The semantics of prenominal possessives in Russian

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ABSTRACT

Traditionally Russian prenominal possessives are classified as possessive adjectives (Isačenko 1960; Townsend 1980). In more recent work by Babyonyshev (1997) it is claimed that prenominal possessives are functional elements that are hosted outside nominal phrase, which means that they cannot be adjectives. This claim is based on the ability of possessives to fill an agent argument of event nominals. In this paper I will provide evidence that syntactically prenominal possessives do behave like adjectives. I will propose a semantic analysis that will account for the peculiar properties that prenominal possessives have.

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1 INTRODUCTION

This paper discusses the syntax and semantics of prenominal possessives in Russian. I will argue that syntactically expressions in bold in (1) are adjectives, despite claims to the contrary in Babyonyshev (1997), and I will offer a semantic analysis that will account for their grammatical behavior.

(1)   a.   **maš-in-a**   knig-a
               Masha-POSS-F.SG.NOM book-F.SG.NOM
               'Masha's book'

        b.   **mam-in-y**   ključ-i
               mother-POSS-PL.NOM key-PL.NOM
               'My mom's keys'

Traditionally prenominal possessives are classified as adjectives. (Isačenko 1960; Vinogradov 1960; Townsend 1980). They are formed via adding the suffix *-in* to nouns of the 1st and the suffix *-ov* to nouns of the 2nd declension (*mamin* 'my mom's', *petin* 'Petya's', *sosedkin* 'the neighbor's', *soldatov* 'the soldier's').[1] A limited number of nouns can participate in the formation of possessives, the restrictions are both semantic and morphological (see Koptjevskaya-Tamm and Shmelev 1994; Babyonyshev 1997 for a detailed description).

Like other adjectives in Russian, prenominal possessives precede the head noun and agree with it in number, gender and case.

(2)   a.   Ja našla **mam-in**   telefon.
               I   found mom-POSS.M.SG.ACC telephone.M.SG.ACC
               'I have found my mom's telephone.'

        b.   **Sosedk-in-a**   sobak-a   zalajala.
               neighbor-POSS-F.SG.NOM dog-F.SG.NOM barked
               'The neighbor's dog barked.'

As is well-known, possession is not the only type of relation that can hold between the individuals that are usually labelled as "the possessor" and "the possessum":

(3)   a.   **pet-in**   portret
               petya-POSS.M.SG.NOM portrait.M.SG.NOM
               'Petya's portrait'

        b.   **pet-in-a**   mam-a
               petya-POSS.F.SG.NOM mother-F.SG.NOM
               'Petya's mother'

        c.   **petin**   nos
               petya-POSS.M.SG.NOM nose.M.SG.NOM
               'Petya's nose'

In (3a) Petya can be the possessor of the portrait or the person portrayed, in (3b) *petin* is an argument of the 'mother' relation, in (3c) the nose is a part of Petya's body – the possessive expresses a part-whole relation.

Furthermore, in event nominals, possessive adjectives are able to fill an *agent* argument:

(4)   **mam-in-o**   postojannoje   vyraženije   nedovol'tsva
        mom-POSS.N.SG.NOM constant.N.NOM expression.N.NOM displeasure.N.GEN
        'Mom's constant expression of displeasure'

While *petin* 'Petya's' and *mamin* 'mom's' are classically analyzed as possessive adjectives, Babyonyshev (1997) presents an alternative explanation for why these possessives can fill an agent argument for event nominals. Babyonyshev claims that prenominal possessives are

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[1]   The suffix *-ov* is no longer productive in Modern Russian (Townsend 1980; Koptjevskaya-Tamm and Shmelev 1994; Trugman 2007). Thus, in this paper I concentrate on the suffix *-in*. However, the analysis developed here extends to *-ov* as well.

not adjectives at all, but they are determiners.[2] The nominal head undergoes a double N-to-D raising to combine with the possessive determiner (following Longobardi 1994, where the D position is associated with reference).

I will argue against this in this paper. I will provide evidence that prenominal possessives are adjectives, and I will give a semantic analysis that will account for their grammatical behavior.

The structure of the rest of the paper is as follows. In Section 2 and 3 I discuss more data and provide evidence in support of the adjectival analysis. In Section 4 I will provide background on possessives and show that English-like analyses are not applicable to possessives in Russian. In section 5 I propose a semantic analysis. Section 6 is the conclusion.

2 PRENOMINAL POSSESSIVES ARE ADJECTIVES

In this section I will provide evidence, based on distribution facts, that prenominal possessives in Russian are adjectives.

Generally, based on what we know about languages that have determiners, permutations between determiners and adjectives are not expected. Determiners head a functional projection, adjectives originate within NP, thus, permutations are impossible. This generalization is exemplified in (5) for English.[3]

(5)   a.   #beautiful the book
       b.   #John's this book
       c.   #this every book

Only adjectives modifying the same head noun can permute (with certain restrictions, cf. Pereltsvaig 2007).

Russian does not have overt articles marking definiteness. Bošković (2005; 2008; 2009; 2012) claims that this signals the absence of determiners as a class of grammatical expressions, i.e. noun phrases in Russian do not have a DP projection in their structure. For Bošković possessives are naturally analyzed as adjectives.

Let us consider the facts.

2.1 PERMUTATIONS OF POSSESSIVES AND ADJECTIVES

Possessives can permute with other adjectives both when they occur attributively (6) and as predicates (7).

(6)   a.   **Mam-in-a   novaja** rabota svjazana s   putešestvijami.
              mom-POSS-F.SG new   job   is tied   with travelling
              'Mom's new job involves travelling.'

       b.   **Novaja mam-in-a**   rabota svjazana s   putešestvijami.
              new   mom-POSS-F.SG job   is tied   with travelling
              'Mom's new job involves travelling.'

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2   In the rest of the paper I use, following Babyonyshev (1997), the term "prenominal possessives" as interchangeably with possessive adjective (mainly because this is accepted in the literature). The term comes from the distinction in English between the prenominal possessive – the Saxon genitive, and the postnominal genitive construction with the preposition *of*.

However, it is worth noting that this term does not seem to be precise enough, because on the one hand, a possessive relation is only one type of relation that is associated with this grammatical form, and on the other hand, these adjectives can occur in predicative position as well.

3   An anonymous reviewer brought to my attention the following examples:

(i).   so beautiful a book;
(ii).   how beautiful a book;
(iii).   that beautiful a book.

Bresnan (1973) argued that in these cases the AP is syntactically higher than the determiner. Cresswell (1976) claimed that due to compositionality requirements these examples should be assigned a more traditional structure with the determiner higher and the adjectival phrase originating within the nominal phrase.

(7)   a.   Vse gosti   na etoj večerinke byli **pet-in-ymi**   **byvšimi** odnoklassnikami.
           all   guests   on this party   were Petya-POSS-PL.INS former   classmate.PL.INS
           'The guests at the party were Petya's former classmates.'

       b.   Vse gosti   na etoj večerinke byli **byvšimi pet-in-ymi**   odnoklassnikami.
           all   guests   on this party   were former   Petya-POSS-PL.INS classmate.PL.INS
           'The guests at the party were Petya's former classmates.'

The examples in (6) and (7) are of special importance because they provide evidence that possessives in Russian and English are typologically different. English does not allow permutations, neither in attributive nor in predicate position. This kind of grammatical behavior is expected if we assume that possessives in English are part of DP, not NP (see Landman 2003 for the discussion of left-periphery effects in DPs in predicate position). In contrast, in Russian possessives can mingle with adjectives both when they occur attributively and as predicates.

2.2 POSSESSIVES AS ARGUMENTS OF QUANTIFIERS

Nouns combined with prenominal possessives can be arguments of quantifiers (*každyj* 'every'). This pattern is typical of adjectives, not determiners.

(8)   Bolnyje v palate lovili   každyj   mam-in   žest.
         sick   in room   caught every.M.SG mom-POSS.M.SG gesture
         'The sick people in the room waited for every mom's gesture'.

The noun phrase in (8) is interpreted as 'every gesture of my mother', not 'the gesture of every mother'.

2.3 PERMUTATIONS WITH NUMERALS

Moreover, possessives can permute with numerals.

(9)   a.   Dva pap-in-yx   velosipeda stojali na balkone.
           two dad-POSS-PL.GEN bicycles   stood on balcony
           'Two of dad's bicycles were on the balcony.'

       b.   Pap-in-y   dva velosipeda stojali na balkone.
           Dad-POSS-PL.NOM two bicycles   stood on balcony
           'Dad's two bicycles were on the balcony.'

The data in (9) are problematic for the assumption that possessives are determiners. Numerals are generally considered to be hosted outside NP. If possessives were determiners, they should not be able to permute with numerals similarly to *každyj* 'every'.

(10)   a.   Každyje tri   goda oni   pokupajut novuju mašinu.
           every   three years they buy   new   car
           'Every three years they buy a new car.'

       b.   #tri   každyje goda
           three every   year

However, Landman (2003; 2004) convincingly shows for English that numerals are better analyzed as adjectives that denote cardinal properties of plural individuals. Landman (2003) claims that they are adjectival predicates that originate within NP and raise to the DP area only in the absence of a lexical determiner. Khrizman (2016) shows that this analysis holds for Russian numerals as well. If both possessives and numerals are adjectives, then the data in (9) are explained: adjectives can permute.

Thus, with respect to their syntactic position, prenominal possessives pattern with adjectives. If they are adjectives, then they originate inside the nominal phrase. Thus, the semantic type of the expression [possessive+noun] is naturally <e,t>. As a consequence, nouns modified by prenominal possessives can occur in predicative positions without undergoing any type-shifts. In the next subsections I will provide evidence in support of this claim.

2.4 UNDER THE SCOPE OF A NEGATIVE OPERATOR

Prenominal possessives can occur in genitive case under the scope of negation. It is well known that in Russian verbs under negation can take arguments in accusative or genitive case (Timberlake 1975; Babby 1980; Neidle 1982). Genitive case is usually associated with a decrease in referentiality. Genitive NPs get non-specific/indefinite interpretation, while accusative NPs tend to be interpreted as specific/definite. Partee and Borschev (2004) and Kagan (2005; 2007; 2013) account for the semantic contrast by arguing that NPs in genitive case are predicative expressions at type <e,t>, while accusative NPs are arguments at type e.

The natural interpretation for (11a) is 'there is a specific ring that he does not wear'. This contrasts with (11b) that implies that he is not married.

(11)   Partee (2008)
        a.   On ne nosit obručal'noje   kol'c-o.
              he not wear wedding.N.SG.ACC ring-N.SG.ACC
              'He does not wear the/his wedding ring.'

        b.   On ne nosit obručal'nogo   kol'c-a.
              he not wear wedding.N.SG.GEN ring-N.SG.GEN
              'He does not wear a wedding ring.'

Nouns modified by prenominal possessives are felicitous in this position.

(12)   a.   Ja ne slušala mam-in-y   sovet-y.
              I   not listen   mom-POSS-PL.ACC advice-PL.ACC
              'I did not listen to my mother's advice.'

        b.   Ja ne slušala mam-in-yx   sovet-ov.
              I   not listen   mom-POSS-PL.GEN advice-PL.GEN
              'I did not listen to my mother's advice.'

In (12a) *maminy sovety* is in the accusative and gets a specific interpretation at the argument type. It means 'the pieces of advice that my mother gave me'. The Genitive NP in (12b) gets a non-specific interpretation, the sentence roughly means 'I did not listen to any pieces of advice that my mother gave me', as predicted by Partee (2008) and others.

This strongly suggests that *maminy sovety* is an expression of type <e,t>, since, as Partee shows, the non-specific interpretation follows from the fact that the genitive is a predicative NP.

If [possessive+noun] were a DP that underwent a type-shift from <<e,t>,t> to <e,t>, then the prediction would be that any quantificational DP can undergo the same kind of shift and occur in genitive case under the scope of a negative operator.[4]

However, this is not the case in Russian.

Každyj 'every', shown to be a quantifier in Gepner (to appear), is infelicitous in this position.

(13)   #ja ne slušala každ-ogo   sovet-a
         I   not listen   every-M.SG.GEN advice-M.SG.GEN
         Intended: 'I did not listen to every piece of advice'

The data discussed in this subsection provide evidence that nouns modified by prenominal possessives can occur in genitive of negation because the expression [possessive+noun] is born as an expression of type <e,t>. The ability to occur in this position does not result from a semantic shift from argument type <<e,t>,t>.

At this stage the possibility of the shift from e to <e,t> for [possessive+noun] has not yet been excluded. In the next subsection I will show that this is not a plausible analysis either.

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4   Landman (2003; 2004) claims that shifts from <<e,t>,t> to <e,t> are not allowed anyway (the upward Partee triangle). However, this might not be relevant for languages without articles, as it was noted by an anonymous reviewer.

2.5 UNDER THE SCOPE OF MEASURE PREFIXES

Filip (2005) claims that only expressions of type <e,t> can occur under the scope of measure prefixes. In this subsection I will show that possessives can modify nouns that are complements of measure operators. I will argue that the expression [prenominal possessive+noun] is born at type <e,t> and, thus can occur in this position.

In principle there could be a different explanation of why nouns modified by possessives are grammatical in this predicative position. Following Babyonyshev (1997) one could assume that prenominal possessives are determiners, thus [possessive+noun] is an expression of type e. It is well-known that expressions of type e can shift to <e,t> interpretation. Therefore, [possessive+noun] could shift to a predicative interpretation and occur under the scope of measure prefixes. However, I will show that this is not a plausible analysis. It is not the case that possessives head DPs at type e and can occur under the scope of measure prefixes because they shift to <e,t> interpretation.

Filip (2005) analyzes the prefixes *na-* and *po-* in Russian as measure phrases and claims that their nominal arguments are predicative nominal phrases with non-specific indefinite interpretation. *na-* and *po-* first combine with a property-denoting nominal argument (of type <e,t>) and only after this grammatical operation the expression is able to combine with a verbal root.

(14)   Filip (2005)

      On kak-to   varenya   na-varil   iz   čerešni   žut'   kak
      he somehow jam.SG.GEN na-cook.PST.3.SG from cherry.SG.GEN horror how
      mnogo: desjat' veder.
      much: ten   bucket.PL.GEN
      'He made/cooked up a (relatively) large quantity of jam – from cherries – boy, did he make a lot of it: ten buckets!'

Jam is marked genitive in (14) and has an indefinite non-specific interpretation. *na-* incorporates a measure function that contributes to an implication that the quantity of jam that was cooked was large.

In (15) *po-* first combines with the predicate *brandy* identifying quantities of brandy that are more than null, but small, and only then it is attached to a verbal root *pit'* 'drink'.

(15)   Filip (2005)

      po-pil   konjačka
      po-drink.PST.3.SG brandy.GEN
      'He drank some/a little brandy'

Prenominal possessives can occur under the scope of measure prefixes.

In (16a) *natašinyx pirogov* is a NP at type <e,t> which combines with a measure prefix *na-* to form a measure predicate that will then combine with a verb base. The same holds for (16b) – *maminyx* is part of the nominal phrase headed by the predicate *kotlet* 'chops'.

(16)   a.   My na-jelis' nataš-in-yx   pirogov.
               we na-eat natasha-poss-PL.GEN pies.PL.GEN
               'We ate a lot of Natasha's pies.'

        b.   On s   udovolstvijem po-jel mam-in-yx   kotlet.
               he with pleasure   po-eat mom-poss-PL.GEN chops.PL.GEN
               'He ate some of mom's chops with pleasure.'

Now the crucial observation is that proper names cannot be arguments of measure prefixes that require their arguments to be of type <e,t>.

(17)   My uže   na-smotrelis' #nataši.
      we already na-watch   Natasha
      Intended: 'We have had/seen enough of Natasha.'

Arguably, the interpretations of proper names are generated at type e. If shifting from e to <e,t> is freely available, proper names should be felicitous in the scope of these prefixes. So we

should assume that this shift is not available here. But then we must assume that prenominal possessives are not shifted from type e to <e,t>, since they *can* occur in this position.

The data in examples (15)–(17) provide support for the adjectival analysis of prenominal possessives and against analyzing [possessive+noun] as an argument of type e. Possessive adjectives originate inside the nominal phrase, thus, [possessive+noun] is born at type <e,t>. As a result, nouns modified by prenominal possessives can be complements of measure prefixes without undergoing any semantic shifts.

In this section I have provided evidence that syntactically prenominal possessives pattern with adjectives. Adjectives originate within NP, thus the expression [possessive+noun] is born at type <e,t>. This claim is supported by the data: nouns modified by prenominal possessives can occur in predicative positions. The ability to occur in Genitive of negation and under the scope of measure prefixes does not result from any type-shifting because neither quantificational DPs nor proper names can occur in these positions.

In the next section I will show that the expression [possessive+noun], being born at type <e,t>, does not always stay at type <e,t> and can shift to <<e,t>,t> in argument position, as predicted by Partee Triangle.

3 DE RE AND DE DICTO AMBIGUITY IN INTENSIONAL CONTEXT

It is known that indefinites in English can have narrow or wide scope interpretation in intensional context.

(18)   Peter wants to find a French woman.

When 'a French woman' in (18) has a *de re* interpretation, it is naturally followed by (19a) – there is a specific woman he wants to find. When 'a French woman' has a *de dicto* interpretation, (19b) is an acceptable continuation.

(19)   a.   He met her at a party.
         b.   He has not met any French woman yet, anyone who is both French and female
                will suit him

The same distinction holds for definite DPs in English:

(20)   Peter wants to find the department chair.

(20) also allows for a *de dicto* and a *de re* interpretation.

The literature following Longobardi (1994) links *de re* interpretations to referentiality and referentiality to DPs. Thus, it is well known that proper names only allow *de re* interpretations, as in (21):

(21)   Peter wants to find June.

Longobardi proposed that proper names undergo N to D raising, and end up in the D position, where they are interpreted as referential (*de re*). Following this strategy, the lack of a *de dicto* reading for examples like (21) can be attributed to the lack of analysis where the proper name stays an NP.

Following this, one can assume that the *de dicto-de re* ambiguity for the definites is a question of whether the definite is interpreted as an NP at the predicate type (<e,t>), or whether the definite article also raises to D, and the definite gets a referential interpretation like the proper name.

This idea forms the background for the analysis of Babyonyshev (1997). Babyonyshev observes that in intensional context prenominal possessives are always associated with a specific possessor (Babyonyshev 1997).

(22)   Petr   xočet   najti   sosedk-in-u   podrugu.
         Peter wants   to find neighbor-POSS-F.SG.ACC   friend.F.SG.ACC
         'Peter wants to find the neighbor's friend.'

In (22) there is a specific *neighbor* that the speaker refers to.

Babyonyshev (1997) uses this fact as an argument in support of the claim that prenominal possessives are determiners – the possessor is specific, consequently, *sosedkin* 'neighbor's' is part of a DP, not NP. The idea, then, is that prenominal possessives only have *de re* interpretations because the possessive is in D position.

However, looking at the Russian facts in more detail shows that Babyonyshev's identification of *de re* readings with referentiality is problematic; in Russian the expression [possessive+noun] shows *de dicto-de re* ambiguities *despite the fact* that the prenominal possessive can only have a *de re* interpretation.

Let us imagine a situation: Peter is a young man who likes dreaming and hates working. Peter often thinks about how different his life would be if he married a rich woman. One day Peter finds out that a very rich single woman bought a house in the neighborhood. Peter was told that this woman only meets new people if they are introduced to her by someone she already knows. Peter does not know yet whether the woman has any friends in the neighborhood. However, we can felicitously say the sentence in (22): he wants to find someone who has the property of being the neighbor's friend so that she could introduce him to his new neighbor.

Later on, it turns out that the neighbor has three friends in the neighborhood and Peter goes to the bakery with one of them. In the updated context (22) is still a felicitous sentence, however, the interpretation is different – Peter has a specific friend in mind, but we do not know which one.

Thus, (22) is ambiguous (analogously to indefinite nominal phrases in English): either there is a specific individual who Peter wants to find (transparent reading) or Peter does not care as long as the person fits the description 'the neighbor's friend' if there is one (opaque interpretation).

We observe that, like indefinites and definites in English, Russian prenominal possessives show *de dicto-de re ambiguities*, and this is independent from the referentiality that Babyonyshev observes (and that the analysis *will* have to deal with). This means that there isn't really an argument for linking *de re* to the N to D analysis, in particular, since it would have to involve a lowering type shift for indefinites (from type <e,t> to type e), which one would want to avoid if one can do without.

However, if prenominal possessives are assumed to be adjectives, then the lifting in argument position for [possessive+noun] is a standard operation as predicted by the Upward Partee Triangle (Landman 2004): an expression of type <e,t> shifts to <<e,t>,t>. The details of the derivation will be provided in Section 5.

In the next section I will discuss literature on possessives and claim that English-like analyses of possessives are not appropriate for Russian and a new approach is needed.

4 BACKGROUND ON POSSESSIVES

Many linguists have worked on the semantics and syntax of possessives (e.g. Hellan 1980; Partee 1983/1997; Jensen and Vikner 1994; 2004; Partee and Borschev 1998; 1999; Peters and Westerståhl 2013a; b). Most research has been done on English. Let us first look at the data and then discuss the questions that the data raise and what approaches there exist to analyzing possessives in English.

There are three main components that play an important role in constructing and interpreting a possessive: two individuals – the possessor and the possessum – and a relation that holds between the two (Barker 2011).

In *John's brother* John is the possessor, the possessum is some male individual, and the relation that holds between the two is a *brother of* relation. In this case the relation is part of the lexical semantics of the head noun *brother*. However, in *John's book* the relation that holds between *John* and *the book* largely depends on the context and is not encoded in the semantics of the head noun. John can be the author of the book, its possessor, his research project can be about this book, and there are many other possibilities. Thus, the type of relation in a possessive construction depends on the properties of the head noun, to be more precise, the type of relation depends on whether the head noun is sortal like *book* or relational like *brother*.

If there are two types of head nouns, does this mean that there should be two different possessives? If we propose a unified analysis for the possessive, how are we going to deal with the fact that the same possessive construction should combine with two different types of nouns? Where does the relation come from? These are the questions that the researchers try to answer.

There are different strategies discussed in the literature aiming at providing an analysis of possessives.

Partee and Borschev (2003) argue against a unified analysis of genitives and related constructions claiming that many genitives have mixed properties both of arguments and modifiers.

Jensen and Vikner (1994; 2004) and Hellan (1980) propose a uniform analysis for possessives. Jensen and Vikner argue that possessives are uniformly arguments, while Hellan suggests that they are uniformly modifiers. These analyses differ in positing different shifting rules – whether sortal nouns shift to a relational interpretation or whether, vice versa, relational nouns get detransitivized.

If the possessive can combine only with relations, then sortal nouns have to undergo a semantic shift to get a relational interpretation. In this case the possessive (Mary's) is uniformly an *argument* of the relation denoted by the head noun. The second possibility is to assume that the possessive is a *modifier* of the head noun applying only to predicates. In that case, relational nouns must be detransitivized.

In this section I will discuss these two possibilities in detail and explain why neither of them seems to be adequate for prenominal possessives in Russian.

4.1 MARY'S AS AN ARGUMENT

If we assume that *Mary's* is an *argument,* then the head noun must denote a relation. Some nouns are inherently relational like *mother, teacher, birthday.*

Mary's will naturally combine with *brother* saturating an argument of the *brother of* relation denoted by the noun.

(23) $\lambda y \lambda x.BROTHER_w(x,y)$ (MARY)
              $\lambda x.BROTHER_w(x,MARY)$

If the head noun is sortal, it would have to undergo a meaning shift into a relational noun. The shift can be driven by different mechanisms: either the lexical semantics of the noun or pragmatics/context.

To derive the meaning of *Mary's car* in (24) there is a shifting rule (OF-shift) for *car* to get a relational interpretation '*car of*'. Then *Mary* will fill an argument of the relation that is provided by the context, i.e. the most salient relation. The possessive relation is usually the most natural interpretation in a neutral context. However, the options of contextually available relations are numerous: the car that Mary has dreamed of, the car that Mary has stolen, the car that Mary saw last week, etc.

(24)   Mary's car: car $\lambda x.CAR_w(x)$
                     SHIFT $(\lambda x.CAR_w(x)) = \lambda y \lambda x.CAR(x) \wedge \mathbf{of}_w(x,y)$

                     $\lambda y \lambda x.CAR_w(x) \wedge \mathbf{of}_w(x,y)$ (MARY) =
                     $\lambda x.CAR_w(x) \wedge \mathbf{of}_w(x,MARY)$

This approach is advocated in Jensen and Vikner (1994; 2004). They assume that in genitive constructions all the head nouns denote a relation and the noun in the genitive saturates an argument of this relation. Sortal nouns are coerced into a relational interpretation. The semantic shift from a sortal to relational interpretation is licensed by the lexical semantics of the noun.

Jensen and Vikner (2004) follow Pustejovsky's (1995) theory of lexical structure. According to this theory there exist four levels of lexical representation: argument structure, event structure, qualia structure and lexical inheritance structure. What we are interested in is the qualia structure because it underlies the lexical mechanism that makes it possible for sortal nouns to shift to a relational interpretation.

The qualia structure represents the typical characteristics of a real-world object denoted by a lexical item. These characteristics are defined by the way human beings interact with the world around them and originate from Aristotle's "modes of explanation". People use things, interact with things, produce things and, in general, do things (Jensen and Vikner 2004). This mode of conceptualization of the world is reflected in the four qualia roles that describe different aspects of lexical meaning of words.

Qualia roles:

> Formal – being an instance of, distinguishing an object within a larger domain;
>
> Constitutive – being a part of, the relation between the object and its parts;
>
> Telic – being used in/for, the function of the object;
>
> Agentive – being the result of, how the objects come into being.

From qualia roles, Jensen and Vikner (2004) derive four possibilities for the lexical interpretation of a genitive relation: inherent (e.g. *a mother*), part-whole (e.g. *a nose* as part of somebody's body), agentive (e.g. *a poem* that was written by someone) and control (e.g. *a house* that is built/owned/designed by somebody).

There is one more possible type of interpretation – pragmatic. In this case the relation is provided by the context (this is analogous to "free R/weak possession relation" discussed in Partee 1983/1997).

Partee and Borschev (1999) extend Jensen and Vikner's (1994) analysis to postnominal genitive construction in Russian (e.g. *mama Peti* 'mother of Petya', *kniga mamy* 'my mother's book'). Genitives are arguments of the relation denoted by the head noun. Any sortal noun has to undergo a meaning shift to a relational interpretation. The meaning shift is allowed by the lexical semantics of the noun.

Partee and Borschev (1998) distinguish between three "sorts" of nouns that can take postnominal genitives: 1. inherently relational (e.g. *brother*); 2. relativized – they do not express relations directly, but "it is typical for these nouns to stand in some relation to other objects/individuals" (e.g. *portrait*); 3. non-relational – only strong contextual support can make the genitive construction grammatical (ex. *nebo Andreja Bolkonskogo* 'the sky of Andrey Bolkonsky').

Jensen and Vikner's analysis cannot be straightforwardly extended to prenominal possessives in Russian. Despite the fact that they seem to be interacting with the argument structure of the head noun (this will be discussed in detail in the next section), syntactically they are adjectives, i.e. they originate within NP. Thus combining a prenominal possessive with a nominal results in a predicate at type <e,t>.

4.2 MARY'S AS A MODIFIER

The second possibility discussed in the literature is that a noun in genitive is a *modifier* that applies to predicates. The possessive modifier naturally combines with sortal nouns. The relation is provided by the context ("pragmatically controlled", see Barker 2011).

(25)   Mary's car:

's	$\lambda y \lambda P \lambda x.P(x) \wedge R(x,y)$
Mary's	$\lambda P \lambda x.P(x) \wedge R(x,MARY)$
Mary's car	$\lambda P \lambda x.P(x) \wedge R(x,MARY) (\lambda x.CAR_w(x))$
	$\lambda x.CAR_w(x) \wedge R(x,MARY)$

To be modified by a possessive, relational nouns must undergo a semantic transformation into a sortal noun. Barker (2011) discusses the detransitivization type-shifter **Ex** = $\lambda R \lambda x.\exists y[R(x,y)]$ that binds one of the arguments and allows for non-relational usages of relational nouns.

The availability of this type-shifting operation allows for a uniform analysis of the possessive as a modifier that combines only with sortal nominals, the relation being pragmatically supplied. *Brother* shifts to *brother of someone* via the type-shifter **Ex**. Then it can combine with the possessive *Mary's*.

(26)   a.   brother: $\lambda y \lambda x.\text{BROTHER}_w(x,y)$

                            $\lambda R \lambda x.\exists y[R(x,y)] \, (\lambda y \lambda x.\text{BROTHER}_w(x,y))$

           brother of someone: $\lambda x.\exists y[\text{BROTHER}_w(x,y)]$

   b.   Mary's brother: $\lambda P \lambda x.P(x) \wedge R(x,\text{MARY}) \, (\lambda x.\exists y[\text{BROTHER}_w(x,y)])$

                            $\lambda x.\exists y[\text{BROTHER}_w(x,y)] \wedge R(x,\text{MARY})$

If there is no strong contextual relation between Mary and 'the brother of someone', then the only salient relation is the relation denoted by the head noun. *Mary's brother* is interpreted as 'the individual who stands in *brother* relation to someone and Mary is this someone'.

However, if there is a contextually supplied relation, e.g. writing an article about the Kennedy brothers, then the detransitivized *brother* undergoes an additional meaning shift to a relational interpretation with the relation pragmatically supplied. In this case it is interpreted as 'the brother of somebody who stands in R relation to Mary' and R='is writing an article about'.

Partee and Borschev (2003) claim that prenominal possessives in Russian should be analyzed as modifiers, while postnominal genitive NPs are arguments of a relation denoted by the head noun.

However, it seems to be the case that detransitivized usages of relational nouns and relational nouns occurring with arguments (i.e. in the relational interpretation) are both common in the possessive context in Russian.

The interpretation of prenominal possessives depends on the argument structure of the noun it combines with. When prenominal possessives combine with relational nouns (i.e. a relation is provided by the lexical semantics of a noun), the pure possessive interpretation (ownership) is not available. If a prenominal possessive applies to a sortal noun, the most natural interpretation is possessive. Thus, prenominal possessives in Russian can apply both to non-detransitivized relational nouns and sortal nouns. Consequently, the English-like analysis in which possessives are modifiers of <e,t> type nominal expressions is not applicable in Russian.

Let us look at the noun *portret* 'portrait' that is ambiguous between three different interpretations: sortal (27a), relational with two arguments (27b) and relational with three arguments (27c).

(27)   a.   Ona dala mne knigu Oskara   Uajlda.   Pro   kakoj-to portret.

           she gave me book Oscar.GEN Wilde.GEN about some   portrait

           'She gave me a book by Oscar Wilde. It was about a portrait.'

   b.   Nad   stolom visel portret Stalina.

           above table   hang portrait Stalin.GEN

           'There was a portrait of Stalin hanging above the table.'

   c.   portret moljera Šarlja   Lebrena - nastojaščeje proizvedenije iskusstva.

           portrait Moliere.GEN Charles.GEN Le Brun.GEN real   production   art.GEN

           'The portrait of Moliere by Charles Le Brun is a real masterpiece.'

Prenominal possessives can combine with *portret* 'portrait' in all the three interpretations. The meaning of the prenominal possessive will depend on how many arguments there are and how many of them are explicitly expressed by the postnominal genitive.

Petin portret 'Petya's portrait' is ambiguous between Petya being the theme of the portrait and the possessor.

(28)   a.   Mne ne nravitsja etot pet-in   portret.   Petya na sebja

           me not like   this Petya-POSS-M.SG portrait.M.SG Petya on himself

           sovsem   ne poxož.

           absolutely not similar

           'I do not like this portrait of Petya. He does not look like himself in it.'

   b.   Pet-in-y   portrety   mne nravjatsja bolše drugix jego kartin.

           Petya-POSS-PL.NOM portrait.PL.NOM me like   more others his   pictures

           'I like Petya's portraits more than his other pictures.'

In (28a) Petya is the person in the picture, an argument of the relation between the picture and its theme. In (28b) the portrait is not associated with the objects in the picture, it simply names

the kind of the picture, not landscapes or still life. Petya in (30b) can be interpreted as the owner of the pictures or as the author, i.e. he is in some way in control of the portrait.[5]

Petin portret Petrova 'Petya's portrait of Petrov' is ambiguous between Petya being the author or the possessor of the portrait (assuming that Petrov denotes the person in the picture).

It is worth noting here that being the author and being the possessor are different semantic relations. This is reflected in the fact that a prenominal possessive has to be interpreted differently depending on the meaning of the postnominal genitive, which in its turn is affected by the argument structure of the head noun.

If we force the author interpretation on the postnominal genitive, (e.g. we replace Petrov by a famous painter Vasnetsov) then the prenominal possessive must be interpreted as the person in the picture – as in (29).

(29)   Aljonušk-in   portret   Vasnecova   prozvodit silnoje vpečatlenije.
         Alyonushka-POSS.M.SG portrait.M.SG Vasnetsov.GEN   produces strong   impression
         'Alyonushka's portrait by Vasnetsov is very impressive.'

However, if we create a context (as in 30) in which Alyonushka is the possessor of the picture, e.g. she owns a huge collection of portraits from different ages, then Vasnetsov in (29) must be the theme of the portrait, and the author interpretation is unavailable.

(30)   U mojej sestry Aljonuški   ogromnaja kollekcija portretov.
         at my   sister Alyonushka huge   collection portraits
         'My sister Alyonushka possesses a huge collection of portraits.'

When the head noun is followed by two postnominal genitives, one denoting the theme and the other – the author, the only possible interpretation for the prenominal possessive is being the possessor of the picture. This holds even if we use famous portrait and artist's names. Vasnetsov's portrait of Alyonushka is well known – Alyonushka is a girl in the picture. Despite this fact, in (31) Alyonushka is understood as the possessor, not as the theme.

(31)   Aljonuškin   portret   Ivanuški   xudožnika Vasnecova
         Alyonushka-POSS.M.SG portrait.M.SG Ivanushka.GEN painter.GEN Vasnecov.GEN
         'Alyonushka's portrait of Ivanushka by the painter Vasnetsov'

It seems to be the case that the interpretation of prenominal possessives in Russian depends on the argument structure of the noun it combines with. Consequently, we cannot assume that possessives are modifiers that apply only to sortal nouns and that as a result, relational nouns have to undergo detransitivzation.

We conclude that applying the analyses that have been given for the English Saxon genitive (either as an argument or as a modifier) do not seem to be on the right track for Russian prenominal possessives. A proper analysis should incorporate two important features of prenominal possessives: morphologically they are adjectives, and semantically they are able to interact with the argument structure of the modified noun. We now provide such an analysis.

5 THE ANALYSIS

5.1 THE BASIC MECHANISM

-in/-ov is an operator that applies to an individual and results in a function that, in its turn, applies to a relation and gives a set of individuals. In other words, possessive adjectives modify relations via saturating one of the arguments of this relation.

(32) shows the derivation of *petin* 'of Petya'. The possessive morpheme *-in* attaches to the proper name Petya.

(32)   -in: $\lambda y \lambda R \lambda x.R(x,y)$ (PETYA)
         Petin 'of Petya': $\lambda R \lambda x.R(x,PETYA)$

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[5]   In this article the in-control relation is equivalent to Partee's free R/weak possession relation. It differs from Jensen and Vikner's control relation that is lexical, but not contextual.

Proper names, expressions that inherently denote individuals, are not the only type of grammatical expressions that can combine with the possessive morpheme. *-in/-ov* can combine with predicates like *neighbor, mother* or *actress*: *sosedkin* 'of the neighbor', *mamin* 'of the mother', *aktrisin* 'of the actress'.

However, quantificational noun phrases cannot participate in the formation of a possessive adjective. In English "every candidate's dissertation" is perfectly felicitous. The Russian translation of this expression is impossible with a possessive adjective, *-in/-ov* can attach only to grammatical expressions that denote individuals, a plurality of individuals (even on a collective, i.e. singular interpretation) cannot be the possessor as is shown in (33).

(33)   a.   #roditel-in-y   ključi
            parents-POSS-PL.NOM   keys.PL.NOM
            Intended: 'the parents' keys'

       b.   #semj-in   dom
            family-POSS.M.SG.NOM   house.M.SG.NOM
            Intended: 'the family's house'

Thus, the possessive operator can apply only to individuals. Proper names inherently denote individuals and are the most natural input for the possessive morpheme.

For cases when the possessive suffix combines with a predicate (like in *sosedkin* 'of the neighbor', *aktrisina* 'of the actress') we will assume, following Winter (1997), that a choice function picks out a specific individual from a set – $f(ACTRESS_a)$. The possessor is always a specific individual salient in the discourse (Koptjevskaya-Tamm and Shmelev 1994; Babyonyshev 1997), thus the possessor is always anchored in the real world.[6]

I assume that *w* is a *variable* of type *s*, and in $ACTRESS_w$, relative to assignment g, *w* stands for the index of evaluation. Out of blue the evaluation assignment function g maps variable *w* onto the real world w_0.

(34) $[\![w]\!]_{M,g} = g(w) = w_0$.

Thus, relative to this assignment, $ACTRESS_w$ will denote the set of actresses in w_0.

I assume that *a* (for *actual*) is a *name* of type *s*, *a* is the name of the real world w_0.

(35) $[\![a]\!]_M = F_M(a) = w_0$

Thus, $ACTRESS_a$ will denote the set of actresses in w_0 independently of assignment functions. Since *w* is a variable, it can be abstracted over.

Note the difference: Even if $g(w) = w_0$, $\lambda w.ACTRESS_w$ denotes the function that maps every world *v* onto the set of actresses in that world *v*. $\lambda w.ACTRESS_a$, on the other hand, denotes the function that maps every world *v* onto the set of actresses in the real world w_0.

(36)   aktrisin 'of the actress': $\lambda y \lambda R \lambda x.R(x,y)$ $(f(ACTRESS_a))$
                                 $\lambda R \lambda x.R(x,f(ACTRESS_a))$

Prenominal possessives are functions at type $<<e,<e,t>>,<e,t>>$, they map relations onto predicates. Relational nouns, like *mother* or *friend*, can be straightforwardly combined with *petin* 'of Petya' and *mamina* 'of (my) mother'.

(37)   a.   petina mama 'the mother of Petya':
            $\lambda R \lambda x.R(x,PETYA)$ $(\lambda y \lambda x.MOTHER_w(x,y))$
            $\lambda x.MOTHER_w(x,PETYA)$

       b.   mamina podruga 'a friend of my mother':[7]
            $\lambda R \lambda x.R(x,f(\lambda x.MOTHER_a(x,me)))$ $(\lambda y \lambda x.FRIEND_w(x,y)$
            $\lambda x.FRIEND_w(x,f(\lambda x.MOTHER_a(x,me)))$

---

6   I use a choice function to derive an individual from a predicate as this operation does not seem to have impact on the theory of definiteness in Russian (as little as it is known about how definiteness works in Russian). Our analysis can be compatible with the existence of a null definite determiner.

7   We assume, of course, that $MOTHER_w$ is a relation which is a function.

Possessives can modify sortal nouns like in *petin telefon* 'the/a telephone of Petya' or *aktrisino platje* 'a/the dress of the actress'. With Jensen and Vikner (1994; 2004), Partee and Borschev (1998; 1999) I assume that sortal nouns can undergo a semantic shift to a relational interpretation. Whenever a sortal noun is modified by a prenominal possessive, it shifts to a relational interpretation. The shifting rule is $\lambda P\lambda x\lambda y.P(x) \wedge of_w(x,y)$. After applying this rule to *dress*, we get the relational interpretation, i.e. 'dress of', the content of of-relation being contextually provided.[8]

(38) $\lambda P\lambda x\lambda y.P(x) \wedge \mathbf{of}_w(x,y)$ $(\lambda x.DRESS_w(x))$
         $\lambda x\lambda y.DRESS_w(x) \wedge \mathbf{of}_w(x,y)$

After the shift a relational noun can combine with the possessive *aktrisino* 'of the actress'.

(39)   aktrisino platje 'a dress of the actress':
         $\lambda R\lambda x.R(x,f(ACTRESS_a))$ $(\lambda x\lambda y.DRESS_w(x) \wedge \mathbf{of}_w(x,y))$
         $\lambda x.DRESS_w(x) \wedge \mathbf{of}_w(x,f(ACTRESS_a))$

We will assume one more semantic shift that will turn an adjective that modifies sortal nouns into an adjective that can modify relational nouns. This shift is used in the analysis to account for the cases when possessives permute with property adjectives.

Most adjectives are predicates of type <e,t>: they denote a property as in (40a). In attributive position they standardly shift to a modificational type <<e,t>,<e,t>> as in (40b).

(40)   a.   This car is black.
               Black: $\lambda x.BLACK_w(x)$

         b.   This is a black car.
               Black: $\lambda P\lambda x.P(x) \wedge BLACK_w(x)$

There are adjectives that are inherently relational – they always result in a relational noun phrase. Partee and Borschev (1999) claim that *favorite* "obligatorily produces a relational output". This adjective can modify both sortal and relational nouns, thus, they postulate two types of *favorite* – *favorite₁* combines with sortal nouns (41a), and *favorite₂* – with relational nouns (41b). *Favorite₂* is derived from *favorite₁*.

> Let LB_w be the relation that holds in w between x and y and P
> if x is in P and y likes x best of all the elements in P.

(41)   a.   favorite₁ $\lambda P\lambda y\lambda x.P(x) \wedge LB_w(y,x,P)$
               favorite₁ book $\lambda y\lambda x.BOOK_w(x) \wedge LB_w(y,x,BOOK_w)$

         b.   favorite₂ $\lambda R\lambda y\lambda x.R(x,y) \wedge favorite_1(x,y,R(y))$
               favorite₂ sister $\lambda y\lambda x.SISTER_w(x,y) \wedge favorite_1(x,y,SISTER_w(y))$
                                $\lambda y\lambda x.SISTER_w(x,y) \wedge LB_w(y,x,SISTER_w(y))$

---

8   It seems to be the case that possessive adjectives with *-in/-ov* suffixes are not the only adjectives in Russian that interact with the argument structure of the modified noun. Adjectives in *-ovskiy* (*Vendlerovskiy* 'Vendlerian', *Oruellovskoje* 'Orwell's', *Rassellovskoye* 'Russell's' etc.) are classified as possessive adjectives together with prenominal possessives by Paducheva (2000). Indeed, both *Petin* 'Petya's' and *Vendlerovskiy* 'Vendlerian' are associated with individual possession in contrast to relational-possessive adjectives like *materinskiy* 'of the kind that mothers experience/have' that express a property as being typical of a class of individuals. Both adjectives naturally modify event nominals saturating an agent argument.

(i).   a.   pap-in-o   ispolnenije mojej pros'by
            dad-POSS-N.SG fulfillment   my   request
            'Dad's fulfillment of my request'

       b.   Rassel-ovsk-aja traktovka   deskripcij
            Russell-OVSK-F.SG interpretation descriptions
            'Russell's interpretation of descriptions'

However, relational nouns like *mother* or *friend* cannot be modified by *-ovskiy* adjectives.

(ii). #Vedler-ovsk-aja mama
         Vendler-OVSK-F.SG mother
         Intended: 'Vendler's mother'

A more detailed study of the data is needed. We will leave these issues for further research.

For cases when a property adjective combines with a relational noun (e.g. *young sister)* we will assume the shifting rule given in (42) that will change the type of the adjective from $<<e,t>,<e,t>>$ to $<<e,<e,t>>,<e,<e,t>>>$. This rule shifts the interpretation of an adjective like *young.*

(42)   Relational shift operation: $\lambda Z\lambda R\lambda y.Z(\lambda z.R(z,y))$

         $\lambda Z\lambda R\lambda y.Z(\lambda z.R(z,y))\ (\lambda P\lambda x.P(x) \wedge YOUNG_w(x)) =$
         $\lambda R\lambda y.(\lambda P\lambda x.P(x) \wedge YOUNG_w(x)(\lambda z.R(z,y))) =$
         $\lambda R\lambda y\lambda x.(\lambda z.R(z,y))(x)) \wedge YOUNG_w(x)$
         $\lambda R\lambda y\lambda x.\ R(x,y) \wedge YOUNG_w(x)$

         young sister $\lambda R\lambda y\lambda x.R(x,y) \wedge YOUNG_w(x)\ (\lambda y\lambda x.SISTER_w(x,y)) =$
                                $\lambda y\lambda x.SISTER_w(x,y) \wedge YOUNG_w(x)$

This shift is available in the grammar independently of our analysis. We are going to use it for cases when a relational noun is first modified by a property adjective and then by a prenominal possessive, as in: *natašin glupyj muž* 'Natasha's silly husband'.

According to compositionality principles, *muž* first combines with *glupyj,* and then *glupyj muž* is combined with the possessive. Thus, *glupyj* 'silly' undergoes the same semantic shift from a property adjective to a relational adjective, the result of which is shown in (43).

(43) $\lambda Z\lambda R\lambda y.Z(\lambda z.R(z,y))\ (\lambda P\lambda x.P(x) \wedge SILLY_w(x))$
          $\lambda R\lambda y\lambda x.R(x,y) \wedge SILLY_w(x)$

After the shift *glupyj* 'silly' can modify a relational noun *muž* 'husband' – (44). *natašin* 'of Natasha' applies to *glupyj muž* 'silly husband' to give a set of individuals who have the property of being Natasha's silly husband – (45).

(44) $\lambda R\lambda y\lambda x.(R(x,y) \wedge SILLY_w(x))(\lambda y\lambda x.HUSBAND_w\ (x,y))$
          $\lambda y\lambda x.\ HUSBAND_w(x,y) \wedge SILLY_w(x)$

(45) $\lambda R\lambda x.R(x,NATASHA)\ (\lambda y\lambda x.(HUSBAND_w\ (x,y) \wedge SILLY_w(x)))$
          $\lambda x.HUSBAND_w(x,NATASHA) \wedge SILLY_w(x)$

In principle there could be one more possibility to solve the type mismatch in examples like *natašin glupyj muž* 'Natasha's silly husband' that would not require any shifts in the adjectival interpretation. The relational noun *husband* could be detransitivized via existentially binding one of its arguments, $\lambda x.\exists y[HUSBAND(x,y)]$. This operation would give a sortal noun of type $<e,t>$ that can be modified by the $<<e,t>,<e,t>>$ adjective *silly*.

However, here *silly husband* of type $<e,t>$ would have to undergo another shift back to a relational interpretation to be able to combine with the prenominal possessive *Natasha's*. Thus, this approach is more costly – it requires more shifts.

Landman (2003) convincingly argues that semantic shifts 'down' from type $<<e,t>,t>$ into $<e,t>$ or e, and from $<e,t>$ into e are not natural.

(46)   ?A sister is walking in the street.

Without a strong contextual support (46) is infelicitous. The reason is that *sister* is relational, and the grammar does not allow to shift it to a sortal interpretation. However, the mismatch can be resolved contextually, by finding an appropriate value for the argument that is still open in the discourse:

(47)   I know that John's brothers are all inside, but I see a sister walking down the street.

In sum: on the analysis we assume, prenominal possessives are adjectives that modify relations via saturating one of the arguments of this relation. Relational nouns are the right input for prenominal possessives to apply to. Sortal nouns must undergo a semantic shift and become relational. Property denoting adjectives can shift to a relational interpretation and modify relational nouns.

Within the framework described in this section, the data discussed earlier in the paper can be naturally accounted for. In the following subsections I will show how the grammatical and semantic behavior of prenominal possessives follows from the semantics that has been assigned to them.

5.2 *DE DICTO* AND *DE RE* READINGS

It has been shown in section 3 that prenominal possessives are referentially linked, but at the same time the expression [possessive+noun] is ambiguous between a *de re* and a *de dicto* interpretation in intensional contexts. Within the framework of our analysis this behavior is naturally explained. The referentiality stems from the fact that the possessive operator *-in/-ov* can apply only to *individuals,* giving a possessor who is specific in the context and interpreted only relative to the actual world.

We have analyzed this via the choice function mechanism: *-in* with interpretation $\lambda y \lambda R \lambda x.R(x,y)$ combines with *sosedka/neighbor* with interpretation $f(\text{NEIGHBOR}_a)$, yielding *sosedkin/neighbor-*POSS with interpretation $\lambda R \lambda x.R(x,f(\text{NEIGHBOR}_a))$. Here $f(\text{NEIGHBOR}_a)$ is a *rigid, de re* expression, in every world it denotes the neighbor in w_0 chosen by f.

However, combining a prenominal possessive with a noun results in a predicate – a property that relates to the possessor in the actual world. While the possessor itself is always *de re*, in intensional contexts this property can be interpreted either *de dicto* or *de re*.

I will now show how the two interpretations are derived for (22) from section 3, repeated here as (48):

(48)   Petr   xočet   najti   sosedk-in- u   podrug-u.
        Peter wants   to find neighbor-POSS-F.SG.ACC friend-F.SG.ACC
        'Peter wants to find the neighbor's friend.'

The *de dicto* interpretation can be derived in the standard way analogously to the interpretation of *try to find* in Montague (1973), but adapted to the peculiarities of Russian: *sosedkina podruga* 'the neighbor's friend' is of type <e,t>, but occurs in the argument position of *najti* 'find', and has to shift to the argument type <<e,t,>,t> according to the Partee Triangle (Partee 1987, but in the version of Landman 2003), and *najti* 'find' shifts in the standard way to combine with <<e,t>,t> arguments.

(49) shows the two shifting rules in question:

(49)   a. $\text{LIFT}_{<e,t> \to <<e,t>t>}[\alpha] = \lambda P.\exists y[\alpha(y) \wedge P(y)]$[9]
        b. $\text{LIFT}_{<e<e,t>> \to <<<e,t>t> <e,t>>}[\beta] = \lambda T \lambda x.T(\lambda y.\beta(x,y))$

The rule in (49a) applies to *a friend of the neighbor* and then the result is combined with the result of applying (49b) to *find*.

(50)   najti sosedkinu podrugu 'find a friend of the neighbor'
        $\lambda x.\exists y[\text{FRIEND}_w(y,f(\text{NEIGHBOR}_a)) \wedge \text{FIND}_w(x,y)]$

In the intensional context, this interpretation is lifted to type <s<e,t>>:

(51)   najti sosedkinu podrugu 'find a friend of the neighbor'
        $\lambda v \lambda x.\exists y[\text{FRIEND}_v(y,f(\text{NEIGHBOR}_a)) \wedge \text{FIND}_v(x,y)]$

want is of type <<s<e,t>>t> and it applies to *to find a friend of the neighbor*:

(52)   xočet najti sosedkinu podrugu 'want to find a friend of the neighbor'
        $\lambda x.\text{WANT}_w(x, \lambda v \lambda x.\exists y[\text{FRIEND}_v(y,f(\text{NEIGHBOR}_a)) \wedge \text{FIND}_v(x,y)])$

WANT relates in w_0 the subject to worlds where the subject finds what is in *that* world a friend of what is in w_0 the neighbor. This is a *de dicto* reading of *a friend of the neighbor*, even though *the neighbor* itself is rigid, and hence *de re*.

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9   This shift is based on existential closure plus maximalization as discussed in Landman (2004), but it comes down to just existential closure for upward entailing indefinites like the present one.

For *de re* interpretations we will assume a mechanism for deriving wide scope readings. We will not make a choice here on the nature of this mechanism (you can pick your own favorite, like LF movement, storage and retrieval, type shifting, etc.).

The wide scope mechanism does the following: instead of combining *najti* 'find' with the <e,t> interpretation of *sosedkinu podrugu* 'a friend of the neighbor', you combine *najti* 'find' with a free variable x_n of type e. The interpretation of *najti* 'find' can apply to this without lifting, and the derivation builds up:

(53)   xočet najti x_n 'want to find x_n'
          $\lambda x.\text{WANT}_w(x, \lambda v \lambda x\ \text{FIND}_v(x,x_n))$

The wide scope mechanism abstracts over this variable x_n at the relevant level of scope taking, creating what is sometimes called a derived predicate, and combines this with the given interpretation of *sosedkinu podrugu/a friend of the neighbor*. The derived predicate operates on the wide scope NP *as if it were in argument position*.

Thus, in our case, the interpretation of the wide scope NP lifts to <<e,t>,t> by (49a), and the relation at type <e,<e,t>> lifts to <<<e,t>,t>, <e,t>> by (49b), and hence we derive:

(54)   xočet najti sosedkinu podrugu 'want to find a friend of the neighbor'
          $\lambda x.\exists y[\text{FRIEND}_w(y,f(\text{NEIGHBOR}_a)) \wedge \text{WANT}_w(x, \lambda v \lambda x.\text{FIND}_v(x,y))]$

This interpretation relates the subject in w_0 to worlds in which the subject finds what is in w_0 a friend of the neighbor in w_0, a *de re* reading.

Despite the fact that the possessor is always interpreted relative to the actual world, the property of being related to this possessor can have either a wide or narrow scope with respect to the intensional operator.

5.3 EVENT NOMINALS

Event nominals are nouns morphologically derived from verbs. They denote sets of events (or states) and inherit from the verb its thematic relations with its arguments (Grimshaw 1990).

One of Babyonyshev's (1997) arguments in support of the determiner analysis of prenominal possessives in Russian is the fact that these expressions can fill an agent argument for event nominals. In this subsection I will take the original sentence from Babyonyshev (1997), (slightly modifying it in order to make the analysis more transparent) and show that the adjectival analysis can naturally deal with these kinds of examples.

Event nominals encode a relation in their lexical semantics, therefore they are the right type of input for the possessive adjectives and can be modified by them. Prenominal possessives modify relations saturating an argument of those relations. Grimshaw (1990) claims that event nominals do not occur without the theme. Thus, a theme argument is saturated first, and the only relation for a possessive to apply to is the relation between an event argument and the agent.

In (55) there are two event nominals – *expression* and *displeasure*. *Displeasure* is one of the arguments of *expression*.

(55)   Pet-in-o   postojannoje vyraženije nedovol'tsva   anej
          Petya-POSS.N.SG.NOM constant   expression displeasure.GEN Ann.INS
          'Petya's constant expression of displeasure with Ann'

We will start by showing how the meaning of *displeasure with Ann* is derived.

Displeasure is derived from a verbal relation 'x is displeased with y' and denotes a set of states. The noun inherits the thematic relation of the event (state) with its experiencer (Exp) and its theme (Th):

(56) $\lambda y \lambda x \lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = x \wedge \text{Th}(s) = y$

(57) shows the derivation for *displeasure with Ann*. Ann saturates a theme argument:

(57) $\lambda y\lambda x\lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = x \wedge \text{Th}(s) = y$ (ANN)   =

         $\lambda x\lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = x \wedge \text{Th}(s) = \text{ANN}$

Petin 'of Petya' can modify *displeasure with Ann* because there is an inherent thematic relation it can apply to – the relation between an event (state) argument and the experiencer:

(58) $\lambda R\lambda s.R(s,\text{Petya})$ $(\lambda x\lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = x \wedge \text{Th}(s) = \text{ANN})$ =

         $\lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = \text{PETYA} \wedge \text{Th}(s) = \text{ANN}$

The basic idea in derivations in (59)–(63) is the same as in (58): event nominals can be modified by prenominal possessives because they naturally provide a relation for the possessive to apply to, the thematic relation between an event argument and an agent (experiencer) argument. In what follows I show how the interpretation for 'Petya's expression of displeasure' is derived.

Let us now proceed to *Petya's expression of (his) displeasure with Ann*. *Displeasure* denotes a set of states (of being displeased) and Ann is the theme as (59) shows. Let q be a variable over relations between individuals and eventualities (i.e. infinitive VP interpretations):

(59)   expression $\lambda q\lambda x\lambda e.\text{EXPRESS}_w(e) \wedge \text{Ag}(e) = x \wedge \text{Th}(e) = q$

The theme of *expression* is *displeasure with Ann*. (60) shows how these two grammatical expressions combine with each other.

(60)   expression of displeasure with Ann

         $\lambda x\lambda e.\text{EXPRESS}_w(e) \wedge \text{Ag}(e) = x \wedge$

         $\text{Th}(e) \ = \ \lambda x\lambda s.\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = x \wedge \text{Th}(s) = \text{ANN}$

At this point we need to relate the interpretation of event nominals to the propositional control interpretation: x expresses displeasure with Ann iff x expresses that x is displeased with Ann.

(61) $\text{EXPRESS}_w(e) \wedge \text{Th}(e) = \alpha$ iff

         $\text{EXPRESS}_w(e) \wedge \text{Th}(e) = \ \lambda w.\exists s[\alpha(\text{Ag}(e))]$

The postulate in (61) makes (60) equivalent to:

(62) $\lambda x\lambda e.\text{EXPRESS}_w(e) \wedge \text{Ag}(e) = x \wedge$

         $\text{Th}(e) = \lambda w.\exists s[\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = \text{Ag}(e) \wedge \text{Th}(s) = \text{ANN}]$

The next step in the derivation and the main aim of this section is to show that the semantics that we assigned to prenominal possessives can account for the fact that possessives fill an agent argument of event nominals. The adjectival analysis applies to these cases naturally: the possessive adjective modifies an event nominal via saturating an agent argument. Thus, unlike Babyonyshev (1997), we do not need to identify this grammatical property of possessives with referentiality and the D position.

The possessive *petin* 'Petya's' applies, aiming at saturating an argument of the relation between an event argument and the agent of the event.

(63) $\lambda R\lambda e.R(e,\text{Petya})$

         $(\lambda x\lambda e.\text{EXPRESS}_w(e) \wedge \text{Ag}(e) = x \wedge$

             $\text{Th}(e) = \lambda w.\exists s[\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = \text{Ag}(e) \wedge \text{Th}(s) = \text{ANN}])$ =

         $\lambda e.\text{EXPRESS}_w(e) \wedge \text{Ag}(e) = \text{PETYA} \wedge$

            $\text{Th}(e) = \lambda w.\exists s[\text{DISPLEASED}_w(s) \wedge \text{Exp}(s) = \text{PETYA} \wedge \text{Th}(s) = \text{ANN}])$

When possessives modify event nominals, the interpretation of the possessive *petin* 'of Petya' relates Petya to a different object: a state or an event. Thus, the variable is changed.

Within the framework of our analysis we can account for the fact that prenominal possessives provide an argument for event nominals.

Event nominals pattern with relational nouns: both relational nouns and event nominals encode a relation in their lexical semantics, thus, being a natural input for the possessive.

5.4 NOUNS WITH OPTIONAL ARGUMENTS

Our analysis correctly predicts the patterns of behavior of nouns with optional arguments, e.g. 'picture' nouns. A prenominal possessive will aim at saturating an argument of a relation. What kind of relation is available for the prenominal possessive to apply to depends on the number of arguments that the noun has and which of these arguments are explicitly expressed by other grammatical forms (e.g. a postnominal genitive construction). We are now in a position to explain the observations that were made in section 2 of this paper.

I claimed in this paper that a prenominal possessive *petin* 'of Petya' expresses a function $\lambda R \lambda x.R(x,\text{PETYA})$ that modifies relations and saturates one of the arguments of this relation. The relation is either denoted by the head noun like *mother* in (37) or *expression* in (55) or derived from a predicate via the OF-shift as it was shown in (38) – a sortal noun gets reinterpreted as a relation.

Using the predictions that can be made based on the analysis given and the ambiguity of *portrait* between sortal and relational (with two or three arguments) interpretations, we are going to generate an unrestricted system of possible interpretations for *portrait* in combination with a prenominal possessive and postnominal genitives. We will then compare the interpretations that the unrestricted analysis predicts with the data in Russian to check whether the predictions are correct and reject some of them. Then we will formulate a more restricted analysis.

The most unrestricted assumption about the lexical meaning of *portrait* would be that in Russian the lexicon assigns to *portrait* the following 5 interpretations:

(64)   a. $\lambda x.\text{PORTRAIT}_w(x)$
         b. $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{Th}(x)=y$
         c. $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{by}(x)=y$
         d_1 $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{Th}(x)=y \wedge \textbf{by}(x)=z$
         d_2 $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{by}(x)=y \wedge \textbf{Th}(x)=z$

(64a) represents a sortal interpretation. In (64b) and (64c) *portrait* is relational and it has two arguments: (64b) – the picture and a theme (**Th**), (64c) – the picture and the painter (**by**). In (64d) *portrait* is a three-place relation between the picture, a theme (**Th**) and an individual who painted it (**by**). The alternation between ($64d_1$) and ($64d_2$) allows for two different orders of arguments: [Th + by] or [by + Th].

There is another argument – an argument of the $\textbf{of}_w$-relation, the possessor. This relation is derived via a semantic shift that sortal nouns undergo to be modified by a prenominal possessive, and this relation is supplied pragmatically. An argument of this relation is always saturated last, as this relation is derived from a predicate nominal (after all arguments of a relation are filled in).

As we will see, I am going to argue that the Russian lexicon does not assign all of these 5 interpretations to *portrait*. I will claim that the interpretations in (64c) and ($64d_2$) do not exist in Russian. Before arguing that, we are going to check what readings would be derived if *portrait* were 5 ways ambiguous in this way.

Portrait can be preceded by a prenominal possessive, take one postnominal genitive or two postnominal genitives.

Thus, if *portrait* is 5 way ambiguous, the following 9 readings are derived.

      Petin portret 'Petya's portrait'

      Reading 1:
      Start with (64a): $\lambda x.\text{PORTRAIT}_w(x)$
      Shift this with **of**: $\lambda y \lambda x.\,\text{PORTRAIT}_w(x) \wedge \textbf{of}_w(x,y)$
      Apply to Petya $\lambda x.\,\text{PORTRAIT}_w(x) \wedge \textbf{of}_w(x,\text{PETYA})$

      Reading 2:
      Start with (64b): $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{Th}(x)=y$
      Apply to Petya: $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{Th}(x)=\text{PETYA}$

Reading 3:

Start with (64c) $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = y$

Apply to Petya: $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = \text{PETYA}$

Petin portret Petrova 'Petya's portrait of Petrov'

Reading 4:

Start with (64b) $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = y$

Apply to Petrov $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{PETROV}$

Shift with **of**, apply to Petya $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{PETROV} \wedge \mathbf{of}_w(x,\text{PETYA})$

Reading 5:

Start with (64c): $\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = y$

Apply to Petrov: $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = \text{PETROV}$

Shift with **of** apply to Petya $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = \text{PETROV} \wedge \mathbf{of}_w(x,\text{PETYA})$

Reading 6:

Start with (64d$_1$) $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = y \wedge \mathbf{by}(x) = z$

Apply to Petrov and then to Petya: $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{PETYA} \wedge \mathbf{by}(x) = \text{PETROV}$

Reading 7:

Start with (64d$_2$) $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = z \wedge \mathbf{by}(x) = y$

     $\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{PETROV} \wedge \mathbf{by}(x) = \text{PETYA}$

Petin portret Petrova xudožnika Ivanova
'Petya's portrait of Petrov by the painter Ivanov'

Reading 8:

Start with (64d$_1$) $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = y \wedge \mathbf{by}(x) = z$

Apply to Ivanov, then to Petrov, then shift with **of** and apply to Petya:

$\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{PETROV} \wedge \mathbf{by}(x) = \text{IVANOV} \wedge \mathbf{of}_w(x,\text{PETYA})$

Reading 9:

Start with (64d$_2$) $\lambda z \lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = z \wedge \mathbf{by}(x) = y$

Apply to Ivanov, then to Petrov, then shift with **of** and apply to Petya:

$\lambda x.\text{PORTRAIT}_w(x) \wedge \mathbf{Th}(x) = \text{IVANOV} \wedge \mathbf{by}(x) = \text{PETROV} \wedge \mathbf{of}_w(x,\text{PETYA})$

Let us now consider the facts.

In the first place, there is no existing reading based on putative lexical meaning (64d$_2$): *Petin portret Petrova xudožnika Ivanova* has only reading (8), but not (9).

Moreover, the interpretation of *Petin portret Petrova* in which Petya is the painter and Petrov is a theme exists, but it cannot be represented as in reading (7), i.e. it does not follow from (64d$_2$). I will claim that it is derived via a different mechanism. Thus, this inverse lexical reading (64d$_2$) can safely be dismissed.

Secondly, there is also good reason to assume that lexical reading (64c) does not exist either. This follows from the fact that reading (5) does not exist.

If *portret* denoted a relation between the picture and the individual who painted it ($\lambda y \lambda x.$ $\text{PORTRAIT}_w(x) \wedge \mathbf{by}(x) = y$), then we would expect the following to be a felicitous interpretation: *Petin$_{[OF]}$ portret Petrova$_{[by]}$* 'Petya's portrait by Petrov'. Even with a strong contextual support this interpretation is unavailable in Russian.

The context: my grandmother has an impressive collection of portraits that were painted by different artists. The walls of her house are covered with these pictures. In this situation it should be natural to interpret the postnominal genitive *Van Goga* 'of Van Gogh' in (65) as denoting the painter. However, this does not happen.

(65)   Gostinuju   ukrašal   babušk-in   portret   Van Goga.
         living room   decorated   grandmother-POSS.M.SG   portrait.M.SG   Van Gogh.GEN
         'The living room was decorated by grandmother's portrait of Van Gogh.'

The most natural interpretation for (65) in this context is that Van Gogh is the theme – the individual in the portrait. There is another possibility (predicted by reading 6) – the grandmother is in the picture and Van Gogh is the painter. However, what is not available is the interpretation in which the grandmother is the possessor of the portrait and Van Gogh is the individual who painted it.

These data suggest that reading 3 ($\lambda y \lambda x.\text{PORTRAIT}_w(x) \wedge \textbf{by}(x)=y$) is not, in fact, one of the lexical meanings for *portret* 'a portrait' in Russian.

If we reject lexical reading (64c), we have a problem with (66):

(66)   Pet-in-y   portret-y mne nravjatsja bolše drugix jego kartin.
        Petya-POSS-PL portrait-PL me   like   more others his   pictures
        'I like Petya's portraits more than his other pictures.'

One of the interpretations of *petiny portrety* in (66) is, the portrait *by* Petya, and that reading would be generated by (64c). So how are we generating the meaning without (64c)?

The answer lies in the nature of $\textbf{of}_w$ in the **OF**-shift.

A sortal noun *portret* 'portrait' first shifts to a relational interpretation via the OF-shift and only then it can be modified by a possessive adjective *petin* 'of Petya'. The relation for *petin* to apply to is contextually/pragmatically supplied.

Partee (1983/1997) labels this relation "weak possession" or "free R". "Weak possession" means that the possessor is a general term for an argument of this relation, however, the true possessive relation (i.e. Petya owns the picture) is one of many possibilities in this case. Petya in *petin portret* 'Petya's portrait' can denote the individual who painted the picture as (66) shows.

What the data show is that if there is *more than one* argument, you can only get *by* interpretations, if you use lexical meaning ($64d_1$). Thus, we find only *th – by, of – th* and *of –th –by*, and crucially not *of – by*, what (64c) would predict.

When there is *only* **OF-**shift, the first available interpretation for *of* is possessive, but, as we have seen, in context, other relations are possible interpretations, among which is indeed also the *by* relation. This makes the interpretation for *petin portret* with *Petya* the painter possible.

By the same argument, we get *petin portret petrova* with interpretation $petin_{[by]}$ *portret* $petrova_{[th]}$. We start with (64b) with Petrov filling a theme argument. Then the noun shifts via the **OF**-shift to a relational interpretation. The of-relation is contextually interpreted as **by**. Petya saturates an argument of that relation being interpreted as the painter.

Important in the analysis is the role of **OF**-shift. The analysis predicts correctly that if one of the arguments is interpreted possessive, it is always the last argument in, i.e. *petin*. This follows from the fact that there is no lexical meaning that incorporates the $\textbf{of}_w$ role, it is derived via type shifting at type <e,t>.

More generally, the grammatical patterns discussed in this section provide support for our analysis: the semantic function of the possessive adjective is to modify relations via saturating one of the arguments of the relation. If the modified noun encodes a relation in its semantics, then the possessive can apply straightforwardly saturating an argument of the relation. If the noun is sortal, then it undergoes a semantic shift (**OF**-shift) and the possessive provides an argument for the **OF**-relation. The content of this relation is supplied contextually.

5.5 BARE POSSESSIVES AS COPULA PREDICATES

Prenominal possessives are not directly predicative expressions, they form a predicate only in combination with a noun. However, they can be copula predicates when they occur bare.

(67)   Eta mašina pet-in-a.
        this car   Petya-POSS-F.SG.
        'This car is Petya's.'

For sentences like (67) we assume that the subject is an argument at type e and the predicate is of type <e,t>. *Petina* 'of Petya' is not a predicate, it is a function that applies to a relation – the contextually available relation is a possessive (free R) relation.

In (67) the prenominal possessive *petina* 'of Petya' will apply to a contextually provided possessive relation to derive a predicate. Copula predicates have to be expressions of type <e,t> – in predicate position, no variability is allowed, unlike in attributive position. As a result, we get a set of things that are possessed by Petya. 'This car' is an argument – the sentence is grammatical.

The possessive relation is the most salient relation in a neutral context for prenominal possessives to apply to. However, if the contextual support is strong enough, other types of relations can become more salient.

For instance, assume that a group of parents gather near the daycare center, they are waiting for their children to come out. Masha's mother has come first and steps forward, thus, Masha is the first child who will go home today. One of the workers of the daycare tells the other one:

(68)   Eta mama maš-in-a.   Pozovi Mašu, požalujsta.
        this mother Masha-POSS-F.SG.NOM call   Masha please
        'This is Masha's mother. Could you please get Masha?'

In (68) *Mašina* 'of Masha' is a function λRλx.R(x,MASHA) that needs a relation to apply to. *Mama* 'mother' is a relational noun with an unsaturated argument. On the one hand, this argument gets bound contextually – by the context (mothers and children near the daycare, the presence of the possessive in the same sentence). On the other hand, the context provides a relation for the possessive to apply to. The lexical semantics of the noun *mother* contributes to mother-relation being salient in the context despite the fact that the noun *mother* is no longer relational (its argument being contextually bound). The possessive applies to a *mother of* relation, a predicate is formed and *this mother* (with a contextually bound argument of the relation) provides an argument for this predicate.

The grammatical behavior of event nominals in this position patterns with that of relational nouns. To make (69) sound felicitous a strong contextual support is required. However, when the context is right, event nominals can occur as subjects with bare possessives as predicates.

Let us imagine the following situation: two actors discuss the play they both act in. Actor 1 says: "I do not like the interpretation of the image of the main character". Actor 2 answers: "That is the interpretation of the main character that the author provides". Actor 1 replies:

(69)   Eta   interpretacia glavnogo geroja   kost-in-a.   no kostja bolše ne
        this   interpretation main   character Kostja-POSS-F.SG.NOM but Kostja more not
        glavnyj režisjor. my možem igrat' po-drugomu.
        main   director we can   act   differently
        'This interpretation of the main character is Kostya's. But Kostya is no longer the director. We can act in a different way.'

The main character is the theme of the noun *interpretation*. There is an open unsaturated agent argument of *interpretation* that gets bound by the possessive via the agent role. Moreover, the noun introduces the relation for the possessive to apply into the discourse – the relation between the event argument and an agent argument.

Even though it is not natural for possessives to occur as predicates with relational nouns and event nominals as subjects, (68) and (69) show that it is possible when the context support is strong enough. Thus, the general pattern is the same as with sortal nouns.

6 CONCLUSION

In this paper I have claimed that prenominal possessives in Russian are possessive adjectives with the semantic function of modifying a relation via saturating one of the arguments of this relation. The adjectival analysis is supported by the patterns found in the syntactic behavior of possessives: they can permute with other adjectives, they can occur in predicate position.

Our analysis correctly predicts that relational nouns (i.e. inherently relational nominals like *mother*, event nominals like *expression*, argument taking nouns like *portrait*) are naturally modified by possessives, the relation being encoded in the semantics of the noun. Sortal nouns must undergo a semantic transformation via the OF-shift, the relation for the possessive to

apply to being provided contextually. The default contextually provided relation is a possessive relation. However, with proper contextual support other relations can become available.

Furthermore, our analysis predicts correctly that if one of the arguments gets a possessive interpretation, then this argument is always saturated last. There are no nouns that incorporate a possessive relation in their lexical semantics. Therefore, the possessive relation is contextually provided via the OF-shift of a sortal noun of type <e,t>.

ABBREVIATIONS

1/2/3 = first/second/third person, ACC = accusative, DAT = dative, INS = instrumental, F = feminine, GEN = genitive, M = masculine, N = neuter, NOM = nominative, PL = plural, POSS = possessive, PST = past, SG = singular.

ACKNOWLEDGEMENTS

FUNDING INFORMATION

COMPETING INTERESTS

The author has no competing interests to declare.

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REFERENCES

Babby, Leonard. 1980. *Existential sentences and negation in Russian*. Ann Arbor, MI: Karoma Publishers.

Babyonyshev, Maria. 1997. The possessive construction in Russian: A crosslinguistic perspective. *Journal of Slavic Linguistics* 5(2). 193–233.

Barker, Chris. 2011. Possessives and relational nouns. In Claudia Maienborn, Klaus von Heusinger, and Paul Portner (eds.) *An international handbook of natural language meaning* 2. 1109–30. Berlin: De Gruyter Mouton.

Borschev, Vladimir and Barbara Partee. 2004. Genitives, types and sorts: The Russian genitive of measure. In Ji-yung Kim, Yuri A. Lander and Barbara H. Partee (eds.), *Possessives and beyond: Semantics and syntax (UNOP29)*, 29–43. Amherst, MA: GLSA publications.

Bošković, Željko. 2005. On the locality of left branch extraction and the Structure of NP. *Studia Linguistica* 59(1). 1–45. DOI: *https://doi.org/10.1111/j.1467-9582.2005.00118.x*

Bošković, Željko. 2008. What will you have, DP or NP? In Emily Elfner and Martin Walkow (eds.), *Proceedings of NELS* 37.

Bošković, Željko. 2009. More on the no-DP analysis of article-less languages. *Studia Linguistica* 63(2). 187–203. DOI: *https://doi.org/10.1111/j.1467-9582.2009.01158.x*

Bošković, Željko. 2012. On NPs and clauses. In Gunther Grewendorf and Thomas Ede Zimmermann (eds), *Discourse and grammar: From sentence types to lexical categories*, 179–242. Boston, NY: De Gruyter Mouton

Bresnan, Joan. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4. 275–343.

Cresswell, M. J. 1976. The Semantics of degree. In Barbara Partee (ed), *Montague Grammar*, 261–292. New York: Academic Press. DOI: *https://doi.org/10.1016/B978-0-12-545850-4.50015-7*

Filip, Hana. 2005. Measure and indefinites. In Gregory Carlson and Jeffry Pelletier (eds.), *Reference and quantification: The Partee effect*, 229–288. Standford: CSLI.

Gepner, Maria. (to appear). Demonstratives, Possessives and Quantifier expressions in articleless Russian. To appear in Denisa Lenertová, Roland Meyer, Radek Šimík and Luka Szucsich (eds.), *Advances in formal Slavic linguistics 2018*. Berlin: Language Science Press.

Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, MA: MIT Press.

Hellan, Lars. 1980. *Toward an integrated theory of noun phrases*. Trondheim: Norwegian University of Science and Technology dissertation.

Isačenko, Alexander. 1960/2003. *Grammaticheskij stroj russkogo jazyka v sopostovlenii s slovackim (The Grammar of the Russian language in comparison to Slovak)*. Morfologia, pt.2. Moscow: Jazyki slavjanskoj kultury.

Jensen, Per Anker and Carl Vikner. 1994. Lexical knowledge and the semantic analysis of Danish genitive constructions. In S. L. Hansen and H. Wegener (eds), *Topics in knowledge-based NLP systems*, 37–55. Copenhagen: Samfundslitteratur.

Jensen, Per Anker and Carl Vikner. 2004. The English prenominal genitive and lexical semantics. In Ji-Yung Kim, Yury A. Lander and Barbara H. Partee (eds), *Possessives and beyond: Semantics and syntax (UMOP 29)*, 3–27. Amherst, MA: GLSA Publications.

Kagan, Olga. 2005. Genitive case: a modal account. In *Proceedings of the Israel Association for Theoretical Linguistics*, 21.

Kagan, Olga. 2007. *On the semantics of structural case.* Jerusalem: Hebrew University dissertation.

Kagan, Olga. 2013. *Semantics of genitive objects in Russian*. Dordrecht: Springer. DOI: *https://doi.org/10.1007/978-94-007-5225-2*

Khrizman, Keren. 2016. *Numerous issues in the semantics of numeral constructions in Russian*. Ramat Gan: Bar-Ilan University dissertation.

Koptjevskaja-Tamm, Maria and Alexej Shmelev. 1994. Aleshina s Mashej stat'ja (o nekotoryx svojstvax russkix pritjazhatel'nyx prilagatel'nyx) (On some properties of Russian possessive adjectives). *Scando-Slavica* 40(1). 209–228. DOI: *https://doi.org/10.1080/00806769408601049*

Landman, Fred. 2003. Predicate-argument mismatches and the adjectival theory of indefinites. In Martine Coene and Yves d'Hulst (eds.), *From NP to DP* 1. 211–237. Amsterdam: John Benjamins. DOI: *https://doi.org/10.1075/la.55.10lan*

Landman, Fred. 2004. *Indefinites and the type of sets*. Oxford: Wiley-Blackwell. DOI: *https://doi.org/10.1002/9780470759318*

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25(4). 609–665.

Montague, Richard. 1973. The proper treatment of quantification in ordinary English. In Hintikka, Moravcsik, and Suppes (eds.), *Approaches to Natural Language*. Dordrecht: Kluwer. Reprinted in: Richmond Thomason (ed.) 1974, *Formal philosophy*, 247–270. New Haven, CT: Yale University Press. DOI: *https://doi.org/10.1007/978-94-010-2506-5_10*

Neidle, Carol. 1982. *The role of case in Russian syntax*. Cambridge, MA: MIT dissertation.

Paducheva, Elena. 2000. Definiteness effect: The case of Russian. In Klaus von Heusinger and Urs Egli (eds.), *Reference and anaphoric relations*, 133–146. Dordrecht: Kluwer. DOI: *https://doi.org/10.1007/978-94-011-3947-2_7*

Partee, Barbara. 1983/1997. Uniformity vs. versatility: the genitive, a case study. Appendix to Theo Janssen 1997. Compositionality, in Johan van Benthem and Alice ter Meulen (eds.), *The handbook of logic and language*, 464–470. Amsterdam: Elsevier.

Partee, Barbara. 1987. Noun phrase interpretation and type-shifting principles. In Jeroen Groenendijk, Dick de Jongh, and Martin Stokhof (eds.), *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, 115–143. Dordrecht: Foris.

Partee, Barbara. 2008. Negation, intensionality, and aspect: Interaction with NP semantics. In Susan Rothstein (ed.), *Theoretical and crosslinguistic approaches to the semantics of aspect*, 291–317. Amsterdam: John Benjamins. DOI: *https://doi.org/10.1075/la.110.12par*

Partee, Barbara H. and Vladimir Borschev. 1998. Integrating lexical and formal semantics: Genitives, relational nouns, and type-shifting. In R. Cooper and Th. Gamkrelidze (eds.), *Proceedings of the Second Tbilisi Symposium on language, logic, and computation,* 229–241. Center on Language, Logic, Speech, Tbilisi State University.

Partee, Barbara and Vladimir Borschev. 1999. Possessives, favorite, and coercion. In Anastasia Riehl and Rebecca Daly (eds.) *Proceedings of ESCOL* 99. 173–190. Ithaca, NY: CLC Publications, Cornell University.

Partee, Barbara and Vladimir Borschev. 2003. Genitives, relational nouns, and argument-modifier ambiguity. In Ewald Lang, Claudia Maienborn and Cathrine Fabricius-Hansen (eds.), *Modifying Adjuncts*, 67–112. Berlin: De Gruyter Mouton. DOI: *https://doi.org/10.1515/9783110894646.67*

Pereltsvaig, Asya. 2007. On the universality of DP: A view from Russian. *Studia Linguistica* 61(1). 59–94. DOI: *https://doi.org/10.1111/j.1467-9582.2007.00129.x*

Peters, Stanley, and Dag Westerståhl. 2013a. The semantics of possessives. *Language* 89(4). 713–759. DOI: *https://doi.org/10.1353/lan.2013.0065*

Peters, Stanley, and Dag Westerståhl. 2013b. Addendum to 'The semantics of possessives': Barker on quantified possessives. *Language* 89(4). s1–s4. DOI: *https://doi.org/10.1353/lan.2013.0078*

Pustejovsky, James. 1995. *The generative lexicon*. Cambridge, MA: MIT Press.

Timberlake, Alan. 1975. Hierarchies in the genitive of negation. *Slavic and East European Journal* 19. 123–138. Reprinted In: Richard D. Brecht and James S. Levine (eds.), 1986, *Case in Slavic*, 338–360. Columbus: Slavica. DOI: *https://doi.org/10.2307/306765*

Townsend, Charles E. 1980. *Russian word-formation*. Cambridge, MA: Slavica Publishers, Inc.

Trugman, Helen. 2007. Possessives within and beyond NPs. In Richard Compton, Magdalena Goledzinowska & Ulyana Savchenko (eds.), *Annual Workshop on Formal Approaches to Slavic Linguistics*, 437–457. Ann Arbor, MI: Michigan Slavic Publications.

Vinogradov, Victor (ed.). 1960. *Grammatika Russkogo Jazyka (The Grammar of the Russian Language)*. Moscow: Akademija Nauk SSSR.

Winter, Yoad. 1997. Choice functions and the scopal semantics of indefinites. *Linguistics and Philosophy* 20. 399–467. DOI: *https://doi.org/10.1023/A:1005354323136*

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