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MORPHOPHONOLOGICAL NATURE OF MARI ACCENTUATION AS VIEWED FROM THE URALIC PERSPECTIVE*

Abstract. This paper analyses the system of accentuation in Mari. Based on the data collected in the village of Staryj Torjal, the author argues that Mari stress cannot be described only on the phonetic/phonological level. The author proposes a rule that defines the position of stress on the level of morphophonology. The core of the rule is an opposition of two types of formatives (units of morphophonological representation): accentually weak and accentually strong. The final section of the article argues for the Uralic origin of Mari stress, which should not be considered as something alien for the Uralic family as both the opposition of weak and strong units and the close tie between prosodic and morphological levels is typical for Uralic languages.

Keywords: Mari, accentuation, prosody, morphophonology, Uralic languages.

1. Background

A system of accentuation in the Mari language seems to be non-typical for Uralic languages, as Mari has variable but clearly definable stress.[1] The variable position of Mari stress has already been noted by Castrén (1845 : 8—9), along with a few remarks about its location (e.g. that in disyllabic words the stress is more often on the first syllable, although it can also be placed on the second syllable).

In the course of the 20th century, several attempts were made to formulate a set of rules that predicted the position of stress in Mari words. Below I give a few quotations from different sources describing Mari stress. The works are listed in chronological order.

1.1. V. M. Vasiľjev (Васильев 1927 : 8—9) noted: The stress in Mari can be placed in the beginning, in the middle, or at the end of the word.
1. In words having «*а*, *ӓ*»[2] in the final syllable (both open and closed), the final syllable is stressed.

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[1] Cf. Хелимский 1977 : 28: "The study of Mari accentuation is one of the traditional areas of Finno-Ugric studies, as Mari has a distinct system of variable stress".
[2] Here and in the following quotations I leave the Cyrillic symbols for vowels as they are presented in the sources. Symbols *ы* and *ӹ* correspond to the reduced

2. Words with «*э*» in the final closed syllable have stress on this syllable. Words with «*э*» in the final open syllable have stress on the penultimate syllable, unless the vowel in the penultimate syllable is «*ӹ*». In the latter case the stress shifts on the antepenultimate syllable. Exception: a few words ending with «*э*» have stress on it.
3. Short «*ӹ*, *ӥ*, *ӥ*» are usually unstressed. If a word containing «*ӹ*» and «*ӥ*» also has some other vowels, the stress is placed on the rightmost other vowel. If there are no other vowels in non-final syllables except for «*ӹ*», the stress is on the first syllable of the word.
4. In words having «*о*, *ӧ*, *у*, *ӱ*» in the final open syllable the stress comes on the penultimate syllable, unless the vowel in the penultimate syllable is «*ӹ*» or «*ӥ*». In the latter case, the stress moves on the antepenultimate syllable. Very few words ending in «*у*, *ӱ*» have stress on these vowels (mostly in Meadow Mari).

1.2. G. G. Karmazin (Кармазин 1936 : 15—16) added some morphological criteria to define the position of stress:

In order to have a true understanding of Mari stress one has to consider each morphological category separately. Additionally, Mari has three basic varieties: Eastern, Meadow and Hill Mari. Each dialect has its own specific accentuation. [–––][3]
1. The stress in Meadow Mari can be located both in the beginning, in the middle, and at the end of the word.
2. The «*ы*» vowel is not stressed if there are any other vowels in the word.
3. If there are no other vowels in the word except for «*ы*», the stress comes on the first syllable.
4. In Meadow Mari, the word-final vowels «*о*, *ӧ*, *э*» are always unstressed and pronounced similarly to the «*ы*» vowel (see the exceptions below), thus the stress never falls on the final «*о*, *ӧ*, *э*». [–––]
8. The main rule: the stress is on the final syllable of the word if the final syllable (both open and closed) contains the vowels «*а*, *ӓ*, *и*» or if the final syllable is closed and contains the vowel «*э*».

Exceptions to the main rule:
9. Few nouns in Meadow and Eastern Mari have the stress on the word-final «*о*» and «*э*».
10. A few adjectives and nouns in Meadow Mari have stress placed on the word-final «*у*» and «*ӱ*».

1.3. L. P. Gruzov (Грузов 1960 : 132—138) did not formulate any definite rules of the Mari stress, but indicated its correlation with the length of the vowel and the grammatical form of the word:

The Mari stress is not fixed. [–––] The fact that the stress is not fixed does not allow formulating strict rules of its location in a word. [–––] In nouns, the first syllable is quite often stressed, but in verbs the situation is different. [–––] The stress is tightly connected with the grammatical form of the word. [–––] Restrictions on having a stressed «*ы*» is explained by the nature of the stress. As Mari stress correlates with length, and the vowel

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vowel *ə*, *ӥ* is a front variant of the reduced vowel, *э* is *e*, *и* is *i*, *у* is *u*, *ӱ* is *ü*, and other symbols are the same as in the transcription based on the Roman script. To avoid the confusion, Cyrillic symbols are given in quotes «».

[3] Here and below the parts of quotations that contain illustrative material or belong to a dialect other than Meadow Mari are omitted.

«*ы*» is shorter than other vowels, «*ы*» is usually unstressed. [–––] Thus, Mari vowels are in some degree dependent on the stress, and vice versa the location of the stress correlates to some extent with the length of the vowels.

1.4. J. I. Kovedjajeva (Коведяева 1970) addressed the stress in different types of words separately (she discussed disyllabic words with the same root, words with a closed stressed final syllable, polysyllabic words with the same root, compound words, etc.). The author did not distinguish between stress as a prosodic-phonetic mechanism, and stress as a part of the phonological system, therefore she considered many different accentuation types, but did not formulate any compact rules. However, a general principle is the following: "The position of stress in Mari (the Morki-Sernur variety of Meadow Mari) depends on the phonetic structure of the word: the stress is on the full vowel closest to the end of the word. There are some exceptions." (Коведяева 1970 : 96).

1.5. Alho Alhoniemi (1993 : 21—22) suggested that reduced and full vowels should be treated separately, and the latter should be classified into strong and weak. Weak full vowels are those changing into reduced vowels before a suffix. The stress comes on the last strong full vowel or on the very first vowel if there are no full strong vowels in a word. Some inflectional suffixes are considered inconsistent concerning the stress. As will be seen from the following discussion, this rule is often correct, but it does not explain the placement of stress in some forms. For example, in the 1st and 2nd plural past forms the final vowels do not change into reduced, but still they cannot be stressed, and thus they should be considered accentually weak.

1.6. The most detailed rules of Mari accentuation are found in Куклин 2003 : 104—108. The main rules are the following:

If a word ends in «*а*, *у*, *ы*, *ӱ*» or if these vowels are in the final closed syllable, then the stress is on these vowels. However, in imperative and past 1 forms the stress comes on the root, and not on the final «*а*».

If the final closed syllable contains «*э*», it is stressed.

If the final closed syllable contains «*эʲы*» (orthographic «*е*»), the stress comes on the preceding syllable. Many nouns, adjectives, postpositions and particles are exceptions.

If a syllable with «*э*» is preceded with a syllable with «*ы*», the stress is on the preceding full vowel.

If the final closed syllable contains «*ы*» and there are other vowels in the word, the stress is on the full vowel of the syllable preceding the syllable with «*ы*».

If all syllables contain «*ы*», the stress is on the first syllable.

If all syllables contain «*ы*», but the final open syllable contains «*эʲы*», the stress is on the first syllable with «*ы*». Gerunds ending in «*-де*» have the stress on the «*э*» vowel (spelled as «*е*» in the orthography).

If a word ends in «*о*, *ӧ*», the stress is on the preceding syllable.

If a word ends in «*о*, *ӧ*» and the preceding syllable has «*ы*», the stress comes on the full vowel of the preceding syllable.

The quotations listed above create the impression that Mari stress hardly follows any rules, and is dependent on the quality of the vowel, open-

ness/closedness of the syllable, the vowel length, the morphological form and part of speech. However, my research has shown that the situation is not so complicated.

2. Aim of the paper

The main aim of the paper is to explain the structure of the Mari system of accentuation and to formulate a compact rule that describes the position of stress in Mari. The study covers all inflectional forms of nouns, verbs and adjectives.

Another goal of the paper is to discuss Mari stress in the context of other Uralic languages. I suggest that in spite of certain specific features Mari stress does not look alien to the Uralic family. This question will be addressed in the last section of the paper.

3. Data and methods

The study is based on the Staryj Torjal variety of Meadow Mari. There are certain phonetic differences between this variety and Standard Mari,[4] but usually they do not concern the position of stress. The differences in accentuation that I observed are discussed in this paper.

The transcription of examples is the Latin transliteration of standard orthography (phonetic dialectal differences in pronunciation are not indicated, as they do not affect accentuation).

The material was collected by the author in field trips organized by the Department of Theoretical and Applied Linguistics of Lomonosov Moscow State University in 2000, 2001 and 2004.

The main data collecting method was elicitation (a native speaker translated words or simple sentences from Russian into Mari). If necessary, speakers were asked additional questions concerning the position of stress. More than ten native speakers of different ages were questioned, and no significant variation in the position of stress was observed between the speakers. It should also be pointed out that Mari stress is very distinct (the only two exceptions will be discussed below) and confusing the stress position is not likely.

4. Mari accentuation

4.1. The rule of Mari accentuation

As shown above, previous researchers tried to formulate the rules of Mari accentuation in terms of phonetic (segments, syllables) and sometimes morphological units (grammatical forms). Let us compare two Mari words: *šérge*[5] 'expensive:NOM' and *šergé* 'comb:NOM'. These words have the same segmental, syllabic and morphological structure (both consist of one root morpheme). However, the position of stress in these words is different.

[4] These differences are usually regular and concern the pronunciation of certain segments, e.g. *ś* in Staryj Torjal corresponds to *č* in Standard Mari.

[5] Here and below the stressed vowel in Mari forms is marked with an acute. In quotations from other papers the original accentuation marks are preserved.

This example demonstrates that Mari accentuation cannot be described on the phonetic or/and morphological level. What I suggest instead is formulating the rule of Mari stress in terms of morphophonology using a notion of formative as a unit of morphophonological representation.[6]

The morphophonological representation of a word is a sequence of formatives separated with "+" symbols. The border between morphemes is always the border between formatives but not vice versa, as one morpheme can consist of one or more formatives. For example, a form *pörtémən* 'house:POSS.1SG:GEN' consists of three morphemes: *pört-em-ən* 'house-POSS.1SG-GEN'. Its morphophonological representation is *pört+em+ən*, and the borders between morphemes correspond to the borders between formatives. The form *tolméške* 'to come:GERPOST' consists of two morphemes: *tol-meške* 'to come-GERPOST'. Its morphophonological representation is *tol+me+šk+e* (the suffix *meške* is split into three formatives). The cases, when a morpheme should be split into several formatives, will be discussed below.

From the point of view of accentuation every formative can be qualified as weak or strong (the qualifying principles are discussed in section 4.1.1).

Based on the opposition of strong and weak formatives I formulate the following simple rule that allows prediction of the position of stress in all nouns, adjectives and verbs (and also in most words of other classes):

1. The stress is placed on the rightmost strong formative in the word. If there are no strong formatives, the stress is placed on the first vowel in the word.

2. If there are several vowels in a strong formative, the stress is placed on the rightmost full vowel[7] in the formative.

Before proceeding to the analysis of formatives I would like to make a terminological remark: when a morpheme consists of one formative I will use the simplified wording "morpheme X is strong/weak" instead of the more precise "the formative corresponding to the morpheme X is strong/weak".

4.1.1. How one can define whether a formative is weak or strong?

First of all, all formatives, which do not contain vowels, should be defined as weak, as they cannot carry the stress and they do not influence the stress position. Only the formatives that contain vowels will be discussed below.

Formatives are divided into two groups: stem formatives (that form roots and derivational suffixes) and inflectional formatives.

For the stem formatives the following rule is applicable: if there is at least one vowel, which is not *ə*, the formative is strong. If all vowels are *ə* the formative is weak. There are two exceptions among the adverbalizers (see 4.3).

Inflectional formatives can be either weak or strong. The property "to be weak" or "to be strong" is explicitly attributed to every formative. A detailed discussion of inflectional formatives follows in section 4.2 and the full list of inflectional formatives with their accentuation characteristics is given in Table 10.

[6] See, for example, Bauer 2003 regarding the notion of the "formative".
[7] A vowel is full if it is not *ə*.

4.1.2. Harmonic formatives

A very important innovation that I introduce is an inflectional formative that I call "harmonic formative".[8] It consists of only one vowel *o*, *ö* or *e* (usually it is the final vowel of the form), which is always unstressed. The three variants of the harmonic formative are distributed according to the vowel harmony rule.[9] For example, the inessive marker has three allomorphs (*ə*)*što*, (*ə*)*štö*, (*ə*)*šte*, cf. *podəšto* 'cauldron:INE', *pörtəštö* 'house:INE' and *jaləšte* 'village:INE'. I suggest representing these forms on the morphophonological level as *pod+əšt+o*, *pört+əšt+ö* and *jal+əšt+e*, i.e. splitting the inessive marker into two formatives.

The harmonic formative is always weak. It is found in the following forms:

• imperative 2 singular (*šolto* 'to cook:IMP:2SG' — *šolt+o*, *keče* 'to hang:IMP:2SG' — *keč+e*, *jülö* 'burn:IMP:2SG' — *jül+ö*);
• 3 singular past 1 form (*užo* 'to see:PAST1:3SG' — *už+o*; *püčkö* 'to cut:PAST1:3SG' — *püčk+ö*; *pide* 'to knit:PAST1:3SG' — *pid+e*);
• passive participle (*ludmo* 'to read:PRTPASS' — *lud+m+o*, *küštəmö* 'to give orders:PRTPASS' — *küšt+əm+ö*, *šəndəme* 'to put:PRTPASS' — *šənd+əm+e*);
• negative participle (*šoltədəmo* 'to cook:PRTNEG' — *šolt+ədəm+o*, *küštədəmö* 'to give orders:PRTNEG' — *küšt+ədəm+ö*, *ilədəme* 'to live:PRTNEG' — *il+ədəm+e*);
• 3 singular possessive form (*poškudəžo* 'neighbour:POSS.3SG' — *poškud+əž+o*, *üdəržö* 'daughter:POSS.3SG' — *üdər+ž+ö*, *kajəkše* 'bird:POSS.3SG' — *kajək+š+e*);
• inessive case (see examples above);
• illative case (*podəško* 'cauldron:ILL' — *pod+əšk+o*, *pörtəškö* 'house:ILL' — *pört+əšk+ö*, *jaləške* 'village:ILL' — *jal+əšk+e*).

The same formative is part of the following suffixes (traditionally described as derivational): *dəmo/dəmö/dəme*,[10] *lo/lö/le*, *so/sö/se* (derive adjectives from nouns), *zo/zö/ze*, *čo/čö/če* (derive nouns from nouns), and *ešk*e (in this suffix the final vowel is always *e* because it is preceded by another *e* that unambiguously defines the harmonic variant). Therefore I suggest representing e.g. *kütűčö* 'shepherd' as *kütü+č+ö* (the root *kütü*, the derivational formative *č* and the inflectional harmonic formative *ö*) instead of the traditional *kütü+čö* (the root *kütü-* and the derivational suffix *čö*).

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[8] Previous works on Mari did not operate with the harmonic formative. However, some researchers came very close to this idea (Alhoniemi 1993 : 21—22). G. I. Lavrent'jev (Лаврентьев 1975 : 51) considers that nominative forms have a null flexion but at the same time he analyzes the 3Sg imperative forms as containing the suffix *-e* (*-o*, *-ö*), which depends on the vowel harmony.

[9] The vowel harmony rule in the Staryj Torjal variety is the following: the quality of the final u n s t r e s s e d vowel depends on the preceding full vowel. If the preceding vowel is *a*, *e* or *i* (or if there are no full vowels in the word) the final unstressed vowel is *e* (*váte* 'wife', *láve* 'butterfly'). If the preceding full vowel is *o* or *u*, the final vowel is *o* (*múškəndo* 'fist'); if the preceding full vowel is *ö* or *ü*, the final vowel is *ö* (*šűrgö* 'face'). In Standard Mari (and in some other varieties) the vowel harmony is controlled by the stressed vowel (Alhoniemi 1993: 41). The difference between the varieties is seen in loan words where the rightmost full vowel is not stressed. Compare, for example the Staryj Torjal form *ávgustəšto* 'August:INE' (the final harmonic *o* is conditioned by the non-stressed *u*) with the Standard Mari *ávgustəšte* 'August:INE' (the final *e* is conditioned by the stressed *a*).

[10] This suffix should probably be identified with the similar suffix of the participles.

Similarly, the morphophonological representation of *imnéške* 'rider' (from *ímne* 'horse') should be *imn+ešk+e*.[11]

The final *e* in the gerund markers *meške* and *meke* is also considered as a harmonic formative defined by the previous vowel *e* (i.e. the same as in *eške*).

It is easy to notice that many nominative forms of nouns and adjectives end in the harmonic formative, as their final vowel correlates with the quality of the preceding vowel, compare for example, *šúd+o* 'grass', *múškənd+o* 'fist', *ű̈št+ö* 'belt', *šű̈rg+ö* 'face', *érg+e* 'son', *kárm+e* 'fly'.[12] However, the harmonic formative should not be confused with those final *o* and *e* that are stressed and therefore do not follow the vowel harmony rule: *šopké* 'aspen', *kinó* 'cinema'. In these examples the final vowel is a part of the root but not a separate formative.

Summing up, if a nominative form ends in an unstressed *o*, *ö* or *e*, these are always the harmonic formative. If the nominative ends in a consonant or in a stressed *u*, *ü*, *i*, *a*, *e*, *o*, there is no harmonic formative in the word. Thus, the words *šérge* 'expensive:NOM' and *šergé* 'comb:NOM', which were discussed above, have different morphophonological representations: the first consists of two formatives (*šerg+e*), while the second consists only of one formative (*šerge*). It should be emphasized that the harmonic formative is not preserved in oblique case forms:[13] it either disappears or transforms into *ə*[14] (cf. *šúdo* 'grass:NOM' and *šúdən* 'grass:GEN'). The only exception is plural forms with the plural marker *vlak* or *šaməč* following the stem (e.g. *šubo-vlák-əšte* 'fur coat-PL-INE').

4.1.3. Restrictions to the rule

The proposed accentuation rule has the following limitations:

1. It applies first of all to native Mari words. Loan words often preserve the original stress and can contradict the rule, e.g. *térmos* 'thermos', but not **termós*.
2. The rule concerns only primary stress. Secondary stress does not distinguish words in Mari and is not considered in this article.
3. In this paper I do not study the stress in compounds and in word combinations that form one phonetic word (like some analytic verbal forms do). It seems however that it should not be difficult to adapt the rule to compound words.
4. The rule was elaborated for the main morphological classes of words (nouns, verbs, and adjectives). In some peripheral morphological classes

[11] The final vowel of the root is dropped before *eške* (*imn+e+ešk+e* → *imneške*).

[12] The effect of the vowel harmony is especially evident in loan words, cf. *petrúško* 'parsley', *kóftəčko* 'blouse' and *zanavéske* 'window curtain', *tarélke* 'plate' (in all original Russian words the final vowel is *a*).

[13] This fact is very important because it gives us a possibility to avoid *circulus vitiosus*, when the accentuation rule is based on splitting a word into formatives, but the list of formatives is compiled on the basis of accentuation characteristics. The difference in the behavior of stressed and unstressed final vowels in the declension system is an independent argument.

[14] There are forms where both interpretations are possible, e.g. the form *poškudən* 'neighbour:GEN' can be interpreted on the morphophonological level either as *poškud+ə+n* (with a reduced variant of the harmonic formative — *ə*) or as *poškud+ən* (in this case *ə* is a part of the marker). If the interpretation is ambiguous I prefer the second variant when *ə* is considered to be a part of the marker.

(particles, onomatopoetic words, etc.) one can find examples that possibly break the rule, e.g. *téve* 'here', *šə́ve-šə́ve* 'about whispering' (an onomatopoetic word).[15]

Adverbs pose a separate problem not because they contradict the rule, but because their morphoponological structure is blurred due to lexicalization processes. Adverbs are discussed in section 4.3.

5. There are specific cases where the position of stress can vary, and it is problematic even for Mari native speakers to define. I observed two such cases in my material: the dative case forms (see the discussion in section 4.2.2), and the *šəla* gerunds with a possessive suffix (see section 4.2.1).

4.2. Inflexional formatives

In order to predict the position of stress in a word one has to correctly identify the formatives as weak or strong. As noted above, there is no problem in qualifying stem formatives: they are strong if they contain any full vowel(s) (except for the weak adverbalizers *ge* and *la*, see section 4.3). On the other hand, an inflectional formative can be either weak or strong, and there is no direct correlation between its segmental structure and accentuation characteristics (the correlations that do exist are described in section 4.2.4). In this section I will go through the Mari inflection system and define the accentuation characteristics for all inflectional formatives. An inflectional marker may consist of one or more formatives (a full list of markers is given in Table 10). All strong formatives are marked in bold italics.

4.2.1. Inflectional formatives in verbs

Mari finite verbal forms have the following structure:

<Stem> — <Tense/mood marker> — <Personal marker>

Present forms

There is no tense marker in the present forms.

All personal markers are strong except for the 3Pl marker in the conjugation I.

Table 1

Personal markers (present tense)

Person \ Number	Conjugation I SG	Conjugation I PL	Conjugation II SG	Conjugation II PL
1	***am***	***əna***	***em***	***ena***
2	***at***	***əda***	***et***	***eda***
3	***eš***	*ət*	***a***	***at***

Examples: (conjugation I) ***pur+éš*** 'to gnaw-PRS:3SG', ***pur+əná*** 'to gnaw-PRS:1PL', ***púr+ət*** 'to gnaw-PRS:3PL'; (conjugation II) ***šolt+á*** 'to cook-PRS:3SG', ***šolt+əná*** 'to cook-PRS:1PL', ***šolt+át*** 'to cook-PRS:3PL'.

[15] The accentuation rule does work for these examples if we assume that the last vowel *e* is a harmonic formative. However, as these words do not decline or conjugate there is no way to prove this assumption.

Past 1 forms

There is no tense marker in conjugation I. In conjugation II the marker is *əš*, and it is weak.

All personal markers are weak.

Table 2

Personal markers (past 1 tense)

Person \ Number	Conjugation I SG	Conjugation I PL	Conjugation II SG	Conjugation II PL
1	*əm*	*na*	*əm*	*na*
2	*əč*	*da*	*əč*	*da*
3	*o/ö/e*	*əč*	–	*t*

Examples: (conjugation I) ***púr***+*əm* 'to gnaw-PAST1:1SG', ***púr***+*o* 'to gnaw-PAST1:3SG', ***púr***+*na* 'to gnaw-PAST1:1PL', ***púr***+*əč* 'to gnaw-PAST1:3PL'; (conjugation II) ***šólt***+*əš*+*əm* 'to cook-PAST1-1SG', ***šólt***+*əš*+*da* 'to cook-PAST1-2PL', ***šólt***+*əš*+*t* 'to cook-PAST1-3PL'.

Past 2 forms

The tense marker *ən* of conjugation I is weak, while the tense marker ***en*** of conjugation II is strong.

Personal markers are the same for both conjugations. The 1Sg and 2Sg personal markers are strong. All other personal markers are weak.

Table 3

Personal markers (past 2 tense)

Person \ Number	SG	PL
1	***am***	*na*
2	***at***	*da*
3	–	*ət*

Examples: (conjugation I) ***pur***+*ən*+***ám*** 'to gnaw-PAST2-1SG', ***púr***+*ən* 'to gnaw-PAST2-3SG', ***púr***+*ən*+*ət* 'to gnaw-PAST2-3PL'; (conjugation II) ***šolt***+***en***+***át*** 'to cook-PAST2-2SG', ***šolt***+***én*** 'to cook-PAST2:3SG', ***šolt***+***én***+*na* 'to cook-PAST2-1PL'.

Imperative forms

There is no mood marker in the imperative. All formatives in personal markers are weak.

Table 4

Personal markers (imperative forms)

Person \ Number	Conjugation I SG	Conjugation I PL	Conjugation II SG	Conjugation II PL
2	–	*za/sa*	*o/ö/e*	*əza*
3	*š*+*o/ö/e* / *ž*+*o/ö/e*	*əšt*	*əž*+*o/ö/e*	*əšt*

Examples: (conjugation I) ***púr*** 'to gnaw:IMP:2SG', ***púr***+*ž*+*o* 'to gnaw-IMP:3SG', ***púr***+*za* 'to gnaw-IMP:2PL', ***púr***+*əšt* 'to gnaw-IMP:3PL'; (conjugation II) ***šólt***+*o* 'to cook-IMP:2SG', ***šólt***+*əž*+*o* 'to cook-IMP:3SG', ***šólt***+*əza* 'to cook-IMP:2PL', ***šólt***+*əšt* 'to cook-IMP:3PL'.

Desiderative mood

There are two markers of the desiderative: ***ne*** for conjugation I and ***əne*** for conjugation II. Both are strong. 1Pl and 2Pl personal markers are strong, all other personal markers are weak.

Table 5

Personal markers (desiderative mood)

Person \ Number	SG	PL
1	*m*	***na***
2	*t*	***da***
3	*ž*+*e*[16]	*št*

Examples: (conjugation I) ***pur***+***né***+*ž*+*e* 'to gnaw-DES-3SG', ***pur***+***ne***+***dá*** 'to gnaw-DES-2PL'; (conjugation II) ***šolt***+***əné***+*m* 'to cook-DES-1SG', ***šolt***+***əne***+***ná*** 'to cook-DES-1PL'.

Nonfinite verbal forms

In Mari, the nonfinite verbal forms are participles, gerunds and the infinitive.

There are four different participles in Mari: active, passive, negative and future participle. The marker of the future participle is strong while all other participles have weak markers.

Table 6

Participles

Participle	Formative
Active	(*ə*)*š*+*o*/*ö*/*e*
Passive	(*ə*)*m*+*o*/*ö*/*e*
Negative	(*ə*)*dəm*+*o*/*ö*/*e*
Future	***(ə)šaš***

Examples: (conjugation I) ***púr***+*š*+*o* 'to gnaw-PRTACT', ***púr***+*m*+*o* 'to gnaw-PRTPASS', ***pur***+***šáš*** 'to gnaw-PRTFUT'; (conjugation II) ***šólt***+*əm*+*o* 'to cook-PRTPASS', ***šólt***+*ədəm*+*o* 'to cook-PRTNEG'.

There are several gerunds in Mari: affirmative, negative, posterior, anterior and simultaneous.

[16] I identify the personal marker *že* in the desiderative with the personal marker *ž*+*o*/*ö*/*e* in the imperative. The vowel *e* in the desiderative markers *ne* or *əne* conditions the vowel in the personal marker, so only the variant *že* is possible.

Table 7

Gerunds

Participle	Formative
Affirmative	*ən/**en***
Negative	***(ə)de***
Posterior	(***ə**)**me**+šk+e*
Anterior	(***ə**)**me**+k+e*
Simultaneous	(*ə*)*šə+**la***

The formatives *ən* and ***en*** can possibly be identified with the markers of the past 2 tense. The marker (*ə*)*šəla* is considered as consisting of two formatives because it can be split by a possessive marker (e.g. *pörtəlšémla* ← ***pörtəl**+šə+**em**+la* 'to return:GERSIM:POSS.1SG'), see also Галкин 1964 : 174—175 about the origin of *š*(*ə*) and *la*. The part *ške* in the marker (*ə*)*meške* originates from a lative case marker (Галкин 1964 : 173). The part *me* in (*ə*)*meke* can be identified with *me* in (*ə*)*meške*.

Examples: ***púr**+ən* 'to gnaw-GERAFF', ***kol**+**mé**+k+e* 'to hear-GERANT', ***lud-dé*** 'to read-GERNEG', ***tol**+**me**+šk+**ənά*** 'to come-GERPOST-POSS.1PL', ***tol**+**mé**+šk+əšt* 'to come-GERPOST-POSS.3PL', ***tol**+šə+**lá*** 'to come-GERSIM'.

A specific feature of *šəla* gerunds is the possibility to attach a possessive marker, which is placed between two parts of the gerund marker (i.e. between two formatives) (cf. Современный марийский язык 1961 : 264—265). If the possessive maker is strong, the position of stress is not clearly definable. Native speakers admit that the stress can be either on the possessive marker or on the final *la* (compare with the dative marker *lan* discussed below). For example, ***pid**+š+**ed**+**lá*** ~ ***pid**+š+**éd**+**la***[17] 'to knit-GERSIM-POSS.2SG', ***kuč**+əš+**em**+**lá*** ~ ***kuč**+əš+**ém**+**la*** 'to catch-GERSIM-POSS.1SG'.

The marker of the infinitive ***aš*** is strong. For example, ***pur**+**áš*** 'to gnaw-INF', ***šolt**+**áš*** 'to cook-INF'.

4.2.2. Inflectional formatives in nouns

Nominal forms consist of the stem plus case, number and possessive markers. The order of affixes can vary (Luutonen 1997).

As mentioned above, I distinguish inflectional formatives in the nominative singular form of some words. These formatives are final *e*, *o* and *ö* that are always weak and change into the reduced vowel or disappear in oblique case forms (***érg**+e* 'son' — ***érg**+ən* 'son-GEN', ***šúd**+o* 'grass' — ***šúd**+ən* 'grass-GEN', ***šűrg**+ö* 'face' — ***šűrg**+ən* 'face-GEN'). Again I would like to emphasize that in words ending in stressed *e* and *o*[18] these vowels are part of the root and they are preserved in other case forms (***šokté*** 'sieve' — ***šokté**+n* 'sieve-GEN'). These stressed final vowels are not considered as separate formatives.

All case markers except for the dative, lative and comitative cases consist of weak formatives. Dative forms are unique in the Mari declension system,

[17] The voiced consonant in the possessive marker is the result of the assimilation.
[18] In the Staryj Torjal variety there are very few nouns with final stressed *e* (Рожанский 2002), and final stressed *o* is attested only in loan words (e.g. *kinó* 'cinema').

because the position of stress cannot be unambiguously defined there (in all other forms the position of stress is clear both for the native speakers and researchers). The dative forms can be pronounced with the stress on the case marker or on the stem or without a prominent stress at all. This specific feature of the dative case was noted previously (Грузов 1960 : 136; Современный марийский язык 1961 : 72).

Table 8

Case markers[19]

NOM	*– / o/ö/e*
GEN	*(ə)n*
ACC	*(ə)m*
DAT	***lan***
ILL	*(ə)št+o/ö/e*
INE	*(ə)š(k+o/ö/e)*
LAT	***eš / eš+an***[20]
COM	***ge***
COMP	*la*

The markers of the plural ***vlak***, ***la***, ***šaməč*** are strong.[21]

The 1 and 2 person possessives markers are strong (if they contain a vowel), while the 3 person possessive markers are weak.

Table 9

Possessive markers

1SG	*m/**em***
2SG	*t/**et***
3SG	*(ə)ž+o/ö/e / š+o/ö/e*
1PL	***(ə)na***
2PL	***(ə)da***
3PL	*(ə)št*

Examples: ***jal+la+št+ənáˊ*** 'village-PL-INE-POSS.1PL', ***šerge+vlák+əšt+ən*** 'comb-PL-POSS.3PL-GEN', ***pört+əšk+ét*** 'house-ILL-POSS.2SG', ***poškúd+əž+əm*** 'neighbour-POSS.3SG-ACC'.

The comparative degree of adjectives (and also adverbs) is marked with the suffix ***rak***, which is strong, e.g. ***motor+rák*** 'more beautiful', ***šükšü+rák*** 'worse'.[22]

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[19] There are different opinions about the number of morphological cases in Mari. I use the list of cases as presented in Тужаров 1987 : 73.

[20] In the Staryj Torjal variety there are two variants of the adverbial case marker: *eš* and *ešan* (for more details see Бирюк, Рожанский 2002). Both variants consist of strong formatives.

[21] Современный марийский язык 1961 : 72 describes the plural marker *vlak* as "usually unstressed", but in the Staryj Torjal variety the situation is different.

[22] In Standard Mari the word 'bad' is *šűkšö* and it consists of two formatives (root plus harmonic): ***šükš+ö***. Hence, the comparative degree is *šükšərák*. In the Staryj Torjal variety the word for 'bad' is *šükšű*. It does not have the harmonic formative and its final vowel belongs to the stem.

4.2.3. A list of inflectional markers and their accentuation characteristics

Table 10 lists inflectional markers with their accentuation characteristic. Each marker consists of one, two or three formatives (strong formatives are marked in bold italics). Markers that do not contain vowels are not included in the table.

Two formatives (*lan* of the dative case and *la* in gerunds with a possessive marker) are defined as "conventionally strong" and marked with bold. These formatives occur in forms where the position of the stress is not evident (see sections 4.2.2 and 4.2.1). However, their behavior is not the same. The position of the stress is not evident in all dative forms, while the formative *la* in *šəla* gerunds usually behaves as a normal strong formative. Accentual ambiguity appears only if a strong possessive marker is inserted between *šə* and *la*.

Table 10

A list of inflectional markers

a	PRS.3SG (II)	***ge***	COM	*na*	PAST1.1PL
am	PRS.1SG (I)	*əč*	PAST1.2SG (I)	*na*	PAST2.1PL
am	PAST2.1SG	*əč*	PAST1.3PL (I)	***na***	DES.1PL
aš	INF	*əč*	PAST1.2SG (II)	***na***	POSS.1PL
at	PRS.2SG (I)	***əda***	PRS.2PL (I)	***(ə)ne***	DES
at	PRS.3PL (II)	*əm*	PAST1.1SG (I)	*o/ö/e*	PAST1.3SG (I)
at	PAST2.2SG	*əm*	ACC	*o/ö/e*	IMP.2SG
da	PAST1.2PL	*ən*	PAST2 (I)	*o/ö/e*	NOM
da	PAST2.2PL	*ən*	GERAFF	***rak***	CMPR
da	DES.2PL	*ən*	GEN	*sa*	IMP.2PL (I)
da	POSS.2PL	***əna***	PRS.1PL (I)	***šaməč***	PL
(ə)de	GERNEG	*əš*	PAST1 (II)	***(ə)šaš***	PRTFUT
(ə)dəm+o/ö/e	PRTNEG	*əš*	ILL	*š+o/ö/e*	IMP.3SG (I)
eda	PRS.2PL(II)	*əšt*	IMP.3PL	*(ə)š+o/ö/e*	PRTACT
em	PRS.1SG (II)	*əšt*	POSS.3PL	*(ə)šə+***la**	GERSIM
em	POSS.1SG	*ət*	PRS.3PL (I)	*š+o/ö/e*	POSS.3SG
en	PAST2 (II)	*ət*	PAST2.3PL	*(ə)šk+o/ö/e*	ILL
en	GERAFF	*la*	COMP	*(ə)št+o/ö/e*	INE
ena	PRS.1PL (II)	***la***	PL	***vlak***	PL
eš	PRS.3SG (I)	**lan**	DAT	*(ə)za*	IMP.2PL (I, II)
eš(+an)	LAT	*m+o/ö/e*	PRTPASS	*(ə)ž+o/ö/e*	IMP.3SG (I, II)
et	PRS.2SG (II)	***(ə)me+k+e***	GERANT	*ž+e*	DES.3SG
et	POSS.2SG	***(ə)me+šk+e***	GERPOST	*ž+o/ö/e*	POSS.3SG

Table 11 gives several examples of Mari forms divided into formatives. The position of stress as predicted by the accentuation rule is indicated in the second column.

Table 11

Samples of accentuation in various forms

Formative structure	Resulting form with a stress mark	Gloss
əštə+dəm+e	*áštədəme*	to do-PRTPASS
pört+em+əm	*pörtéməm*	house-POSS.1SG-ACC
jal+əšk+em	*jaləškém*	village-ILL-POSS.1SG
čodəra+št+e	*čodərášte*	forest-INE
kudəveč+e	*kudəvéče*	yard.NOM
ru+eda	*ruedá*	to cut-PRS.2PL
kənel+ən+ət	*kənélənət*	to get up-PAST2-3PL
üšan+əš+na	*üšánəšna*	to believe-PAST1-1PL
üšan+əne+na	*üšanənená*	to believe-DES-1PL
todəl+alt+ne+ž+e	*todəlaltnéže*	to break-DES-3SG
todəl+alt+ət	*todəláltət*	to break-PRS.3PL

The last two examples in Table 11 contain a derivational formative ***alt***. These examples demonstrate that drawing a border between stem formatives is not significant from the point of view of accentuation (except for two weak formatives *ge* and *la*, which are discussed in section 4.3). Even if the derivational suffix is not considered as a separate formative (***todəlalt+ne+že*** and ***todəlalt+ət***) the accentuation rule gives the same result. In general, any sequence consisting of strong formatives is not sensitive to the borders between them, as these borders do not influence the rule: in such a sequence the stress is always on the rightmost full vowel.[23]

4.2.4. Correlations between the segmental structure and the accentuation characteristics of a formative

The analyzed data reveal certain correlations between the segmental structure of formatives and their accentuation characteristics.

1. If there are no full vowels in a formative (of any type), the formative is weak.
2. If a formative ends in a consonant and contains at least one full vowel, it is strong. Similar to the previous one, this rule applies to any type of formatives.
3. If an inflectional marker contains *o* or *ö* vowels, these can only represent the harmonic formative. As there are no other full vowels in inflectional markers with the harmonic formative *o* or *ö*, and the latter one is always weak, any marker containing *o* or *ö* cannot be stressed.
4. Vowels *ü*, *u* and *i* do not occur in inflectional formatives. Taking into account what was said above about stem formatives, any formative containing *ü*, *u* or *i* is strong.
5. The presence of *a* and *e* in an inflectional formative does not indicate its accentuation characteristics, cf. the weak *da* in the past tense 2Pl forms with the strong ***da*** in 2Pl possessive forms, or the strong ***ge*** in the comitative with the weak *že* in the 3Pl form of the desiderative mood.

These observations can be summed up into following statements:

1. All inflectional formatives that do not contain *a* or *e* are weak.

[23] The same is true for the sequence "weak formative + strong formative", but not for the sequence "strong formative + weak formative".

2. Inflectional formatives that contain *a* or *e* and end in a consonant are always strong.
3. Inflectional formatives containing *a* or *e* and do not end in a consonant can be either weak or strong.

4.3. Stress in adverbs

Adverbs pose a separate problem; compare words with similar segmental structure but different position of stress: *ónd*e 'now, already' but *pəkšé* 'hardly, only just'; *íže* 'only now' but *ešé* 'still, yet'.

The source of the problem is evident: adverbs often originate from lexicalized grammatical forms, so splitting them into formatives can be really problematic. If an adverb is formally a regular grammatical form of a noun or an adjective, it can be divided into corresponding formatives (e.g. *šoláške* 'to the left' ← *šolá* 'left' + *ške* 'ILL'). In other cases the situation is more complicated. It does not look like adverbs violate the proposed accentuation rule, but the problem appears because there is no accurate morphophonological description of adverbs. As providing such a description is beyond the scope of this study, I will only discuss the most important points concerning the adverbs here.

1. There are two homonymous adverbalizers *la* in Mari. One of them is accentually strong and is used to derive adverbs from nouns denoting nationality: *tatarlá* 'in Tatar; in the Tatar way', *rušlá* 'in Russian; in the Russian way'.[24] The second one is accentually weak and should probably be identified with the comparative suffix (see section 4.2.2), as it "derives the adverbs of manner with a shade of comparative meaning" (Современный марийский язык 1961 : 280): *pírəla* 'as a wolf', *jočála* 'as a child'.

2. There are two different adverbalizers *ge*. One of them is strong and should probably be identified with the comitative marker, as "the suffix *ge* derives adverbs with meaning of something aggregated" (Современный марийский язык 1961 : 281): e.g. *təjgé* 'with you'.

The other *ge* is weak, e.g. *rű̆žge* 'hand in hand, together'.[25]

3. Similar to other parts of speech, many adverbs end in a harmonic formative, i.e. in a vowel that obviously follows the vowel harmony rule: *mŏŋgö* '(to) home', *mű̆ndərkö* 'far', *šúko* 'many', *umbáke* 'far', *erdéne* 'in the morning', *ónde* 'now, already', *táče* 'today', *íže* 'just now'. However, since adverbs cannot be declined, there is no accentually independent criteria that proves the existence of the harmonic formative (opposite to nouns where the harmonic formative is easily revealed through oblique case forms).

Once again I would like to point out that the morphophonology of Mari adverbs needs a separate investigation, but a preliminary study did not show noticeable contradictions to the proposed accentuation rule.

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[24] Современный марийский язык 1961 : 286 claims that there are only two adverbs (*rušlá* 'in Russian' and *marlá* 'in Mari') with the final stressed ***la***. In the Staryj Torjal variety this group of adverbs is bigger.

[25] Современный марийский язык 1961 : 281 mentions the adverbalizer *ge*, which derives adverbs of manner from imitative words. Most likely it should be identified with the weak *ge*. However, usually the etymology of adverbs with this formative is not transparent on the synchronic level, and thus we cannot use the features of the source word as a reliable criterion for distinguishing between the weak and strong *ge* formatives.

4.4. Conclusions

The analysis presented above allows making the following conclusions about the accentuation system in the Staryj Torjal variety of Mari:
1. There is a formal rule that defines the position of stress in a form. The rule operates on the morphophonological level; it is not enough to consider only phonetics and phonology (there are lexemes with the same segmental structure but with a different position of stress).
2. The position of stress does not correlate directly with the grammatical class of a word (i.e. part of speech).
3. In order to locate the position of stress in a form the following steps should be made:
a) Splitting the form into formatives;
b) Defining the accentuation characteristics of each formative (weak or strong) with the help of Table 10.
c) Applying the accentuation rule described in section 4.1.
4. It is crucial to distinguish unstressed final vowels *e*/*o*/*ö* as a separate harmonic formative. This formative is also important for the description of the Mari morphophonological system in general. For example, nouns ending in this formative constitute a separate paradigmatic type (Рожанский 2003).
6. There is a correlation between the vowel harmony and accentuation. Harmonic formatives are never accentually strong. In most (but not in all[26]) cases the vowel that determines the harmonic variant is stressed.
7. The *ə* vowel has a special status in Mari. It is not only shorter than other vowels (Lehiste, Teras, Help, Lippus, Meister, Pajusalu, Viitso 2005), but it is also opposed to full vowels from the point of view of accentuation — strong formatives cannot contain only reduced vowels.

5. Mari accentuation system in the Uralic context

This section addresses the question whether the described system of Mari accentuation is exceptional or typical for the Uralic languages. The analysis I give on the subject is not comprehensive, but it allows formulation of some preliminary answers.

From what we can find in grammars, the Uralic languages can be divided into three groups from the point of view of accentuation:
1. Languages with distinct fixed stress.
2. Languages with distinct variable stress.
3. Languages with non-distinct stress.

This classification is obviously rather imprecise.

First, the prosodic features of many Uralic languages are not studied well enough and the existing descriptions give only basic (and sometimes contradictory) information.

For example, for Enets (the Forest dialect) N. M. Tereščenko (Терещенко 1993b : 345) noted that "stress comes mainly on the first syllable". Florian Siegl (2011 : 91) wrote that "Stress is fixed and falls on the first syllable. [–––] A weak secondary stress falls on following odd-numbered syllables". A. Šluinskij (in private communication) claimed that although the first

[26] The vowel harmony rule in the Staryj Torjal variety and in Standard Mari was discussed above in footnote 9.

syllable is undoubtedly marked from the point of view of accentuation, the situation is much more complicated: a preliminary analysis of the main prosodic features (intensity, length and pitch of vowels) did not show any interpretable correlation with the stress, and additionally some affixes can affect the stress position.

Second, there is a significant variation between dialects, and accentuation characteristics should be attributed rather to a particular dialect than to language in general (for example, in Eastern Mari there are many words that have two stress patterns (Sebeok, Ingemann 1961 : 9), but it is completely untypical for Meadow Mari).

Third, there are languages that combine features from different groups.

Anyway, it is evident that the Uralic family is not homogeneous from the point of view of accentuation systems. Nevertheless I suggest that there are features typical for accentuation in most Uralic languages: the correlation with the distribution of weak and strong units in a word, and a close tie between prosody and morphology on the synchronic level.

5.1. Languages with distinct fixed stress

This group of languages is the biggest in the Uralic family. According to grammars it includes all Finnic and Sami languages, Moksha, Udmurt, Nganasan, Hungarian and Mansi.

In most cases languages from this group have the stress on the first syllable, but in some languages another syllable carries the main stress (e.g. the last syllable in Udmurt and the penultimate syllable in Nganasan). In grammars one can mostly find only short passages about stress, such as: "In this language the primary stress comes on the first syllable and the secondary stress comes on odd syllables". However, papers with a more detailed analysis of the stress show that apart from the primary stress (and the secondary stress tied to the odd syllables) these languages demonstrate many additional, rather nontrivial prosodic features and interesting cases that exceed the bounds of the main principle.

Let us consider several examples:

5.1.1. In E s t o n i a n, the main stress falls on the first syllable (with rare exceptions usually in loan words) and does not mark differences in lexical meaning or grammatical function. Both differences are marked, however, by three quantity degrees (traditionally referred to as Q1, Q2 and Q3) that are contrastive in prosodic feet (Ross, Lehiste 2001 : 38). The contrast of quantities is based on a whole set of characteristics that are strongly intertwined, including the syllabic length, syllabic weight and pitch contour (Viitso 2003 : 10—20). The quantity is often the only feature that distinguishes morphological forms of a word; compare, for example ´linna 'town:GEN.SG' of Q2 and `linna 'town:PART.SG' of Q3 (Viitso 2003 : 14). It is also possible to find correlations between the quantity degrees and morphological markers.[27]

[27] For example, in Viitso 2003 : 12: "Except for some foreign proper names, the co-occurrence of both a long monophthong or a diphthong and a geminate obstruent in a word with a syllable of Q2 is restricted (a) to genitive plural forms of some nouns and (b) to the second-person present-tense forms of monosyllabic vocalic verb stems, both of which have the suffix *-te*".

5.1.2. In Ingrian (Soikkola dialect), which also has the primary stress on the first syllable, the prolongation and reduction of vowels and consonants can be described via the contrast of light, heavy and extra heavy feet (Кузнецова 2009; 2012). Some morphological markers determine the weight of the foot (e.g. the inessive marker conditions the extra heavy foot, cf. light *lin.nă* 'town.NOM' and extra heavy *lin.nàž* 'town.INESS').
5.1.3. In Udmurt, the last syllable is usually stressed but there are a number of deviations from this principle. For instance, according to Geisler (2005) in the imperative forms the stress usually comes on the first syllable; the adverbalizer *ak* makes the position of stress not distinct; in some dialects there are suffixes that move stress onto the first syllable, and so on.
5.1.4. In Nganasan, usually the penultimate syllable is stressed. However, according to E. Helimski (1998 : 486—487) "This general principle is optionally violated by the retraction of stress from a high vowel or *ɔ* to the vowel (usually an open one) in the preceding syllable: *baru̲sʲi* ~ *ba̲rusʲi* 'devil'. Longer words (with five syllables and more — such words are very common in Nganasan) are usually divided into two, three or four — potentially even more — rhythmic groups. Each group typically contains two syllables (two phonological vowels), and the last group has two or three syllables. It is very common — especially for verbal forms — that the stem and the derivational suffix (or suffixes) are bisyllabic, so that the boundaries between groups in most cases coincide with the boundaries between morphemes, while the last group includes a cluster of inflectional suffixes (sometimes together with a monosyllabic derivational suffix). [–––] The last group has, according to the general rule, the main stress on its penultimate vowel, and all preceding groups receive additional stresses on their first vowels. [–––] The rhythmic organization of words plays an important role also in the morphophonology of Nganasan, regulating the phenomenon of rhythmic gradation".

5.2. Languages with distinct variable stress

The second group of languages is relatively small. It includes Mari (analyzed in detail in the first part of this paper), Selkup and Komi-Permyak.
5.2.1. In Selkup "the position of stress demonstrates a dualistic phonetic-morphological dependence" (Кузнецова, Хелимский, Грушкина 1980 : 137). There are several types of affixes that condition a different position of stress. One type includes affixes without vowels or only with the *u* vowel. In words containing only such affixes the stress comes on the last long vowel or on the first syllable, if there are no long vowels in the word. Affixes of the second type contain short vowels other than *u*. These affixes are stressed if they are not followed by long vowels or other affixes of the same type in subsequent syllables. The third type of affixes makes the form double-stressed. It is easy to notice the similarity between this system and the Mari accentuation that operates with weak formatives, strong formatives and *lan* and *la* formatives that distribute the stress between two syllables.
5.2.2. In Komi-Permyak the stress is variable. R. M. Batalova (Баталова 1993 : 230) noted: "The Komi-Permyak stress takes a special place among other Permian and Finno-Ugric languages because it is morphologically dependent". V. I. Lytkin (Лыткин 1966 : 303) wrote that the stress "always

comes on one of the syllables within the stem. The position of stress depends on a morpheme: some morphemes are always unstressed, some are stressed, and some draw the stress to themselves or to the previous syllable". M. Geisler (2005 : 162—172) conducted a detailed analysis of the Komi-Permyak stress and distinguished two groups of dialects that have different accentuation schemes. In the first group the stress is "vocalic-qualitative", and the general accentuation rule is based on the division of the first syllable vowels into three groups: a) *a*, *e*, *ɛ*, *o*, which are stressed; b) *i*, *u*, which are stressed in some words and unstressed in other words; c) *ɨ*, which is always unstressed. However, this rule has a number of exceptions, because some morphemes can draw the stress to themselves. In the second dialectal group the stress is morphological and its position depends on derivational suffixes. There are two types of such suffixes: those that are stressed and those that are not stressed but draw the stress to the previous syllable.

5.2.3. There are rather contradictory data about K h a n t y accentuation (possibly due to a strong dialectal variation). L. Honti (Хонти 1993 : 303) wrote that in the Surgut variety of the Eastern dialect "the word stress is dynamic, it comes usually on the first syllable, but in certain cases can move to the second syllable". A. Filchenko (2007 : 57—60) described a much more complex system in Eastern Khanty (Vasygan and Alexandrovo varieties), where the stress can be on the first or second syllable but "it is typical for poly-syllabic words to have multiple stress" and "in tri-syllabic words, stress appears to fluctuate between the first and second syllable and no decisive pattern appears to be clear". I. Nikolaeva (1999 : 10) gave a different description for the Northern dialect (Obdorsk variety): "The stress system is based on an unbounded quantity-sensitive foot constructed from left to right. The primary stress falls on the leftmost heavy syllable. In the absence of heavy syllables, stress lodges on the first syllable in the word". Again, it is easy to note some similarity between Khanty accentuation as described by I. Nikolaeva and Mari accentuation.[28]

5.3. Languages with non-distinct stress

This group includes Erzya, Nenets and possibly Komi-Zyrian and Enets (the latter was discussed in section 5).

5.3.1. E r z y a is the most striking example of this group of languages. A. P. Feoktistov (Феоктистов 1993 : 192) noted: "In Erzya the free stress prevails and its position depends on the speech rhythmic unit that includes a particular word or form". Lehiste et al. gave a detailed analysis of the acoustic characteristics of stress and concluded that "in disyllabic and even trisyllabic words, the opposition between a stressed and an unstressed syllable is hardly perceptible; the location of stress in a word can alternate without a change in meaning (e.g. *mo·ro*/*moro·* 'song', *ko·moro*/*komo·ro* 'handful, palm of a hand'; it is maintained that alternations in the location of word stress are phonologically non-distinctive, nor do they change a word into a non-word" (Lehiste, Aasmäe, Meister, Pajusalu, Teras, Viitso 2003). N. Aasmäe (2006 : 162—164) noted that the position of stress in Erzya depends on the rhythmic features of the utterance and Erzya dialects vary

[28] The similarity between Khanty and Mari accentuation was mentioned in Lewy 1962 : 287.

in both the degree of stress mobility and the acoustic characteristics of the syllables.

5.3.2. N e n e t s can also be considered as belonging to this group, because of the ambiguous nature of the stress. N. M. Tereščenko (Терещенко 1993a : 328) noted: "The Nenets stress is variable and movable: *véva* 'bad' — *vevávna* 'badly' — *vevarkávna* 'worse'. There are also words with a double or multiple stress. In some words the stress is distributed evenly among the syllables and some words are pronounced without any stress at all. The unstressed final *a* is reduced both in quality and in quantity. The stress can distinguish lexical meaning: *tóda*(*ś*) 'to vomit' — *todá*(*ś*) 'warm oneself by the fire'". In Nenets there is a strong correlation between stress and vowel alternations. T. Salminen (1997 : 42) analyzed the process of vowel reduction, where the schwa ° is derived from the reduced vowel *Ø* in unstressed syllables (with the condition that a syllable becomes stressed if followed by a syllable with °). The stress and correspondingly the distribution of the schwa ° and the reduced *Ø* in some cases are dependent on the morphological characteristics of the form.

5.3.3. K o m i - Z y r i a n combines features of languages with both fixed and non-distinct stress (and to some extent, with variable stress). The accentuation systems of Komi-Zyrian dialects vary significantly. In most cases there is a tendency to have the stressed first syllable, but the stressed syllable can be ill-defined and the stress can often move to some other syllable. In some dialect there are formatives that draw the stress to themselves (Geisler 2005 : 157—162).

5.4. Conclusions

This short overview of the Uralic accentuation systems allows the drawing of several conclusions.

In most Uralic languages (including those with fixed stress) the prosodic system is not trivial. In the core of the Uralic accentuation systems there is an opposition of weak and strong units (syllables, feet or morphemes — depending on a language and on a particular model of description). This opposition can influence the position of stress and the phonetic realization of segments, and very often conditions the appearance of reduced vowels.[29] In some languages reduction is phonetic (e.g. in Ingrian reduced vowels are restored in a distinct pronunciation) while in some other languages the reduced vowel became a phoneme. As a result the segmental and suprasegmental levels are strongly intertwined and the analysis of prosody should also address the level of morphophonology. Being often dependent on grammatical forms, accentuation cannot be considered as a pure phonetic phenomenon, and the attempts to describe accentuation only on the phonetic level often lead to incorrect statements.[30]

[29] It does not concern only vowels. For example, Lewy (1962 : 287) suggested that there is a correlation between the position of stress and grade alternations in the Uralic languages. This idea is disputable but possibly it has a rational kernel.

[30] Cf. for example the description of Mari accentuation in Van der Hulst 1999 : 451: "In Literary Mari accent falls on the last full vowel and in words with only reduced vowels on the initial syllable. [–––] One complicating factor in Literary Mari is that final open syllables are never accented".

The Mari accentuation system is a completely typical example of such system. It is based on the contrast of weak and strong formatives and demonstrates correlation between the stress and quality of vowels (the accentuation behavior of the reduced vowel *ə* and full vowels is crucially different).

The fact that similar accentuation systems can be observed in other Uralic languages (first of all, in Selkup) suggests that the main principles of the Mari accentuation system have Uralic roots and should not be interpreted as a contact-induced innovation. I would like to note that the thesis regarding the identity of Mari and Chuvash accentuation systems (Хелимский 1979 : 130), which leads to the idea that the Mari accentuation system was borrowed, does not seem correct. Probably, E. Helimski (Хелимский 1979) was basing his judgement on the description of Mari accentuation in Коведяева 1970 : 96, where the deviations from the principle that "the stress is placed on the rightmost full vowel" are considered as exceptions and such an interpretation is supported by the statement that "along with numerous foreign borrowings, especially Turkic, and along with the adoption of the language of the neighbouring Turkic nations, the accentuation system of these languages was also adopted". The Turkic languages definitely had influence on Mari, but the Mari accentuation system demonstrates typically Uralic features.

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Abbreviations

ACC — accusative; COM — comitative; COMP — comparative (case); CMPR — comparative degree; DAT — dative; DES — desiderative mood; GEN — genitive; GERAFF — affirmative gerund; GERANT — anterior gerund; GERNEG — negative gerund; GERPOST — posterior gerund; GERSIM — simultaneous gerund; ILL — illative; IMP — imperative; IMPRS — impersonal form; INE — inessive; INF — infinitive; LAT — lative; NOM — nominative; PART — partitive; PAST1 — past 1 tense; PAST2 — past 2 tense; PL — plural; POSS — possessive; PRS — present/future tense; PRTACT — active participle; PRTFUT — future participle; PRTNEG — negative participle; PRTPASS — passive participle; SG — singular; **(I), (II)** — number of conjugation; **1SG, 2SG, ...** — person and number.

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ФЕДОР РОЖАНСКИЙ (Тарту—Москва)

МОРФОНОЛОГИЧЕСКАЯ ПРИРОДА МАРИЙСКОГО УДАРЕНИЯ В КОНТЕКСТЕ УРАЛЬСКИХ ЯЗЫКОВ

В отличие от большинства уральских языков, в марийском языке имеется четко выраженное разноместное ударение. Начиная с XIX века предпринимались попытки сформулировать правило, определяющее позицию ударения в марийских словоформах, однако исследователям удавалось лишь выявить основные тенденции в постановке ударения, но не вывести общее правило. Причина такой ситуации проста: на фонетико-фонологическом уровне (на котором исследователи пытались вывести правило постановки ударения) невозможно объяснить различие в позиции ударения в словах с одинаковым сегментным составом (ср. *ší́rge* 'дорогой' и *šergé* 'гребень'). Попытки апеллировать к морфологической структуре слова также не давали желаемого результата — в приведенном примере оба слова состоят только из корневой морфемы.

В данной статье, использующей материал староторъяльского говора (луговой диалект), предлагается правило постановки ударения, сформулированное в терминах морфонологии. Формативам (единицам морфонологического представления) приписывается характеристика быть акцентуационно слабыми или акцентуационно сильными. Само правило постановки ударения формулируется следующим образом:

Ударным является самый правый сильный форматив, а если такового нет, то ударение падает на первый слог. В сильном формативе ударение падает на самый правый полный (т. е. не являющийся редуцированным *ə*) гласный.

Акцентуационная сила/слабость формативов основы определяется по их фонетическому составу. Флексионным же формативам эта характеристика приписывается эксплицитно — таким образом, проводится различие, например, между сильным формативом *da* во втором лице множественного числа желательного наклонения и слабым формативом *da* во втором лице множественного числа прошедшего времени.

Принципиальным для применения описываемого алгоритма становится введение сингармонического форматива. Сингармонический форматив — это гласный *e*, *o* или *ö*, определяемый правилом сингармонизма и наблюдаемый в целом ряде марийских форм, в том числе в форме номинатива многих имен. В частности, он вычленяется в форме *šérg+e* 'дорогой', но не в форме *šergé* 'гребень', о чем свидетельствуют формы косвенных падежей этих слов, ср. *šérgən* 'дорогой:GEN' (сингармонический форматив исчезает) и *šergén* 'гребень:GEN' (конечный гласный корня, не являющийся сингармоническим формативом, сохраняется).

Предлагаемое правило позволяет определить позицию ударения в именных и глагольных формах (за исключением некоторых заимствований, сохранивших оригинальное ударение). Что касается слов других классов (наречий, частиц, подражательных слов), то их морфонологическая структура иногда оказывается недостаточно прозрачной и не позволяет однозначно провести членение на формативы. В результате возникают отдельные примеры, которые могут интерпретироваться как противоречащие правилу акцентуации.

В заключительном разделе статьи дается краткий обзор акцентуационных систем других уральских языков. На первый взгляд, уральская семья не выглядит гомогенной с точки зрения акцентуации. Можно выделить три группы языков на основе принципов постановки ударения: а) языки с фиксированным ударением, б) языки с подвижным ударением, в) языки с плохо определимой позицией ударения. Однако более детальный анализ позволяет выявить общие тенденции в организации уральских акцентуационных систем. В большинстве языков, независимо от принадлежности к одному из указанных типов, наблюдается противопоставление акцентуационно сильных и акцентуационно слабых единиц (слогов, стоп, формативов). Другим свойством уральских языков становится тесная связь между просодической и морфологической структурой слова. С этой точки зрения акцентуационная система марийского языка выглядит как типично уральская.