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## **Verbs of sound in the Moksha language: a typological account<sup>1</sup>**

This paper discusses verbs describing sounds of inanimate objects in the Moksha language. First, we focus on their literal uses, taking into consideration both acoustic and non-acoustic semantic components. Second, we analyze metonymic and metaphoric shifts undergone by Moksha sound verbs, focusing on their semantic and constructional features. Some methodological implications from the study are also discussed.

Keywords: lexical typology, the Moksha language, verbs of sound, polysemy, semantics.

### **1. Introduction**

This paper deals with verbs that describe sounds of inanimate objects in the Moksha Mordvin language. In total, our research covers 22 verbs: *kaštərdəms* ‘to rustle’ (e. g. dry leaves), *galdərdəms* ‘to clatter’ (e. g. dishes), etc. The data was collected in 2013-2015 during our fieldwork with the speakers of the Central dialect in the villages of Lesnoje Cibajevo, Lesnoje Ardashevo, and Lesnyje Sijali in Mordovia (Russia)<sup>2</sup>.

We take into consideration the semantics of sound verbs both in literal and in metaphoric uses, in order to find out what semantic oppositions emerge in this domain in Moksha and what other domains are cognitively related to sounds of artifacts through the system of metonymies and metaphors. Moreover, our study covers the constructional properties of sound verbs and the semantic reasons for their constructional alternations.

The lexicon of sound was touched upon in some previous research on the Mordvin languages. M. D. Imajkina (1968) discusses ideophones in the Mordvin languages, taking into account their phonetical, grammatical and semantic properties and providing some information about the lexical meaning of ideophonic roots that describe sounds. However, the ideophones described in (Imajkina 1968) belong to many semantic classes, and no special focus is put on the domain of sound. Some sporadic data on sound verbs can be found in (Buzakova 1977; Cygankin 1983). Nevertheless, no thorough investigation of these verbs covering all their semantic and constructional properties has been conducted so far.

Our Moksha data is analyzed not as an isolated phenomenon, but from a typological perspective (which was obviously underestimated in the previous research). We aim to compare the Moksha data with that of other languages and to find out, first, to what extent our Moksha data meets typological predictions, and, second, what new empirical evidence it may add to the typology of sound verbs. Our language sample includes Russian, German, French, Serbian, as well as several Uralic languages: Komi, Khanty, and Nenets, see (Kashkin, Pavlova 2010; Pavlova, Kashkin 2011; Kashkin et al. 2012, 2014) for details.

This approach lies within the framework of lexical typology, which seeks to reveal the typological patterns of how the lexicon is organized and the universal constraints imposed on the lexicon (cf. very similar tasks of typology in grammar). This approach has already been applied to such lexicon domains as colour terms (Berlin, Kay 1969), posture (Newman (ed.) 2002),

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<sup>2</sup>These three villages are situated not far from one another, and their inhabitants have been in touch with each other for a long time. Their local idioms are homogenous, that is why we do not distinguish between them in our article.

motion in water (Maisak, Rakhilina (eds.) 2007), cutting & breaking (Majid et al. 2007, 2008), eating & drinking (Newman (ed.) 2009), pain (Bricyn et al. (eds.) 2009; Reznikova et al. 2012), rotation (Kruglyakova 2010), surface texture (Kashkin 2013), temperature terms (Koptjevskaja-Tamm (ed.) 2015), etc. Although all the projects on lexical typology ultimately pursue the same goal, they differ substantially in their methodology of data collection. It is possible to speak of two main trends here. The first one consists in conducting experiments with visual stimuli (pictures, audio and video recordings, etc.) and picking out the most common responses of consultants to each stimulus. Nowadays this approach, following (Berlin, Kay 1969), is developed in MPI in Nijmegen, see, for example, (Majid et al. 2007, 2008; Ameka, Levinson 2007; Dingemanse 2011). This method has some obvious advantages: it provides an objective basis for comparing languages and reduces the risk of a misunderstanding between a researcher and a consultant. At the same time it has an important limitation, treating lexical items out of context and making it impossible to reveal their linguistic behaviour. A striking example of it can be found in (Rakhilina 2008: 176-179): Russian words for 'brown' are chosen depending on the semantic class of a head noun. An adjective *koričn'evyj* tends to describe artifacts (e. g. *koričn'evyj zabor* 'a brown fence'), while natural objects are often collocated with its synonym *buryj* (e. g. *buryj medved* 'a brown bear'), and there are some idioms with an adjective *kar'ij* (*kar'ije glaza* 'brown eyes'). Such semantic differences cannot be noticed in an experiment with abstract colour stimuli without taking into account collocational data. Koptjevskaja-Tamm (2015: 33-36) also discusses the insufficiency of the stimulus method for describing experiential qualities by the example of temperature lexicon: these stimuli are not linked to any specific object, which is actually crucial for understanding how the concept of temperature is encoded in a language. In our research we follow the approach of E. Rakhilina and M. Koptjevskaja-Tamm and carry out a collocational study of sound verbs, see (Rakhilina, Reznikova 2013, 2014) for more methodological details. We use a typological questionnaire containing a list of possible sound sources and situations of sound emission (in total, 85 questions). The questionnaire takes into account the distinctive parameters within this domain found in the previous typological research, as well as the extralinguistic reality surrounding our Moksha consultants. For instance, it includes the following questions (formulated there in Russian, the latter being the intermediary language in our fieldwork):

- (1) *The door hinges are badly oiled, so the door \_\_\_\_\_ when one is opening or closing it.*
- (2) *The thunder \_\_\_\_\_ right above us, there is lightning around.*

The consultants are expected to fill in the gaps in such questions with suitable verbs, give an example in Moksha (which may be either a translation of the sentence from the questionnaire or a consultant's own sentence describing the same situation), translate what they have said into Russian, and answer further questions about possible and impossible word combinations in a particular sentence. Each question was asked of at least 5-7 consultants, complicated cases were discussed with a greater number of native speakers. The consultants were also welcome to give their own additional examples for any sound verb, which seems to reduce the risk of missing important contexts. We also compared our field material with the data coming from dictionaries and texts.

This paper is structured as follows. In Section 2 we discuss the literal uses of sound verbs. Section 3 is devoted to metonymic and metaphoric uses, focusing both on their semantics and on the morphosyntactic processes they involve. Section 4 draws conclusions.

## 2. Literal uses

### 2.1 Acoustic scale

As there are plenty of situations in which a sound is emitted, it would be difficult to have a specific verb for each situation. So the task of the research on sound verbs is to find out how this semantic space is subdivided by different languages. As has been shown in (Kashkin et al. 2012), the literal uses of sound verbs are organized in two dimensions. First, the choice of a verb depends on the acoustic properties of a sound. There is a scale of sounds based on their regularity and continuity. The main points on this scale are the following:

- monotonous regular sounds (e.g., drone of a landing plane);
- continuous irregular sounds (e.g., rustling of tree leaves);
- continuous discrete sounds (e.g., crackle of dry wood);
- regular discrete (e.g., clatter of heels);
- instantaneous (e.g., a sound of sth. falling down)

According to the typological generalization made so far, any sound verb covers an uninterrupted zone on this scale (for example, a verb can describe both continuous irregular sounds and continuous discrete sounds, but cannot describe continuous irregular sounds, regular discrete sounds, and at the same time not continuous discrete sounds).

However, typological studies show that not only acoustic parameters are relevant when we describe verbs of sound. Also important are the type of a sound source (its size, weight and material) and the general type of a situation in which a sound is emitted, see (Kashkin et al. 2012) for the typological overview.

Moksha data meets the typological predictions concerning the scale of discreteness. All the Moksha verbs of sound taken into account correspond to uninterrupted zones on the scale. At the same time, there are some curious cases of polysemy here. An illustration may be provided by the verbs denoting different kinds of squeaking and crackling: *čəvərdəms*, *čətərdəms*, *c'atərdəms*, *kec'ərdəms*, and *lakštərdəms*.

The verb *čəvərdəms* refers to “metallic” squeak (e. g., that of a door or a wheel), see (3-4), which is a very monotonous sound

(3) *l'isaped-ən' žari-t' iz'-əz' vad'-ə,i son čəvərd-i<sup>1</sup>*  
bicycle-GEN wheel-DEF.SG.GEN NEG.PST-PST.3.O.3PL.S oil-CN and it squeak-NPST.3SG  
'The wheel of a bicycle hasn't been oiled, and it is squeaking'

(4) *kenkš-s' čəvərd-i, mijardə panž-sak.*  
door-DEF.SG squeak-NPST.3SG when open-NPST.3SG.O.2SG.S  
'The door squeaks when it is opened'

Another verb in this zone – *čətərdəms* – describes different kinds of irregular discrete and irregular continuous sounds. It is therefore closer than *čəvərdəms* to the “instantaneous” endpoint

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<sup>1</sup>Moksha examples are given in a phonological transcription in our paper. If an example has no explicit reference to a source, it means that it was provided by a native speaker in one of the villages listed in the Introduction.

of the acoustic scale. Thus, *čatərdəms* describes crackle of deformation (5-6), and also a loud “wooden” (but not “metallic”) squeak (7). The squeak of snow or teeth is also described with this verb, cf. (8).

(5) *ard-t tostə, doska-t'n'ə čatərd-ij-t', a to praj-at.*  
 go-IMP.SG from.there wooden.board-DEF.PL crackle-NPST.3-PL or\_else fall-NPST.2SG  
 ‘Move aside, the wooden boards are crackling, you may fall down’

(6) *panar-s' s'ejčas s'ez'ə-v-i, čatərd-i.*  
 shirt-DEF.SG now tear-DETR-NPST.3-SG crackle-NPST.3SG  
 ‘The shirt is about to tear, it is crackling’

(7) *oc'u varma-stə kriša-s' čatərd-i.*  
 big wind-EL roof-DEF.SG squeak-NPST.3SG  
 ‘The roof squeaks when the wind is strong’

(8) *lov-s' čatərd-i maroz ezda.*  
 snow-DEF.SG squeak-NPST.3SG frost in.ABL  
 ‘The snow is squeaking, because it is frosty’

Note also that the verb *čatərdəms* is used when one speaks about radio interference (9). This use is favoured by the acoustic semantics of *čatərdəms*, as the sound of a radio affected by other waves is usually discrete, but not monotonous.

(9) *rad'io majak-s' čatərdə-z' rabota-j.*  
 radio Mayak-DEF.SG crackle-CONV.ATD work-NPST.3SG  
 ‘The “Mayak” radio station is working with a crackling noise’

The verbs *c'atərdəms* and *kec'ərdəms* describe more discrete sounds caused by the process of burning or significant heating, see (10). The difference in their use will be discussed in Section 2.2; however, the sounds they denote are acoustically very similar.

(10) *ps'i pačkalgə-t' lank-sə vaj-s' kec'ərd-i / c'atərd-i.*  
 hot frying.pan-DEF.SG.GEN on-IN oil-DEF.SG crackle-NPST.3SG / crackle-NPST.3SG  
 ‘The oil is crackling on the hot frying pan’

The last verb of crackling – *lakštərdəms* – refers to loud abrupt outbursts of burning or sudden deformation. For example, it may be used when there are instantaneous sounds produced by wood or slate (11) in a fire or by a large breaking piece of wood (cf. also the situation of deformation in (12) where *lakštərdəms* is appropriate). However, this verb does not collocate with nouns denoting ice or small pieces of wood, as their deformation results in less discrete sounds.

(11) *kuc' pal-s', šifer-n'ə lakštərd-gəc't'.*  
 house-DEF.SG burn-PST.3SG slate-DEF.PL crackle-INCP.PST.3PL  
 ‘The house was burning, and the slate started crackling’

(12) *jakšam-t' ezda kuc' lakštərd-i.*  
 frost-DEF.SG.GEN in.ABL house-DEF.SG crackle-NPST.3SG  
 ‘The house is crackling because it is frosty’

## 2.2. Situation parameters

As has already been mentioned, the non-acoustic parameters of a sound situation can be of great importance when a speaker has to choose between two or more sound verbs. Moksha data confirms this typological claim. For example, the sound of a stroke can be described by at least three verbs: *galdərdəms*, *dubərdəms* or *c'ingəl'dəms*, and the choice of a lexeme cannot be explained only by reference to the scale of discreteness (since these verbs will cover the same zone on this scale). Therefore it is necessary to look more closely at the parameters which are supplementary to the acoustic scale and to see which of them are relevant in our data.

In Moksha the parameters of **size** and **weight** of a sound source seem to be crucial when we distinguish between the verbs *galdərdəms* and *dubərdəms*: *galdərdəms* is used to describe clattering of relatively small objects (coins, keys, plates, etc.), see (13-14), while *dubərdəms* describes sounds of something big and heavy (falling of a heavy object, thud of horses' hooves, etc.), like in (15-16).

- (13) *mon' z'ep-sə-n jarmak-n'ə galdərd-ij't'.*  
I.OBL pocket-IN-1SG.POSS money-DEF.PL jingle-NPST.3-PL  
'The coins in my pocket are jingling'
- (14) *šavə ved'erkəj-n'ə kalt-ij-ij-t' fke fke lank-s i galdərd-ij-t'.*  
empty bucket-DEF.PL strike-MULT-NPST.3-PL one one on-ILL and clank-NPST.3-PL  
'The empty buckets are striking against one another, and there is a clanking noise'
- (15) *mešək modamar-s' dubərdə-z' pra-s' mastər-u.*  
sack potato-DEF.SG crash-CONV.ATD fall-PST.3SG floor-LAT  
'The sack of potatoes crashed to the floor'
- (16) *alaša-t'n'ə ard-ij-t' i dubərd-ij-t'.*  
horse-DEF.PL gallop-NPST.3-PL and rumble-NPST.3-PL  
'The horses are galloping, and the thudding of their hooves is heard (lit.: the horses are galloping and rumbling)'

The verb *c'ingəl'dəms* (17-18) only refers to objects made of glass or to small, even fragile, metallic objects (e.g. little bell), and thus illustrates the importance of another parameter, the **material** of a sound source.

- (17) *vaza-s' pra-s' mastər-t' lank-s i c'in'gəl'-gəc'.*  
vase-DEF.SG fall-PST.3SG floor-DEF.GEN on-ILL and clink-INCP.PST.3SG  
'The vase fell on the floor with a clink'
- (18) *ard-t traks-t' vėš-k, pajgə-n'ε-c c'ingəl'd-i,*  
go-IMP.SG cow-DEF.SG.GEN search-IMP.SG bell-DIM-3SG.POSS.SG ring-NPST.3SG  
*mu-sak.*  
find-NPST.3SG.O.2SG.S  
'Go look for the cow, its bell is ringing, you will find it'

And there are some verbs which apply only to a **specific situation**, regardless of the fact that the sounds they describe might be acoustically close to the sounds in other situations. Thus, two of our verbs are used only with natural objects, reproducing a collocational difference

between artifacts and natural objects, which is important for many parts of the lexicon, see (Rakhilina 2008) for a detailed discussion.

The verb *gorn'ams* in its literal use describes only the babble of **water** (20).

- (19) *vec'*            *šud'-i*            *i*            ***gorn'ε-j.***  
water.DEF.SG    flow-NPST.3SG    and    babble-NPST.3SG  
'The water [in the brook] is flowing and babbling'

The verb *torams* refers to the sound of **thunder** (20). The dictionary of Moksha (Serebrennikov et al. (eds.) 1998: 736) provides a wider list of its uses, also including the loud sounds of mechanisms, crowd and a wind instrument. However, our consultants do not confirm that there are such uses in their dialect and restrict the semantic scope of *torams* to the situation of thunder.

- (20) *at'ama-s'*            ***tora-j***            *ičkəz'ə.*  
thunder-DEF.SG    thunder-NPST.3SG    far\_away  
'It thunders far away'

Two verbs – *c'atərdəms* and *kec'ərdəms* – are used to describe sounds that are made by **burning objects** (that also includes liquids touching a hot surface). Their combinability is very similar, but, they have different prototypes suggested by our consultants as the first response when they are asked to formulate the meanings of these lexemes. The prototypical situation for *c'atərdəms* is the crackle of wood in a fire (21), whereas *kec'ərdəms* is usually associated with the sounds of boiling oil (22) or burning wool.

- (21) *kos'kə*    *pen'gə-t'n'ə*    *pen'akucə*    ***c'atərd-ij't'***.  
dry            wood-DEF.PL    stove.IN            crackle-NPST.3-PL  
'The dry wood is crackling in a stove'

- (22) *pačkalk-t'*            *lank-sə*    *laka-j*            *vaj-s'*            ***kec'ərd-i.***  
frying.pan-DEF.SG.GEN    on-IN            boil-PTCP.ACT    oil-DEF.SG    crackle-NPST.3SG  
'Boiling oil is crackling on a frying pan'

The verb *gəžəldəms* describes sounds that can be heard when something (e.g. pieces of paper, slate on the roof, fabric, a door touching the floor, etc.) is **sliding** and touching some kind of surface, see (23-24).

- (23) *bumaga-s'*    ***gəžəld-i.***  
paper-DEF.SG    rustle-NPST.3SG  
'The sheet of paper rustles [when I take it out from the pile]'

- (24) *eji*    *panar-s'*            ***gəžəld-i.***  
icy            dress-DEF.SG    rustle-NPST.3SG  
'The icy dress rustles [when its stiff fabric touches the body]'

The verb *lagərdəms* is used when one speaks about a sound of **loose hard objects**, like a loose blade on a spade, a wheel that is not well enough attached to the cart (25) or parts of a roof producing a sound because of strong wind (26).

(25) *krandaz-t' žarij-əc lagərd-i.*  
 cart-DEF.SG.GEN wheel-3SG.POSS.SG clatter-NPST.3SG  
 ‘The loose wheel of the cart is clattering’

(26) *varma-s' ufa-j, i kud vel'ks-s' lagərd-i.*  
 wind-DEF.SG make.noise-NPST.3SG and house roof-DEF.SG clatter-NPST.3SG  
 ‘One can hear that there is a strong wind, and the house roof is clattering’

Finally, the verb *dəgərdəms* refers to the sound of **large moving objects**, e.g. that of a horse-drawn cart (27) or a wooden board which is being dragged along the ground (28).

(27) *krandaz-t' žarij-əc pra-s', i os'-s' dəgərd-i.*  
 cart-DEF.SG.GEN wheel-3SG.POSS.SG fall-PST.3SG and axle-DEF.SG clatter-NPST.3SG  
 ‘A wheel fell off a cart, and the axle is clattering [striking against the ground]’

(28) *məz'ardə usk-s'-at kuvaka s'ed'af,*  
 when drag-IPFV-NPST.2SG long wooden.board  
*moda-t' langə pe-c dəgərd-i.*  
 ground-DEF.SG.GEN in.PROL end-3SG.POSS.SG clatter-NPST.3SG  
 Lit.: ‘When you drag a long wooden board, its end clatters along the ground’

To sum up the discussion of the literal meanings, we may conclude that our Moksha data meets the typological predictions made so far. The acoustic scale is relevant for the Moksha language: all the verbs we have taken into account cover an uninterrupted zone on it. At the same time, the semantics of Moksha sound verbs cannot be reduced to a mere list of acoustic features. All the verbs are linked to contiguous non-sound situations, and the parameters of these situations impose restrictions on their use. As regards the core of these parameters, the Moksha language follows typologically consistent patterns: similarly to all the languages of the sample, it specifies size and material of sound sources; special sound verbs for water and thunder are also common, as well as special lexemes for the sound of something burning. What is typologically less trivial in our data is the special lexicalization of several sounds accompanying different kinds of motion: sliding, oscillation of a loose object, and dragging of a heavy object.

### 3. Metonymy and metaphor

Although traditional studies (Imajkina 1968; Cygankin 1983) provide some information about Moksha sound verbs, they deal mostly with their literal uses. As regards their non-literal uses, namely metonymic and metaphoric shifts, they often got overlooked in the previous research. However, they turn out to be of huge importance for both grammatical and lexical typology of sound verbs. Kashkin et al. (2012) outline some important typological patterns of how the non-literal uses of sound verbs are organized. Now we will discuss the Moksha data and its contribution to the general typology.

### 3.1. Metonymies

Inanimate objects do not produce any sounds if nothing is happening to them. That is why the situations of sound emission are usually closely connected with other situations like eating, breaking, motion, falling and so on. Typologically it is common for sound verbs to undergo metonymic shifts to various non-sound situations. In such cases they appear in specific non-sound constructions, which can be perceived as a morphosyntactic change of the verb, see (Paducheva 2004) on metonymic shifts of Russian sound verbs, as well as (Goldberg 1995) for the general framework of Construction Grammar aiming to provide a general theoretical account for such morphosyntactic phenomena.

In German, for instance, the verb *plumpsen* can be used as a verb of falling, with the phrase *auf den Boden* ‘on the floor’ when normally the sound verb *plumpsen* does not have a valency for such a phrase.

- (29) a. *Als er fiel, hat es wirklich geplumpst* ‘When he fell down, there was some noise’  
b. *Der Sack plumpste auf den Boden* ‘The bag fell on the floor with some noise’

The verb *galdərdəms* ‘to clatter’ can be incorporated into a construction of motion with an overt Path – ‘along the road’. However, there are some constraints here, the Source (‘from town’) and the Goal (‘to town’) cannot be expressed in the sentence, see (30).

- (30) *traktər-s’ galdərd-i ki-t’ ezga / \*oš-u / \*oš-stə.*  
tractor-DEF.SG clatter-NPST.3SG road-DEF.GEN in.PROL town-LAT town-EL  
Lit.: ‘The tractor is clattering along the road / \*to town / \*from town’

When something is falling down with a specific sound, it can be described with a sound verb in the construction of falling. In this case overt Source and Goal are possible at least for some consultants, like in (31-32), whereas the expression of these semantic roles in metonymic constructions of a general motion is evaluated as completely unacceptable.

- (31) *kastr’ul’-n’ə galdər-gəct’ mastər-u / morkš-t’ lank-stə.*  
pot-DEF.PL clatter-INCP.PST.3PL floor-LAT table-DEF.SG.GEN on-EL  
Lit.: ‘The pots clattered to the floor / from the table’

- (32) *šifer-s’ gəžəl-gəc’ kriša-t’ pr’a-stə al-u.*  
slate-DEF.SG rustle-INCP.PST.3SG roof-DEF.SG.GEN head-EL under-ILL  
Lit.: ‘The slate rustled down from the roof’

Note that here the class of falling manifests itself as a separate domain of motion verbs with its own specific constructional properties, see also (Rakhilina 2015) for the first attempts of building the lexical typology of falling.

Some of the verbs we have studied can describe sounds one produces while eating. These are *čatərdəms* ‘to crackle, to crunch’ and *kašərdəms* ‘to rustle’. They can be incorporated into a



particular eating construction, where the Patient is marked with the Ablative case (33). In the Central dialect of Moksha the Ablative is used as a Patient case only with a few ingestive verbs – *jařcams* ‘to eat’, *s’imams* ‘to drink’, *kur’endams* ‘to smoke’, *nozams* ‘to suck; to smoke’ (normally the Patient is marked with the Genitive case or does not receive a case marking at all). The difference between the sounds in (34) and (35) corresponds to the literal meanings of the verbs *čatərdəms* and *kaštərdəms*: the former describes a louder and a more discrete sound than the latter.

(33) *c’ora-n’ε-s’ jařca-j mar’-də.*  
 boy-DIM-DEF.SG eat-NPST.3SG apple-ABL  
 ‘The boy is eating an apple’

(34) *c’ora-n’ε-s’ čatər-ft-i suřar’-də.*  
 boy-DIM-DEF.SG crunch-CAUS-NPST.3SG toast-ABL  
 ‘The boy is crunching toasts’

(35) *c’ora-n’ε-s’ kaštər-ft-i pečən’ka-də.*  
 boy-DIM-DEF.SG crunch-CAUS-NPST.3SG cookie-ABL  
 ‘The boy is crunching cookies’

It could be expected that a situation of destruction, as something that is almost always accompanied by some sound, would be a good target for a metonymic shift. However, it isn’t the case in Moksha. The sound verb cannot present itself in a sentence with an overt Result (36-37).

(36) *\*skomn’ε-s’ čatər-gəc’ kaftə-va.*  
 bank-DEF.SG crack-INCP.PST.3SG two-PROL  
 Expected meaning: ‘The bank cracked in half’

(37) *\*s’ora-n’ε-s’ čatər-ft-əz’ə mandə-n’ε-t’ kolmə-va.*  
 boy-DIM-DEF.SG crack-CAUS-PST.3SG.S.3SG.O stick-DIM-DEF.SG.GEN three-PROL  
 Expected meaning: ‘The boy broke the stick into three parts’

We have shown that metonymic shifts are highly productive for sound verbs. At the same time, different classes of contiguous situations demonstrate different degrees of ability to insert a sound verb in their specific constructions (cf. the situation of eating where sound verbs can be used in a particular non-sound construction vs. the situation of destruction where they cannot be used with an overt Result). It is therefore a challenging task for lexical typology to investigate the cross-linguistic variation in how the metonymic constructions of sound verbs are organized.

Another conclusion provided by the study of metonymies deals with the methodology of data collection in lexical typology. The occurrence of constructional transitions to contiguous situations undergone by sound verbs clearly shows that these situations are relevant to their semantic description. However, they can be grasped only by the approach that takes into account collocations, but not by a stimulus-based approach operating with audio recordings which lack the whole “picture” of sound emission. Therefore, the collocational approach proves to be more powerful in this aspect.

### 3.2 Metaphors

According to the typological data presented in (Kashkin et al. 2012), verbs of sound develop two types of metaphors. They differ in what part of meaning provides the basis for a semantic shift. Some metaphors are based on the acoustic parameters of a sound, and they are called “acoustic metaphors”. For example, a verb *tarkedč’yny* has a literal meaning ‘to knock, to chatter in a frequent manner (e.g., on the door, or about one’s teeth during frost)’ in Izhma Komi. It develops a metaphoric meaning ‘to speak very quickly’, which stems from the idea of a frequent sound conveyed by this lexeme in its primary use. There are however quite a few metaphors which can hardly be explained by any resemblance between sounds. Rather, they are motivated by a situation that leads to sound emission. Thus, Russian *tr’eščat’* ‘to crack, crackle’ develops a metaphor of headache related to the idea of destruction (the latter being a typical context where the sound *tr’eščat’* is emitted). As has been shown in (Bricyn et al. (eds.) 2009), the concept of destruction is a frequent source of pain metaphors (including the metaphors of headache) in the world’s languages, so our analysis is supported by the typological data. Another example is provided by Izhma Komi *rač’kedlyny* ‘to break a wooden object with a crack’ developing a metaphoric meaning ‘to beat somebody violently’. Again, this extension is determined not by the sound itself, but by the whole situation of physical impact where this sound emerges.

Our Moksha data includes metaphors of both types. The acoustic metaphors refer to various types of sounds (nevertheless, they are metaphors and not varieties of the same meaning, since they are accompanied by a change both in the semantic class of a subject and in the semantics of a verb). Thus, a verb *gorn’ams* ‘to babble’ (a brook) metaphorically describes a melodious voice. Interestingly, such a voice is compared with a small bell in some examples (whereas the sound of a bell itself cannot be described as *gorn’ams*), see (38).

(38) *vajgel’-əc*            *gorn’ε-j*            *koda* *pajgə-n’ε.*

voice-3SG.POSS.SG    babble-NPST.3SG    like    bell-DIM

‘Her voice is melodious, like a small bell’

Another metaphoric meaning developed by Moksha sound verbs that belongs to the domain of human speech is ‘to grumble’ (39). It can be expressed by the verb *čatərdəms* ‘to squeak, to creak’ (wood, snow, ice) and is probably motivated by the idea of an unpleasant monotonous sound.

(39) *s’ir’ə* *baba-s’*            *t’εjə-n*            *af* *mεl’-əzə-n,*

old    woman-DEF.SG    PRON.DAT-1SG.POSS    NEG    desire-ILL-1SG.POSS

*son* *čatərd-i*            *i*            *čatərd-i.*

she    squeak-NPST.3SG    and    squeak-NPST.3SG

‘I don’t like this old woman, she is always grumbling’

One more metaphoric extension of Moksha sound verbs refers to a physiological sound, namely ‘to rumble’ (belly), see (40). It is developed by a lexeme *lagərdəms* originally meaning ‘to rattle’ (a bad wheel). What gives rise to this metaphoric shift is the semantics of a discontinuous sound. Note that the body part (*pekə* ‘belly, stomach’ or *potmə* ‘inside’) may be

marked either with the Nominative or with the Inessive, being conceptualized in the latter case as a container for a painful sensation.

- (40) *mon sevə-n' af er'aviks pišča,*  
 I eat-PST.1SG NEG necessary food  
*i potmā-z'ə / potmā-sə-n lagərd-i.*  
 and inside-1SG.POSS.SG inside-IN-1SG.POSS rattle-NPST.3SG  
 'I've eaten bad food, and my belly is rumbling'

Finally, one metaphor present in our data, unlike all the previous ones, does not assert the existence of a sound. The verb *kaštərdəms* 'to rustle' (leaves etc.) means 'to speak' if applied to an animate subject, but it can only appear in the contexts of so-called "suspended assertion". Such morphosyntactic characteristics can be considered non-standard, and therefore this metaphoric expression is described in more detail in Section 3.3.

One could observe in the examples above that the metaphors connected with the properties of sounds are not devoid of some ties with the extralinguistic situations lying behind, cf. the comparison of a melodious voice with a bell, or the shift of *lagərdəms* from the meaning 'to rattle' to the meaning 'to rumble' (belly). The latter metaphor may in theory be linked not only to the discreteness of sound, but also to the situation of oscillation producing such a sound. This demonstrates that the whole situation of sound emission is important in the Moksha system of metaphors, and it becomes even clearer in the case of some other expressions which we are going to discuss now.

The verb *torəms* originally means 'to thunder' in the local idioms we have studied. When used metaphorically, it can express the meaning 'to scold' (41), as well as the meaning 'to shake one's fist, finger etc. at somebody' (42). It would be rather problematic to explain the emergence of the latter meaning by making reference to any sound properties, since this metaphor does not belong to the domain of sound, and the characteristics of the action it describes are not inherited from any acoustic properties of thunder. Rather, the metaphor of a threat (either a verbal one or a physical one) is motivated by the whole situation of a thunderstorm and should be analyzed as a non-acoustic metaphor.

- (41) *al'ε-s' tora-si s'ora-nc kal'd'av val-sə.*  
 father-DEF.SG thunder-NPST.3SG.S.3SG.O son-3SG.POSS.SG.GEN bad word-IN  
 'Father is scolding his son with bad words'

- (42) *al'a-c tora-si s'ora-nc*  
 father-3SG.POSS.SG thunder-NPST.3SG.S.3SG.O son-3SG.POSS.SG.GEN  
*glokə-nc mąrtə.*  
 fist-3SG.POSS.SG.GEN with  
 'Father is shaking his fist at his son'

Another metaphoric shift possibly related to the situation of a thunderstorm is undergone by the verb *kec'ərdəms* 'to crackle' which receives a meaning from the domain of motion – 'to run quickly'. Since this metaphor involves a non-standard morphosyntactic marking, the examples will be given in Section 3.3 where the morphosyntax is discussed in more detail. Some native speakers understand this metaphor as a comparison of fast running with a lightning, as

*kec'ardams* can describe a crackling sound during a storm. There is, however, another possible interpretation of this metaphor: the most typical situation of *kec'ardams* is the crackle of boiling oil, so its metaphoric semantics of fast motion may be related to the splashes of oil accompanying this sound. Anyway, this metaphor is more complex semiotically than acoustic metaphors based only on the sound properties.

The list of non-acoustic metaphors in Moksha includes a shift to the domain of physical action. This is the case of the verb *galdərdəms* ‘to clatter’ (dishes etc.). Its causative form develops metaphors of throwing somebody out of the house (43) and burying somebody (44). Their probable source is the situation of a stroke which typically produces the sound *galdərdəms*.

- (43) *sa-s' al'a-c i galdər-ft-əz'ə*  
 come-PST.3SG father-3SG.POSS.SG and thunder-CAUS-3SG.S.3SG.O  
*kampan'ije-t' kuctə.*  
 company-DEF.SG.GEN house.EL  
 ‘Father came and threw the group of children out of the house’

- (44) *loman'-t' višk-stə galdər-ft-əz'.*  
 man-DEF.SG.GEN fast-EL thunder-CAUS-PST.3.O.3PL.S  
 ‘A man was buried immediately’

Finally, an obvious case of a non-acoustic metaphor is represented by the verb *čatərdəms* ‘to squeak, to creak’ (wood, snow, ice). It can be used metaphorically to describe an elderly person who remains alive in spite of an illness (45). The examples of this metaphor given by our consultants often contain an explicit comparison with an old creaking tree, which illustrates and proves its non-acoustic nature.

- (45) *s'ir'ə al'ε-s' n'ingə čatərd-i, koda s'ir'ə šuftə.*  
 old man-DEF.SG still creak-NPST.3SG as old tree  
 Lit.: ‘The old man still creaks, like an old tree’

To sum up, we have presented several cases of non-acoustic metaphors in Moksha (i. e. those metaphors of sound verbs which are based not on the properties of a sound itself, but on the properties of a contiguous situation of sound emission). There are also some metaphors which are more likely to get a simple acoustic explanation. Nevertheless, they too are sometimes complicated by non-acoustic semantic components. This data contributes to a general methodological discussion in lexical typology. The existence of metaphors linked to the situations of sound emission supports the methodological approach that takes these situations into account, particularly the one suggested by E. Rakhilina and M. Koptjevskaja-Tamm. As regards the stimulus-based approach, like the one adopted in (Berlin, Kay 1969), it fails to predict and analyze such metaphoric shifts, since it operates with abstract stimuli leaving aside collocational properties and an extralinguistic context.

### 3.3. Non-standard morphosyntax

Interestingly, some metaphoric shifts undergone by Moksha verbs of sound are accompanied by non-standard morphosyntactic phenomena. This is not quite trivial for the standard theory of metaphor where it is understood as a result of a simple mapping between two semantic domains, cf., among others, (Lakoff, Johnson 1980; Fauconnier 1985). In recent years, some progress has been made in the studies of the morphosyntactic changes that can accompany metaphoric shifts, see, for instance, (Bricyn et al. (eds.) 2009; Reznikova et al. 2012) on pain metaphors and the morphosyntactic processes they involve. However, this issue is far from being completely investigated in lexical typology, so Moksha data provides some challenging evidence here. Let us now discuss the relevant examples.

The verb *kaštərdəms* ‘to rustle’ can refer to speech, but only in the contexts of so-called “suspended assertion<sup>1</sup>”, which include negative contexts (with the obligatory presence of words like “not”, “never”, etc.) and unreal conditional sentences, to name but a few. The examples are given in (46-49). This morphosyntactic peculiarity of the verb *kaštərdəms* was hinted in (Buzakova 1977: 38), where the list of synonyms for ‘to be silent’ includes the expression *af kaštərdəms* (lit.: not to rustle), but it is not associated there with the more general notion of suspended assertion.

- (46) *son mez’ə-vək af kaštərd-i.*  
 he what-ADD NEG rustle-NPST.3SG  
 ‘He is saying nothing’
- (47) *t’a-t kaštərdə!*  
 PROH-IMP.SG rustle.CN  
 ‘Be silent!’
- (48) *jesl’i son mez’ə-vək kaštərd-əl’ t’ejə-nzə ul’-əl’ af c’ebər’.*  
 if he what-ADD rustle-PQP PRON.DAT-3SG.POSS be-PQP NEG good  
 ‘If he had said anything, something bad would have happened to him’
- (49) \**son kaštərd-i / kaštərdə-z’ koṛta-j.*  
 he rustle-NPST.3SG rustle-CONV.ATD say-NPST.3SG  
 Expected meaning: ‘He is speaking / saying sth.’

The verb *kec’ərdəms* ‘to crackle’ can mean ‘to run quickly’, but in this metaphoric use it requires object marking (50). However, the object itself is covert (51-52). The complete list of the supposedly possible direct objects, none of which turned out to be acceptable, includes the reflexive pronoun (*es’*) *pr’el/(es’) pr’el-/POSS/* ‘oneself’; the names of body parts and artifacts that could be involved in the situations of motion / falling / producing a sound; the names of various distances and time periods<sup>2</sup>; the onomatopoeic words, from which the Moksha sound verbs were originally derived.

<sup>1</sup> For more information on suspended assertion see (Weinreich 1963), (Paducheva 1985).

<sup>2</sup> There seems to be one exception here: a distance or a time period can sometimes serve as a direct object in a sentence with a metaphoric use of the verb *kec’ərdəms* ‘to crackle’ as a verb of motion. We will discuss this case later on.

- (50) *vas'ε kec'ar-fci<sup>1</sup>/ kec'arci/*  
 Vasya crackle-CAUS.NPST.3SG.S.3SG.O crackle.NPST.3SG.S.3SG.O  
 ??*kec'ar-ft-i / ??kec'ard-i (ki-t' ezga/ lafka-v).*  
 crackle-CAUS-NPST.3SG crackle-NPST.3SG road-DEF.GEN in.PROL shop-LAT  
 'Vasya is running (along the road / to a shop)'
- (51) \**vas'ε kec'ar-ft-əz'ə es' pr'a-nc/ nurdə-n'a-nc*  
 Vasya crackle-CAUS-PST.3SG.S.3SG.O his\_own head-3SG.POSS.SG.GEN sledge-DIM-3SG.POSS.SG.GEN  
*ki-t' ezga.*  
 road-DEF.SG.GEN in.PROL  
 Expected meaning (lit.): 'Vasya crackled (ran) himself/his sledge along the road'
- (52) \**vas'ε kec'ar-ft-əzn'ə es' pil'gə-nzə-n ki-t' ezga.*  
 Vasya crackle-CAUS-PST.3SG.S.3PL.O his\_own leg-3SG.POSS.PL.GEN road-DEF.SG.GEN in.PROL  
 Expected meaning (lit.): 'Vasya crackled (ran) his legs along the road'

We observe the same phenomenon in case of the verbs *galdərdəms* 'to clatter' and *gəžaldəms* 'to rustle'. When they are used as verbs of falling, they can optionally agree with an object which does not appear in the sentence (53-55).

- (53) *modamar' mešok-s' galdər-ft-əz'ə/ galdərd-əz'ə*  
 potato sack-DEF.SG clatter-CAUS-PST.3SG.S.3SG.O clatter-PST.3SG.S.3SG.O  
 (\**pr'a-nc/ \*ki-t')* *al-u.*  
 head-3SG.POSS.SG.GEN road-DEF.SG.GEN under-ILL  
 'The sack of potatoes fell (\*itself/\*the way) down with some noise'
- (54) *maša gəžald-əz'ə/ gəžal-ft-əz'ə moda-t' lank-s.*  
 Masha rustle-PST.3SG.S.3SG.O rustle-CAUS-PST.3SG.S.3SG.O earth-DEF.SG.GEN on-ILL  
 Lit.: 'Masha rustled down to the ground'
- (55) \**maša gəžald-əz'ə / gəžal-ft-əz'ə es' pr'a-nc/*  
 Masha rustle-PST.3SG.S.3SG.O rustle-CAUS-PST.3SG.S.3SG.O her\_own head-3SG.POSS.SG.GEN  
*gəžal/ gəžal-t' moda-t' lank-s.*  
 rustling\_sound rustling\_sound-DEF.SG.GEN earth-DEF.SG.GEN on-ILL  
 Expected meaning (lit.): 'Masha rustled herself/produced a rustling sound down to the ground'

In fact, some other "non-sound" falling verbs show similar behaviour – they can optionally receive an object agreement marking but there cannot be an overt direct object in the sentence (56-59)<sup>2</sup>.

<sup>1</sup>The causative suffix *-ft-* is a standard way to mark an adding of an Agent/Cause in the Central Dialect of Moksha. If someone or something makes an inanimate object produce a sound, it is almost always marked with the causative suffix. However, in some cases both causative and non-causative sound verbs are acceptable.

<sup>2</sup>We thank D. Zhornik for the information on the matter.

(56) *pet'ε gur'ks'c' i ruc'kaft-əz'ə/ čombəl-ft-əz'ə vet'-t'i.*  
 Petya slip.PST.3SG and fall-PST.3SG.S.3SG.O fall\_in\_water-CAUS-PST.3SG.S.3SG.O water-DEF.SG.DAT  
 'Petya slipped and fell in water'

(57) \**pet'ε ruc'kaft-əz'ə/ čombəl-ft-əz'ə es' pr'a-nc /*  
 Petya fall-PST.3SG.S.3SG.O fall\_in\_water-CAUS-PST.3SG.S.3SG.O his\_own head-3SG.POSS.SG.GEN  
*pekə-nc vet'-t'i.*  
 belly-3SG.POSS.SG.GEN water-DEF.SG.DAT  
 Expected meaning (lit.): Petya fell himself/his belly in water.

(58) *pet'ε t'eska-ft-əz'ə i toka-z'ə šalka-nc.*  
 Petya fall-CAUS-PST.3SG.S.3SG.O and hit-PST.3SG.S.3SG.O nose-3SG.POSS.SG.GEN  
 'Petya fell and hit his nose'

(59) \**pet'ε t'eska-ft-əz'ə es' pr'a-nc / šalka-nc.*  
 Petya fall-CAUS-PST.3SG.S.3SG.O his\_own head-3SG.POSS.SG.GEN nose-3SG.POSS.SG.GEN  
 Expected meaning (lit.): Petya fell himself/his nose.'

The direct object marking in (50-59), being used in a sentence with an originally intransitive verb and without a direct object itself, is quite unusual for Moksha verbs. Intransitive verbs in the Central Dialect generally appear without object marking (60a). Some of them, namely verbs with animate subject that belong to the classes of activities and states, in terms of (Vendler 1957), can receive object marking along with the direct object, which is almost always a time period and, only for the motion verbs, a distance (60b).

- (60)
- a. *pet'ε las'k-s' ki-t' ezga kaftə minuta-t.*  
 Petya run-PST.3SG road-DEF.SG.GEN in.PROL two minute-PL  
 'Petya has been running along the road for two minutes'
- b. *t'ε ki-t'/ t'ε minuta-t' pet'ε las'k-əz'ə.*  
 this distance-DEF.SG.GEN this minute-DEF.SG.GEN Petya run-PST.3SG.S.3SG.O  
 Lit.: 'As for this distance/this minute, Petya ran it'

However, in cases like (60b) the presence of the direct object in the sentence is obligatory. The entity denoted by the direct object also has to be highly salient, see also (Toldova 2015) on the general properties of direct objects in Moksha. Both these requirements are not met when the sound verbs are used metaphorically or when a sentence contains the falling verbs *čombəłftəms*, *t'eskaftəms* and *ruc'kaftəms*.

As has already been mentioned, a direct object, namely a distance or a time period, can appear in a sentence with the verb *kec'ərdəms* 'to crackle' used as a motion verb. But it can also be easily removed from the sentence, which would not be possible for regular Moksha verbs of motion.

#### 4. Conclusions

In this paper we have provided a typologically oriented description of sound verbs in the Moksha language. The organization of this domain in Moksha follows typologically consistent patterns. The literal meanings of Moksha sound verbs cover uninterrupted zones on the acoustic scale (based on the discreteness of a sound), and at the same time their use depends on some specific parameters of a sound situation (size and material of a sound source; type of a situation – thunder, burning, movement etc.).

Since inanimate objects produce sounds only when something is happening to them, the domain of sound is cognitively related to the contiguous situations in which sounds are emitted. This gives rise to metonymic shifts which are accompanied by constructional changes of sound verbs: they occur in constructions typical of other situation classes (e. g. falling or eating). At the same time, different classes of contiguous situations impose different restrictions on the insertion of sound verbs into their constructions. The latter problem has not been investigated in lexical typology so far, so the Moksha data poses a challenge for the future research.

The metaphoric uses of Moksha sound verbs have two possible types of a source, both of which have been attested in the previous typological studies. On the one hand, metaphors can stem from the acoustic properties of a sound. On the other hand, they can be based on contiguous non-sound situations. Some metaphoric shifts involve non-standard morphosyntactic changes, which is not quite trivial for the theory of metaphor.

Our study of Moksha sound verbs also provides two methodological conclusions. First, it contributes to the discussion of how the data should be collected in lexical typology. Sound verbs are cognitively linked to contiguous situations, which can be observed through their metonymic and metaphoric uses. Therefore, these situations are relevant to the semantic description of sound verbs, and the most fruitful approach to data collection is the one that takes into account not only the acoustic properties of sound verbs, i. e. the collocational approach of E. Rakhilina and M. Koptjevskaja-Tamm in contrast to the stimulus-based approach following (Berlin, Kay 1969).

Second, our study demonstrates the potential of lexical typology in the analysis of Moksha data (and, in general, data of the Uralic languages). Although in modern linguistics an adequate grammatical research on a particular language cannot ignore the advances in typology, studies of lexicon still tend to remain isolated from what has been found in other languages. However, the typological approach makes the study of a particular language far more detailed and precise, and also helps to understand the place of this language within the whole cross-linguistic variety. Lexical typology in its turn benefits from a broader and more diverse language sample which is not limited to the SAE languages. Further work in this field seems to be a challenging, but a promising task for the lexicology of the Uralic languages.

#### Glosses

1-3 – person, ABL – ablative, ACT – active, ADD – additive, CAUS – causative, CN – connegative, CONV.ATD – attendant circumstance, DAT – dative, DETR – detransitiviser, DEF – definite, DIM – diminutive, EL – elative, GEN – genitive, ILL – illative, IMP – imperative, IN – inessive, INCP – inceptive, IPFV – imperfective, LAT – lative, MULT – multiplicative, NEG – negation, NPST – non-past tense, O – object, PL – plural, POSS – possessive, PROH – prohibitive, PROL – prolative, PST – past tense, PTCP – participle, PQP – pluperfect, S – subject, SG – singular.



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