same sound value over the whole dialect area.⁴ (One has to reckon with similar problems in every Saami dialect, cf. Lakó 1986, 28.)

¹ In ancient Lappish there used to be palatovelar harmony as well, which was gradually replaced by height harmony that became dominant in forming first syllable vocalism. In most dialects both types of harmony have disappeared. In the history of the Lappish language, first and second syllable vocalism has a well-known correlation, the first syllable vowel fitting into the vocalism of the second syllable in terms of height, e.g., *o* > *uo* in the case of *-e* stems and *o* > *oa* in the case of *-a* stems, cf. Finnish *lohi* (*lohe-*) ~ (Northern) Lappish *luossa* 'salmon' and Finnish *oksa* > (Northern) Lappish *oakse* 'branch'.

² My own term.

³ In this case, the use of the term 'diphthongoid' (as opposed to 'diphthong') has a theoretical rather than practical reason. The aim is a clearer and easier separation of diphthongs appearing in first and second syllables that behave in totally different ways.

⁴ The Lule Saami dialect can be divided into four subdialects: Northern (N), Central (C), Southern (S) and Western (W). The major differences among the vowel inventories of the subdialects are as follows (Sammallahti 1998: 21–22):

– N–C: *á* in the second syllable, due to *â* in the first syllable (because of rounding and height harmony) undergoes an *á* > *â* change: N–C *jâhttât* ~ S–W *jâhttât*

C [e:] and [o:] (long monophthongs) – in N *oa* and *ea* diphthongs: C *âhpav* [ɔ:hpav] ~ N *oahpav*, C *kehkat* [ke:hkat] ~ N *keahkat*

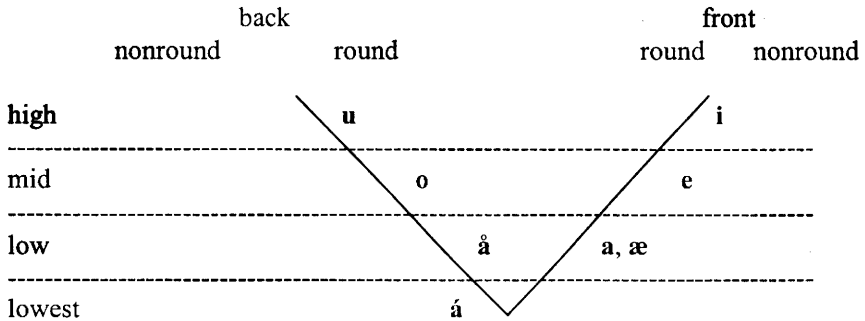
The orthography indicates diphthongs in the first syllable but not the diphthongoids occurring in even syllables. The Lule Saami monophthongs and diphthongs are the following: *á, a, â, æ, e, i, o, u; ie, uo, oa* (IPA: A, æ, ɔ, ε, e, i, o, u; ie, uo, oa). The pronunciation of mid vowels (*e* and *o*) in even syllables is most often [e] and [ʊ], the surface realization of which, apart from their bound (second-syllable) position, is not influenced by the immediate environment. The reason for surface diphthongization may be the long duration as well as the low functional load of the vowels involved. In the phonetic transcription of Sammallahti all the long phones, except for low *á*, undergo diphthongization (both in first and second syllables) but he does not speak of second syllable diphthongs as individual phonemes (Sammallahti 1999, 153–154). Consequently, underlyingly these phones – as suggested by the graphemes indicating them – are to be considered monophthongs. The phoneme *æ* is also problematic because, while in certain subdialects it is a diphthong [ɛä], in others it is a long monophthong [ɛ:] (Sammallahti 1998, 21–22).

In neighbouring Northern Saami, the uniform equivalent of this phone is the diphthong *ea*. With respect to the dual nature of the phoneme *æ*, monophthongization is – I think – a secondary outcome. This approach seems to be borne out by the phonotactic rules, and by the sound system of more conservative dialects. Although in Lule dialects the phoneme *æ* is regarded as a monophthong, the phonotactic rules that apply to diphthongs are valid with respect to *æ* as well.⁵ In this paper I will basically concentrate on the Northern and Central subdialects, which form the basis of the standard language. Before a detailed demonstration of symptoms related to vowel alternations, I survey the Lule Saami vowel system and the possible structures of syllables and words.

C–S: the PS **ea* and **ie* diphthongs undergo neutralization before 2σ **ɛ̃*. N *geasset* [keassⁱet], *diehtet* [tiehtⁱet] ~ C–S [kiessⁱet], [tiehtⁱet]

⁵ Sammallahti holds the same opinion (Sammallahti 1998: 20).

Fig. 1. The system of Lule Saami vowels



1.1. Vowel length

In Saami writing the length of vowels is generally not indicated. The length relationships of vowels are very complicated and depend on the surrounding consonants (or consonant clusters), on the quality of the vowel of the neighbouring syllables, and finally on whether the vowels occur in even or odd syllables. In Lule Saami, length oppositions have a meaning discriminating (and/or grammatical) function only in the case of *a* vs. *á*, e.g., *mánná* SgNom 'child' ~ *manná* VxSg3 'go'; *máná* CxSgGen 'child' ~ *maná* VxSg2 'go'.⁶ Diphthongs and *á* are long, *å* and *e* can be either short or long depending on their phonetic environment, whereas *a*, *i* and *u* are always short. Therefore, we cannot generally speak of a quantitative opposition of vowels. The length of vowels pronounced either short or long is specified by structural rules: they can be long, half-long, or short.⁷ The length of a vowel in the first syllable is determined by

⁶ Of the Saami dialects, the quantitative opposition of vowels has a significant (meaning discriminating) role in Koltta, but we have a restricted number of examples even in this case: *lpKo sä'lbbe* [sælbbe^ɛ] 'lock, padlock' Sg.Nom, *sä'lbbe* [sælbbe] 'to prick' Ind.Praes.Pl/3, *sä'lbbe* [sælbbe:] 'to lock' Ind.Praes.Pl/3 (McRobbie-Utasi 1999: 27).

⁷ Pekka Sammallahti identifies eight different lengths in Lappish (overshort, undershort, short, half-short, half-long, underlong, long, overlong) despite the fact that they do not change the meaning (Sammallahti 1998: 174). The research on the length relations of vowels in Lappish is still in an early stage, therefore I will not deal with this debated issue, which otherwise has no significance with respect to the present topic of harmony types. I believe that the slight differences of the lengths of vowels are due to the steady relations between vowels and consonants within the foot. They are also related to the fact that Lappish feet can be regarded constant basic units with respect to length. This latter seems to be proved by the Koltta-Lappish research of McRobbie-Utasi

the quality of the consonant (cluster) between the first and second syllables (Sammallahti 1971: 11; M. Korhonen 1971: 48, 72). When a long vowel is followed by a consonant cluster in a “too strong” or super-long grade (grade III⁸), the vowel is pronounced shorter. Some vowels have a restricted distribution: diphthongs can occur only in the first syllable while diphthongoids only in an even syllable. The distribution of long and short vowels is as follows:

Long vowels in first syllable

ie	<i>ieddne, giella</i>	'mother', 'tongue'
æ [ɛ:], [ɛä]	<i>hæsstá, ællo</i>	'horse', 'wild reindeer'
á [A:]	<i>áhhtje, mánná</i>	'father', 'child'
uo	<i>guolle, vuollget</i>	'fish', 'depart'
oa	<i>goahte, oases</i>	'tent', 'boutique'
å [ɔ:], [oa]	<i>åhpav</i> (VxSg1) (← <i>oahpat</i>) 'I study', <i>gådijt</i> (CxPIAcc) (← <i>goahte</i>), ⁹ 'the tents'	
e [e:], [eɛ]	<i>merra</i>	'sea'

Short vowels in first syllable

i	<i>idet</i>	'morning'
e	<i>de</i>	'yes, of course' (particula)
u	<i>gursa, gullat</i>	'course', 'to hear'
å	<i>jåhkå</i>	'river'
a	<i>sarves, adám</i>	'horn', 'marrow'

Long vowels in second syllable

e [ⁱ e]	<i>boahtet, tjalmmé</i>	'to come', 'eye'
á	<i>muoddá, áddjá</i>	'aunt', 'grandfather'
o [^u o]	<i>biello</i>	'alarm-clock'
å	<i>bår'råt</i>	'to eat'

as well (McRobbie-Utasi 1999). I deal with the topic more in detail under the subheadings *Vowel alternations related to gradation* and *Quantitative vowel alternations* below.

⁸ See footnote 15.

⁹ å in a first syllable only becomes long as an allophone of *oa*.

Short vowels in second syllable

i	<i>sæmmi, båhtiv</i>	'the same', 'I came'
u	<i>Måhttu, boahitsu</i>	(personal name), 'reindeer'
a	<i>giehta</i>	'hand'
å	<i>jåhkå, dállå</i>	'river', 'fire'

Summary:

- 1st syllable: *ie, uo, oa, æ, á* are always long or half-long, *i, u* and *a* are always short, *e* and *å* alternate (*å* only becomes long as an allophone of *oa*);
- 2nd syllable: *á* (sometimes as an allophone of *a*), *e* and *o* are always long or half-long, *i* and *a* are always short, *å* alternates.

1.2. The distribution of vowels

Restricted distribution is a characteristic feature of Lule Saami vowels and consonants. In the following table I show the possible places of occurrence of the vowels:

Syllable	a	á	å	æ	e	i	o	u	ie	oa	uo
1st: (#_)	+	+	+	+	+	+	–	+	+	+	–
(C_C)	+	+	+	+	+	+	–	+	+	+	+
(_#)	+	+	+	–	+	–	–	+	–	–	–
2nd:(C_C)	+	+	+	–	+	+	+	+	–	–	–
(_#)	+	+	+	–	+	+	+	+	–	–	–
3rd:(C_C)	+	–	–	–	+	+	–	+	–	–	–
(_#)	+	–	–	–	+	–	–	–	–	–	–
4th: (C_C)	+	+	–	–	+	+	+	–	–	–	–
(_#)	+	+	–	–	+	–	–	–	–	–	–

In the first syllable:

- initial (#_): V_0 and VV_0 ¹⁰ with the exception of *o* and *uo*,
- non-initial (C_C): V_0 and VV_0 with the exception of *o*.

In the second syllable:

- all monophthongs with the exception of *æ* (and diphthongoid allophones of *e* and *o*), in (*_#*) position as well.

In the third syllable:

- *e* and *a* in (*_#*) position as well, *i* and *u* (but not in (*_#*) position).

¹⁰ V_0 : any kind of vowel, VV_0 : any kind of diphthong

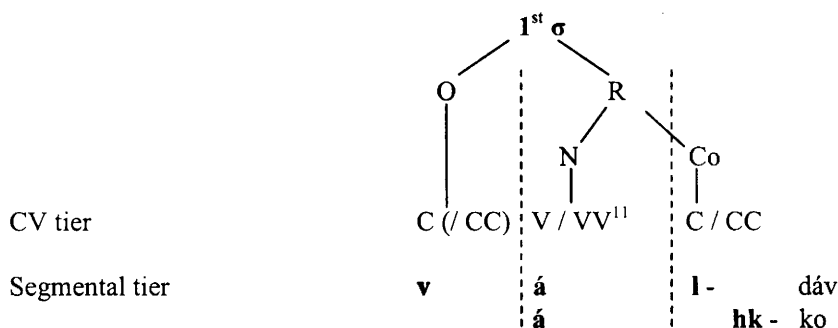
In the fourth syllable:

– *a, á* (only as an allophone of *a* or *e*), *e* and *i, o* (but not in (_#) position).

2. The syllable of Lule Saami

For considerations of space, I do not intend to dwell on the rules of syllable structure; I just introduce the essential amount of information that is indispensable for further analyses. In Lule Saami vowel sequences do not exist, the first nucleus (N) – that can be either a long or short monophthong, or any kind of diphthong – is followed by either the coda (Co) or the onset (O) of the following syllable. (With the exception of some recent loan words, e.g.: *káfea* (ká-fe-a) in which hiatus remains.)

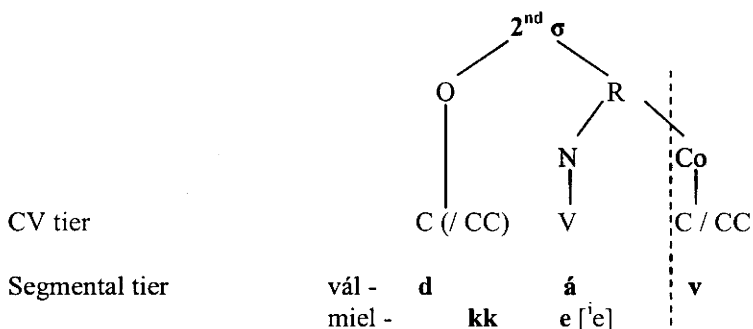
Fig. 2. The syllable structure of Lule Saami: initial syllables



In the syllable tree the presence of the domains left of the first broken line and right of the second is not obligatory, generally either O or Co appears in a syllable, or both of them can appear at the same time as well. However, the onset is an obligatory element of the syllables after the first one. Therefore, the structure of the second and following syllables is as follows:

¹¹ In this case VV refers only to diphthongs, while V indicates both short and long monophthongs together, because in this figure there is no need for a quantitative distinction of the latter.

Fig. 3. The syllable structure of Lule Saami: noninitial syllables



3. The Lule Saami foot and word

In the Lule dialect two-syllable words are dominant, but we can easily find three-syllable ones as well. Neither compounds nor suffixed words are longer than four or five syllables. Only grammatical or function words are monosyllabic. In Lule Saami the vocalism of the first and second syllables is closely connected. The alternation of the vowel in the second syllable (marginal vowel)¹² can implicate the alternation of the vowel at the first syllable (central vowel¹²). For the description of the regressive processes, we have to get acquainted with the structure of Lule Saami words. The bisyllabic Saami word contains one stressed syllable, while the four-syllable word has two (one main and one secondary). The stressed syllable can be followed by one unstressed syllable in words with an even number of syllables; however, in the case of words with an odd number of syllables, the number of unstressed syllables can be two. Consequently, the first syllable of a three-syllable word is stressed and both the following ones are unstressed. The nucleus of a stressed syllable is a central vowel, while that of the following unstressed syllable is called a marginal or 'latus' vowel. In the first case mentioned, the unstressed syllable is the last syllable at the same time, while in the latter case it is followed by another unstressed syllable. Consonants and consonant clusters at the boundary of a stressed and an unstressed syllable are also said to be central. The consonant or consonant cluster between the latus and the following unstressed nucleus (if there is one), the marginal vowel, is also called marginal. An onset consonant in the

¹² In Lappology, the term 'central' is not used to indicate the place of articulation of a vowel but to mark its position within the word itself. The term 'central' can either refer to individual phones or phone articulations.

first syllable is called initial, whereas a coda consonant in the last syllable is referred to as final (Magga 1984: 14, Sammallahti 1998: 39). The terms ‘central’ and ‘marginal’ are potentially confusing since Lappology does not use these terms in their general sense (Magga 1984: 14, Sammallahti 1998: 39). Still, I retain these technical terms not just because of their conventional nature but because of the absence of a strictly equivalent term, since the terms ‘stressed’ vs. ‘unstressed’ or ‘first-’ vs. ‘second-syllable’ would only partly cover the intended meaning.

Therefore, the words *âhpav* (VxSg1) ‘I study’ and *bednaga* (CxSgG) ‘dog’ can be segmented in the following way:

â (central vowel) – *hp* (central consonant cluster) – *a* (marginal vowel) – *v* (final) and *b* (initial) – *e* (central vowel) – *dn* (central consonant cluster) – *a* (latus) – *g* (marginal consonant) – *a* (marginal vowel).

In Saami words, bisyllabic rhythmic units (– ◡) are considered by researchers to be more important than single syllables (Magga 1984). There exists a particular harmony within the rhythmic units in Lule Saami, which is preserved in the course of gradation and vowel alternations. Allophonic alternations – as I will prove later on – in most cases preserve the original (height, length) relations between marginal and central vowels as well as between central vowels and consonants.

A stressed syllable and the following unstressed syllable(s) are together called a ‘foot’, which has two different types (Nystø – Johnsen 2001: 163–4). The formula of the binuclear (short) foot is – ◡ (e.g., *âhpav*), that of the trinuclear (long) foot is – ◡ ◡ (e.g., *bednaga*). If the Lule Saami word contains more than three (i.e., four or five) syllables, it can be divided into two feet. In case of an even number of syllables, the word consists of two short feet, while if the number of syllables is odd then it is made up by a short and a long foot. Obviously, in this case the word will contain not just one but two stressed syllables (generally a main and a secondary one), e.g., *guokta*[l]ahke ‘twelve’ (– ◡ – ◡), where [] indicates the consonant initiating a new foot. The domain of vowel and grade alternations always coincides with the short foot (in cases of words with four syllables with the second foot¹³), and so it covers only two syllables even in the case of a long foot. We have to put an imaginary boundary after the first unstressed syllable of a long foot (/): – ◡ / ◡, therefore the processes which link the central and latus vowels do not involve the (last)

¹³ In the second foot, however, vowel alternations are more restricted because of the bound position.

marginal vowel of a word with an odd number of syllables, similarly to consonants at the boundary of the second and third syllables which are left out of grade alternation. Certain trisyllabic recent loan words contain a short foot instead of the expected long one, such that the normal foot is preceded by a degenerate foot (-), e.g., *mi[n]uhitta* ‘minute’ (- / - ◡). These words are suffixed (and participate in gradation) similarly to words with an even number of syllables. All in all, morphological and morphonological alternations always take place in the - ◡ domain.

Some Lule Saami words have exclusively front or exclusively back vowels, so in principle we could speak of words with front/back vowel harmony. But as most suffixes (both derivational and inflectional ones) have just one form,¹⁴ palatovelar harmony is not possible in Saami, and so originally palatal and velar words can become ‘disharmonic’ when suffixed. The vowel alternations and harmony types presented below all apply within the root itself in all cases, and do not extend to suffixes containing a vowel outside the - ◡ domain.

4. Alternations of marginal vowels

4.1. Morphological alternations

The alternations in marginal vowels occur both in open and closed (usually suffixed) syllables. The alternations occur in three root types, which are the following: -a, -e, -o. The types of marginal vowel alternations are: *a ~ á*, *e ~ á*, *e ~ i*, *o ~ u*.

Observing the alternation types, it becomes obvious that mid vowels are the least stable and functionally the least loaded ones. The functional load of the sounds *a / á*, *i* and *u* is much heavier.

	-a	-á	-e	-i	-o	-u	-å
SgNom.	<i>niejdda</i>	<i>mánná</i>	<i>goahte</i>	<i>bassti</i>	<i>biebbmo</i>	<i>Máhttu</i>	<i>dállå</i>
	‘girl’	‘child’	‘tent’	‘spoon’	‘food’	(male name)	‘fire’
SgIII.	<i>niejddaj</i>	<i>mánnáj</i>	<i>goahtáj</i>	<i>basstij</i>	<i>biebbmuj</i>	<i>Máhttuj</i>	<i>dállåj</i>

¹⁴ Some case endings in the Northern Saami dialect have two forms because of rhythmic grade alternation, thus their consonant represents a weak or strong grade, depending on whether they join an even or odd syllable. Cf. LpN *guliide* ‘fish’ CxPl.III vs. *footnagiidda* ‘dog’ CxPl.III.

The alternations of the marginal vowel of a foot can be described as follows:

- a** → **á** / VxSg3 (*mannat* [Inf] → *manná*)
e → **á** / VxSg1–3 (*boahtet* [Inf] → *boahtá*); CxSgIII (*goahte* [Nom] → *goahtáj*)
e → **i** / VxDu1, VxPI3; VxSg1–2 (imperf.); CxPIGen, CxPIAcc, CxPIIII, CxPIIness, CxPIElat
o → **u** / VxSg3, VxDu1, VxPI3; VxSg1–2 (imperf.); CxSgIII, CxSgKom

4.2. Vowel alternations related to gradation¹⁵

In words with two or three syllables gradation always takes place at the boundary of the first two syllables; in words with four syllables, it takes place between the third and fourth. The appearance of the allophone *á* of *a* in the second half of the foot is bound to gradation and to the quality of the vowel of the first syllable. Thinking within the domain of the short foot, if the central vowel is short and the central consonants undergo gradation of the type II > I, then the marginal *a* lengthens (Nystø – Johnsen 2001: 167):¹⁶

<i>ladnja, lanjá</i>	'room' (CxSgNom, CxSgGen)
<i>mannat, manáv</i>	'goes' (Inf., VxSg1)
<i>lávvodahka, lávvodagá</i>	'Saturday' (CxSgNom, CxSgGen)

Unfortunately, spelling only indicates the quantitative opposition in the case of *a* vs. *á* (because, in addition to the length difference, the place of articulation also differs in this case), thus the long–short vowel alternation is not always traceable in the spelling.¹⁷ In the case of *merra, mera* 'sea', the expected *á* allophone fails to appear, despite the fact that we have a grade I consonant and a

¹⁵ Gradation is a morphophonological phenomenon. It involves an alternation of weak and strong grades of the consonants at the boundaries of 1st and 2nd or the 3rd and 4th syllables. The alternation can be 'radical' (in the stem), 'suffixal' (in the suffix) and 'subradical' (in a relative stem.) According to grade, we distinguish consonants of grades III (too strong or super-long), II (strong) and I (weak). The alternation of the grades brings about quantity and/or quality changes. Discussing this phenomenon in detail is beyond the scope of this paper, but gradation as a vowel modifying factor cannot be disregarded. Some vowel alternations may be overridden or blocked by gradation (both in the first and second syllables of the foot) but others may only be triggered by the appearance of the weaker or stronger grade of consonants.

¹⁶ This alternation has to be differentiated from the *a* – *á* alternation in VxSg3, mentioned earlier, because the latter had been morphologized in Proto-Saami (even though it only appears in word final position, in a seemingly phonologically conditioned form). See: PS **mene-m* > **mene-m* > **mana-m* (VxSg1), **mene-k* > **mene-k* > **mana-k* (VxSg2), **menā-ā* > **men-ā* > **mann-ā* (VxSg3) (Sammallahti 1998: 214–219).

¹⁷ The rather complicated quantity relations, possible oppositions, and allophonic relations of Saami vowels are areas that contain many unsolved problems even for Lappish linguistics, and are untraceable from the viewpoint of standard spelling.

seemingly short vowel in the first syllable. Alternation nevertheless does not take place, because the *e* is long [me:rra]. Conversely, the lengthening of the *á*, which happens under the same conditions, cannot be seen in a written form, for example *dállá* [tǎllǎ], *dǎlá* [tǎlǎ:] 'fire'.

To summarize, we could say that the compensatory lengthening of the low marginal vowels always happens under the above mentioned conditions. (The third low vowel, *æ*, only occurs in a central position, so it falls out of the scope of the rule.) The lengthening (or insertion) rule can be given as follows:

$$\emptyset \rightarrow x / V_S C_I x _]$$

$\left. \begin{array}{c} \\ \\ \\ \end{array} \right\}$

A

x	x	x	x	x
d	á	l	á	

5. Types of central vowel alternations

5.1. Regressive height harmony

The close connection between first- and second-syllable vocalism in Lule Saami mainly involves changes applying from right to left. Second syllable (marginal) vowel alternation results in first syllable (central) vowel alternation. The appearance of the central allophone is bound to that of the marginal allophone:

V_C	V_M		
1. $e \rightarrow \text{æ} / a \rightarrow \acute{a}$		e.g., <i>bessat</i> → <i>bæssá</i>	'escape'
2. $\text{æ} \rightarrow e / o \rightarrow u$		e.g., <i>ællø</i> → <i>elluj</i>	'wild deer'
3. $ie \rightarrow \text{æ} / e \rightarrow \acute{a}$		e.g., <i>biehkiet</i> → <i>bægáv</i>	'slide'

Diachronically, the fact that first- and second-syllable vocalism is closely connected in Saami is well known. The above examples, however, show the synchronic aspect of this phenomenon. The alternations of first-syllable (central) vowels can obviously be explained by height adjustment.¹⁸

In the first type of alternation, the marginal *a*'s lowering to *á* makes the central *e* turn into a more open *æ*.

¹⁸ Nystø and Johnsen refer to such vowel alternations as 'umlaut' (Nystø – Johnsen 2001/2: 165–166). In the Scandinavian terminology the term 'umlaut' is used when a change in the vowel of the second syllable induces a vowel alternation in the first syllable.

In the second type of alternation, the marginal vowel is raised by one degree and hence the central vowel appears as an allophone one degree higher, too.

In the third type, the second-syllable vowel is lowered by two degrees and this affects the diphthong in the first syllable in a way that it is also lowered by two degrees [ie] > [ɛä].

The above examples can only be explained by height harmony that, in the present case, does not produce a perfect height agreement within the foot (which, in the above examples, coincides with the whole word); rather, it results in a coordinated height shift or covariation. With the exact “joint movement” of the central and marginal vowels the balance in the foot, that is, the V_C – V_M relation, is kept.

This type of harmony works within the boundaries of the two-syllable rhythmic unit, the foot. In a four-syllable (two-foot) word it does not work, for the diphthongs (*ie* and *æ*), participating in the alternation, have a restricted distribution and can only occur in central (first-syllable) position. Words with more than two or three syllables are usually compound or derived words and they do not qualify as words from the viewpoint of harmony. Thus, harmony only works in two-syllable words that only have one rhythmic unit.

The variation in the first syllable only involves front vowels; the diphthongs *oa* and *uo* and back monophthongs are excluded from it.

5.2. *â*-harmony

I have coined the term “*â*-harmony” for the sake of simplicity and perspicuity, given that this type of harmony includes the characteristics of both roundness and height harmony. Words containing *â* are mainly homogeneous roots (they only contain *â*), for example, *bârrât* ‘eat’, *lâhkkât* ‘read, learn’, *dâllâ* ‘fire’, *jâhkâ* ‘river’. In the neighbouring Northern (Norwegian) Saami dialect, all these words have an *a* in the second syllable (see lpN *borrat*, *lohkat*, *dolla*, *johka*), so in Lule Saami the marginal *a* has been labialized (Sammallahti 1998: 21). However, the nominative roots of some nouns and non-finite forms of some verbs have an *e* in their second syllables (e.g., *mânne* ‘egg’, *Mâskke* ‘Moscow’, *jâhtet* ‘migrate’, *gåhtset* ‘watch’). In the paradigms of the *e*-root words, *e* alternates with *á* (for verbs in Sg1–3, and for nouns in SgIII), except if the vowel in the first syllable is *â*, because in this case, instead of the regularly expected *á*, we get an *â* (e.g., *goahte* ‘tent’ SgNom – *goahtáj* SgIII, but *Mâskke* SgNom – *Mâsskâj* SgIII; and *boahtet* ‘come’ Inf. – *boadáv* VxSg1, but *jâhtet* ‘migrate’ Inf. – *jâdáv* VxSg1). Again, we see a synchronic counterpart of a diachronic process, because in the paradigm the marginal *á* labializes (and becomes higher) under the effect of *â*-harmony. The regular paradigm of *jâhtet* would be the following:

★*jådáv*, ★*jådá*, ★*jåhtá* (VxSg1-3), but in fact, the correct forms are: *jådáv*, *jådå*, *jåhtå* (VxSg1-3).¹⁹ As we can see, the *å* in the second syllable appears with roundness and height adjustment as an alternant of the *á*, but never in the place of the original *e* root vowel: *jåhtebihhte*, *jåhtebea* (VxDu2-3), *jåhtep*, *jåhtebihhtit* (VxP11-2). In the nominal declension, the expected forms do not occur if there is a marginal *e-á* alternation in the background, so in the case of *månne* 'egg' the regular ★*månnaáj* (SgIII) is replaced by *månnaáj*. On the other hand, *å*-harmony does not apply if, before a Cx or Vx, the original *e* marginal vowel is kept: *månne* (SgNom), *måne* (SgGen), *månev* (SgAcc), etc. The domain of *å*-harmony, in this case, is the short foot, therefore (although there is progressive spreading) instead of suffix harmony we only talk about root harmony.²⁰ The end of the short foot (as seen before in several types of alternation) serves as a boundary in this case too: in longer root alternants and in suffixed roots (where the number of syllables rises to three) the *a* of the final syllable does not participate in the harmony: *tjåttå* 'throat' (SgNom) – *tjåddåga*

¹⁹ The question might arise of whether the appearance of *å* in the second syllable has taken place in order to avoid homonymy. First, we must say that the paradigm containing the second-syllable *á* is irregular. We might see this easier with the help of some Northern Saami examples. In Northern Saami bisyllabic verbs belonging to the (Nielsen spelling) *-e* or (contemporary spelling) *-i* root class have an irregular paradigm in the singular (in the second syllable, an *á* appears instead of an *e*.) According to Korhonen, the appearance of the irregular forms was needed in order to avoid formal identity between past and present forms (M. Korhonen 1981, 270). The present tense singular forms of the verb *boahdet* are: *boadán*, *boadát*, *boahá* (instead of the regular ★*boadín*, ★*boadit*, ★*boahiti*), and in the past tense they are: *bohten*, *bohtet*, *bodii*. We can see that there is no homonymy because the strong and weak roots are used in a complementary manner in the present and past tense paradigms; furthermore, the *i* past tense marker was dropped intervocally already in Proto-Saami (Sammallahti 1998: 79). It would be strange if a language, in order to avoid homonymy, changed both present and past paradigms, when only one change would be sufficient. In verbs with three syllables, having an *-i* root, the present and past forms would truly overlap, therefore in the present tense, before personal suffixes, there is an *a* instead of an *i* (cf. *muitalit* (inf.), Sg1-3 praes. *muitalan*, *muitalat*, *muitala* and Sg1-3 praet. *muitalin*, *muitalit*, *muitalii*.) In this case the two paradigms would actually overlap, so the *i* alternating with *a* in the present singular form has become the marker of present tense. In my opinion, this analogy may have spread over to bisyllabic verbs with an *i* root. Etymologically, Lule Saami, two-syllable, *e*-root verbs correspond to Northern Saami *i*-root verbs (new spelling). The marker of the past tense is also *i*, so the appearance of the *å* in the second syllable is not an attempt to avoid homonymy, but to comply with *å*-harmony.

²⁰ Albeit labial harmony „means that a given suffix has two allomorphs, according to the labial/illabial opposition,” and so „primarily it is typical of complexes of free and bound morphemes (suffix harmony)” (Rédei 1976: 421), in Lule Saami, this harmony type works within the suffixless root, too.

(SgGen), *såhkår* 'sugar' (SgNom) – *såhkkåra* (SgGen) (root alternants)²¹ and *jåhtå-ba* (VxDu3), *dålå-jda* (CxPl.III).

5.3. Quantitative vowel alternations

The central diphthong–monophthong alternation evoked by the gradation of central consonants will be called quantitative vowel alternation.²² The three quantity degrees of the consonants have already been mentioned. Such three-way quantitative opposition can be observed in many Saami dialects, even in the case of vowels: the strongest degree (III, also known as prolonged or super-long degree) is represented by the diphthongs, the strong degree (II) by the long monophthongs, and the weak degree (I) by the short monophthongs (T. Itkonen 1971: 34). Type II–I alternation in consonants always goes together with type I–II alternation in vowels, and type III–II alternation in consonants always cooccurs with type III–II alternation in vowels. I have provided examples of the first case in the section on marginal vowel alternations. In the following examples vowel alternations triggered by type III–II gradation can be observed.²³

III	II	
<i>gæhttjat</i> (Inf.)	<i>gehtjav</i> (VxSg1)	'looks'
<i>Hæjjka</i> (SgNom)	<i>Hejka</i> (SgGen)	(male name)
<i>oahppat</i> (Inf.)	<i>åhpav</i> (VxSg1)	'learn, read'
<i>poassta</i> (SgNom)	<i>påstav</i> (SgGen)	'post'
<i>boanndi</i> (SgNom)	<i>båndi</i> (SgGen)	'husband'
II	III	
<i>germaj</i> (SgNom)	<i>gærmaha</i> (SgGen)	'snake'
<i>lávda</i> (SgNom)	<i>loavddaga</i> (SgGen)	'tent-canvas'

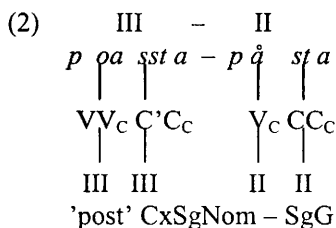
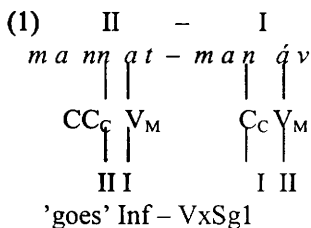
The diphthongs (for reasons mentioned in the introduction, I include *æ* here; see footnote 23 as well) always go together with consonant clusters in grade III,

²¹ In Lule Saami the case suffixes go partially with the strong or the weak or gradated stem. The genitive suffix has been dropped, so only the weak plain root indicates the grammatical relation.

²² Sammallahti writes the following about this phenomenon: "In Lule Saami, stressed vowel alternations are dependent on the quantity of the following consonant center and the following vowel, and only the low diphthongs participate" (Sammallahti 1998:20).

²³ In Lule Saami, quantity-related vowel alternation is not only quantitative, but may also be qualitative in cases of type III–II gradation. Mere length alternation, however, can also be seen in the neighbouring Northern Saami dialect, and it shows some similarity with type II–I alternation in Lule (see: Lakó 1986, 50).

and the long monophthongs with consonant clusters in grade II. The C–V “asymmetrical constellation” of grades II and I can be observed between central consonants and marginal vowels. In type III–II alternation, where central consonants and central vowels participate, the C–V “constellation” is seemingly symmetrical.²⁴



The first type has further phonological conditions (it involves short central monophthongs) and only applies to low vowels, just like in Northern Saami. The second, however, depends on consonant gradation only and concerns low and mid vowels; it cannot be detected in surrounding dialects.

It has been mentioned previously that the vowels that precede consonants in the prolonged (III) grade have a shorter pronunciation than the ones that precede consonants in the strong (II) grade (Sammalahti 1971: 11, M. Korhonen 1971: 48). The quantity distinction between grades III and II means more than just a difference in duration, as there can also be differences in fundamental frequency and intensity.²⁵ If the words above are transcribed phonetically, it can clearly be seen that gradation involves length (and, as can be proved instrumentally, also intensity) equalization between the first and the second syllables, e.g., grade III: *Hæjjka* [hæjjka] or [hæj^aka], grade II: *Hejka* [he:jkka]. The first-syllable diphthong (III) is pronounced shorter than the corresponding monophthong (II),

²⁴ This symmetry, however (as I will prove later on) can only be interpreted theoretically (within a two-syllable metric unit) in connection with the joint appearance of type III-III and II-II of quantity degrees, but within a syllable C–V length relations are asymmetrical. The consistency of C–V relationships was discovered by Zita McRobbie-Utasi, too, in the Koltta-Saami dialect. Moreover, Lakó mentions it in his chrestomathy; but since the dialects they have observed lack the related qualitative vowel alternation, they could not take note of it (McRobbie-Utasi 1999, Lakó 1986, 48–50).

²⁵ According to Tuomas Magga's measurements, in a dialect of Northern Saami (the Kautokeino), diphthongs and monophthongs produce almost identical values with respect to average sound length, furthermore, the long monophthongs are pronounced longer in two specific cases than the diphthongs they alternate with: *ie* 16.1, *ii* 17.5, *ea* 18.6, *e* 18.1, *oa* 18.7, *o* 18.5, *uo* 16.1, *u* 17.2 (msec). Magga also states that the duration of the short monophthongs is about half of that of the long monophthongs (Magga 1984: 99, 100).

due to the prolonged degree (III) of the consonant cluster. It is worth thinking in terms of syllables rather than a foot here and to break up the consonant clusters accordingly: [hæjj-ka] vs. [he:j-kka]. In the case of the stronger (III) grade, the consonant in the first syllable is pronounced longer, or with a schwa, while the one in the second syllable is always short and schwa-less. In the weaker (II) grade, however, the length and intensity (taken away from the first syllable) are given to the onset of the second syllable. The vowels of the first and the second syllable behave accordingly. The length and intensity lost by the consonant during gradation is transferred to the central vowel. The marginal vowel's pronunciation, however, becomes predictably shorter due to the central vowel's lengthening. These statements are theoretical conclusions, drawn from an examination of the deep structure of the paradigmatic alternations. They will have to be made more precise with phonetic measurements and concrete numerical data, but due to the non-availability of the necessary equipment, this has yet to be done.

The vowel alternations presented in this paper usually belong to a particular type, that is, they are either due to height harmony or to *â*-harmony or are quantitative changes. However, there may be cases where several effects are observable in the same root. For example, in *færjjo – ferjujn* 'ferry', there are both height and (grade III–II) quantity adjustments that have to be taken into account. On the other hand, *â*-harmony does not conspire with other types of harmony.

I have mentioned in the introduction that the technical literature does not consider Saami as a language with vowel harmony (although what the term 'Saami' usually means in this connection is the Northern dialect). In this paper, I have attempted to prove that we have to take regressive horizontal harmony (albeit it has disappeared in Northern Saami) into account in both the diachronic and synchronic description of Lule Saami.²⁶ *â*-harmony and quantitative vowel alternations are missing from the dialects east of Lule. I have found such phenomena in the neighbouring southern dialects (Pite, Ume, Southern), but these have yet to be studied further. Mapping possible parallels of quantitative vowel alternations in the neighbouring dialects and also in those further away from Lule Saami remains an aim for future research.²⁷

²⁶ A similar but more complex phenomenon might be observed in Pite and Southern Saami, where the regressive changes (umlaut, according to the Scandinavian terminology) are not only related to tongue height, but they also show palatovelar correspondences. However, this paper will not discuss this in detail.

²⁷ The author is aware that this topic is in need of further research in several respects. The main goal here was to present a comprehensive introduction to the Lule Saami vocalism in a unified framework. Considering the lack of phonological description of the dialect, mere problem

Abbreviations

- long syllable
- ⊂ short syllable
- V_o any vowel appearing in the given position
- V_c central vowel
- V_M marginal vowel
- V_s short monophthong
- VV diphthong
- VV_o any diphthong
- C₁ short vowel, in grade I.
- CC geminate or consonant cluster
- C'C long geminate or consonant cluster, in grade III.
- PS Proto-Saami
- * reconstructed form
- ★ incorrect or non-existing word form

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raising and a summary of the relevant synchronic phenomena may be worth the reader's attention. Nevertheless, the author has also tried to reveal the phonological background of the paradigmatic alternations presented.

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