

On NP-coordination*

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Russian has two different means of combining two noun phrases to form a plural noun phrase : the coordinate construction, using the conjunction *i* 'and' and the comitative phrase, using the preposition *s/so* 'with'. This paper establishes the distinction between three types of comitative phrases: adjunction, *s*-coordination and plural pronoun complementation. Evidence for the distinction comes from reflexivization, extraction, agreement patterns, discontinuity phenomena and semantic interpretation. The paper shows that ordinary and *s*-coordination are two independent syntactic structures. In comitative constructions, it is the nominal head *s* 'with' that selects two complements, whereas in ordinary coordination the conjunction *i* 'and' is a marker. This structural difference explains the difference in the behavior of the two constructions with respect to possessive pronouns. I argue that there is a third type of comitative phrase: Inclusive Plural Pronoun Constructions (IPPCs).

1 Introduction

Russian has two different means of combining two NPs to form a plural NP.

- (1) a. *Maša i Daša xodjat v školu.*
Masha.Nom and Dasha.Nom go.PL to school
Masha and Dasha go to school.
- b. *Maša s Dašej xodjat v školu.*
Masha.Nom with Dasha.Instr go.PL to school
Masha and Dasha go to school.

The construction in (1a) is an instance of ordinary coordination; the one in (1b) has been analyzed as either an instance of ordinary coordination or as another type of coordination, called *comitative*.¹

In addition, there is another interesting construction in Russian, illustrated by the first reading in (2). Some analyses assume that this construction is also an instance of

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¹*Comitative* case is a case expressing accompaniment. It carries the meaning of *with* or *accompanied by*.

comitative coordination (e.g. McNally (1993)), others ascribe the adjunction structure to it (e.g. Ladusaw (1989)).

- (2) *My s Dašej xodim v školu.*
 We.Nom with Dasha.Instr go.PL to school
 Dasha and I go to school./Dasha and we go to school.

I will begin the discussion with the syntactic and semantic differences between *with*-conjuncts and *with*-adjuncts. In order to make my exposition simpler, I will examine data that involve the comitative construction with singular noun phrases; however, the same arguments are applicable to the comitative construction with plural noun phrases. Having established that there are two types of *with*-phrases, I will compare *s* (with)-coordination to *i* (ordinary)-coordination. I will show that the two types of coordination realize different syntactic structures. Then, I will argue for the existence of a third type of comitative, namely, the Inclusive Plural Pronoun Construction (IPPC). A formal account of the three comitative types within the framework of HPSG will be proposed.

2 Comitative Adjuncts vs. Comitative Conjuncts

Russian has comitative prepositional phrases which are VP-adjuncts consisting of the preposition *s* (*with*) and an instrumental case-marked NP. I will summarize the main arguments in favor of distinguishing adjunction from *s*-coordination. Some of these arguments have been mentioned in the literature with regard to Russian, Polish, Latvian, Hungarian and other languages (see Schwartz (1988), Schwartz (1988), Ladusaw (1989), Dyła (1988), Aissen (1988), Aissen (1989), Urtz (1994), Vassilieva (2000) among others).

2.1 Number Agreement

In Russian, only nominative-marked NPs agree with the verb. If a sentence lacks a nominative-marked NP, then the verb is in the third person singular neuter form, as can be seen from the following examples:

- (3) a. *Oni xotjat pit'.*
 They.Nom want.PL drink.Inf
 They want to drink.
- b. *Im xočetsja pit'.*
 They.Dat want.neuter.SG.refl drink.Inf
 They want to drink.
- (4) a. [adjunction]
Maša s Dašej xodit v školu.
 Masha.Nom with Dasha.Instr go.3SG to school
 Masha goes to school with Dasha.

b. [coordination]

Maša s Dašej xodjat v školu.
 Masha.Nom with Dasha.Instr go.PL to school
 Masha and Dasha go to school.

In (4a), *Maša* is nominative and hence, requires the singular agreement with the verb; however, the verb in (4b) exhibits plural agreement, which seems to indicate that the verb has a plural subject in the nominative case. This fact indicates that the two sentences have different syntactic structures: (4a) is adjunction, whereas in (4b), the NP-s-NP cluster is in fact a coordinate phrase. This is not the only argument, though.

2.2 Reflexive Pronouns

Another set of facts that seem to indicate that comitatives can, in fact, be divided into two types—coordinate and adjunct comitatives—involves reflexive pronouns. Consider the set of sentences in (5) and (6):

(5) [adjunction]

- a. *Maša_i s Dašej_j rešila prodat' svoj_i/*ee_i kompjuter.*
 Masha with Dasha decided.SG sell.Inf self-/her computer
 Masha and Dasha decided to sell Masha's computer.
- b. *Maša_i s Dašej_j rešila prodat' *svoj_j/*ee_j kompjuter.*
 Masha with Dasha decided.SG sell.Inf self-/her computer
 Masha and Dasha decided to sell Dasha's computer.
- c. *Maša_i s Dašej_j rešila prodat' svoj_{i+j}/*ix_{i+j} kompjuter.*
 Masha with Dasha decided.SG sell.Inf self-/their computer
 Masha and Dasha decided to sell their computer.

In (5), the only antecedent for *svoj* is *Maša*. The reflexive cannot be bound jointly by *Maša* and *Daša*. In (6), on the other hand, the situation is reversed: the possessive reflexive cannot be anteceded by *Maša* alone since it must have plural agreement. Thus, it must be bound jointly by *Maša* and *Daša*.

(6) [coordination]

- a. *Maša_i s Dašej_j rešili prodat' *svoj_i/*ee_i kompjuter.*
 Masha with Dasha decided.PL sell.Inf self-/her computer
 Masha and Dasha decided to sell her computer.
- b. *Maša_i s Dašej_j rešili prodat' *svoj_j/*ee_j kompjuter.*
 Masha with Dasha decided.PL sell.Inf self- computer
 Masha and Dasha_j decided to sell her_j computer.

- c. *Maša_i s Dašej_j rešili prodat' svoj_{i+j}/*ix_{i+j} kompjuter.*
 Masha with Dasha decided.PL sell.Inf self- computer
 Masha and Dasha decided to sell their computer.

2.3 Discontinuity

If we adopt the hypothesis that comitative constructions are homogeneous and the NP-s-PP string is one constituent, then the fact that comitative constructions behave differently with respect to discontinuity becomes puzzling. 'Extraction' out of the NP-s-NP string is allowed in the comitative constructions with singular agreement, as in (7a,d), but forbidden in the comitative coordinate constructions with plural agreement, as in (7b,c).

- (7) a. [adjunction]
S kem Maša pošla v kino?
 With whom-Instr. Masha.Nom went.SG to movie
 With whom did Masha go to the movies?
- b. [coordination]
 **S kem Maša pošli v kino?*
 With whom-Instr. Masha.Nom went.PL to movie
 With whom did Masha go to the movies?
- c. [coordination]
 **Kto s Mašej pošli v kino?*
 Who.Nom with Masha.Instr went.Pl to movie
 Who went to the movies with Masha?
- d. [adjunction]
Kto s Mašej pošel v kino?
 Who.Nom with Masha.Instr went.Sg to movie
 Who went to the movies with Masha?

This fact suggests that the former type of construction is adjunction and the latter is coordination.

If we adopt another hypothesis, namely, that the NP and the s-PP are two separate constituents, then in a language like Russian, which has relatively free word order, there is no reason to expect (9) to be ungrammatical. However, the ungrammaticality of (9) suggests that the NP-s-NP string is in fact a single constituent.

- (8) *Tanja s Vanej zavtra/nakonets-to pojduť v restoran.*
 Tanja with Vanja tomorrow/eventually go.FUT.PL to restaurant
 Tomorrow (Eventually), Tanja and Vanja will go to the restaurant.

- (9) **Tanja zavtra/nakonets-to s Vanej pojduť v restoran.*
 Tanja tomorrow/eventually with Vanja go.FUT.PL to restaurant
 Tomorrow (Eventually), Tanja and Vanja will go to the restaurant.
- (10) *Tanja zavtra/nakonets-to s Vanej pojdet v restoran.*
 Tanja tomorrow/eventually with Vanja go.FUT.SG to restaurant
 Tomorrow (Eventually), Tanja will go to the restaurant with Vanja.

2.4 Semantic Difference

The meaning of *s* 'with' sometimes makes it difficult to distinguish between the adjunct reading (11a) and the conjunct reading as in (11b):

- (11) a. [adjunction]
Maša xodit s Dašej v školu.
 Masha goes.SG with Dasha to school
 Masha and Dasha go to school.
- b. [coordination]
Maša s Dašej xodjat v školu.
 Masha with Dasha go.PL to school
 Masha and Dasha go to school.

It is hard to put one's finger on the semantic difference between comitative adjunction and comitative coordination. However, there are ways to disambiguate a construction, forcing a coordination-only meaning². Coordinate constructions can have either a collective or a distributive reading, whereas *s*-adjuncts can have only a collective reading, as in the English example: *Mary read the book with John* (see Vassilieva (2000) for a detailed discussion). An *s*-adjunct cannot modify a verb that requires a distributive reading. Thus, for example, verbs such as *believe* or *know* will not have *with*-modifiers. However, *s*-phrases with coordinate meanings are acceptable with these verbs (see (12b)) just as are regular coordinated subjects (12c):

- (12) a. [adjunction]
 **Maša verit s Dašej v boga.*
 Masha believe.3SG.Pres with Dasha.Instr in God
 *Masha believes in God with Dasha.

²The cases discussed in this section serve as counterexamples to the claim made by McNally (1993) that comitatives always have a collective reading.

b. [*s*-coordination]

Maša s Dašej verjat v boga.
 Masha with Dasha.Instr believe.3PL.Pres in God
 Masha and Dasha believe in God.

c. [ordinary coordination]

Maša i Daša verjat v boga.
 Masha and Dasha.Instr believe.3PL.Pres in God
 Masha and Dasha believe in God.

The ability of a *with*-phrase to occur with verbs like *believe* that only trigger distributive readings can be considered a diagnostic for *s*-coordination.

In addition, comitative adjuncts cannot occur with reciprocals:

(13) a. [coordination]

Maša s Dašej ljubjat drug druga.
 Masha with Dasha like.3P.PL each other
 Masha and Dasha like each other.

b. [adjunction]

**Maša s Dašej ljubit drug druga.*
 Masha with Dasha like.3PSG each other
 *Masha likes each other with Dasha.

Additional evidence in favor of distinguishing the two syntactic structures comes from the following examples:

(14) a. [adjunction]

Maša s Dašej zarabotala tri rublja.
 Masha with Dasha earned.SG three rubles
 Masha earned three rubles with Dasha.

b. [coordination]

Maša s Dašej zarabotali tri rublja.
 Masha with Dasha earned.PL three rubles
 Masha and Dasha earned three rubles/Masha and Dasha each earned three rubles (6 rubles in total)

As becomes evident from the translations of the examples provided in this section, the comitative adjuncts do not allow a distributive reading, whereas the comitatives conjuncts allow the object to either distribute over the subject or not.

Thus, the agreement, binding, extraction and semantic facts clearly show that there are two types of comitative constructions: adjunction and coordination.

3 NP-NP and NP-PP Coordination Hypotheses

The next question that one needs to solve is to decide whether comitative and ordinary coordination have the same syntactic structure or whether they are different. From the data discussed so far, it is natural to assume that ordinary and *s*-coordination are the same, since their behavior seems to be identical. However, the existence of a special form of conjoining two NP's might hinge on the existence a different syntactic structure. In this section, I will explore the two possible hypotheses.

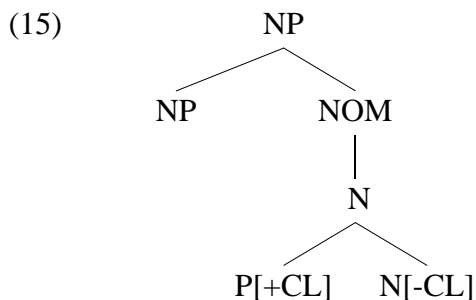
3.1 Dyla 1988

A natural assumption to make with respect to *s*-coordination is to assume that it is exactly the same as ordinary coordination, or at least very similar.

Dyla (1988), who considers an analogous phenomenon in Polish, treats comitative constructions that trigger plural verb agreement as 'quasi-comitative'; i.e. they look like comitative constructions but exhibit the syntactic properties of coordinate constructions. Dyla's main argument relies on the fact that both ordinary and comitative coordination³ trigger plural agreement with the verb. Dyla (1988) argues that comitative coordinate phrases ('quasi-comitative constructions') are indeed coordinate constructions.

In order to make this idea work, Dyla treats *z* (an analogue of the Russian *s* 'with') as neither a conjunction, nor a full-fledged preposition. The *z*-phrases are rather NPs with proclitic prepositions. He provides a number of arguments to support this claim. Polish, for instance, allows extraction of prepositions and determiners out of what look like PPs as if they were single constituents.

Dyla argues for the following internal structure of the so-called *z*- PP in Polish:



In other words, comitative coordination is conjunctionless ordinary coordination. The NP-*z*-NP string does not involve a PP that could be a barrier to inheritance of gender.

In order to account for the fact that the preposition *z* co-occurs with the NP in the instrumental case, Dyla proposes that *z* governs the instrumental case on N (pp.408-410):

(16) FCR4: |[P[PFORM *z*]]|[GOV N[CASE INSTR]]|

³Here and in the further discussion of McNally (1993), I am using the term 'comitative coordination' instead of *s*-coordination to preserve the original terminology of the authors.

In addition, Dylą provides further constraints to account for a wider range of data in Polish. He ensures, for instance, that the NP in quasi-comitative coordination must be a proper noun and never a pronoun.

Dylą's multi-headed analysis perfectly accounts for the number and gender agreement facts in Polish. However, there are several factors that seem to suggest we might want look for another way of explaining the comitative phenomenon in Russian. First, the agreement facts in Russian are much simpler– they do not involve gender– and that is why we do not need to postulate a very technical and complex machinery to account for gender agreement facts. In addition, there is evidence in Russian that suggests that *s*-coordination and ordinary coordination are different syntactic structures, contrary to Dylą's assumption.

S-coordinate constructions differ from ordinary coordination in the following ways:

1. Unlike ordinary coordination, comitatives are not iterative:

- (17) a. *Daša i Maša i Saša.*
Dasha and Masha and Sasha
Dasha, Masha and Sasha
- b. **Daša s Mašej s Sašej.*
Dasha with Masha with Sasha
Dasha, Masha and Sasha
- c. *Daša s Mašej i Petja s Sašej.*
Dasha with Masha and Petja with Sasha
Dasha and Masha, Petja and Sasha

2. *S*-coordination is limited to NPs, as opposed to *i* that has essentially the same properties as does *and* in English:

- (18) a. **Vanja kupil s pročital knigu.*
Vanja bought with read book
Vanja bought and read the/a book.
- b. **Vanja čital knigu včera s segodnja.*
Vanja read book yesterday with today
Vanja was reading a/the book yesterday and today.
- c. **Vanja - krasivyj s umnyj paren'.*
Vanja handsome with smart guy
Vanja is a handsome and smart guy.
- d. **Vanja pročital knigu s ja napisala pis'mo.*
Vanja read book with I wrote letter
Vanja read a/the book and I wrote a/the letter.

3. Comitatives behave differently with possessive pronouns McNally (1993). In Russian, there are both reflexive and non-reflexive pronouns; only the latter may be

used when a possession relation holds between the entities denoted by the coordinate phrase (see (19) vs. (20)).⁴

- (19) a. *Pisatel' i ego semja pereexali v Moskvu.*
 Writer and his family moved.PL to Moscow
 The writer and his family have moved to Moscow.
 b. **Pisatel' i svoja semja pereexali v Moskvu.*
 Writer and self' family moved.PL to Moscow
 The writer and his family have moved to Moscow.
- (20) a. **Pisatel' s ego semjoj pereexali v Moskvu.*
 Writer with his family moved.PL to Moscow
 The writer and his family have moved to Moscow.
 b. *Pisatel' so svoej semjoj pereexali v Moskvu.*
 Writer with self' family moved.PL to Moscow
 The writer and his family have moved to Moscow.

Thus, the data from Russian seem to be different and require a different account.

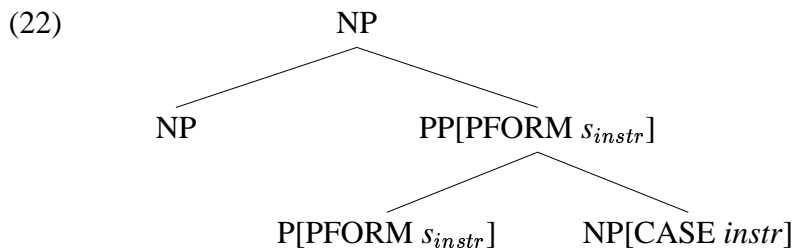
3.2 McNally 1993

McNally (1993) proposes another analysis of an analogous piece of data in Russian within the same framework. As McNally (1993) observes, the distribution of reflexive and non-reflexive pronouns suggests that comitative constructions and ordinary coordinates have different syntax. The first NP in a comitative phrase can serve as the antecedent for a reflexive possessive in the prepositional phrase, which is impossible in an ordinary coordinate phrase. The relevant examples are repeated below for convenience:

- (21) a. *Pisatel' i ego semja pereexali v Moskvu.*
 Writer and his family moved.PL to Moscow
 The writer and his family have moved to Moscow.
 b. **Pisatel' i svoja semja pereexali v Moskvu.*
 Writer and self' family moved.PL to Moscow
 The writer and his family have moved to Moscow.
 c. **Pisatel' s ego semjoj pereexali v Moskvu.*
 Writer with his family moved.PL to Moscow
 The writer and his family have moved to Moscow.
 d. *Pisatel' so svoej semjoj pereexali v Moskvu.*
 Writer with self' family moved.PL to Moscow
 The writer and his family have moved to Moscow.

⁴McNally (1993) claims that both kinds of possessive pronouns can appear in comitative constructions. However, native speakers of Russian that I consulted accept only comitative constructions with reflexive pronouns (where the NP subject is coindexed with the possessive that modifies the PP).

McNally (1993) proposes the following structure for the comitative construction:



In (22), an NP and PP are the respective head and non-head daughters of a complex NP. McNally (1993) provides the following arguments in favor of such an analysis of comitative coordinate constructions: 1) it accounts very straightforwardly for the distribution of case morphology in the construction; 2) it establishes a parallel with the related Plural Pronoun Construction.

However, such an analysis suffers from a number of problems. First of all, we are left with the problem of explaining the binding and number agreement facts. In addition, McNally's account fails to predict that comitative coordination is possible only with non-pronominal noun phrases, as illustrated in (23):

- (23)
- a. *On s sestroj kupil kompjuter.*
 He with sister bought.SG.Masc.3P computer
 He bought a computer with his sister.
- b. **On s sestroj kupili kompjuter.*
 He with sister bought.PL computer
 He and his sister bought a computer.
- c. *My s družjami kupili kompjuter.*
 We with friends bought.PL computer
 My friends and I bought a computer./We and our friends bought a computer.

Moreover, Plural Pronoun Constructions exhibit distinct behavior and cannot be analyzed as instances of comitative coordination.

In the subsequent sections, I will argue that Plural Pronoun Constructions belong to neither of the coordination types. However, before turning to the details of the analysis, I will summarize the main binding facts found in Russian. This digression is necessary for establishing an alternative syntactic analysis of *s*-coordination.

4 Binding Facts: Ordinary and *S*-Coordinates have a Different Syntax

One of the arguments for differentiating comitative and coordinate constructions comes from the behavior of possessive pronouns. It has been shown that the first conjunct in the ordinary coordinate phrase can bind non-reflexive possessives that modify the second conjunct, whereas the first noun phrase in the comitative coordinate phrase binds reflexive possessive pronouns. I do not pretend to provide even a rudimentary analysis of binding in

Russian, but I will try to summarize some important generalizations that are necessary for the current purposes.

Russian reflexive pronouns are nominative-argument oriented, i.e. they usually have subject antecedents:

- (24) a. *Tanja_i rasskazala Ane o sebe_i/nej*_i.*
 Tanja.NOM told Anja.Dat about self.Fem.Prep/*her
 Tanja_i told Anja about herself_i/*her_i.
- b. *Tanja_i priglasila svoju_i/*eyo_i podругu v kino.*
 Tanja invited self's/*her friend.fem to movie
 Tanja invited her friend to go see a movie.
- c. *On_i vstretil Tanju_j i svoju_i/eyo_j/*ego_i sestru*
 He met Tanja and self's/her/*his sister
 He_i met Tanja_j and his_i/her_j sister.

The binding theory as formulated in Pollard and Sag (1994) is not universal. Problems posed by many languages have confirmed this. It seems that binding constraints should be language-specific. In this paper, I will adopt the Binding Theory proposed for Polish by Kupsć and Marciniak (1996). In English (and many other languages), possessives are analyzed as determiners, which are single obligatory specifiers of NPs (except for mass and count plural nouns). This approach is difficult to adopt for languages such as Russian or Polish. In Russian as well as in Polish, there are no obligatory determiners; in fact, determiners occur in NPs relatively rarely. Besides, possessives can be mixed with other determiners. This behavior suggests that possessives should be analyzed as adjuncts rather than specifiers.

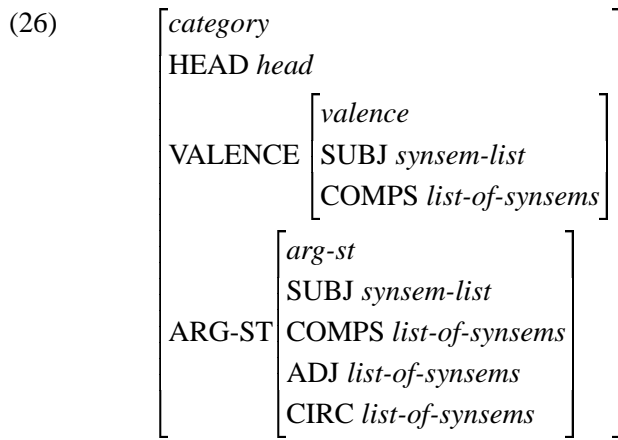
Pollard and Sag (1994) allow only constituents that are subcategorized for to be bound. This condition seems to be too weak for Russian, as illustrated in (25):

- (25) *Tanja_i prodala svoju_i/*eyo_i mašinu.*
 Tanja.NOM sold self's/*her car
 Tanja_i sold her_i car.

As the example in (25) shows, adjuncts satisfy the same binding conditions as obligatory elements, so binding theory should explain these phenomena as well. Since adjuncts are not members of the VALENCE list, they are not subject to binding constraints. Kupsć and Marciniak (1996) propose to reformulate the level at which binding theory is defined in order to widen the scope of the theory. The idea that binding theory should account for both adjuncts and circumstantials, i.e. optional constituents, should be considered as well.

VALENCE attributes are independently included in the VALENCE structure that contains SUBJ(ECT) and COMP(LEMENT)S. Kupsć and Marciniak (1996) omit the SPR attribute since they analyze specifiers as adjuncts. The subcategorization principle is fulfilled by valence attributes, whereas ARG-ST remains unaffected and serves mainly as the

locus of the binding theory. Following Kupsć and Marciniak (1996), I assume that ARG–ST should not be a list (unlike Manning and Sag (1999)) and that ARG–ST should have a richer internal structure with attributes of its own. So, I adopt the following structure:



The distinction between VAL|SUBJ and ARG–ST|SUBJ values will be crucial for the binding theory. The ADJ attribute corresponds to ADJUNCTS that modify NPs, while CIRC(UMSTANTIAL) represents modifiers of VPs. This distinction is useful since both (CIRC and ADJ) modify different kinds of phrases. Following Kupsć and Marciniak (1996), I assume that possessives are elements of the ADJ list, i.e. they are treated as adjuncts.⁵ The main differences between the binding theory adopted here and Pollard and Sag (1994) are the following:

- (27)
- (1) This binding theory is based on the property of being a subject and not on the obliqueness relation;⁶
 - (2) The theory is defined in terms of the ARG–ST structure, which contains optional elements as well, not at the VALENCE level.⁷

The relation corresponding to the o-command of Pollard and Sag (1994) is called *subject command* (*s-command*):

- (28) Let Y and Z be *synsem* objects with distinct LOCAL values. Then Y *s-commands* Z just in case either:

- (i) Y belongs to the ARG–ST|SUBJ list, and Z belongs to one of the ARG–ST

⁵Presumably, not all adjuncts will appear at the ARG–ST, but only those that are relevant for binding and extraction. This issue goes beyond the scope of this paper and irrelevant for the analysis of comitatives.

⁶Kupsć and Marciniak (1996) provide examples that show that the linear order of constituents should also be taken into account when considering the distribution of personal and possessive pronouns— an additional piece of evidence that the obliqueness relation is not sufficient.

⁷Kupsć and Marciniak (1996) modify the nominal object hierarchy to account for Polish facts. Since this issue is not directly relevant for the specific data I want to account for in this paper, I will not provide the full details of their analysis.

lists; or

- (ii) Y s-commands some X and Z belongs to one of X's ARG–ST lists; or
- (iii) Y s-commands some X that is a projection of Z.

The definition of local s-command is very similar to the definition of s-command. The only difference is that in the former definition recursion is stopped when the head of a phrase has a non-empty subject at the ARG–ST level. The definition of *local s-command* is given below:

- (29) Let Y and Z be *synsem* objects with distinct LOCAL values. Then Y *locally s-commands* Z just in case either:
- (i) Y belongs to the ARG–ST|SUBJ list, and Z belongs to one of the ARG–ST lists; or
 - (ii) Y locally s-commands some X and Z belongs to one of X's ARG–ST lists; or
 - (iii) Y locally s-commands some X that is a projection of Z and Z's value of ARG–ST|SUBJ is an empty list.

Unlike in English, the definition of local s-command cannot be formulated without recursion, which is necessary for the proper analysis of preposition phrases and sentences with embedded noun adjuncts:

- (30) *Tanja_i prodala mašinu ženy eyo*_{i/j} brata.*
 Tanja sold car.Acc wife.Gen her brother.Gen
 Tanja sold the car of her brother's wife.

The pronoun in (30) should be considered locally, but it is not visible at the ARG–ST level of the sentence head. It appears deeper in the NP structure and for this reason the recursion (with the stop condition added) is necessary.

The definition of local and global o-binding and o-free relations do not need reformulation; for ease of presentation, we will rename them: (*local*) *s-binding* and (*locally*) *s-free*.

- (31) Y (*locally*) *s-binds* Z just in case Y and Z are coindexed and Y (locally) s-commands Z. If Z is not (locally) s-bound, then it is said to be (*locally*) *s-free*.

Following the proposal for Polish, I can now formulate the binding theory for Russian.

(32) BINDING THEORY FOR RUSSIAN⁸:

Principle A. A reflexive anaphor must be s-bound.

Principle B. A pronoun must be locally s-free.

Principle C. A non-pronoun must be s-free.

Now consider (25) again. This is a simple sentence with a possessive expression. *svoju* ('self's') is a possessive anaphor and should be s-bound according to principle A. *Tanja* is the s-binder of *svoju* in case they are coindexed and *Tanja* s-commands the phrase *svoju mašinu* because *Tanja* is the subject and the phrase *svoju mašinu* is a complement, (i.e. belongs to the ARG–ST) of the same lexical head, *prodala*. According to clause (iii) of the definition of (28), if *Tanja* s-commands the whole phrase, it s-commands its head, in this case *mašinu*. *Svoju* is an adjunct of *mašinu* and therefore belongs to the ARG–ST of *mašinu*. Applying clause (ii) of (28), I prove that *Tanja* s-commands *svoju*.

5 Formal Analysis of S-coordination of NPs

As is evident from the data discussed so far, the *s*- and ordinary coordinate constructions should be treated separately in Russian. In addition, as has been pointed out in the first section, only non-pronominal NP's can participate in *s*-coordination:

- (33) a. *On s sestroj kupil kompjuter.*
 He with sister bought.SG.Masc.3P computer
 He bought a computer with his sister.
- b. **On s sestroj kupili kompjuter.*
 He with sister bought.PL computer
 He and his sister bought a computer.

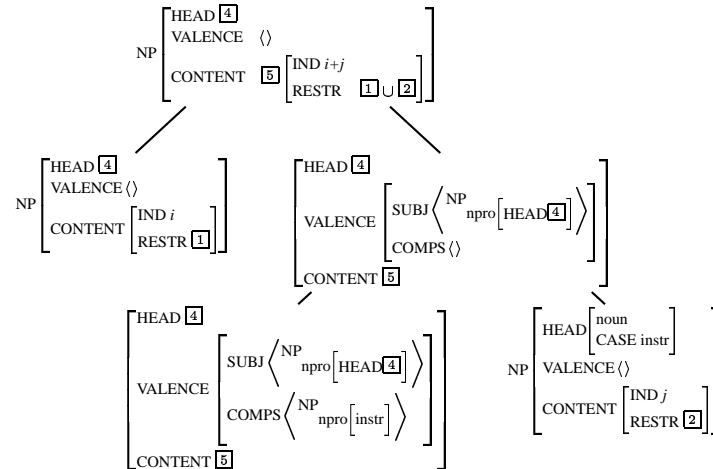
I propose to treat *s* as a nominal head that selects two noun complements.

(34) [lexical entry for *s*]
$$\left[\begin{array}{l} \text{PHON} \langle s \rangle \\ \text{HEAD } \textit{noun} \\ \text{VAL} \left[\begin{array}{l} \text{SUBJ} \langle \text{NP}_{npro} \rangle \\ \text{COMPS} \langle \text{NP}_{npro[instr]} \rangle \end{array} \right] \\ \text{CONT} \mid \text{INDEX} \mid \text{NUM } \textit{plu} \end{array} \right]$$

The *s*-coordinate structure will look like the following:

⁸The principles of the binding theory are not applied if VAL—SUBJ is not a noun phrase for the head of the phrase

(35)



In an *s*-coordinate structure, the nominal head *s* subcategorizes for a subject NP_{*npro*} and a complement NP_{*npro[instr]*}. Moreover, the head values of the nominal head are token identical to the head specification of its subject as represented in the avm above. It is important to notice that this head selects two NP's whose heads are non-pronominal.

One might argue that such a treatment of *s* is counter-intuitive. However, unless there are facts that argue against this analysis, I see nothing wrong with it. Moreover, such an analysis does not contradict any generalizations about what cases Russian nouns assign to their subjects and/or complements. Generally, Russian nouns can take bare instrumental NP complements, e.g. *upravlenie predprijatijem* 'administration [of] company.Instr', *uvlečenie lingvistikoj* 'passion [for] linguistics.Instr' and so on.⁹ Russian *s* does not inflect and does not have a possessive form. But these are exactly the properties of some Russian nouns: *pal'to* or *kofo*, for example, do not inflect in Russian; and they cannot appear in the possessive form either.

Such an analysis has several immediately appealing aspects. First, it ensures the right number specification of the mother NP. Second, it predicts that when a possession relation holds between the entities denoted by the comitative coordinate NP, a reflexive pronoun is required. Third, the first NP always varies in case in accord with the grammatical relation it bears, while the second is invariably in instrumental case. Moreover, it predicts that only non-pronominal NP's will participate in *s*-coordination and provides grounds upon which to explain contrasts between comitative coordinates and ordinary coordinates on the one hand, and between comitative coordinates and Plural Pronoun Constructions on the other.

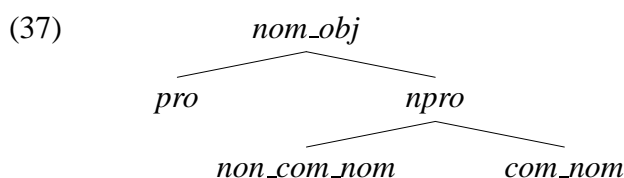
Consider the following example:

- (36) *Sveta_i so svoej_i sestroj eli pirog.*
 Sveta with self's sister ate pie
 Sveta and her sister were eating the pie.

⁹It is interesting to notice that the cases of noun-into-preposition or preposition-into-noun conversion have been registered in different languages. See Longobardi (2001) for a reanalysis of Latin *casa* '(at) the home (of)' as a preposition in various Romance languages.

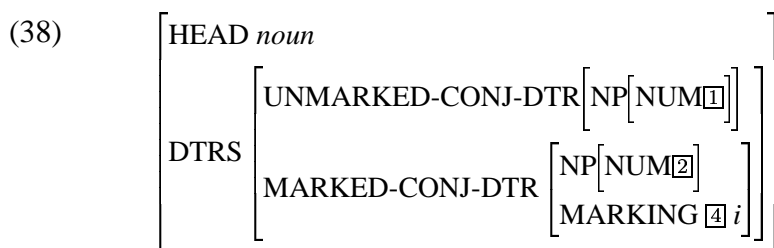
In this example, since *Sveta* is the subject and *svoej sestroj* is a complement of the same nominal head *s*, *Sveta* is the *s*-binder of *svoju* and *Sveta* *s*-commands the phrase *svoju sestru*. According to clause *iii* of (28), if *Sveta* *s*-commands the whole phrase, it *s*-commands its head *sestroj*. *Svoej* is an adjunct of *sestroj* and therefore belongs to the ARG-ST of *sestroj*. Applying (28 ii), one can see that *Sveta* *s*-commands *svoej*. Thus, keeping in mind the binding theory proposed in the previous section and defining the structure for comitative construction as in (35), we can account for the peculiar behavior of comitative coordination.

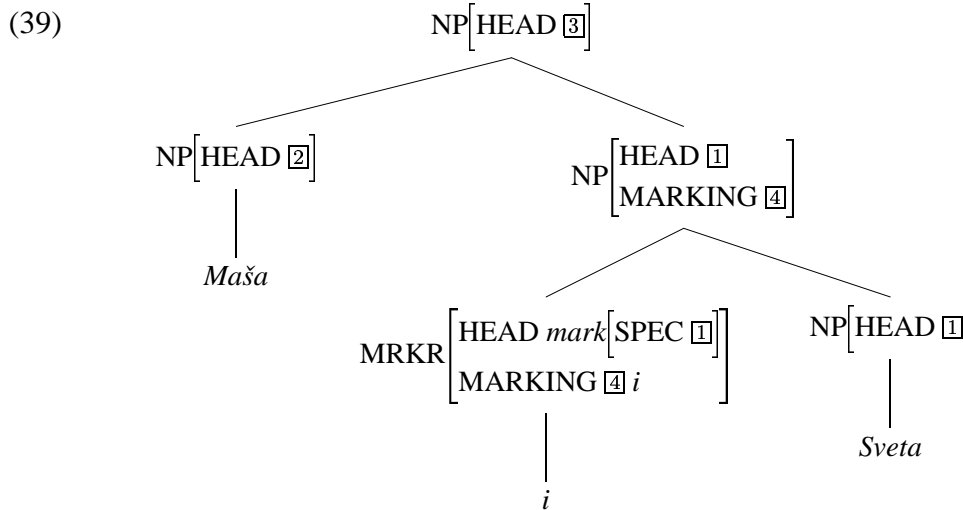
One additional point that we need to make here is that comitative coordinate constructions are not iterative. In order to ensure the non-iterative behavior of these constructions, we need to modify a nominal object hierarchy, presented in Pollard and Sag (1994), in the following way:



Now, any comitative coordinate NP will be of type *npro* and its syntactic arguments are of type *non-com-nom*, thus blocking iteration.

The question, then, is how we block the occurrence of reflexive pronouns when a possessive relation holds between the entities denoted by the ordinary coordinate NP. One approach to ordinary coordination would be to accept the central claim of the coordination analysis in Sag et al. (1985) and the analogous treatment of Pollard and Sag (1994). Although such an approach is highly problematic for coordination of unlikes and neutralization, it will be sufficient for the current purposes. I will treat the conjunction *i* as a marker. Thus, ordinary binary coordination will be a coordinate structure whose daughters are an UNMARKED-CONJ-DTR and a MARKED-CONJ-DTR. The tree and the avm below illustrate the idea:





Applying this structure together with the binding theory adopted in this paper, we can block the occurrence of the reflexive pronoun in the second conjunct:

- (40) **Sveta_i i svoja_i sestra eli pirog*
 Sveta and self's sister ate pie
 Sveta and her sister were eating the pie.

In (40), the coordinate NP *Sveta i svoja sestra* will belong to the SUBJ list of the same head *eli*, i.e. *svoja* is locally s-free here.¹⁰

6 Plural Pronoun Constructions (PPCs)

This section discusses an additional set of data, namely Plural Pronoun Constructions (PPCs).

Consider the following example:

- (41) *My s Dašej kupili kompjuter.*
 We with Dasha bought.PL computer
 We bought a computer with Dasha/ Dasha and I bought a computer.

The construction in (41) is known as the Plural Pronoun Construction (PPC).¹¹ The PPC has been analyzed as an instance of comitative coordination (as in Aissen (1988), Aissen (1989)) or as adjunction Ladusaw (1989). However, as has been observed in Ladusaw (1989) and Vassilieva (2000), PPCs possess syntactic and semantic properties that contrast with those exhibited by coordination. In this section, PPCs are compared to other comitative constructions and it will be shown that they do not constitute a homogenous class: PPCs that have

¹⁰It is interesting to notice that the conjunction *ili (or)* is not used for nominal coordination and thus, unlike English, the problem with having a non-homogeneous agreement with verbs (either singular or plural, depending on the number specifications of the second conjunct) does not arise at all.

¹¹Note that in (41), using *ja (I)*, instead of *my (we)* is impossible.

a non-inclusive interpretation are adjuncts, whereas PPCs that have an inclusive interpretation are neither adjunction nor coordination.

In Russian, the PPC is ambiguous with respect to the number of people who participate in an event, as indicated in the translation of (41). The next two sections summarize the main arguments (see Vassilieva (2000) among others) in favor of distinguishing two types of PPCs. The two interpretations of PPCs are non-inclusive and inclusive interpretations. The former involves the referents denoted by the plural pronoun and the comitative element together, and the latter the interpretation when the denotation of the instrumental phrase is included in the denotation of the plural pronoun.

6.1 *Non-inclusive PPCs (NIPPCs)*

So far, a number of tests have been discussed to determine whether a comitative phrase is a conjunct or an adjunct. One of the tests was the ability to bind reflexives. Consider the following sentence:

(42) [non-inclusive]

*My_i s Dašej_j prodali svoj_{i/*j/*i+j} kompjuter.*
 We_i with Dasha_j sold.PL self's_{i/*j/*i+j} computer
 We_i sold our_{i/*j/*i+j} computer with Dasha_j.

On the non-inclusive interpretation, the antecedent of the possessive reflexive *svoj* is understood as *my* (*we*), without the inclusion of Dasha. This fact suggests that the *with*-phrase in (42) cannot be a conjunct.

When a non-inclusive PPC cooccurs with the verbs such as *believe*, which trigger only a distributive reading, the intended interpretation is impossible.¹²

(43) [non-inclusive]

**My_i s Dašej_j verim v boga.*
 We with Dasha believe.PL in God
 We and Dasha believe in God.

Observe, incidentally, that sentence is perfectly grammatical, however, on the inclusive interpretation).

Additional evidence that the non-inclusive PPC does not have a distributive reading is the fact that it never cooccurs with reciprocals:

¹²See Vassilieva (2000) for additional data.

(44) [non-inclusive]

**My s Dašej ljubim drug družku*
 We with Dasha like each other
 *We like each other with Dasha

Again, this sentence is grammatical on the inclusive interpretation.

Additional evidence comes from *wh*-extraction. We have seen that comitative adjuncts can undergo *wh*-extraction, whereas comitative conjuncts cannot. Consider the following:

(45) [non-inclusive]

S kem my kupili kompjuter?
 with whom we bought.PL computer
 With whom did we buy the computer?

Non-inclusive PPCs, then, cannot be analyzed as instances of coordination.

Remember that *with*-conjuncts cannot appear in postverbal positions, i.e. they do not "move". However, consider the following:

(46) [non-inclusive]

My kupili s Mašej kompjuter.
 we bought.PL with Masha computer
 We bought a computer with Masha.

The examples above show that non-inclusive PPCs do not behave like *s*-coordinate constructions; their syntactic behavior resembles comitative adjuncts rather than *s*-conjuncts. So, the conclusion is that PPCs are not an instance of coordination, but instead of comitative adjunction on the non-inclusive interpretation.

6.2 Inclusive PPCs (IPPCs)

In this section, I consider the "inclusive" interpretation of PPCs (see Vassilieva (2000) for detailed discussion), i.e. PPCs where the denotation of the instrumental phrase is included in the denotation of the plural pronoun. However, this is not the only difference.

The elements of the inclusive PPCs cannot be conjoined by *i* 'and', unlike coordinate comitatives, where such a substitution is allowed.

- (47) a. [ordinary coordination]
My [i Maša] kupili kompjuter
 We [and Masha] bought.PL computer
- i. Masha and we bought a computer.
 ii. *Masha and I bought a computer.
- b. [inclusive PPC]
My [s Mašej] kupili kompjuter.
 We with Masha bought.PL computer
- i. *Masha and we bought a computer.
 ii. Masha and I bought a computer.

S-coordinate constructions trigger plural agreement with the verb. The order of conjuncts can be freely changed in both comitative and regular coordination:

- (48) a. *Maša s Dašej(=Daša s Mašej) pokupajut kompjuter.*
 Masha with Dasha(=Dasha and Masha) buy.Pres.3PL computer
 Masha and Dasha are buying a computer.
- b. *My s Dašej pokupaem kompjuter.*
 We with Dasha buy.Pres.1PL computer
 Dasha and I are buying a computer.
- c. **Dasha s nami pokupaem/pokupajut kompjuter.*
 Dasha with us buy.Pres.1PL/3PL computer
 Dasha and we are buying a computer.

As evident from (48b) and (48c), plural agreement is impossible in inclusive PPCs when the order of the elements of the comitative phrase is altered. Moreover, pronouns cannot participate in *s*-coordination in Russian:

- (49) a. **On so mnoj delaem/delajut uroki.*
 He with me do.Pres.1PL/3PL homework
 He and I are doing the homework assignment.
- b. *?On i ja delaem uroki.*
 He and I do.Pres.1PL homework
 He and I are doing the homework assignment.

As has been noticed in Urtz (1994), native speakers tend to avoid *and*-coordination of pronouns (as in (49b)), giving preference to PPCs (cf.(50)) as 'more natural':

- (50) *My s nim delaem uroki.*
 We with him do.Pres.1PL homework
 He and I are doing the homework assignment.

In addition, there is a restriction on the order of elements in IPPCs with respect to the person hierarchy. While English requires the 1st person pronoun to come second in a coordinate structure (*He and I* vs. **I and he*), Russian has no preference. However, in inclusive PPCs, the plural pronoun must be higher in the hierarchy (1 > 2 > 3) than the pronoun in the *with*-phrase. Therefore, the example below cannot have an inclusive reading even when the verb agrees with the plural pronoun in person:

- (51) a. *My s nej poem.*
 we with her sing.1PL
 She and I sing.
 b. **Oni so mnoj poem/pojut.*
 They with me sing.1PL/3PL
 She/he and I sing.

Thus, the strict selectivity imposed on the constituents and their order is unique to IPPCs and does not apply to other comitative constructions. This supports the hypothesis that the IPPC is not an instance of coordination.

A final piece of evidence comes from the tests that we used to distinguish comitative conjuncts from adjuncts. With respect to these tests, IPPCs pattern with neither of these constructions. In some aspects, IPPCs resemble adjuncts: they allow the verb to separate its complements.¹³

- (52) *My kupili s Anej kompjuter.*
 We bought.PL with Anja computer
 Anja and I bought a computer.

In other aspects, inclusive PPCs might resemble comitative coordinate constructions. They behave similarly with respect to *wh*-extraction (53) and the ability to antecede reflexives (54), and can appear with reciprocals and verbs that require a distributive reading ((56),(55)).

- (53) a. *My s Anej učilis.*
 we with Anja study.PL
 Anna and I were studying.
 b. **S kem my učilis'?*
 With whom we study.PL
 With whom were we studying?
 (54) *My_i s Anej_j čitaem svoju*_i,*_j,_{i+j} knigu.*
 We with Anja read.1PL self' book.
 Anja and I are reading our book.

¹³Note that (51b) and (53b) are grammatical under the adjunct interpretation.

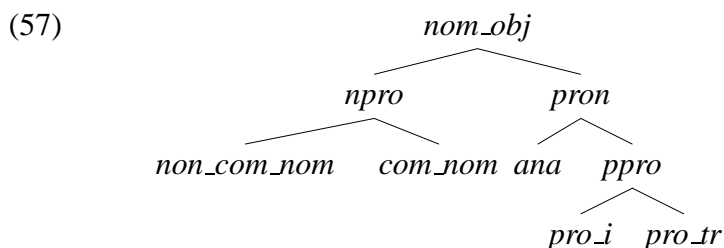
- (55) *My s Anej ljubim drug druga*
 We with Anja like.PL each other
 Anja and I like each other
- (56) *My s Anej znaem kitaiskij.*
 We with Anja know.1PL Chinese
 Anja and I know Chinese.

It has been shown that IPPCs share some properties with comitative adjuncts and *s*-conjuncts. In addition, they exhibit a number of characteristics not found in other *with*-constructions. We assume that syntactically they are neither instances of adjunction nor of coordination. The next section provides a formal analysis of IPPCs as comitative complementation.

7 Formal Analysis of PPCs

As has been argued above, the *with*-phrase in non-inclusive PPCs is an adjunct. Thus, no special attention needs to be drawn to these constructions.

However, we have shown in the previous sections that IPPCs share some properties with comitative adjuncts and *s*-conjuncts. Like *s*-coordinate constructions, IPPCs trigger plural agreement with the verb, jointly antecede reflexives, prohibit 'wh-extraction', and appear with reciprocals and distributive verbs; however, unlike coordination and like adjunction, the prepositional phrase can occur in postverbal position. The most intriguing fact is that IPPCs exhibit a number of features not found in other *with*-constructions: the order of the constituents with respect to their person specification is unique; and an IPPC cannot be substituted with an equivalent coordinate phrase. Since IPPCs pattern neither with *s*-coordinate constructions nor with comitative adjunction, we assume that the plural pronouns that occur in such structures are heads that select *with*-phrases with particular specifications. Such an assumption requires some additional modification of the hierarchy of nominal objects. According to this hierarchy, pronouns can be transitive and intransitive. In Russian, plural pronouns can select complements, and therefore, will be treated as transitive:¹⁴

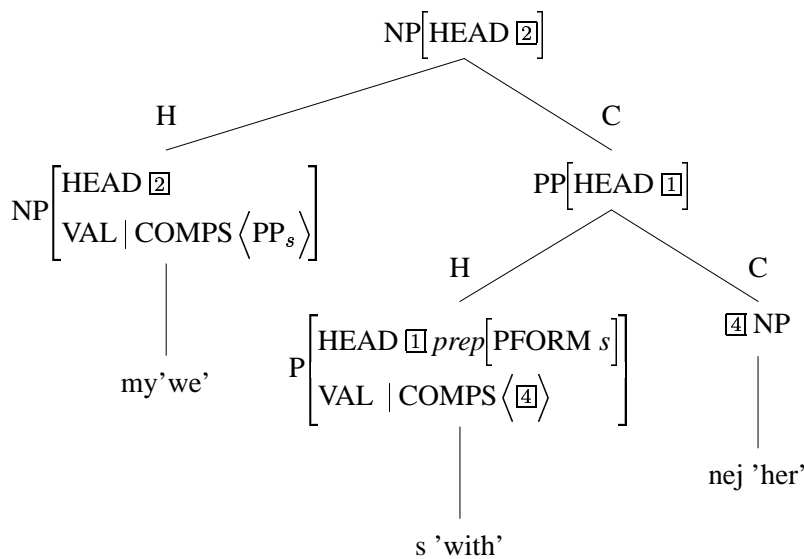


¹⁴Notice that transitive pronouns exist in some languages: there are transitive pronouns in Cayuga, for example, an Iroquoian language.

(58) lexical entry for a transitive plural pronoun (preliminary version)

$$\left[\begin{array}{l} \text{PHON} \langle phon \rangle \\ \text{CAT} \left[\begin{array}{l} \text{HEAD } noun \\ \text{VAL} \mid \text{COMPS} \langle PP_s \boxed{1} \rangle \end{array} \right] \\ \text{CONT } pro_{tr} [\text{INDEX} \boxed{2}] \end{array} \right]$$

(59) IPPC



(58) and (59) above illustrate the idea. The plural pronoun selects a PP_s . Such an account is not complete, though. As has been discussed in the previous sections, the denotation of the complement should be included in the denotation of the head (in order to get the inclusive interpretation) and also, we must

impose restrictions on the order of elements in IPPCs with respect to the person hierarchy.

In order to insure that the denotation of the complement is included in the denotation of the head, we assume a pragmatic constraint requiring that the relation *cover* (defined in (60)) holds between the elements of the IPPC.

(60) An element z of poset A *covers* another element x provided that there exists no third element y in the poset for which $x \subset y \subset z$, where A is a set of individuals, some of which are plural and $x \setminus z$ is a singleton. (We write $x \prec z$).

We state another constraint on the person hierarchy. We assume that the person hierarchy is a linear order on person values and we state a disjunction as in (61): the possible person values are expressed as an object language relation (and not as a pragmatic constraint).

(61) lexical entry for a plural pronoun in Russian

$$\left[\begin{array}{l} \text{PHON} \langle phon \rangle \\ \text{CAT} \left[\begin{array}{l} \text{HEAD } noun \\ \text{VAL} \mid \text{COMPS} \langle PP_s \ \boxed{1} \rangle \end{array} \right] \\ \text{CONT}_{pro_tr} \left[\text{INDEX} \ \boxed{2} \right] \\ \text{CONX} \mid \text{BG} \{ \boxed{1} \prec \boxed{2} \} \end{array} \right]$$

$$\wedge (\boxed{2} \text{PERS } 1\text{rst} \wedge \boxed{1} \text{PERS} (2\text{nd} \vee 3\text{rd})) \vee (\boxed{2} \text{PERS } 2\text{nd} \wedge \boxed{1} \text{PERS } 3\text{rd}) \vee (\boxed{2} \text{PERS } 3\text{rd} \wedge \boxed{1} \text{PERS } 3\text{rd})$$

Having defined such a lexical entry for the transitive plural pronoun, we can easily account for the inclusive plural pronoun phenomenon. Using the *cover* relation makes the correct prediction that the first conjunct in the inclusive PPC has to be plural.

To end this section, I will make a brief comment on some of the previous analyses of PPCs.

While McNally (1993) suggests that the PPC is an instance of comitative coordination, Aissen (1989) and Aissen (1988) claim that the initial pronoun of the PPC should be considered the single head of the construction. Interestingly, Aissen (1989) argues that if PPCs occur in a language, then the language allows the head to drop under *pro* drop. The main interest of Aissen (1989)'s is comitative agreement. She argues that the plurality of the pronoun could follow from the fact that it is the head of the construction. Just as externally governed case marking descends upon the pronominal head, the semantic plurality of the entire constituent, which is required by its interpretation as a conjunction, might devolve morphosyntactically upon the head. Aissen (1988) and Aissen (1989)'s approach hinges on the analysis of PPCs proposed in the paper. Nevertheless, her analysis does not explicitly state that it is the pronoun that selects a PP complement in a PPC, and also it does not directly account for the difference between semantics of the IPPC and the NIPPC.

Ladusaw (1989), on the other hand, treats the PP in PPCs as an adjunct. On his view, the head pronoun is uniformly treated as having its customary meaning. He suggests that there should be an interpretation rule for the construction that will treat the comitative adjunct phrase as a restricting modifier. This predicts that any situation that could be described by an inclusive PPC could also be described by a non-inclusive one. Unfortunately, Ladusaw (1989) does not provide such an interpretation rule and in fact, no formal analysis is provided. Moreover, as is pointed out in Vassilieva and Richard K. Larson (2001), the comitative in the PPC can be separated from the plural pronoun, but such separation is not possible with other comitatives that are plausibly identified as NP-adjuncts. In addition, as Vassilieva and Richard K. Larson (2001) correctly point out, if the PPC comitatives were NP adjuncts to a plural pronoun, one might expect such an adjunct to co-occur with other personal pronouns, or other plural nominals. However, this prediction is incorrect.

Vassilieva and Richard K. Larson (2001)'s proposal supports Aissen (1988) and Aissen (1989)'s hypothesis (and that independently proposed in this paper) that the PP in the PPC is a complement of the pronoun. They express their hypothesis using the for-

malism of (Larson and Segal(1995)), in which sentences are assigned truth-values with respect to a context sequence σ . However, their formalism incorrectly predicts that the IPPC will be iterative. There is even more serious problem (David Dowty, Rick Nouwen, p.c.) with their proposal: their semantics predicts that *My s Vanej guljali* ('We with Vanja walked', meaning 'Vanja and I walked') will be true if Vanja walked and Vanja is the speaker. Moreover, Vassilieva and Richard K. Larson (2001)'s semantics will predict 'we walked' to be true in a situation where there is only one person who walked. Since the purpose of the paper is to provide a syntactic account of the comitatives, we will not discuss Vassilieva and Richard K. Larson (2001)'s analysis in more detail here, though we need to mention that in order to fully account for the semantics of PPCs, one will have to provide a semantics of *s*. This paper has provided an outline of the semantics of this element.

8 Conclusions

This paper began by considering two types of comitatives: adjuncts and coordinates. The evidence to distinguish the two types of structure comes from agreement patterns, reflexivization, discontinuity effects and semantic interpretation. The next concern of the paper was to differentiate between two types of nominal coordination in Russian: *s*- and ordinary coordination. The argument in favor of this distinction comes from the difference in the behavior of these constructions with respect to possessive pronouns when the possession relation holds between the entities denoted by the ordinary/comitative coordinate phrase. Two distinct structures were proposed: 1) the nominal head *s* selects two NP complements in the case of comitative coordination; and 2) *i* 'and' is a marker in ordinary coordinates. We followed the standard HPSG analysis and used a coordinate structure whose daughters are UNMARKED-CONJ-DTR and MARKED-CONJ-DTR. Sections 6 and 7 discussed a related phenomenon: Plural Pronoun Constructions. It has been shown that PPCs cannot be accounted for by a single syntactic structure. Some of them are regular comitative adjuncts (NIPPCs), whereas the others (IPPCs) can be ascribed to neither of the two types of comitatives: in some cases their syntactic behavior resembles adjunction (they allow verbs to separate their complements); in some other cases they resemble comitative coordination (wh-extraction, ability to antecede reflexives, plural agreement and cooccurrence with reciprocals). However, unlike comitative coordination, the elements of IPPCs cannot be conjoined by *i*; and plural agreement is impossible when the order of the elements of IPPCs is altered. In addition, there are restrictions on the order of elements in PPCs with respect to the person hierarchy; the denotation of the head pronoun should include the denotation of the complement it selects.

The last points we would like to make in this paper are the following. Although the majority of native speakers of Russian do not accept the construction in (62b), some speakers do (even though they usually prefer (a) over (b)):

- (62) a. *Tanja s Vanej i Petej*
 Tanja with Vanja.Instr and Petja.Instr
 Tanja with Vanja and Petja

- b. *Tanja s Vanej i s Petej*
 Tanja with Vanja.Instr and with Petja.Instr
 Tanja with Vanja and with Petja

The sentences in (62) are not counterexamples to the account proposed in this paper. The example in (62b) can be analyzed as an instance of left node raising, comparable to English right node raising, where both [s Vanej] and [s Petej] share their respective remaining valent, analogously to the English *Mary's photograph of John and picture of Susan*.¹⁵

Also, we provided only a tentative binding theory for Russian. Further investigation will have to account for a wider range of data, such as reciprocal pronouns, emphatic reflexives (e.g. *sam sebja* 'self own') etc.

Finally, we need to provide linearization account of the fact that *s-* (as well as ordinary) coordinate NP's do not allow any discontinuities and that IPPCs do not extract but allow the verb to separate its complements in a relatively free word order language such as Russian.

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¹⁵Thanks to Bob Levine for pointing this to me.

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