Bivalent verb classes in Skolt Saami: A pilot study

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1. Introduction

In this paper, we investigate valency classes of bivalent verbs in Skolt Saami, that is, classes of two-argument verbs with identical coding frames for arguments. The study focuses on two-place predicates because they appear most suitable for cross-linguistic comparison and allow the detection of relevant typological tendencies. As explained in Say (2018b: 8–9), high-frequency three-argument verbs are often few in number, and their heterogeneity may hamper cross-linguistic generalizations, while one-argument verbs rarely fall in more than two or three classes (and in some languages even constitute a single monovalent class). In contrast, two-argument verbs are commonly numerous in a language and frequent in speech, and at the same time they are cross-linguistically prone to show deviant valency behaviour (see Bickel et al. 2014). The study, thus, considers both prototypically transitive predicates, such as 'break' or 'kill' (*Peter broke a stick, Peter killed Mary*), and predicates that at least in some languages can be expected to be intransitive, such as 'listen' (*Peter is listening to the radio*), 'be afraid' (*Peter is afraid of the dog*), 'get stuck' (*The glass got stuck to the table*), or 'be different' (*My shirt is different from yours*).

The research questions and the methodology are largely defined by the project coordinated at the Laboratory for Typological Study of Languages at the Institute for Linguistic Studies (Russian Academy of Sciences) in Saint Petersburg and reported in the volume edited by Say (2018a). This larger project aimed, firstly, at developing methods to measure the degrees of (dis)similarity in the organization of valency classes across languages. The aspects considered in the study ranged from more holistic properties, such as the lexical extent of transitive predicates, to more complicated ones, such as the lexical distribution of verbs among valency classes as such (see overview of the goals in Say 2014: 118–119). Secondly, the proposed techniques were applied to classes of bivalent verbs in a sizeable sample of languages in order to reveal areal and genetic patterns (for a survey of European languages, see Say 2014). By the time the volume was published, data were collected for 78

languages, 67 of which represented Northern Eurasia. For each language, an expert filled in a questionnaire containing contextualized uses of 130 bivalent predicates, and annotated the sentences for morphosyntactic devices used for coding their two arguments. All the data collected within the project are published online in Say (2020).

Our article has two major goals. First, it contributes to the aforementioned project by providing data on Skolt Saami, a language belonging to the East Saami group within the Uralic language family. Primarily, we describe valency classes of the Skolt Saami bivalent predicates. We also place Skolt Saami in a broad typological context and comment on how the new data relate to the typological generalizations formulated within the larger project. Second, we discuss the Skolt Saami data from a contact and areal perspective. As argued in Say (2018c: 575–602), contact influence is visible in the behaviour of bivalent verbs on several levels. In particular, if we compare the share of transitive verbs (transitivity ratio) across languages, the results converge to large-scale areal patterns. Among the languages of Northern Eurasia, languages spoken in Western Europe, Siberia and the Far East have the highest ratios of transitives irrespective of the family they belong to, while the lowest ratios are observed in genealogically diverse languages spoken in Eastern Europe and in the Caucasus (Say 2018c: 576–579). At the same time, the way predicates are arranged into individual valency classes also reflects contact histories of these languages, but on a more local level. For instance, Basque patterns together with the surrounding Romance languages, Irish is similar to English and other Germanic languages, and Tungusic languages are much closer to Chukchi and Forest Enets than to their fellow members of the hypothetical proposed Altaic family, Turkic and Mongolic (Say 2018c: 590–597).

Contact and areal effects are particularly salient in the Uralic language family. As shown by Shagal & Say (2018), Uralic languages follow certain areal patterns with respect to both the share of transitive predicates and individual valency classes. For example, Forest Enets is in many ways similar to other languages of Siberia (see also Ovsjannikova 2018), Hungarian shares some features with Standard Average European languages (see Haspelmath 2001 on this notion), while the Permic, Mordvinic and Mari languages have a great deal in common with Russian, with which they have been in long-term contact. Skolt Saami can also be expected to show some relevant phenomena due to its contact history. For several centuries, it has been in close contact with Russian, and its earlier important contacts include Karelian and North Germanic (for an overview of East Saami contacts, see Rießler 2009; Blokland & Rießler 2011). Currently, Skolt Saami is spoken by approximately 300 people in the northeast of Finland and by some 30 people in Russia, on the Kola Peninsula (Feist 2015: 20–22). In this study, we only worked with speakers from Sevettijärvi (Municipality of Inari, Finland), and for this variety a recent major contact language has been Finnish, after most Skolt Saami speakers resettled in Finland during World War II. Other varieties of Skolt

Saami, which might reflect more of the Russian or possibly Norwegian influence, are outside the scope of this study.

The article is organized as follows. In Section 2, we describe the procedure of gathering and annotating the Skolt Saami data. Section 3 provides an overview of the classes of bivalent predicates in Skolt Saami based on their morphosyntactic and semantic properties. Section 4 puts Skolt Saami into the broader picture of Uralic languages outlining common patterns and dissimilarities in the organization of bivalent verb classes. Finally, Section 5 presents conclusions drawn from the research, and considerations for further studies.

2. Data collection and annotation

The data for this study were collected using a questionnaire that contained 130 bivalent predicates (a detailed description of the questionnaire is available in Say et al. 2018; the full Skolt Saami data are published in Shagal & Blinova 2020). In accordance with the research program of the larger typological study, the authors of the questionnaire aimed to represent as widely as possible various meanings that are likely to be expressed by intransitive predicates. However, several highly transitive meanings were also included, so that they could serve as a predictable background, or a standard of comparison.

Most sentences in the questionnaire are accompanied by specific context information which itself does not need to be translated but allows for a more accurate comparison between the Skolt Saami data collected for this project and the data from other languages. It also reduces possible variation in argument realization. For example, the verb *pääčča̮d* 'shoot' in Skolt Saami can behave both transitively and intransitively, as shown in (1) and (2) below (the same type of variation is also present in the English translations). The project, however, only considers the example in (1) expressing the unsuccessful attempt of shooting for this predicate, which is specified by the context given in square brackets.[1]

(1) *Peâtt* *pääčča̮-i* *låå'dd* ***vuâstta***.
Peter.SG.NOM shoot-PST.3SG bird.**SG.GEN** **towards**
'Peter shot at the bird. [He missed.]'

(2) *Käärnõs* *ceälkk:* *"Jeä'l* *pääjj*
raven.SG.NOM say.PRS.3SG NEG.IMP.2SG shoot.CNG
***muu**"*.
1SG.ACC
'The raven says, "Don't shoot me!"' (Moshnikoff 1992: 72)

[1] Unless indicated otherwise, all examples in the article come from our own field notes.

The data presented in this article were obtained primarily from an 80-year-old speaker from Sevettijärvi with kind assistance of Tim Feist. The speaker worked mainly with the English version of the questionnaire. In some cases, the speaker offered more than one possible translation, which could involve variation either in the choice of predicate, as in (3)–(4), or in the choice of argument encoding, as in (5)–(6).

(3) *Peâtt* ***tää'vt-i*** *Mää'rj.*
Peter.SG.NOM **grab-PST.3SG** Maria.SG.ACC
'[Peter had an argument with Maria, Maria went away, Peter went after her.] Peter caught up with Maria.'

(4) *Peâtt* ***õõst-i*** *Mää'rj.*
Peter.SG.NOM **reach-PST.3SG** Maria.SG.ACC
'Peter caught up with Maria.'

(5) *Teârmmaztoll* *kõõskst-i* ***põ'rtt-e.***
lightning.SG.NOM flash-PST.3SG **house-SG.ILL**
'Lightning hit the house.'

(6) *Teârmmaztoll* *kõõskst-i* ***põõrt***
lightning.SG.NOM flash-PST.3SG **house.SG.GEN**
ool.
onto
'Lightning hit the house.'

In order to make our data suitable for cross-linguistic comparison (especially quantitative), it was necessary to choose only one alternative in each case. The main criteria were naturalness and preciseness of translational equivalence to the stimulus, although in some cases these did not suffice for an undoubted decision, so the choice was still somewhat arbitrary.[2]

After the data were collected, the translations were annotated for the morphosyntactic devices used for argument encoding. Since the study deals with bivalent predicates, all the sentences in the questionnaire, naturally, are expected to have at least two nominal dependents. For each predicate, one of the dependents was considered the first argument, and the other the second. The decision on which one is which was made based on their semantic properties, so that the first argument would be close to A, or Proto-Agent, and the second would be close to P, or Proto-Patient, in the sense of Dowty (1991). For instance, in many cases, the first argument was the only animate

[2] In principle, language-internal variation in argument encoding could itself become a valid research question (see, for example, a detailed account of variation in Forest Enets in Ovsjannikova 2018). However, since we were only working with one speaker, any data would hardly be representative of the whole community, and therefore we do not discuss this issue in this article.

participant (e.g., Peter in ‘Peter wrote the letter’), because it is the only participant with volitional involvement in the event.

For Skolt Saami, typical argument encoding devices are case or postpositional marking on nominals (dependent-marking) and verbal agreement with the nominative participant (head-marking). For example, in (7), the first argument (Peter) is encoded by the nominative case, and the second argument (the clouds) is encoded by the postposition *årra* ‘towards’, which, like all postpositions in Skolt Saami, requires genitive marking on the noun. The predicate agrees with the nominative argument in person and number.

(7) *Peâtt* *lij* *ǩiiččе-men*
Peter.**SG.NOM** be.PRS.3SG watch-PROG.PTCP
*põõlv-**i*** ***årra***.
cloud-**PL.GEN** **towards**
‘Peter is looking at the clouds [trying to determine if it will rain].’

In this article, valency frames are labelled in terms of dependent-marking devices only. Thus, the pattern in (7) is characterized as ‘first argument is in the nominative case, second argument takes the postposition *årra* with the genitive’, or, for convenience, simply NOM_GEN *årra*.[3]

Out of 130 sentences in the questionnaire, we were able to establish translational equivalents for 120 of them. Some gaps were due to the fact that the speaker could not think of any natural way to express the intended predicate meaning in Skolt Saami, or was not completely happy with any of the options. This was the case with the meanings ‘depend’, ‘lack, be short (of smth)’, ‘punish’, ‘be squeamish’, ‘enjoy’, ‘upset’, and ‘have a grudge’.[4] In the rest of the cases, one of the predefined arguments could not be expressed in the same clause, as in example (8)[5], or was not a clause-level constituent, but occurred as an adnominal dependent, as in (9), or as a part of a compound, as in (10).

[3] In all our Skolt Saami data, the first argument always comes first in a sentence, so the label also reflects the neutral word order in the respective valency frame.

[4] For stimulus sentences containing some of these verbs, we received suggestions, but none of them could be regarded as separate predicates. For example, the translation offered for the sentence ‘Memory depends on age’ was exactly the same as for ‘Age influences memory’, and it contained the verb *vaikkted* meaning ‘influence’, which required a different assignment of the first and the second argument status; see example (19) in Section 3.5. The stimulus ‘Peter is squeamish about dirty dishes’ was translated using the negated verb *tu'ǩkeed* ‘like’ (lit. ‘Peter does not like dirty dishes’), which is clearly not an elementary expression that we were looking for.

[5] Notice that English also lacks a monoclausal way of expressing the required meaning. Nevertheless, many languages do have it; consider *püüdma* in Estonian, *kundšems* in Erzya, *kutnį* in Zyrian Komi and Permyak Komi, *fangen* in German, or *lovit’* in Russian.

(8) *Peâtt* *sträääžž,* *[što* *tää'vte'-čč-i*
Peter.SG.NOM try.PRS.3SG COMP grab-COND-3SG
kaazz].
cat.SG.ACC
'[The cat sprang out of the house.] Peter is trying to catch the cat.'

(9) *Peâtt* *lij* ***Määr'j***
Peter.SG.NOM be.PRS.3SG **Maria.SG.GEN**
taaurõš.
friend.SG.NOM
'Peter is Maria's friend.'

(10) *Peâtt-ast* *lij* ***vuei'vv-kõpp***.
Peter-SG.LOC be.PRS.3SG **head**-disease.SG.NOM
'Peter has a headache.'

The 120 predicates for which we obtained translations of the stimulus sentences were grouped into non-overlapping classes. Two predicates were seen as belonging to the same valency class if and only if their first and second arguments were coded by the same means correspondingly (different postpositions being counted as different encoding devices). The next section presents all the valency classes that occurred in the Skolt Saami data.

3. Bivalent verb classes

3.1. Overview

With respect to argument encoding, bivalent predicates in Skolt Saami fall into 17 classes (the whole system with examples of predicates belonging to individual classes is summarized in Table 1 in Section 3.19). One of them is the class of transitive verbs (defined in this project as the class containing prototypical transitive verbs such as 'break' or 'kill'; see Say 2018a: 13; Haspelmath 2015: 137–138 for the justification of this approach), and the rest comprise intransitive verbs. Intransitive verbs differ with respect to two major criteria that will be discussed in what follows, namely the formal means of encoding their arguments and the locus of non-transitivity.

The morphosyntactic devices involved in encoding arguments of bivalent predicates in Skolt Saami are cases, postpositions, and conjunctions. Out of the nine cases present in the language, seven are used in our data as means for argument encoding. All of them (that is, nominative, accusative, genitive, comitative, locative, illative, and essive) can encode the second participant of the situation, while only three (nominative, locative, and accusative) can be used for encoding the first participant. The only two cases that are not involved in coding arguments of bivalent verbs are the abessive and the partitive. The

abessive expresses the absence of an instrument or the absence of a person or object accompanying another (e.g., 'the boat won't move without an oar'). The partitive mostly occurs after numerals greater than six and after quantifiers, such as *muä'dd* 'several' and *mäŋgg* 'many', although it is occasionally used in some other minor constructions; see Feist (2015: 254–255). Both cases are rare in Skolt Saami in general (Feist 2015: 252, 254–255). Classes of predicates that exclusively use case marking for argument encoding are discussed in Sections 3.2–3.5 and 3.8–3.10. Postpositions are only used to express the second participant, and they govern the nominal in the genitive case. Out of eight postpositions involved in argument encoding, six have spatial meaning (*ool* 'on(to)', *tuâkka* 'behind', *rââst* 'across', *vuâlla* 'under', *vuâstta* 'towards', and *årra* 'towards'), one, *vuâkka* 'like', expresses resemblance, and one, *diõtt* 'because of', mainly expresses reason. Nevertheless, postpositions with a primary spatial meaning can also be used with verbs of emotion, e.g., *suttõõttâd* (*ool*) 'get upset (with)' or *lee'd suttâm* (*ool*) 'be angry (with)'. Classes of predicates that use postpositions for argument encoding are discussed in Sections 3.6–3.7 and 3.11–3.16. The two predicates expressing their second participants using conjunctions *ko* 'than' and *mâte* 'like' are presented in Sections 3.17 and 3.18. It should be noted that the type of formal means used for argument expression (case vs. postposition vs. conjunction) does not itself have any significant impact on the semantics of the respective predicates, so the classification outlined above is purely formal.

The locus of non-transitivity of a specific predicate is the participant or participants of this predicate encoded by means not used in the transitive construction (see Say 2018b: 59 on this notion). For Skolt Saami, this means encoding that is neither nominative for the first participant nor accusative for the second participant, since the transitive valency frame is NOM_ACC, as shown in Section 3.2. Cross-linguistically, most intransitive verbs have valency frames with P locus, that is, the encoding of their second participant deviates from the transitive frame. In Say's (2018c: 565–566) data, this locus is characteristic of 85.2% of all intransitive predicates. In Skolt Saami, it is also by far the most common, being attested in 48 cases, or 90.6% of the 53 intransitive verbs. Valency frames with A locus, where it is the first participant that is encoded "intransitively", constitute 12.7% in Say's data, and 7.5% in our data (four predicates, all belonging to one class discussed in Section 3.8). In conformity with the Relevance Principle introduced by Malchukov (2006: 335), all the predicates with A locus of non-transitivity in Skolt Saami have first arguments that deviate from a prototypical A participant in that they are non-volitional, e.g., predicates meaning 'have (a disease)', or 'have enough (of smth)'. Finally, 2.1% of the intransitive predicates investigated in the cross-linguistic study had A&P locus, that is, neither of their arguments was expressed in the same way as arguments of transitive verbs in respective languages. In Skolt Saami, there is only one predicate with A&P locus (1.9% of all intransitive predicates), *kååččeed* 'call, refer (to smth)'; see Section 3.9.

According to preliminary typological observations discussed in Say (2018c: 584), predicates with A&P locus tend to be stative, and the Skolt Saami data seem to be in line with this tendency.

In the sections to follow, we present all the 17 valency classes of Skolt Saami two-place predicates in descending order of the number of members they comprise. For each class, we describe the valency frame and provide at least one sentential example. In addition, we point out certain semantic tendencies that can be traced in some of the classes. The table featuring all the classes with examples of the predicates they include is given in Section 3.19.

3.2. Transitive predicates: NOM_ACC

In a transitive construction in Skolt Saami, the subject receives nominative encoding, and the direct object is marked with the accusative case. Similarly to most other Saami languages (and unlike South Saami, as discussed in Kroik 2016), Skolt Saami does not show any differential object marking, so the valency frame is always NOM_ACC, as illustrated in (11).

(11) *Peâtt* *kooll* *musiikk.*
Peter.**SG.NOM** hear.PRS.3SG music.**SG.ACC**
'Peter hears the music.'

Transitive verbs are by far the largest class of bivalent predicates in Skolt Saami. Out of 120 predicates, 67, or 55.8%, are transitive (the share of transitive verbs in Skolt Saami is discussed from a typological and Uralic perspective in Section 4). As is typical of many other languages (see Say 2014: 120–121), the class of transitive verbs in Skolt Saami cannot be characterized in semantic terms in its entirety. It encompasses both predicates that are semantically highly transitive (e.g., *poorrâd* 'eat' in 'Peter ate an apple', or *poonnjâd* 'bend' in 'Peter bent the branch') and predicates that lack most of prototypical transitive properties, such as actionality, telicity, volitionality, or affectedness of the P participant (e.g., *pirrõõttâd* 'surround' in 'walls surround the city' or *kađšted* 'envy' in 'Peter envies Maria'). As for the semantic range of second participants, apart from Patients, other semantic roles that commonly feature in a transitive construction are Theme ('stone' in 'Peter threw a stone' with the verb *kõõškeed* 'throw') and Stimulus ('Maria' in 'Peter misses Maria' with the verb *â'ǩkõõššâd* 'miss').

3.3. NOM_COM

Among the intransitive predicates, the largest class consists of 11 predicates whose first argument is in the nominative, and the second in the comitative, as illustrated in (12).

(12) *Peâtt* *teeivõõđ-i*
Peter.SG.NOM encounter-PST.3SG
*Määrja-**in**.*
Maria.dim-**SG.COM**
'Peter encountered Maria [accidentally, on the street].'

The class shows a certain consistency in terms of semantics. Seven predicates, namely *teeivõõttâd* 'encounter', *tuärrad* 'fight', *tobdstõõttâd* 'get to know', *mainsted* 'speak', *lee'd õõutmiõllsaž* 'agree', *reeidčõõttâd* 'have a quarrel' and *rä'ǩstõõvvâd* 'fall in love', have two animate participants. All of these meanings except for 'fall in love' belong to a typologically stable cluster of symmetric predicates. In other words, the typological study showed that they are commonly expressed by a set of verbs with the same valency frame (Say 2018c: 569, 574). Another predicate belonging to the same cluster is *seäkkned* 'get mixed', which also denotes a symmetric event, but involving two inanimate participants; see example (13). One more predicate of this type is *suåppâd* 'match', as shown in (14).

(13) *Miõtt* *seäkkn-i* *mie'lǩ-**in**.*
honey.SG.NOM get.mixed-PST.3SG milk-**SG.COM**
'[Some honey was put in a jar of milk and stirred.] The honey got mixed with the milk.'

(14) *Tät* *puägganj* *suåpp*
PROX.SG.NOM belt.SG.NOM match.PRS.3SG
puârast muu *kååut-**in**.*
well 1SG.GEN skirt-**SG.COM**
'[A girl tries a belt in the shop and says, 'Great,] this belt matches my dress.'

The remaining two predicates in this class are *čuõppõõttâd* 'cut oneself' and *siõrrâd* 'play'. In both cases, the second participant can be seen as an instrument, which is normally encoded by the comitative in Skolt Saami (Feist 2015: 250), as shown in (15).

(15) *Peâtt* *seârr* *kitara-**in**.*
Peter.SG.NOM play.PRS.3SG guitar-**SG.COM**
'[What is Peter doing?] Peter is playing the guitar.'

The co-occurrence of these two types of verbs in one valency class is, again, in line with typological research which shows that it is cross-linguistically common for arguments denoting an instrument to receive the same type of morphosyntactic encoding as arguments denoting a companion, or a participant in a symmetric situation (Narrog & Ito 2007; Say 2018c: 569). It should be noted though that other predicates with instrument/means/cause as their second participant (yet another cluster discerned in Say 2018c: 569) do

not pattern together in Skolt Saami, but are distributed across different valency classes. For example, *heeilted* ‘wave’ is a transitive verb, *teâuddjed* ‘fill (with smth)’ has a NOM_LOC frame (see Section 3.4), and the second argument of *lee'd miõllste*s ‘be content’ takes the postposition *diõtt* ‘because of’ (see Section 3.6).

3.4. NOM_LOC

This class includes nine predicates that have their first argument in the nominative and second argument in the locative, as shown in (16).

(16) *Peâtt* *vuõ'lj-i* *meädda* *suu*
Peter.SG.NOM leave-PST.3SG away 3SG.GEN
*šõdd-âm-siid-**âst**.*
born-PST.PTCP-village-**SG.LOC**
‘Peter left his native city.’

Three of them, namely *mõõnnâd* ‘go out’, *vue'lğğed* ‘leave’ and *luâšttõõttâd* ‘descend’, have a meaning of physical movement away from a specific point, and they can emphasize it using a spatial adverb like *meädda* ‘away’ in the example above. One more predicate, *põõllâd* ‘fear, be afraid’, seems to have a similar semantic component on a metaphorical level. The verb *põõllâd* ‘fear, be afraid’ also belongs to a subgroup within this valency class comprising meanings related to feelings and mental activities, along with *niõggeed* ‘dream, see in one’s sleep’ and *tu'ǩǩeed* ‘like, love’ illustrated in (17).

(17) *Peâtt* *tu'ǩǩad* *čee-**st**.*
Peter.SG.NOM like.PRS.3SG tea-**SG.LOC**
‘Peter likes tea.’

The verb *tu'ǩǩeed* ‘like, love’ was considered the most natural translational equivalent for three predicates in the questionnaire and is, therefore, counted as three different predicates. The reason for this is that the contexts in which it appears are different. Apart from the example in (17), where the second argument is a non-specific inanimate stimulus, it is also used to translate the sentence ‘Peter likes this shirt’ with a specific inanimate second argument, and the sentence ‘Peter is fond of Mary’ with a specific animate argument. In all these cases, the valency frame remains the same.

The last predicate in our data with the NOM_LOC valency frame is *teâuddjed* ‘fill (with smth)’ shown in (18), which does not seem to have any semantic links to the rest of the class.

(18) *Skääll* *teâuddj-i* *čää'ʒʒ-**est**.*
bucket.SG.NOM become.filled-PST.3SG water-**SG.LOC**
'[There was a bucket near the house during the rain.] The bucket filled with water.'

3.5. NOM_ILL

This class consists of eight predicates with the first argument in the nominative and the second argument in the illative, as illustrated in (19).

(19) *Peâtt* *la'ddj-i* *ridd-**u**.*
Peter.**SG.NOM** reach-PST.3SG bank-**SG.ILL**
'[Peter was crossing the river in a boat.] Peter reached the bank.'

Most predicates in this group belong to two different but neighbouring classes in Say's (2018c: 569–570) analysis, which means that in some languages they do pattern together in terms of argument expression. The first of these subclasses in Skolt Saami comprises predicates whose second argument denotes the target or direction at which a physical action is aimed, namely *la'ddjed* 'reach', *pue'tted* 'come', *kuõskkâd* 'touch', and *kõskkâd* 'flash (or hit) with lightning'. The second subclass encompasses verbs that refer to interactions between humans where the second participant can also be perceived as a kind of target or recipient. These verbs are *ceä'lǩǩed* 'tell', *taa'ppjed* 'lose, be beaten (in a game)', and *va'stteed* 'answer'; see (20).

(20) *Peâtt* *vastti-i* *u'čteel-**a**.*
Peter.**SG.NOM** answer-PST.3SG teacher-**SG.ILL**
'[The teacher asked Peter what his parents' names are.] Peter answered the teacher.'

The meaning of the last verb with the NOM_ILL valency frame, *vaikkted* 'influence', illustrated in (21), does not cluster typologically with the meanings listed above. In other words, according to Say's cross-linguistic study (2018c: 569–570), the verbs meaning 'influence' do not often encode their arguments in the same way as the verbs meaning 'reach', 'come', 'tell', 'answer', etc. However, the semantics of targeted action appears to pertain to this predicate as well.

(21) *Ââ'ǩǩ* *vaaikat* *muštt-**u**.*
age.**SG.NOM** influence.PRS.3SG memory-**SG.ILL**
'Age influences memory.'

3.6. NOM_GEN *diõtt* ‘because of’

This class features six predicates and is the largest among those that use postpositions for argument encoding. The first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *diõtt* ‘because of’, as shown in (22).

(22) *Peâtt* *õõmtõõžž-i* *sǩiâŋk*
Peter.**SG.NOM** be.surprised-PST.3SG gift.**SG.GEN**
diõtt.
because.of
‘[Maria gave Peter an expensive gift.] Peter was surprised at this gift.’

The predicates belonging to this class are *õõmtõõššâd* ‘be surprised’, *lee'd kuärgast* ‘be glad’, *lee'd miõllstes* ‘be content’, *neu'rrõõvvâd* ‘take offence’, *käinnad* ‘be shy or embarrassed (about smth)’, and *niõggeed* ‘dream’. All of them are emotion predicates, and the second participant can be seen as either stimulus or reason. Cross-linguistically, most of these verbs also tend to form a class of their own, or pattern together with the verbs belonging to the class outlined in the next section.

3.7. NOM_GEN + *ool* ‘on(to)’

This class consists of five verbs with the first argument in the nominative and the second argument expressed by a postpositional phrase with the postposition *ool* ‘on(to)’, as shown in (23).

(23) *Ståkkan* *pâššn-i* *påå'rd*
glass.SG.NOM get.caught-PST.3SG table.**SG.GEN**
ool.
onto
‘[The table was recently covered with paint. Peter didn’t know this and placed his glass on it.] The glass got stuck to the table.’

For two of the verbs, *kõrmmled* ‘attack’ and *pâššned* ‘get stuck’, the second participant has a meaning of a physical goal. The rest are emotion predicates that have the stimulus as their second participant. They are *suttõõttâd* ‘get upset’, *gåårâ'tted* ‘get irritated’, and *lee'd suttâm* ‘be angry’; see (24).

(24) *Peâtt* *lij* *suttâm* *Mää'rj*
Peter.**SG.NOM** be.PRS.3SG angry Marja.**SG.GEN**
ool.
onto
‘Peter is angry with Maria.’

3.8. LOC_NOM

As mentioned in Section 3.1, this is the only class in Skolt Saami with P locus of non-transitivity. Its first argument is in the locative, while the second argument receives nominative encoding; see (25).

(25) *Peâtt-**ast*** *lij* *nuõpp-kõpp.*
Peter-**SG.LOC** be.PRS.3SG cold(disease)-disease.**SG.NOM**
'Peter has the flu'.

The class consists of four predicates. Two of the meanings are conveyed simply by the verb *lee'd* 'be', namely the meaning 'have' in the context of owning (e.g., 'Peter has a car'), and in the context of having a specific disease, as illustrated in (25) above. The two other predicates use additional material, that is, *lee'd teänab* 'remain' and *lee'd nokk* 'be enough'; see (26).

(26) *Åå'n* *Peâtt-**ast*** *lie* *nokk* *tie'ğğ.*
now Peter-**SG.LOC** be.PRS.3PL. enough money.**PL.NOM**
'[P. has found a new job.] Now Peter has enough money.'

Typologically, these predicates often belong to a larger class featuring some other verbs with non-volitional first participant, such as 'like' or 'need' (Say 2018c: 570). In Skolt Saami, however, the class in question is limited to verbs with some kind of possessive meaning.

3.9. ACC_ESS

From this section on, we list classes that contain only a single predicate. In the first one of these classes, the first argument is in the accusative, and the second bears essive case marking, as shown in (27).

(27) *Tän* *tiiŋg* *kååččeet* ***kompass-ân.***
PROX.SG.ACC thing.**SG.ACC** call.PRS.4SG **compass-ESS**
'[A boy saw his father's compass and asked what this was. The father answered him:] 'This thing is called a compass.'

The predicate *kååččeed* 'call' is the only member of this class. This is the only predicate in Skolt Saami with A&P locus of non-transitivity.

3.10. NOM_NOM

In this class, both the first and the second argument appear in the nominative case, as shown in (28).

(28) *Tät* *kopp* *mähss* *õhtt*
PROX.SG.NOM cup.**SG.NOM** cost.PRS.3SG one.**NOM**
eu'rr.
euro.**SG.NOM**
'This cup costs 1 euro.'

The predicate *mä'hssed* 'cost' is the only member of this class.

3.11. NOM_GEN *vuâkka* 'like'

In this class, the first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *vuâkka* 'like', as displayed in (29).

(29) *Pä'rnn* *lij* *ää'jj-es*
Boy.**SG.NOM** be.PRS.3SG grandfather.**SG.GEN**-POSS.3SG
vuâkka.
like
'[Miika is Peter's grandfather] The boy resembles his grandfather.'

The only meaning belonging to this class is 'resemble', and it is conveyed by a combination of the verb *lee'd* 'be' and the postposition.

3.12. NOM_GEN *tuâkka* 'behind'

In this class, the first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *tuâkka* 'behind', as shown in (30).

(30) *Peâtt* *kuâđđj-i* *Mää'rj*
Peter.SG.NOM remain-PST.3SG Marja.**SG.GEN**
tuâkka.
behind
'[Peter and Maria started out to school together, but] Peter fell behind Maria.'

The only meaning belonging to this class is 'fall behind', and it is conveyed by a combination of the verb *kuâđđjed* 'remain' and the postposition.

3.13. NOM_GEN *rââst* 'across'

In this class, the first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *rââst* 'across', as shown in (31).

(31) *Peâtt* *mõõn-i* *čuõkku* ***rââst***.
Peter.**SG.NOM** go-PST.3SG road.**SG.GEN** **across**
'[Peter saw that the shop is on the other side of the road.] Peter crossed the road.'

The only meaning belonging to this class is 'cross', and it is conveyed by a combination of the predicate *mõõnnâd* 'go' and the postposition.

3.14. NOM_GEN *vuâlla* 'under'

In this class, the first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *vuâlla* 'under', as shown in (32).

(32) *Stokk* *vuäja-i* *čää'ʒʒ* ***vuâlla***.
log.**SG.NOM** sink-PST.3SG water.**SG.GEN** **under**
'[This tree has very heavy wood. I threw a log in the river.] The log sank in the water.'

The predicate *vuäjjad* 'sink' is the only member of this class.

3.15. NOM_GEN *vuâstta* 'towards'

In this class, the first argument is in the nominative, and the second is expressed by a postpositional phrase with the postposition *vuâstta* 'towards', as shown in example (1) and repeated here in (33) for convenience.

(33) *Peâtt* *pääčča-i* *låå'dd* ***vuâstta***.
Petja.**SG.NOM** shoot-PST.3SG bird.**SG.GEN** **towards**
'Peter shot at the bird. [He missed.]'

The predicate *pääčča*d 'shoot' is the only member of this class.

3.16. NOM_GEN *årra* 'towards'

In this class, the first argument is in the nominative, and the second argument is expressed by a postpositional phrase with the postposition *årra* 'towards', as shown in (34).

(34) *Peâtt* *lij* *ǩiičče-men*
Peter.**SG.NOM** be.PRS.3SG watch-PROG.PTCP
*põõlv-**i*** ***årra***.
cloud-**PL.GEN** **towards**
'Peter is looking at the clouds [trying to determine if it will rain].'

The predicate *ǩiiččeed* ‘look’ is the only member of this class.

3.17. NOM_*ko* ‘than’ NOM

In this class, the first argument is in the nominative, and the second argument is introduced by the conjunction *ko* ‘than’, as shown in (35).

(35) *Ij,* *muu* *päi'dd* *lij*
NEG.3SG 1SG.GEN shirt.**SG.NOM** be.PRS.3SG
jee'resnallšem ***ko*** *tuu* *päi'dd*.
different **than** 2SG.GEN shirt.**SG.NOM**
‘[Maria told Peter that they have identical shirts. Peter answered her,] No, my shirt is different from yours [, it is darker].’

The predicate *lee'd jee'resnallšem* ‘be different’ is the only member of this class.

3.18. NOM_*mâte* ‘like’ NOM

In this class, the first argument is in the nominative, and the second argument is introduced by the conjunction *mâte* ‘like’, as shown in (36).

(36) *Muu* *ǩiõđ* *â'psse*
1SG.GEN hand.**PL.NOM** smell.PRS.3PL
mâte *be'nsin*.
like gasoline.**SG.NOM**
‘[I was fixing my car.] My hands smell like gasoline.’

The predicate *â'pssed* ‘smell’ is the only member of this class.

3.19. Summary of valency classes

Table 1 below summarizes all 17 valency classes of bivalent predicates attested in Skolt Saami based on the questionnaire introduced in Say et al. (2018). The structure of the table is based on Ovsjannikova (2018: 53). The classes are listed in descending order of the number of predicates they comprise. The locus of non-transitivity (first argument, second argument, or both) is given in bold.

Table 1. Classes of bivalent predicates in Skolt Saami.

Argument encoding	*Examples of predicates*		*Number of pred.*

1st	2nd		*Semantic role(s) of the non-transitive argument*	
NOM	ACC	*kå'dded* 'kill', *kõõškeed* 'throw', *â'ǩǩõõššâd* 'miss'	Patient and others	67
NOM	COM	*tuärrad* 'fight', *seäkkned* 'become mixed', *siõrrâd* 'play'	Companion, Instrument	11
NOM	LOC	*vue'lǧǧed* 'leave', *tu'ǩǩeed* 'like, love', *teâuddjed* 'fill (with smth)'	Source, Stimulus, Instrument	9
NOM	ILL	*la'ddjed* 'reach', *va'stteed* 'answer', *taa'ppjed* 'lose, be beaten'	Goal, Recipient, Patient	8
NOM	GEN *diõtt*	*õõmtõõššâd* 'be surprised' *lee'd miõllstes* 'be content'	Stimulus, Reason	6
NOM	GEN *ool*	*kõrmmled* 'attack', *pâššned* 'become stuck', *lee'd suttâm* 'be angry'	Goal, Stimulus	5
LOC	NOM	*lee'd teänab* 'remain' *lee'd nokk* 'have enough'	Possessor, Experiencer	4
ACC	ESS	*kåå'ččeed* 'call'	Theme (1st and 2nd)	1
NOM	NOM	*mä'hssed* 'cost'	Theme	1
NOM	GEN *vuâkka*	*lee'd* 'be' (> 'resemble')	Standard of comparison	1
NOM	GEN *tuâkka*	*kuâđđjed* 'remain' (> 'fall behind')	Landmark	1
NOM	GEN *rââst*	*mõõnnâd* 'go' (> 'cross')	Goal	1
NOM	GEN *vuâlla*	*vuäjjad* 'sink'	Goal	1
NOM	GEN *vuâstta*	*pääččad* 'shoot'	Goal	1

NOM	GEN *årra*	*Ǩiiǩčeed* ‘look’	Stimulus	1
NOM	*ko* NOM	*lee'd jee'resnallšem* ‘be different’	Standard of comparison	1
NOM	*mâte* NOM	*â'pssed* ‘smell’	Standard of comparison	1

4. Skolt Saami from a Uralic perspective

As mentioned in the introduction, analysing the organization of bivalent verbs classes across languages allows us to uncover different genetic and areal tendencies, as well as specific manifestations of contact influence. Uralic languages are particularly interesting in this respect, since they do bear certain family similarities, but at the same time show clear signs of contact influence at different levels. Therefore, it seems promising to compare the behaviour of bivalent predicates in Skolt Saami to their behaviour in other Uralic languages examined within the project so far. At this point, data are available for 13 Uralic languages, at least one from each major traditionally recognized subgroup within the Uralic language family (cf. e.g., Salminen 2002), namely Skolt Saami and South Saami (Saamic), Estonian, Standard Finnish and Ingrian dialect of Finnish (Finnic), Erzya Mordvin and Moksha Mordvin (Mordvinic), Hill Mari (Mari), Zyrian Komi, Permyak Komi and Udmurt (Permic), Hungarian (Ugric), and Forest Enets (Samoyedic). In this section, we provide preliminary observations concerning the place of Skolt Saami among these languages with respect to the organization of bivalent verb classes. We will both compare Skolt Saami to the languages of other branches and briefly comment on the similarities and differences between the two Saamic languages. A more detailed comparison of Skolt Saami and South Saami is presented in Blinova & Shagal (2020).

Since valency classes cannot be directly equated across languages for a number of reasons, in order to draw meaningful cross-linguistic comparison, Say (2014, 2018c) introduced a spectrum of quantitative metrics describing the way valency class systems are organized in different languages. The first metric, which captures the coarsest distinctions between languages, is the transitivity ratio, i.e., the share of transitive verbs among the predicates included in the questionnaire. Skolt Saami has a transitivity ratio of 0.56, which is one of the highest values in the whole family. Outside the Saamic branch, the only language with the same ratio is Forest Enets, while in all other Uralic languages examined in the project, transitivity ratios are no more than 0.5. Earlier studies suggested an important role of areality in the distribution of transitivity ratios; see Say (2018c) for Northern Eurasia in general, and Ovsjannikova (2018) for Siberia. Indeed, Forest Enets is close in this respect

to other Siberian languages, such as Evenki (0.59), Sakha (0.53), Chukchi (0.59), and Nanai (0.60). For Skolt Saami, on the other hand, the areal explanation does not seem to work in a straightforward way. Finnic languages spoken roughly in the same region show the lowest values in the whole Uralic family (0.37 in Ingrian Finnish, 0.34 in Estonian, and 0.30 in Standard Finnish), and other languages of the region are also fairly intransitive, e.g., Russian (0.42) and Lithuanian (0.44). The geographically closest unrelated language with a high transitivity ratio examined in the project is Norwegian (0.54), but it can be seen as the northernmost outlier of the western European high-transitive area featuring such languages as Dutch (0.61), English (0.63), and Swedish (0.64). The transitivity ratio of South Saami is even higher (0.71), presumably due to its close contact with Swedish, but from the Uralic perspective the value attested in Skolt Saami is still remarkable.

The high transitivity ratio in Saamic languages is exceptional from one more point of view. Say (2014: 139) shows that in a sample of European languages transitivity ratios correlate negatively with the size of the case inventory for nouns. In other words, the more cases a language has, the lower the transitivity ratio. Skolt Saami, however, does not quite fit the tendency, with a transitivity ratio of 0.56 and nine nominal cases. Neither does South Saami, with a transitivity ratio of 0.71 and eight cases. The transitivity ratio of Skolt Saami is close to that of German and Ancient Greek (0.55), which both have four cases, while Norwegian and French with transitivity ratios of 0.54 and 0.56 respectively do not have cases in nouns at all. At the same time, languages with a comparable number of cases tend to be significantly less transitive. For example, Ossetic (nine cases) has a transitivity ratio of 0.39, and the transitivity ratio of Kalderaš Romani (seven cases) is 0.41 (Say 2014: 165). Furthermore, Standard Finnish, with 15 cases and a transitivity ratio of 0.3, supports the observation and contrasts Skolt Saami which it is both genealogically and geographically close to.

A possible answer to this puzzle might lie partly in the historical development of Saamic languages. Naturally, the majority of predicates that are transitive in Skolt Saami are transitive in all or almost all Uralic languages, in particular highly transitive predicates, such as ‘eat’, ‘make’, or ‘bend’. However, those verbs that are transitive in Skolt Saami but intransitive in most other Uralic languages do have a notable thing in common. Almost all of them are either transitive or have a nominative–partitive valency frame in Finnic languages, or at least in Standard Finnish. The first case can be illustrated by the predicate ‘forfeit’, which requires abessive encoding of the second argument in most other Uralic languages for which data are available (Zyrian Komi, Udmurt, and Erzya), but is transitive both in Skolt Saami and in Standard Finnish, as shown in examples (37) and (38).

(37) *Peâtt* *mõõn-t-i*
Peter.**SG.NOM** go-CAUS-PST.3SG
põõrt-âs.
house.**SG.ACC**-POSS.3SG
'[There was a fire in the village. As a result] Peter lost his house.'

(38) *Pekka* *mene-tt-i*
Pekka.**SG.NOM** go- CAUS-PST.3SG
talo-nsa.
house.**GEN/ACC**-POSS.3SG
'[There was a fire in the village. As a result] Pekka lost his house.'

The predicates 'think', 'miss', 'make fun (of smb)', 'help', 'govern', 'follow', 'avoid', 'obey', 'wave', 'move' and 'need' show a whole range of different intransitive encoding strategies across Uralic languages, including valency frames with A locus of non-transitivity. The predicate 'believe' requires dative encoding of the second argument in almost all subgroups of the family, and yet it is transitive in Skolt Saami and has a NOM_PART valency frame in Standard Finnish, as illustrated in (39) and (40):

(39) *Peâtt* *åskk* *suu*.
Peter.**SG.NOM** believe.PRS.3SG 3SG.**ACC**
'Peter believes her.'

(40) *Pekka* *usko-o* *Matti-**a***.
Pekka.**SG.NOM** believe-PRS.3SG Matti-**SG.PART**
'Pekka believes Matti.'

In other words, the class of transitive verbs in Skolt Saami corresponds quite neatly to the classes of transitive verbs in Finnic languages, and it also includes a number of predicates that in Finnic languages show a NOM_PART valency frame. However, as already mentioned in Section 3.1, the use of the partitive in Skolt Saami is very limited (Feist 2015: 254–255), and although the partitive case is reconstructed for Proto-Saami (Sammallahti 1998: 70–71), in many Saamic languages (including South Saami) it was lost altogether and a number of its functions were taken up by the accusative. If we take this into account, the drastic difference in transitivity ratio between Skolt Saami and Finnic languages is not that striking. The only two verbs that are transitive in Skolt Saami and have intransitive valency frames elsewhere in the Uralic family (at least as the primary strategy) are *na'ddjõõttâd* 'trust' and *õõmšed* 'marvel, admire'. This number, however, is small enough not to invalidate the outlined overall pattern.

Another metric used in Say (2018c: 584–590), which focuses on the distribution of intransitive predicates into classes, is relative entropy of

intransitives, or $H_{rel(intr)}$. It allows us to compare the relative elaborateness of the intransitive class system in different languages and is calculated as the actual entropy of intransitives divided by its theoretical maximum for a given number of predicates. Actual entropy of intransitives is calculated using the following formula.

(41) $$H(x) = -\sum_{i=1}^{k} p(x_i) \times \log(p(x_i))$$

Here, k is the number of intransitive classes in a given language, and $p(x_i)$ is the ratio of the ith class of verbs relative to the overall number of intransitive verbs considered for this language (see Say 2014: 149–151). The theoretical maximum of the entropy of intransitives equals $\log(x)$ where x is the number of intransitive verbs attested in a given language (e.g., $\log(65) \approx 4.17$ for a language with 65 intransitive verbs); this would happen if all the intransitive verbs formed separate classes, each with one member. The opposite situation where all intransitive verbs belong to one class would yield an entropy of 0. In other words, the more disorder in the grouping of verbs, the higher the entropy value.

For Skolt Saami, 53 verbs have been deemed intransitive, and they fall into 16 classes based on their valency frames. The class sizes are (11, 9, 8, 6, 5, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1). Actual entropy of intransitives in this case is ≈ 2.33. Theoretical maximum of entropy for 53 verbs equals $\log(53) \approx 3.97$. Consequently, relative entropy of intransitives for Skolt Saami equals 0.59, or 59% (2.33/3.97). In the sample of languages analysed in Say (2018c), the values of relative entropy fall within the interval from 0.31 to 0.77 (Say 2018c: 586–590). Thus, Skolt Saami shows a relatively elaborate system of intransitive classes, and the predicates are distributed relatively evenly across these classes. One notable aspect of $H_{rel(intr)}$ metric is that its value often differs significantly for members of one language family or areal. Within Uralic languages, the value of $H_{rel(intr)}$ puts Skolt Saami together with Permic (0.60–0.63) and Mordvinic (0.60–0.62), while Standard Finnish shows a much lower value (0.41). At the same time, Skolt Saami is rather close in $H_{rel(intr)}$ to Russian (0.63), one of its major contact languages. The connection between Skolt Saami and Russian will be touched upon once again later in this section.

In South Saami, which has 31 intransitive verbs distributed across 15 classes with the sizes of (7, 7, 4, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1), the actual entropy of intransitives is exactly the same as in Skolt Saami, that is ≈ 2.33. Since the theoretical maximum of entropy for 31 intransitive verbs is lower, $\log(31) \approx 3.43$, the value of $H_{rel(intr)}$ in South Saami is higher, namely 0.68. However, the small number of intransitive verbs attested in South Saami (and therefore the low theoretical maximum of the entropy) might be partly explained by the fact that no translational equivalents were obtained for a number of predicates that cross-linguistically tend to be intransitive (see Say 2018c: 560–564). Some of the lacking predicates are likely to belong to the larger attested classes, e.g., the predicates meaning ‘get mixed’ or ‘agree’ can

be expected to pattern with other NOM_COM predicates. If this is the case, it would decrease the South Saami $H_{rel(intr)}$ and bring it closer to Skolt Saami.

While areal and genetic factors are not always reflected in the values of relative entropy for individual languages, a positive correlation is observed between this metric and the number of cases in a given language. Yet, Say (2018c: 589–590) hypothesizes that the reason for this lies on a deeper level: languages are more likely to have a high number of valency classes if they use numerous grammaticalized spatial markers for argument encoding. For Skolt Saami (and South Saami as well), this hypothesis may account for the relatively high value of $H_{rel(intr)}$. The language is, indeed, rather rich in nominal cases (it has nine), although for many other Uralic languages the number is even higher. In addition, spatial markers appear in several classes of intransitive verbs as means of coding arguments. Almost all of the postpositions involved in argument encoding (e.g., *ool* 'on(to), towards', *tuâkka* 'behind', *vuâlla* 'under') carry some spatial meaning which may or may not be realized in a literal sense in a specific context.

Finally, the most fine-grained level of analysis is comparing the distribution of predicates into individual valency classes across languages.[6] As shown in Say (2014: 152–158) based on the data from 29 European languages, at this level it is possible to identify numerous low-level convergences between languages, both genetic and purely areal. This implies that distributions of verbs into valency classes change fast and can be easily transferred in contact situations. For Skolt Saami, a particularly salient class in this respect is that with a LOC_NOM frame (see Section 3.8), containing predicates meaning 'have', 'have enough', 'have (a disease)', and 'remain'. In many other Uralic languages, these predicates fall into different classes. Moreover, these classes can also differ in terms of their locus of non-transitivity. For instance, in Udmurt, the meaning 'have' is conveyed by means of a possessive construction, with the genitive on the first argument, and a possessive marker on the second, as shown in (42). The predicate 'have (a disease)' has the first argument in the nominative, and the second argument in the instrumental, as shown in (43).

(42)	*Petâ-**lèn***	*mašina-ez*	*van'*.
	Peter-**SG.GEN**	car.**SG.NOM**-POSS.3SG	COP.PRS
	'Peter has a car.'		

[6] For analysing this aspect of valency class organization, Say (2018c: 590–597) uses a metric based on contingency tables for pairs of languages, and ultimately on comparing entropies of distributions. In this paper, however, we only provide some preliminary observations concerning the place of Skolt Saami in the Uralic language family. Quantitative analysis of Saamic languages in the Uralic context is currently in the works.

(43) *Petâ* *gripp-**en*** *vis-e.*
Peter.**SG.NOM** flu-**SG.INS** be.sick-PRS.3SG
'Peter has the flu.'

In Finnic languages, on the other hand, the argument encoding used with these predicates is more uniform. There is, indeed, some minor variation across languages as to how they treat these four predicates, but they all have A locus of non-transitivity, and in most cases the first argument is encoded by the adessive; see examples (44) and (45) from Standard Finnish.

(44) *Peka-**lla*** *on* *auto*.
Pekka-**SG.ADE** be.PRS.3SG car.**SG.NOM**
'Pekka has a car.'

(45) *Peka-**lla*** *on* *flunssa.*
Pekka-**SG.ADE** be.PRS.3SG flu.**SG.NOM**
'Pekka has the flu.'

From an areal point of view, it is also remarkable that in Russian, all the four predicates allow for a similar frame, using a locative possessive construction with the preposition *u* 'at' (although this frame was not deemed primary for all these predicates in the project). Unlike Skolt Saami, Finnic and Russian, South Saami uses a transitive verb *utnedh* 'have' to encode possessive relations. The verb itself is of Saamic origin, but its use in the possessive construction is clearly a result of North Germanic influence (Kowalik 2016: 52–54). Overall, the behaviour of the predicates expressing possession and similar concepts in the aforementioned neighbouring languages can be seen as an illustration of Say's (2014: 160) thesis that valency frames can spread independently of morphosyntactic devices, that is, in this case pattern borrowing does not imply matter borrowing (see Matras & Sakel 2007 for these notions).

The correspondences between Skolt Saami transitive verbs and verbs with transitive and NOM_PART valency frames outlined above are also indicative of a low-level areal signal. At the same time, Skolt Saami has at least one class with respect to which it patterns with both genealogically and geographically distant Uralic languages, namely the NOM_COM class described in Section 3.3. While this class appears slightly larger in Skolt Saami than in most other Uralic languages, the predicates 'encounter', 'fight', 'get to know', 'speak', 'get mixed', 'agree' and 'have a quarrel' share a valency frame also in Permic and Mordvinic (although morphosyntactic devices encoding the second participant, of course, differ, e.g., comitative in Zyrian Komi and Permyak Komi, instrumental in Udmurt, postposition *marto* in Erzya). In Standard Finnish, on the other hand, only some of these verbs use the frame with the second participant encoded by the postposition *kanssa* 'with', while the verb *tavata* 'encounter' is transitive, and the verbs *tutustua* 'get to know' and

sekoittua ‘get mixed’ have a nominative–illative frame. Interestingly, the latter three verbs all have their second participant encoded by the postposition *kans* ‘with’ in Ingrian Finnish. A possible explanation here is that Permic and Mordvinic languages, as well as Skolt Saami and Ingrian Finnish, all have been in contact with Russian, which uses similar encoding of the second participant (preposition *s* ‘with’) with all the verbs in question. In South Saami, which has not experienced a strong Russian influence, the meaning ‘encounter’ is encoded using a NOM_COM frame, but the meaning ‘get to know’ is expressed by a transitive construction, while for the meaning ‘get mixed’ there is currently no available data. Therefore, even in this case, the influence of contact is probable in the development of an individual valency class.

5. Conclusions

In this paper, we investigated bivalent predicates in Skolt Saami based on a questionnaire introduced in Say’s (2018a) typological project and reported our preliminary observations regarding the place of Skolt Saami within the Uralic language family and in a wider cross-linguistic context. Overall, Skolt Saami has a relatively wide range of ways to encode arguments of two-place predicates. Out of 130 stimulus sentences presented in the questionnaire, 120 yielded valid responses suitable for further analysis. The verbs can be split into 17 groups in total (see Table 1 in Section 3.19). The transitive class (NOM_ACC) is the largest, encompassing 67 verbs. Among intransitive classes, six have several members, and ten consist of a single member each. One class with four members has A locus of non-transitivity (LOC_NOM), one single-member class shows A&P locus (ACC_ESS), and the rest have P locus, which is cross-linguistically a fairly common picture (Say 2018c: 565–566). Six classes of intransitive verbs only use cases for argument encoding, eight classes use postpositions, and two single-member classes use conjunctions.

Both genetic and areal patterns can be identified in the way bivalent predicates are arranged into classes in Skolt Saami. Its transitivity ratio is 0.56, which is very high compared to other members of the Uralic family. The only non-Saamic language with a comparable value is Forest Enets (also 0.56), which is among the most distant relatives of Skolt Saami, both genealogically and geographically. However, the large gap between the transitivity ratios of Skolt Saami and its neighbouring Finnic languages can be at least partly explained by the fact that many of the verbs that are transitive in Skolt Saami, in Finnic languages have their second argument in the partitive, which is almost never used for argument encoding in modern Saamic languages. Skolt Saami also patterns with Finnic languages in the organization of certain specific valency classes, such as the LOC_NOM class comprising verbs denoting some sort of possession. Interestingly, in this particular case Skolt Saami also shows clear similarities with Russian, a language with which it has been in close contact for centuries. Russian is also close to Skolt Saami in its

relative entropy of intransitives, along with some other Uralic languages that it is known to have influenced. However, a relatively high value of $H_{rel(intr)}$ in Skolt Saami (0.59) can also be explained by language-internal reasons, namely by the fact that the language employs numerous spatial markers, such as locative cases and postpositions, to code argument relations.

The data collected for this study already allow for quite an extensive analysis. Yet, it would be possible to draw more stable conclusions and possibly confirm some issues if more speakers filled out the questionnaire. Another way to develop the findings and put them into a regional perspective would be to compare results of this study to data on a wider variety of Saamic languages. Within this and other studies, applying Say's (2018c: 593) Mutual Information profiling would allow us to better assess similarities and differences between languages in regard to their valency systems. Systematic comparison of Saamic languages to their non-related contact languages, such as Russian and North Germanic languages, would shed more light on the areal aspect of some observed phenomena.

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