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NUMBER MARKING AND QUANTIFICATION OVER SETS IN KAZYM KHANTY

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Number marking and quantification over sets in Kazym Khanty

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Abstract

In Kazym Khanty, there is a negative pronoun that can bear number and possessivity markers and whose semantics we investigate. We show that the meaning of number marking on negative and interrogative pronouns is different, although both occur in downward-entailing (DE) environments. We claim that there is a count form which is syncretic with the singular and can denote both singular and plural entities and support this with data about number marking in noun-numeral and pseudo-partitive constructions. We also provide a compositional semantic analysis of the negative pronoun.

Keywords: negative pronouns, number semantics, quantification, Khanty, nanosyntax

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1. Introduction

This paper investigates possessive and number marking on Kazym Khanty negative pronouns. We show that the semantics of number marking differ on negative and interrogative pronouns. Although both occur in downward-entailing (DE) environments, the functions of singular marking differ between the two cases. There are two ways to resolve this problem: either to postulate two kinds of DE contexts or to concede that there exist two syncretic forms with different meanings that share the form of the singular. We choose the latter option and claim that in Kazym Khanty, there is a count form, which can denote both singular and plural entities, and a strictly singular form, both of which are marked identically. This claim is supported by data about number marking with numerals and in pseudo-partitive constructions, which can give an insight into what the count form is (Caha 2022). We also provide a compositional semantic analysis of the negative pronoun ‘nobody’.

The paper is laid out as follows. Section 2 gives a description of number marking in Kazym Khanty on nouns, wh-words, and indefinite and negative pronouns. Section 3 explains the problem with the double nature of the singular number in DE contexts. Section 4 describes the morphological syncretism-based solution to this problem, Section 5 provides a semantic analysis of how the meanings of the Khanty negative pronouns are derived from the meanings of their constituent parts. We conclude with Section 6.

2. Kazym Khanty

Kazym Khanty is a Northern dialect of the Khanty language, which belongs to the Uralic language family and is spoken in the Khanty-Mansi and the Yamalo-Nenets Okrugs of Russia. The data used in this paper, where not stated otherwise, comes from the author’s fieldwork in the village of Kazym, in the Khanty-Mansi Okrug.

Kazym Khanty is left-branching and head-marking with respect to both noun phrases and clauses. Nominal inflectional morphology includes number, possessive markers, and three cases: dative, locative, and unmarked nominative. Both finite and non-finite verbs can have either past or non-past tense. For a detailed description of Kazym Khanty see Kaksin (2010).

2.1. Number system

Nouns are marked for number, possession, and case, in this order from the base; see (1) below for examples of nominal word forms.

(1) Examples of Khanty nominal forms

a. *jaj-λ-aλ-a*
brother-PL-POSS.3SG-DAT
‘to his/her brothers’

b. *puχ-em*
son-POSS.1SG
‘my son’

c. *χot-ət*
house-PL
‘houses’

There are three distinct number forms in Khanty: the singular, the dual, and the plural. Number markers change when followed by possessives; the number paradigm is provided in Table 1.

Personal pronouns distinguish three number forms as well, albeit with suppletion (see Table 2).

Wh-words, indefinite pronouns, and the negative pronoun *nem χujat* ‘nobody’, on the other hand, can host the same inflectional morphology as regular nouns.

	SG	DU	PL
no POSS	Ø	ηən	ət
with POSS	Ø	nəl	λ

Table 1: Kazym Khanty number paradigm

1SG	2SG	3SG
ma	nǎη	λuW
1DU	2DU	3DU
min	nin	λin
1PL	2PL	3PL
mυη	nin	λiw

Table 2: Kazym Khanty personal pronouns in the nominative case

Number marking is not always obligatory. For inanimate entities, it can be optional. In example (2), either the singular or the plural is possible, since the noun *put* ‘pot’ is inanimate.¹

- (2) *put-ət* / *put oməs-λ-ət* / *oməs-λ* *pǎsan ətχein*
 pot-PL pot stand-NPST-3PL stand-NPST[3SG] table on

‘The pots are (usually) on the table.’ (Pisarenko 2020: p. 184)

However, number marking is obligatory for animate entities like *ufitel* ‘teacher’ (3).

- (3) *ufitel-ət* / **ufitel šalit-a-λi* / **šalit-a*
 teacher-PL teacher pity-IMP.SG-NSG pity-IMP[SG]

‘Respect teachers!’ (Pisarenko 2022: p. 5)

We limit the present investigation to occurrences of the singular and the plural on animate entities; the semantics of the dual and number marking on inanimate objects are outside the scope of this paper. For an analysis of the dual’s semantics see Golosov (2023).

2.2. Number marking on pronouns

The wh-word *χuj* ‘who’ in Kazym Khanty inflects for number and possession (4).

- (4) *χuj-en*
 who-POSS.2SG

‘who of yours’

The possessive marker on the wh-word denotes the possessor of the group to which the potential answer belongs. For example, if the question is about someone from the addressee’s friends or relatives, *χuj* ‘who’ will bear a second person singular possessive marker. The literal translation of the question would be ‘who of yours’. The possessive has the same meaning on the indefinite and negative pronouns.

When it comes to the denotation of the number marking, a question with a singular-marked wh-word can have an answer with either a singular or a plural entity (5). The singular therefore acts as a neutral number.

¹The number marking on inanimate nouns also depends on the definiteness and the syntactic position of the noun (Pisarenko 2020).

(5) Singular marking

χujt-en *əkərət* *χir-ti* *juχət-əl?*
who-POSS.2SG garden dig-NFIN.NPST go-NPST[3SG]

‘Who (of yours) will come to dig up the garden?’

OK Wasya will come

OK Wasya, Masha and Petya will come

The plural on *χuj* ‘who’, however, makes a reply with a singular entity impossible (6); the only way one can give a singular-marked answer is with the particle *təp* ‘only’, which signifies that such an answer is a violation of what is expected, given the question.

(6) Plural marking

χujti-λ-an *əkərət* *χirti* *juχət-λ-ət?* *wasaj-en* **(təp)* *juχət-əl*
who-PL-POSS.2SG garden dig go-NPST-3PL Wasya-POSS.2SG only go-NPST[3SG]

‘Who (of yours) will come to dig up the garden?’

* Wasya will come

OK only Wasya will come

OK Wasya, Masha, and Petya will come

The number marking pattern on *χuj* ‘who’ can be summarised as: the singular is neutral and can denote both singular and plural entities, whereas the plural is strictly plural in meaning.

The indefinite pronoun *χujat* ‘somebody’ is derived from the wh-word *χuj* ‘who’ by attaching an indefinite suffix *-at* ‘INDEF’.

3. The problem with the singular

In affirmative sentences, the singular invariably refers to individual entities (7) and the plural to groups (8).

(7) Upward entailing (UE) context, singular subject

wasaj-en *an* *šukat-əs*
W.-POSS.2SG cup break-PST[3SG]

‘Wasya broke a cup.’

(Muravyev 2022: p. 48)

(8) Upward entailing (UE) context, plural subject

ńawrem-ət *kört* *χǎr-ij-ən* *juŋ-λ-ət*
child-PL village glade-DIM-LOC play-NPST-3PL

‘Children are playing near the village.’

However, the semantics of number changes in DE contexts. The generic number, which can refer to both plural and singular entities, is different between two DE contexts: polar questions and in the scope of negation on negative pronouns.

For questions, the generic number is the singular, which can denote both singular and plural entities. The answer to the question in example (9), for instance, can be positive both if the addressee has one child or more than one.

(9) DE context: polar question (singular)

ńawrem *tǎj-λ-ən?*
child have-PL-3SG

‘Do you have children?’

When the plural noun *ńawrem-ət* ‘child-PL’ occurs in a polar question, a positive answer is expected only if the addressee has multiple children (10).

- (10) DE context: polar question (plural)
nawrem tǎj-λ-ən?
 child have-PL-3SG
 ‘Do you have children?’

The same is demonstrated in examples (5–6), where the singular marking on the wh-word *χuj* ‘who’ is number-neutral and supposes that the answer can be either singular or plural (5), whereas the plural indicates a strictly plural entity (6). The number marking pattern in questions is summarised in Table 3.

	Atomic entities	Set entities
SG	yes	yes
PL	no	yes

Table 3: Number marking pattern in polar questions

In polar questions, the singular is the generic number; not so with the negative pronoun *nem χujat* ‘nobody’ (see example 11). The negative pronoun is used for universal negative quantification and it signifies that there is no such individual X that the proposition P is true of. At first glance, number marking should not make any contribution to the truth conditions of such sentences: whether there is one of several of those P-individuals, the outcome is that none of them exist.

- (11) a. *nem χujat-λ ἄn juχt-əs*
 nobody-POSS.3SG NEG come-PST[3SG]
 ‘Nobody came.’
- b. *nem χujat-λ-aλ ἄn juχət-s-ət*
 nobody-PL-POSS.3SG NEG come-PST-3PL
 ‘Nobody came.’

However, the apparent lack of truth-conditional contribution of PL on negative pronouns can be proved wrong by looking at the way PL- and SG-marked pronouns allow distributive and collective interpretations. We claim that PL marking arises in contexts where the quantifier ranges over a set of sums and not atomic entities. However, it is hard to grasp the distinction between atom-based and set-based quantification right away, for it is often obstructed by the ambiguity between collective and distributive interpretations. See (12), where both PL marking and SG marking are allowed. The verb *jakti* ‘dance’ is mixed and allows for both interpretations, so there is no clear indication of what the marking, as in (12b), corresponds to and whether it actually involves quantification over sums. There are two options: (a) quantification ranges over sums and the predicate gets interpreted collectively on each sum (dance in pairs); (b) quantification ranges over atoms and the predicate gets interpreted distributively.

- (12) a. *nawrem-ət χulijewa pilaŋa lol’-ijλ-λ-ət nem χujat(-əλ) ἄn jak-əλ*
 child-PL all in pairs stand-FREQ-NPST-3PL nobody(-POSS.3SG) NEG dance-NPST[3SG]
 ‘All the kids are standing in pairs but nobody is dancing.’
- b.^{OK} *nem χujat-λ-aλ an jak-λ-ət*
 nobody-PL-POSS.3SG NEG dance-NPST-3SG
 ‘All the kids are standing in pairs but nobody is dancing.’

- (13) *nem χujat-λ-aλ / nem χujat-eλ jām aŋki-aši ānt λuŋət-λ-aj-ət*
 nobody-PL-POSS.3PL nobody-POSS.3SG good parents NEG consider-NPST-PASS-3PL

Context: there are several married couples in our house.
 ‘None of them are considered good parents.’

We argue for the option (a), that is, that with the plural negative pronoun, the quantification ranges over sums. First, we will show contexts that exclude the PL marking and argue that they force quantification over atoms. Second, we will use the atom-set classification of predicates (Winter 2002) to show that PL-marked negative pronouns do indeed range over sums.

To exclude distributive inter-unit interpretations, we constructed a context where the predicate can only hold a single unit of quantification, be it an atom or a set, such as a context of student competitions. In a competition only a single individual or a team get to win, hence we expect number in such contexts to only characterize units of quantification. Consider example (14) with a PL-marked negative pronoun, where the only available context is a situation of several students collectively losing as a team and not a situation of several students losing as individual participants.

- (14) *nem χujat-λ-am nuχ ānt pit-əs-ət*
 nobody-PL-POSS.1SG up NEG become-PST-PL

‘None of my students won (lit. none of mine).’

Context 1, impossible: a teacher is talking about their students who took part in a competition with a single winner

Context 2, allowed: the students took part in a competition as teams

The resulting pattern, on the surface, is different from the one in polar questions. The plural is never obligatory on negative pronouns and cannot be forced by any context, even if the atoms of quantification are plural; in questions, however, if the question is concerned with a set entity, the plural is used. We have shown that the number marking on negative pronouns represents whether the atom of quantification is an atom (singular) or a set (plural). Thus, the reason that the plural marking is either optional or completely prohibited is that in set atoms of quantification, an inter-unit distributive reading is available, so singular number can be used; otherwise, the use of the plural is simply impossible, since the atoms are singular.

Nevertheless, the singular number, as evidenced by the pattern in polar questions, is not used only to denote singular entities – it can be number-neutral. We will now demonstrate that in Kazym Khanty, there exist two syncretic noun forms: the count form and the singular form.

4. Count form is syncretic with the singular

Instead of recognizing that two distinct types of DE contexts are relevant for the semantics of number marking, we choose a structural solution to the problem. It has been shown by Caha (2022) that the mass-count-plural paradigm obeys the *ABA constraint, which asserts that only adjacent cells of a paradigm can be targeted by syncretism (Bobaljik 2012). The mass-count-plural paradigm contains three forms: a mass form that is found in pseudo-partitives, a count form that is used with numerals, and a plural form that denotes plural entities. An example of such a paradigm is provided in Table 4.

	Pseudo-partitive	Noun-numeral	Plural	Pattern
ENGLISH	piece of cake	two cakes	cakes	ABB
TURKISH	bi(r) parça kek-Ø ‘piece of cake-SG’	üç kek-Ø three cake-SG	kek-ler cake-PL	AAB
MADE-UP LANGUAGE	half kek-s ‘piece of cake-PL’	three kek three cake-SG	kek-s cake-PL	*ABA

Table 4: Example mass-count-plural paradigm

The *ABA ensures that the mass form cannot be syncretic with the plural, but the count form can. The syncretism between count and plural is observed, for example, in English, where the plural is used with numerals; not so in Turkish, where the mass form is syncretic with the count form, which are both unmarked.

Caha's (2022) proposal is couched in the framework of Nanosyntax (Caha 2009, Starke 2018), which is a non-lexicalist approach to morphology. In Nanosyntax, each lexical item is associated, in addition to a semantic and a phonological form, with a piece of structure (lexical tree, or L-tree) that spells out pieces of the syntactic tree (S-tree) in the course of the derivation. The functional sequence consists of ordered functional heads. Caha assumes that the mass, count, and plural forms correspond to three structures of incrementally bigger size: MASSP is contained by CLP (for classifier, i.e. the count form), which is in turn contained by PLP (or SGP).

What is relevant to the morphosemantic puzzle of the negative pronoun in Kazym Khanty is that Caha proposes semantic interpretations for the MASS, COUNT, and PL heads, which allow one to compositionally derive the meaning of the count form from that of the mass form, and the singular/plural meaning form that of the count form. The mass form is used in pseudo-partitives, where a measure noun is responsible for the chunks into which the entity is divided. With numerals, however, a count form needs to be used, which provides some kind of atoms which are countable (Borer 2005, Rothstein 2010). So, the count form denotes a set of atomised number-neutral entities: both plural and singular, as shown in example (15).

$$(15) \quad \llbracket \text{CLP} \rrbracket = \{\alpha, \beta, \gamma, \alpha\beta, \alpha\gamma, \beta\gamma, \alpha\beta\gamma\} \quad (\text{Caha 2022: p. 16})$$

When numerals combine with the count form, they pick out the sets with the right number of atoms in them (Bale, Gagnon & Khanjian 2010, Martí 2020); the singular will select the singular entities and the plural – the non-singular ones. The count form is therefore a distinct form which can be syncretic with either the singular or the plural but has number-neutral semantics. The way to know the morphological appearance of the count form is to look at number marking with numerals.

The problem with the number marking on Khanty pronouns is that while the plural on wh-words invariably commands a plural answer, that is, it has a strictly plural denotation, the plural on negative pronouns is never obligatory: whether the atoms of quantification are plural or not, both singular and plural marking is possible (16).

- (16) a. *nem χujat-λ ǎn juχt-əs*
 nobody-POSS.3SG NEG come-PST[3SG]
 'Nobody came.'
- b. *nem χujat-λ-aλ ǎn juχət-s-ət*
 nobody-PL-POSS.3SG NEG come-PST-3PL
 'Nobody came.'

The use of the singular, on the other hand, is restricted: if a distributive reading is blocked and the atoms of quantification are singular, the negative pronoun is obligatorily singular-marked (13). How can the singular marking occur with a number-neutral meaning in one context (questions) and with a strictly singular meaning in another (negative universal quantification)? Our answer is that these are two different forms: the count form and the singular form respectively.

4.1. The marking of mass, count, and plural

In order to argue that the number-neutral count form is syncretic with the singular, we need to demonstrate the Mass-Count-Plural paradigm for Kazym Khanty by giving examples of a mass form, a count form, and a plural form in use. Both the mass and the count form are singular-marked: see example (17a) featuring a pseudo-partitive construction and example (17b) with a noun with a numeral.

- (17) a. *ńań pul*
bread piece
‘a piece of bread’ (Kozlova 2022)
- b. *ńǎł wəńši*
four pine
‘four pines’ (Solovar 2014)

Since what looks like singular number can actually be a number-neutral form, as evidenced by its occurrence in noun-numeral constrictions, the use of the singular in DE contexts to denote both singular and plural entities is easily explained. So is the use of the plural, which is not number-neutral in Kazym Khanty but rather denotes strictly plural entities. Therefore, in questions, the use of the plural on the *wh*-word means that a plural answer is expected. The next section is dedicated to the semantic analysis of the constituent parts of Kazym Khanty pronouns, which is based on the syncretism between the singular and the count form.

5. Compositional account

In this section we sketch out a compositional analysis of Kazym Khanty negative pronouns. There has been considerable debate in the literature on the quantificational nature of negative pronouns, which can be analyzed as existential (e.g. Zeijlstra 2004) or universal quantifiers (e.g. Giannakidou 2000). For our current purposes we assume that *nem χujat* is a negative concord item (NCI) with *nem* being semantically vacuous and licensed by negation.

Our rationale for treating *nem χujat* ‘nobody’ and other negative pronouns like *neməłti* ‘nothing’ and *nemχənti* ‘never’ as NCIs is the following: several negative pronouns can be used in the scope of negation without a double negation effect, which is typical of NCIs and demonstrates their semantic vacuousness (18).

- (18) a. *nem χujat neməłti ǎn want-s.*
nobody nothing NEG see-PST[3SG]
‘Nobody saw anything.’
- b. *nem χujat-ən nemχənti ǎn want-ijəł-s-a*
nobody-LOC never NEG see-FREQ-PST-PASS[3SG]
‘Nobody has ever seen him.’ (Boyko 2021)

To maintain a structural parallel between the negative pronoun on one hand and *wh*-words and indefinites on the other, we propose to analyze *χuj* in negative pronouns as an existential quantifier with a presupposition that it ranges over human individuals. Hence, the number and possessivity markers are located in the restrictor of that quantifier.

A convincing attempt to derive the atom-set distinction in quantifiers and connect it with number marking has been made in (Haslinger et al. 2023), who propose unified semantics for distributive (like *every*) and non-distributive universal quantifiers (like *all*). They observe that distributive quantifiers take *SG*-marked NP complements, while non-distributive quantifiers take *PL*-marked complements, and incorporate that observation into semantics in the following manner. First, they propose that a baseline universal quantifier $Q \square$ quantifies over the maximal elements in the restrictor, see (20).²

²They update the original denotation and make it more complex to exclude readings like in example (19).

- (19) *Alle zwei Buben haben sich getroffen*
UQ two boys AUX REFL met
‘Both boys met.’
#‘Every plurality consisting of two boys met.’

$$(20) \quad \llbracket Q\forall \rrbracket = Q\forall = \lambda P_{\langle a,t \rangle} . \lambda Q_{\langle a,t \rangle} . \forall x [[P(x) \wedge \neg \exists y [P(y) \wedge x \sqsubset y]] \rightarrow Q(x)]$$

(Haslinger et al. 2023: p. 13)

Now, since the PL-marked NP complement of a non-distributive quantifier contains sums, the quantifier is guaranteed to range over sums and not atoms, as the latter are not the maximal elements in the restricted set. To derive distributive quantification, Haslinger et al. (2023) postulate an operator ONE for distributive universal quantifiers, which can be covertly or spelled out by a lexical component with the meaning ‘one’, like in Hindi, or realized as a different allomorph of the universal quantifier, like with English (*every* vs *all*). The existence of an additional semantic component brought in by this operator is supported by the fact that in several languages distributive universal quantifiers are structurally more complex than non-distributive ones. The ONE operator selects atomic individuals from the restricted set, see (21). Since quantification now happens over atoms, they are the maximal elements of the restricted set, thus giving rise to a distributive interpretation.

$$(21) \quad \llbracket \text{ONE} \rrbracket = \lambda P_{\langle e,t \rangle} : \forall x \in P [x \in AT].P$$

(Haslinger et al. 2023: p. 20)

In the case of Kazym Khanty negative pronouns, quantification that ranges exclusively over sums is marked overtly but not quantification over atoms. As has been shown in Section 3 of this paper, SG marking in Kazym Khanty is underspecified as to whether it refers to plural or singular entities, and PL marking is restricted to plural entities only, as demonstrated in example (22). The singleton semantics of singular and plural marking in nominal uses are given in example (23) below.

$$(22) \quad \text{a. } \text{SG: } \{ \text{Masha, Vasya, Tanya, Masha} \oplus \text{Vasya, Masha} \oplus \text{Tanya, Tanya} \oplus \text{Vasya, Masha} \oplus \text{Vasya} \oplus \text{Tanya} \}$$

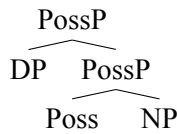
$$\text{b. } \text{PL: } \{ \text{Masha} \oplus \text{Vasya, Masha} \oplus \text{Tanya, Tanya} \oplus \text{Vasya, Masha} \oplus \text{Vasya} \oplus \text{Tanya} \}$$

$$(23) \quad \text{a. } \llbracket \text{SG} \rrbracket = \lambda P_{\langle e,t \rangle} \lambda x . P(x)$$

$$\text{b. } \llbracket \text{PL} \rrbracket = \lambda P_{\langle e,t \rangle} \lambda x . |x| > 1 . P(x)$$

We adopt the semantics of proper possessivity from (Mikhailov 2021). The structure of PossP is given in example (24) and the denotation of a proper possessive is provided in example (25). PossP includes a possessor nominal, a DP or a type-shifted NP of type *e*. The Poss operator takes the modified NP as a first argument and the possessor individual as the second. The resulting function is true of such individuals that are part of the extension of a modified NP and stand in a contextually salient relation to the possessor.

(24) The structure of PossP



$$(25) \quad \llbracket \text{Poss}_i \rrbracket^{\text{g.c}} = \lambda P \lambda y \lambda x : \exists z [P(z) \wedge g(i)(z)(y) . P(x) \wedge g(i)(x)(y)] \text{ defined iff } g(i) \text{ is a stereotypical } P\text{-based relation}$$

We claim that Poss marking on *χuj(-at)* denotes a proper possessivity relation and not associative possessivity, since it admits an explicit possessor, as shown in example (26).

$$(26) \quad \text{petaj-en} \quad \text{nem} \quad \chi\text{uj-at-}\partial\lambda \quad \quad \quad \text{\textit{än}} \quad \text{jak-}\partial\lambda$$

P.-POSS.3SG no who-INDEF-POSS.3SG NEG dance-NPST[3SG]

‘None of Petja’s [friends and acquaintances] dance.’

Since for now we do not have the data that would show that Khanty also lacks the second interpretation, we opt for a simpler denotation.

With the meanings of NUM and POSS sorted out, there are several possible ways to assemble the components of *nem χuj-at-Num-Poss* together. The first one is similar to how Russian negative pronouns are composed in (“Sfera dejstvija propozicional’nyx operatorov (na materiale otricanija i modal’nosti) [Scope of propositional operators (based on negation and modality)]” 2022), see example (27). As with Kazym Khanty *χuj, kto* ‘who’ is also found in wh-word *kto* ‘who’ and indefinite *kto-nibud* ‘someone’. Note that a negative pronoun here is assumed to be a universal quantifier. *Kto* ‘who’ is assumed to denote a function which selects animate entities. Here, the core component *kto* is a function that selects animate individuals and the quantificational component is brought in by *ni-*. In the same manner, assume that *nem* is responsible for the quantification in the structure of *nem χujat*, but that would obscure the apparent connection between a negative pronoun *nem χujat* and indefinite *χujat* ‘somebody’, which is also a quantifier.

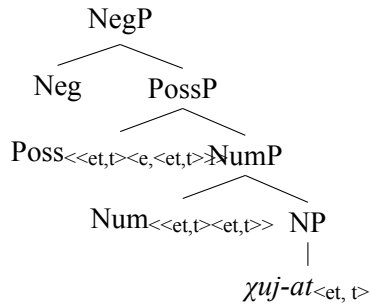
(27) *ni-kto* ‘nobody’ (Russian)

- a. $[[kto]] = \lambda x.\text{animate}(x)$
- b. $[[ni-]] = \lambda P_{\langle e,t \rangle} \lambda Q_{\langle e,t \rangle} \forall x.[P(x) \rightarrow Q(x)]$
- c. $[[nikto]] = \lambda Q_{\langle e,t \rangle} \forall x.[\text{animate}(x) \rightarrow Q(x)]$

To maintain the desirable connection between the two we are tempted to assume that the root component *χuj(-at)* itself is an existential quantifier, as in example (28). The corresponding structure is shown in example (29). Note that there is no set which gets restricted and modified before serving as an argument to the quantifier, and all the restrictions apply over the quantifier itself.

(28) $[[\chiujat]] = \lambda P_{\langle e,t \rangle} . \exists x[x \text{ is human} \wedge P(x)]$

(29) Internal structure on *nem χujat* ‘nobody’ (first attempt)

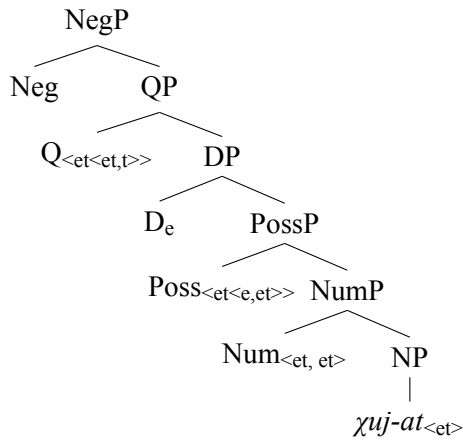


For the derivation to go through, NUM should now be of type $\langle \langle et,t \rangle \langle et,t \rangle \rangle$ instead of $\langle et, et \rangle$, which was applicable in the nominal domain, as PL and SG functions now modify quantifiers over predicates and not predicates of individuals. Similarly, the POSS type is also lifted to $\langle \langle et,t \rangle \langle e, \langle et,t \rangle \rangle$. See updated entries for numeral markers in (30) as an example of how the restriction would work without a restrictor set.

- (30) a. $[[sg]] = \lambda A_{\langle et,t \rangle} \lambda P_{\langle e,t \rangle} . [A(\lambda x.P(x))]$
- b. $[[pl]] = \lambda A_{\langle et,t \rangle} \lambda P_{\langle e,t \rangle} . [A(\lambda x. |x| > 1.P(x))]$

An undesirable consequence of such an approach is that NUM and POSS, which are otherwise identical to those that occur in NPs, have different semantics and a different type from their standard NP uses. In order to maintain uniformity, we would need a restrictor set, which would then feed the quantifier, like in cases discussed by Haslinger et al. (2023). Then, NUM and POSS could restrict that set in the same way they restrict regular NPs and retain their original types. To maintain the restrictor set, we could use a structure along the lines of that in example (31). Here, *χuj-at* is a function that selects a set of human individuals (see example 32) and POSS and NUM restrict that set just like a regular NP. To become a restricted existential quantifier, that set would require a type-shift identical to Partee’s A, see example (33).

(31) Internal structure of *nem χujat* ‘nobody’



(32) $\llbracket \chiuj-at \rrbracket = \lambda x_{e..x}$ is human

(33) $A = \lambda P_{et}.\lambda B_{et}.\exists x_e.P(x) \wedge B(x)$ (Partee 1987)

For now, we assume that this type-shifter is overt, but in principle it could be unified with a lexical entry of *χuj-at* via a spell-out mechanism. We have proposed a compositional account of the behaviour of *nem χujat* ‘nobody’ that allows us to maintain unified semantics not only for the *χuj-at* ‘somebody’, which is contained by *nem χujat* ‘nobody’, but for the numeral and possessive marking as well.

6. Conclusion

We have described the semantics of number marking in Kazym Khanty and how it differs between two DE contexts: in polar questions and on the negative pronoun *nem χujat* ‘nobody’ in the scope of negation. Instead of introducing two distinct types of DE contexts, we have proposed a morphological solution to a semantic problem, arguing that there exist two forms: the singular, which refers strictly to singular entities, and the count form, which is syncretic with the singular but has number-neutral semantics, denoting both plural and singular entities. We have also compositionally derived the negative pronoun from three constituent parts: negation, the wh-word *χuj* ‘who’ and the indefinite marker *-at*.

References

- Bale, Alan, Michael Gagnon & Hrayr Khanjian. 2010. Cross-linguistic representations of numerals and number marking. *Semantics and Linguistic Theory* 20. 582–598.
- Bobaljik, Jonathan. 2012. *Universals in comparative morphology*. Cambridge, MA: MIT Press.
- Borer, Hagit. 2005. *In Name Only*. Oxford: Oxford University Press.
- Boyko, Mikhail. 2021. Glagol’noe otricanie s otricatel’nym mestoimeniem [Verbal negation with the negative pronoun]. Handout for the Kazym Khanty fieldwork group seminar.
- Caha, Pavel. 2009. *The nanosyntax of case*. University of Tromsø dissertation.
- Caha, Pavel. 2022. The marking of mass, count and plural denotations in multi-dimensional paradigms. *Studia Linguistica* 76(1). 212–274.
- Giannakidou, Anastasia. 2000. Negative ... concord? *Natural Language and Linguistic Theory* 18(3). 457–523.
- Golosov, Fedor. 2023. Semantics of the dual number in kazym khanty: a not-at-issue analysis. talk at sinn und bedeutung.
- Haslinger, Nina et al. 2023. A unified semantics for distributive and non-distributive universal quantifiers across languages [ms.]

- Kaksin, Andrej Danilovič. 2010. *Kazymskij dialekt xantyjskogo jazyka [The Kazym dialect of the Khanty language]*. Xanty-Mansijsk: Yugra State University.
- Kozlova, Ekaterina. 2022. Tri stakana na granice priblizitel'nosti: severnoxantyjskij aproksimativ kem [Three glasses on the verge of approximativity: the kem approximative marker in Northern Khanty]. talk at the 19th conference on typology and grammar for young scholars.
- Martí, Luisa. 2020. Numerals and the theory of number. *Semantics and Pragmatics* 13(3).
- Mikhailov, Stepan. 2021. *Semantics of the Northern Khanty 2SG Possessive and of Related and Competing Markers*.
- Muravyev, Nikita. 2022. Severnoxantyjskij kak jazyk s čertami akkuzativnogo i ierarhičeskogo kodirovanija [Northern Khanty as a language with the features of accusative and hierarchical alignment]. *Uralo-altajskie issledovanija* (03 (46)). 43–62.
- Partee, Barbara Hall. 1987. Noun phrase interpretation and type shifting principles. In Jeroen Groenendijk, Dick de Jong & Martin Stokhof (eds.), *Studies in discourse representation theories and the theory of generalized quantifiers*, 115–144. Dordrecht: Foris.
- Pisarenko, Denis. 2020. Markirovanie množestvennogo čisla v kazymskom dialekte xantyjskogo jazyka [Plural number marking in Kazym Khanty]. In Xenia Semėnova (ed.), *Malye jazyki v bol'soj lingvistike. sbornik trudov konferencii 2020 [Small languages in big linguistics. book of conference papers 2020]*, 181–185. Moscow: Buki Vedi.
- Pisarenko, Denis. 2022. Množestvennoe čislo: revised [The plural: revisited]. Handout for the Kazym Khanty fieldwork group seminar.
- Rothstein, Susan. 2010. Counting and the mass/count distinction. *Journal of Semantics* 27(3). 343–397.
- Sfera dejstvija propozicional'nyx operatorov (na materiale otricanija i modal'nosti) [Scope of propositional operators (based on negation and modality)]*. 2022. MSU dissertation.
- Solovar, Valentina Nikolaevna. 2014. *Xantyjsko-russkij slovar' (kazymskij dialekt) [Khanty-Russian dictionary (Kazym dialect)]*. Tjumen': OOO "FORMAT".
- Starke, Michal. 2018. Complex left branches, spellout, and prefixes. In *Exploring Nanosyntax*, 239–249. Oxford: Oxford University Press.
- Winter, Yoad. 2002. Atoms and sets: a characterization of semantic number. *Linguistic Inquiry* 33(3). 493–505.
- Zeijlstra, Hedde. 2004. *Sentential negation and negative concord*. Universiteit van Amsterdam dissertation.

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