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NUMBER AND GENDER AGREEMENT WITH CONJOINED NPs

Masterôs Thesis

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Abstract

Subject-verb agreement with coordinated-NP subjects, as a non-standard type of agreement, shows behaviour that cannot be observed on regular single-NP subjects. Agreement is driven by the need to value the unvalued uninterpretable features on the verb. The purpose of this process is the valuation of unvalued features, and deletion of the uninterpretable ones. Interpretability of features concerns the possibility of establishing a correlation between formal and semantic features of the noun in question, and it is confirmed to be an important factor in agreement. Empirical results show that if ű-features on the noun are interpretable, those features are assigned in accordance with the semantic features of the referent. In this case, the formal features of the lexeme correspond to the semantic ones, which causes the participleôs unvalued features to be valued as interpretable. In this case, they are not deleted in the process of agreement. Additionally, if formal features are not identical on both conjuncts, default agreement applies. If ű-features are uninterpretable, they exist only formally on a noun and do not relate to the features on the referent. In this case, two patterns are distinguished in conjunct agreement. If the speaker employs only formal agreement, agreement targets only formal features. In some cases, however, an agreement mismatch occurs, which is resolved by inserting default features. Gender features mostly follow the described pattern. Number agreement proceeds according to the same pattern, yet occasional problems with agreement result from computation issues, more precisely from the fact that the speaker actually treats the conjuncts as a single entity, or targets only one NP for agreement, treating the other one as an unrelated additional element.

KEY WORDS: agreement, conjunct phrase, interpretable features, uninterpretable features

Apstrakt

Slaganje izmeĽu subjekta i predikata gde se subjekat sastoji iz dve koordinirane imenske sintagme predstavlja atipiį an vid slaganja. Slaganje je motivisano potrebom da se dodeli vrednost netumaį ivim obeleģjima glagola kojima ta vrednost nedostaje. Svrha ovog procesa sastoji se u dodeljivanju vrednosti obeleģjima kojima nedostaje vrednost i brisanje netumaį ivih obeleģja. MoguĹ nost tumaį enja obeleģja odnosi se na moguĹ nost uspostavljanja veze izmeĽu formalnih i semantiį kih obeleģja date imenice. Empirijski rezultati pokazuju da ukoliko su obeleģja lica, roda i broja tumaį iva, ona su dodeljena u saglasnosti sa semantiį kim obeleģjima referenta. U tom sluį aju formalna obeleģja lekseme odgovaraju semantiį kim obeleģjima, ģto rezultira time da su i obeleģja koja particip dobije putem slaganja tumaį iva. Tada ta obeleģja ne podleģu brisanju. Ukoliko obeleģja nisu identiį na na koordiniranim sintagmama, primenjuje se podrazumevano slaganje u rodu i broju. Ukoliko obeleģja lica, roda i broja nisu tumaį iva, ona postoje na imenici samo formalno i ne uspostavljaju odnos sa obeleģjima referenta. Tada razlikujemo dva obrasca slaganja sa koordiniranim sintagmama. Ako govornik primenjuje samo formalno slaganje, posmatraju se samo formalna obeleģja. Ukoliko je govorniku za formalna obeleģja potrebno i semantiį ko uporiģte, koje u ovom sluį aju ne mogu da obezbede, dolazi do neslaganja meĽu obeleģjima, koje se razreģava dodeljivanjem podrazumevanih vrednosti. Slaganje u rodu prati dati obrazac. Slaganje u broju se takoĽe odvija u skladu s njim, iako su moguĹ i problemi sa slaganjem koji su į esto rezultat toga da govornik posmatra koordinirane sintagme kao jedinstvenu celinu ili se slaganje odvija samo sa jednom od sintagmi dok se druga posmatra kao nepovezan dodatni element.

KLJUĮNE REĮI: slaganje, koordinirana sintagma, tumaį ivo obeleģje, netumaį ivo obeleģje

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1. Introductory remarks

1.1. The subject matter

This thesis discusses the topic of subject-verb agreement, specifically, the cases in which the subject consists of two noun phrases which constitute a single phrase within which the two nouns are coordinated. Subject-verb agreement is the process in which formal properties of the verb establish correlation with the formal properties of the noun, which is then reflected morphologically on the verb. These formal properties, known as ű-features (person, number and gender features) exist on nouns, but not on verbs. In order to receive them, the verb has to establish the relation of agreement with the noun, and by that, help the computation to make sense of the lexemes syntactically joined together.

Conjoined subjects are the subjects of the type presented in (1).

(1) John and Chris were hungry.

These subjects are made up of (at least) two nouns joined together by a coordinating conjunction. In English, only number features are visible on the verb, therefore, after agreement, the verb takes the plural form in the majority of cases, as in (1). Some languages show overt agreement for gender too. Such are, for example, all Slavic languages, out of which Serbian is used to demonstrate this kind of agreement. Agreement in gender is determined by the gender feature on the noun, and with regular subjects, the verb receives the corresponding overt gender marking from the noun. Yet, with conjoined subjects, different patterns emerge, depending on the value of both number and gender features on both NPs. This thesis looks into those patterns and tries to find and explain their regularities.

Previous accounts on conjunct agreement make an observation that the nature of ű-features themselves affects the agreement. Depending on the interpretability of features, different agreement patterns may be expected. The thesis tries to prove that agreement with conjoined subjects is highly dependent on the formal as well as on semantic features of the referents, and that animate and inanimate nouns with the same formal features can trigger assignment of different features on the verb.

1.2. The corpus

The initial data used to examine the issues mentioned above are first taken from previous accounts on conjunct agreement in both English and Serbian. Thus, the data from English are provided by Lorimor (2007), among others, and the initial data from Serbian are found in Corbett (1983), StevanoviĆ (1979), and BoǥkoviĆ (2009). After the examination of these works and identification of basic problems, a survey was conducted in order to look into the basic patterns of agreement employed by speakers of Serbian in their active production. The survey was completed by 60 participants, native speakers of Serbian. The speakers were asked to do a production task, supplying the missing agreement information on the verb based on the conjoined subjects, whose features were varied. The results of this survey provide the material based on which a theoretical model of conjunct agreement is developed in the thesis.

The thesis is organized as follows. Section 2 gives a detailed introduction on the process of agreement, and the role of features in that process, as well as the nature of features themselves. Section 3 focuses on agreement with conjoined subjects. It provides a brief overview of agreement patterns with conjoined subjects in English and Serbian. The purpose of Section 4 is to explain the mechanism of agreement and the structure of coordinate phrase, so as to help the reader understand syntactic mechanisms of conjunct

agreement provided in the following sections. Section 5 presents previous syntactic accounts on conjunct agreement. The accounts presented here provide a basis for the analysis of the data gained in the research. Section 6 identifies basic problems tackled by the research. Subsequently, it presents the results of the research together with their analysis. Section 7 contains concluding remarks.

2. Introduction on agreement and features

Agreement is a relationship between two elements that exhibit correlating morphology consistently whenever they co-occur (Lorimor 2007). One of the most basic definitions is proposed by Steele (1978), who views agreement as ósystematic covariance between a semantic or formal property of one element, and a formal property of anotherô. These properties of elements are referred to as *features*, and they have *values* (e.g. number feature can be valued as singular, plural, dual, etc.). The element which initiates and determines the agreement is called agreement *controller*, or *trigger*, and the element whose form depends on agreement is called agreement *target* or *goal* (Corbett 1998).

Pesetsky and Torrego (2007) discuss the nature of features, their value, interpretability and behaviour. In languages such as Latin, agreement can be found within the DP, where D, N and A bear similar features, and it can also be found between the DP and the finite verb. They provide an illustration from Latin, given in (2).

(2) a. Haec puella Romana ambulat.
this.f.sg.nom girl.f.sg.nom Roman.f.sg.nom walks.3.sg
ñThis Roman girl walks.ò
b. Hae puellae Romanae ambulant.
these.f.pl.nom girls.f.pl.nom Roman.f.pl.nom walk3.pl
ñThese Roman girls walk.ò

The example above shows that, within the DP, the D, N and A agree in case, gender and number, and the verb agrees with the DP in person and number.

According to Pesetsky and Torrego (2007), features on lexical items can be differentiated according to two types of criteria: valued/unvalued and interpretable/uninterpretable. Dealing with valuation first, they notice that it seems that certain lexical items come from the lexicon with features that have no value, and they receive a value for those features from valued instances of the same features on another lexical item with which they establish syntactic connection. In the example above, it is the D and the A within the DP that do not have a value for their gender and number features. The N, having that feature inherently, provides a value for their unvalued features. In other words, the A and D do not have inherent gender feature valued as feminine. The noun, on the other hand, exists in the lexicon with this feature. The N *puella*, with its valued feminine feature, provides a value for the unvalued gender feature on A and D. By the same logic, the number feature is also valued on nouns, but unvalued on D and A. This is further confirmed by the existence of *pluralia tantum* forms. These forms exist only on nouns, they are not recorded on any other category of words. Thus, it can be concluded that gender and number are features inherently present on a lexical entry for nouns, and they can value the corresponding unvalued features on other elements of the NP (or DP). Similarly, agreement on V involves interaction between valued and unvalued features. It is assumed that person and number features are unvalued on V (as there are no *pluralia tantum* verbs, nor verbs with fixed (*tantum*) person features), therefore, those features must be the result of agreement on V.

Looking at the interpretable/uninterpretable dimension on features, Pesetsky and Torrego (2007) explain that it is the distinction concerning semantics, i.e. ówhether or not a

feature of a particular lexical item makes a semantic contribution to the interpretation of that item.ôIn the example above, the person and number features on D may play a great role in the semantic interpretation. However, the corresponding features on V are just a reflection and play no part in the interpretation. Situation is the same on the number feature on A.

Agreement on lexical items is a consequence of syntactic operations. As Chomsky (2000, 2001) suggests, agreement is a consequence of a state of affairs in which an unvalued instance of a feature F c-commands another instance of F. Pesetsky and Torrego (2007) give two basic conditions on Agree:

> (i) An unvalued feature F (a *probe*) on a head H scans its c-command domain for another instance of F (a *goal*) with which to agree.
> (ii) If the goal has a value, its value is assigned as the value of the probe. (Pesetsky and Torrego 2007: 2)

Chomsky suggests that the primary purpose of Agree is to delete uniterpretable features. Uniterpretable features, as the name suggests, cannot be interpreted by the interfaces (phonological and semantic) at the end of the process of syntactic derivation of a sentence. In order to make a derivation successful, all uninterpretable features must be deleted before the derivation finishes. Interpretability must also be connected to valuation. In Chomskyôs framework, an unvalued feature is always uniterpretable. Valuing of an unvalued feature, makes that feature interpretable to semantics. According to Chomsky, the mechanisms of syntax cannot determine whether a feature will be interpretable to semantics or not, but they can determine whether they are valued or not. The mechanisms should then find ways to provide values to unvalued features, and thus make them

interpretable. Another condition that features should meet is deletion. Namely, an uniterpretable feature is deleted once it is valued. This process is explained in more detail in Section 4.

3. Agreement with conjoined subjects

Conjoined subjects are the subjects which, as the name implies, join two NPs together to make a whole. These subjects are specific in many ways, and their non-standard structure leads to non-standard behavior.

These subject are interesting primarily because of the fact that, instead of a single nominative noun interacting with the verb in the process of feature matching, valuing, and deletion, there are (at least) two nominative nouns requiring for the system to find a way to incorporate all of their features together in the process of agreement with the verb (Lorimor 2007). Since English only has overt markers for number agreement, most of the accounts on conjunct agreement in English focus on number agreement. In her thesis, Lorimor (2007) starts from a simply logical assumption that such subjects should take plural agreement, as two singulars make a plural. Yet, there is an important difference between a plural number made up by two singular nouns and a plural number on a plural noun. In the first case, it is derived in some way, while in the second case, it is expressed morphologically on the noun. Based on this, Lorimor concludes that plural properties on conjoined phrases must be derived from a different source than plural properties on plural nouns. In the case of conjoined NPs, each of them has its own number, the conjunction specifies that two of them make up a whole and that whole should be interpreted additively, thus the agreement on the verb is supposed to be marked as plural. Singular agreement is still possible if the whole conjunct has a single referent. For instance, *ham*

and eggs can trigger singular agreement on the verb, if by that conjunct we refer to a single referent as in *Ham and eggs was served for breakfast*. One possible explanation for this may be that *ham and eggs* is not conceptually plural, it is observed as a single dish, and thus functions as a single entity. Lorimor makes an observation that singular agreement on conjoined subjects may be quite frequent in spontaneous speech, and quotes some examples found in the New York Times Magazine, given here in (3).

(3) a. "I think drinking and driving is a really bad thing."

b. ñThe manufacture and distribution of cash is by far the Federal Governmentôs biggest profit-making operation.ò

In the example (3a), it is not only drinking or only driving that is a bad thing, but the combination of the two as a single activity is what makes a unit and triggers singular agreement on the verb. Likewise, in (3b), the manufacture and distribution of cash as a single process is what gives profit, not any of them separately.

Certain structural and semantic properties of conjoined subjects may vary crosslinguistically. In English, one of the differences between conjoined and lexically plural subjects is in the scope of modifiers. Demonstratives and determiners remain local to the nouns, thus singular determiners always precede singular nouns, and plural determiners precede plural nouns, thus a conjoined NP is not treated in the same way as a plural NP. Lorimor (2007) illustrates this with the examples given in (4).

(4) a. This man and woman

b. *These man and woman

c. These men

The examples above illustrate another interesting fact. Namely, although demonstratives and determiners only agree with nouns that are local to them, they can satisfy the syntactic requirements of another conjunct. Thus, in (4a), it is not necessary to have a construction like *this man and this woman*, as the determiner scopes over both of the elements of the conjunct.

As already suggested, interpretation has a great influence on whether a verb will agree with a conjunct in singular or plural. The structure of the conjunction itself, and the relationship between the conjoined NPs can be varied. Lorimor cites Dik (1968), who differentiates between the type of conjunctions where the conjuncts are interpreted as forming a unit, and those where each of the conjuncts separately satisfies the properties of the predicate. A diagnostic for these types of interpretation is the usage of a quantifier such as *both*. Dik (1968) explains the diagnostics on the following examples:

(5) a. Sugar and water make syrup.

b. *Both sugar and water make syrup.
(unless sugar and water can each independently make syrup)

c. John and Bill are painters.

d. Both John and Bill are painters.

Another diagnostic on collective or distributive interpretation of conjoined NPs is to check whether a clausal conjunction interpretation is possible on the verb (Lorimor 2007). For example, a sentence such as the one in (6a) cannot be interpreted as in (6b), showing that the conjunction has distributive, rather than collective interpretation.

(6) a. John and Mary are married.

b. John is married and Mary is married.

Lorimor (2007) concludes that singular agreement on verbs with conjoined NPs in English occurs either when the conjoined NPs have the same referent, or when they together melt into something that is a singular notion (as water and sugar in (5)).

It is not an unusual to find that with conjoined subjects the verb agrees with only one conjunct. Single conjunct agreement exists where the verb agrees with only one of the conjuncts. This usually occurs when the verb precedes the conjunction, and agrees with the first, or the closest, conjunct (this fact holds for head-initial languages, for the head-final more work needs to be done) (Lorimor 2007). Languages in which single conjunct agreement can be readily found include (among others) Albanian, Russian, Cassubian, some Arabic dialects, Slovene, etc. English is usually not described as a language with single conjunct agreement, but some examples of it can be found. Lorimor (2007) takes some examples from Corbett (2000), from *The Guardian*. These are given in (7).

(7) ñThe conditions and everything else was in their favour,ò Dalglish said with a straight face, ñso itôs credit to the lads that they dug in so well and got a result.ò (*The Guardian* (Sport) 26.1.98, p.1)

An important question arising at this point is what allows single conjunct agreement, and why the verb ï conjunct word order is a more convenient environment for single conjunct agreement. Lorimor (2007) outlines a universal related to the possibility of having single conjunct agreement stating that ówhenever a language displays an option of partial agreement, it is never available for preverbal subjects unless it is also available for postverbal subjects, indicating that first conjunct agreement with postverbal subjects is the less marked pattern.ôWord order is thus an important factor. A confirmation of this universal is provided by Corbett (2006), who conducted a corpus-study and concluded that plural agreement was much more common with preverbal subjects (95%), as opposed to

postverbal conjoined subjects, where plural agreement was found in 53% of the cases (Lorimor 2007).

3.1. Agreement with conjoined subjects in Serbian

A descriptive overview of conjunct agreement was given in Corbett (1983). He claims that the speaker of SC has a few options when it comes to this kind of agreement. Namely, the predicate can agree with only one conjunct, the first or the closest, or with the whole conjunction. According to him, there are two prevalent factors that determine the kind of agreement that will be employed ï animacy and position of the conjunction relative to the predicate. Agreement with the whole conjunction is more probable when that conjunction is in front of the predicate, and conversely, single-conjunct agreement is more common when the conjunction is post-verbal. A research conducted on a corpus of literary texts revealed that if the conjunction is pre-verbal and both conjuncts are animate, agreement with both elements (i.e. plural) is more probable. When both of these factors are present in a sentence, the verb is always plural. If only one of the factors is involved, if either the conjunction is post-verbal, or if one of the conjuncts is inanimate, we can expect single-conjunct (singular) agreement. When it comes to number agreement with both parts of the conjunction, Corbett (1983) formulates a rule stating that the verb shows plural agreement if it agrees with the whole phrase.

Gender agreement is more interesting. He notices that when both conjuncts are feminine, the verb takes feminine gender, otherwise the verb is masculine. He supports this observation with examples from literature. In (8) we have examples of feminine agreement with feminine conjuncts (8a), masculine agreement with neuter conjuncts (8b) and masculine agreement with mixed conjuncts (8c).

(8) a. Mladost i zdrava priroda borile su se u njemu s tim
youth.f.sg and healthy.f.sg nature.f.sg fought.f.pl are se.refl in him with that
zlom kao sa nezdravim predelom.
evil like with unhealthy area
ñYouth and healthy nature fought with that evil inside of him like with an unhealthy scenery.ò

b. Njegovo mesto u razvoju kasabe i njegovo znaḷ enje u ġivota
his place.n.sg in development of-town and his meaning.n.sg in life
kasabalija bili su onakvi kako smo ih napred ukratko opisali.
of-citizens were.m.pl are such how we-are them already in-short described
ñHis place in the development of the town and in the life of its citizens were such as we have already described.ò

c. Stopala i ruke bili su nesrazmerno veliki iskrivljeni i
feet.n.pl and hands.f.pl were.m.pl are disproportionately big curved and
kvrgavi od dugogodiġnjeg rada i stajanja za tezgom.
bumpy from many-year-long work and standing behind stall
ñHis feet and hands were disproportionately big, curved and bumpy from many years of work and standing behind a stall.ò

Still, a curious fact is mentioned in this account, and that is the possibility of having both feminine and masculine agreement with feminine nouns. Corbett takes the category of a noun to be the factor determining whether that noun can yield masculine agreement, and according to him, only nouns ending in a consonant can trigger masculine agreement. Still, even Corbett himself finds counterexamples, proving that even nouns from class one[1] (ending in ï a) can have a verb agree in masculine gender. Based on the

[1] Classes of nouns in Serbian are to be explained in Section xx.

evidence from his corpus, Corbett (1983: 100) concludes that two factors motivate conjunct-sensitive agreement, and they are given in (9).

(9) 1. If a gender has semantic motivation at least in some cases, this form has the advantage (semantic factor).
2. If a form clearly indicates number (which is semantically-based), this form has the advantage (functional factor).

These factors, in combination with the evidence, lead him to the hypothesis on the rules of SC conjunct agreement conditions:

(10) a. if all parts of a subject conjunction phrase denote female animate beings, the verb is feminine,
b. if all parts of a subject conjunction phrase are feminine, the verb can be feminine,
c. otherwise, the verb is masculine. (Corbett 1983:101)

Some traditional prescriptive grammars have a view similar to Corbettôs. Still, they only offer descriptive and general statements, without an attempt at explaining the facts empirically.

StevanoviĹ (1979) lists some regularities recorded in Serbian by various authors. In one of them, he notes that singular agreement with the coordinated subject can be found in some instances. This can be compared to Corbettôs claim that single-conjunct agreement can surface on the participle. Examples in (11) are recorded in works of Serbian authors, and in them, it can be seen that the participle agrees with the closest NP, not with the whole conjunct (examples taken from StevanoviĹ (1979)).

(11) a. U svaḷemu pravda i istina mora nadvladati.
in everything justice.f.sg and truth.f.sg must.3.sg prevail
ñJustice and truth must prevail in everything.ñ

b. Prijateljstvo sa njemaḷkim carem i srodstvo sa grḷkim carevima
friendship.n.sg with German ruler and relation.n.sg with Greek rulers
dade Srbiji drugo lice.
gave.sg Serbia.dat different face
ñFriendship with the German ruler and the relation with Greek rulers gave Serbia a different image.ñ

c. Bezazlenost i pravda neka me saḷuva.
innosence.f.sg and justice.f.sg let me save
ñMay innocence and justice save me.ñ

It was further noticed that this kind of agreement was more frequent in the cases where the participle precedes the first conjunct (cf. Corbett (1983)). Stevanoviĺ (1979) uses examples given here in (12) to illustrate this fact.

(12) a. Ovde raste trnje i koprive.
here grow.pres.3.n.sg thorn.n.sg and nettle.f.pl
ñThorns and nettle grow here.ñ

b. Vratila se moja sestra i ona njena drugarica.
returned.3.f.sg se.refl my sister.f.sg and that.f.sg her.f.sg friend.f.sg
ñMy sister and that friend of hers returned.ñ

c. Iġao je naprijed tata i teta Mila.
went.m.sg is in-front father.m.sg and aunt.f.sg Mila.f.sg
ñFather and aunt Mila went in front.ñ

d. Ļuo se plaļ i naricanje.
heard.m.sg se.refl crying.m.sg and mourning.n.sg
ñCrying and mourning were heard.ñ

The examples above thus confirm that singular agreement on the participle does exist in Serbian, and that the participle can agree with the closest NP, regardless of the order in which they appear in the sentence. It should be noted again, however, that agreement with the closest conjunct is far more common when the participle precedes the conjunction phrase.

These examples, as StevanoviĹ warns, should be separated from the one given in (13). Namely, here both of the NPs found in the coordinated phrase refer to the same entity, and thus agreement on the participle is singular, which is logical and desirable.

(13) U jednom TV-intervjuu stari general i bivġi predsjednik preporuļio
in one TV interview old general.m.sg and ex-president.m.sg recommended.m.sg
je da se zanemari poġtovanje graniļnih linija.
is that se.refl neglect respect of-border lines
ñIn one TV interview, old general and ex-president recommended that the respect of border lines be neglected.ò

In the example above, the NPs *stari general* (ôold generalô) and *bivši predsjednik* (ôex presidentô) both refer to the same person, and relating this person to a particular action or state is achieved by a singular participle.

Dealing with gender agreement on the participle, StevanoviĹ (1979) outlines several patterns found in Serbian, corresponding to the ones found in Corbett (1983). If all

the NPs in a conjunction are masculine or neuter, or if the genders are mixed, the gender found on the participle is masculine, as in (14).

(14) a. Kogúta i jelenę e su ubijeni.
doe.f.sg and fawn.n.sg are killed.m.pl
ñA doe and a fawn were killed.ñ

b. Pero i mastilo su mi ostali na stolu.
quill.n.sg and ink.n.sg are I.dat left.m.pl on desk
ñI left the quill and ink on the desk.ñ

c. Stojan i ovaj mladíć su se bili zatvorili u kuli.
Stojan.m.sg and this.m.sg young-man.m.sg are se be.m.pl closed.m.pl in tower
ñStojan and this young man enclosed themselves in the tower.ñ

Even when the subject is a coordinated NP made up by two feminine nouns, agreement can be masculine. Morphosyntactic factors are at play again here. Stevanovíć points out that if one of the nouns belongs to the category of nouns whose genitive suffix is *–i*, the participle can show masculine agreement. This is comparable to Corbett (1983), and these are the nouns that belong to the same category as in his account (the ones ending in a consonant). Still, if both nouns are feminine, feminine agreement is usual. In (15a-b), we can see examples of feminine nouns taking masculine agreement, as opposed to feminine nouns triggering feminine agreement in (15c).

(15) a. Kao da su se sve sile prirode i studen udruģili
as-if that are.pl se.refl all.f.pl forces.f.pl of-nature.f.sg and cold.f.sg joined.m.pl
da ga slome i obore.
to him break-down and bring-down
ñAs if all the forces of nature and the cold joined to break him down and bring him down.ò

b. Tuga i ģalost zavladali su u razruģenom gradu.
sadness.f.sg and grief.f.sg ruled.m.pl are in destroyed city
ñSadness and grief started ruling in the destroyed city.ñ

c. Godine i starost dale su ovu noĆ.
years.f.pl and old-age.f.pl gave.f.pl are this.f.sg night
ñThis night is the product of years and old age.ò

Only when both nouns in the conjunction belong to the same category can we expect to have feminine agreement.

To sum up, grammars of Serbian present several facts about conjunct agreement in this language. They mainly agree in that the participle can agree with the whole conjunction, as well as with a single conjunct. In the first case, the gender on the participle is masculine if both conjuncts are masculine or neuter, and if both conjuncts are feminine, it can be either feminine or masculine. Furthermore, in the cases of single-conjunct agreement, we can expect to have even singular instead of plural agreement on the participle.

4. Mechanism of agreement and the structure of coordinate phrase

4.1. Agree and feature valuing and checking

In English and Serbian, agreement is controlled by the syntactic subject. This indicates that the agreement features that appear on the subject are the ones that will be reflected on the verb. For example, if the subject is 3rd person singular and in feminine gender, the auxiliary will reflect the person features, and number and the reflection of gender will be shown on the participle.

In English, the participle does not reflect either number or gender features formally. The suffix *–ed* (or the irregular form) is used as an indication that the verb has past tense features. It is necessary to rely on the subject to be sure which number and gender features the participle bears. In Serbian, the participle reflects both gender and number features. Formally, we can distinguish seven classes of verbs, based on the sound in which the infinitival base ends[2] (Stanojļiĺ and Popoviĺ 1992). The first class is the one where the base ends in a consonant. The suffixes that the participle surfaces with are different for masculine, feminine, and neuter gender in both singular and plural. The suffixes are listed in Table1.

[2] The infinitive in Serbian ends in a suffix *–ti* or *–ći*, and the base is the part that remains after the suffix is removed.

(16)

	Singular	Plural
Masculine	-ao	-li
Feminine	-la	-le
Neuter	-lo	-la

Table 1: Participle suffixes in Serbian when the base ends in a consonant

For all other classes of verbs, the infinitival base ends in a vowel. In that case, the participle surfaces with the suffixes given in (17), depending on number and gender features.

(17)

	Singular	Plural
Masculine	-o	-li
Feminine	-la	-le
Neuter	-lo	-la

Table 2: Participle suffixes in Serbian when the base ends in a vowel

Despite the surface differences between them, the process of establishing agreement in both English and Serbian can be explained by the account presented in Bejar (2003). Languages such as English and Serbian are said to have subject agreement because the structural ordering of elements that enter into agreement relation is the same as the structural ordering of elements establishing the relation of subjecthood (Bejar 2003). Following Rizzi (1990), McGinnis (1998) and Chomsky (2000, 2001), Bejar (2003) states that the choice of argument that will enter into agreement relation with a given agreeing

element is dependent on locality. This means that the "closest" suitable NP in the domain of the position of the agreeing element will enter into agreement relation, blocking the possibility of agreement for any other NP. The domain of the agreeing element is the syntactic object contained by its sister (following Chomsky (2000, 2001)). Locality is defined in terms of highest c-command. Any NP that is outside the domain of the agreeing element is inaccessible for agreement. Bejar (2003) illustrates this situation as in (18). AGR is the agreeing head. NP_1 is outside the domain of AGR (as opposed to NP_2 and NP_3), and thus not considered for agreement at all. NP_2 is closer to AGR than NP_3, and thus it enters into agreement relation with AGR, blocking the possibility of agreement for NP_3.

(18) [NP_1 [AGR [NP_2 [NP_3é]]]]

Bejar's theory of agreement (2003) is founded on the theory of Chomsky (2000). His theory is the result of a long process of defining agreement and understanding its nature. First attempts at explaining agreement were mostly descriptive. Agreement was seen as a relation between the *target* (the element that displays features that are the result of agreement) and *controller* (the element supplying the target with the missing features). There was no precise theory on how agreement happens, and it was considered to be just the reflection of the syntactic configuration established between the target and the controller. Chomsky (2000) introduced a core syntactic relation Agree, which is responsible for establishing agreement. Within Minimalist framework, agreement is not a reflection of other syntactic operations, but an operation in itself. Features on lexical items become the driving force of this operation. Movement depends on the need to check uninterpretable features. Thus, syntactic relation between a target and a controller is established as a result of the need to check uninterpretable features. Moreover, for

agreement to happen, the elements do not have to be local, as unvalued features can be valued at a distance. The subsequent movement of a controller depends on whether the target projects a specifier and whether uninterpretable features have to be checked.

Bejar (2003) further cites Chomsky (2000), who takes the AGR-head to be *v*, T or C head, all of which have unvalued person, number and gender features (ű-features). On the other hand, the elements that bear valued interpretable ű-features are N or D heads. The notion of interpretability is crucial in Chomskyôs theory. All uninterpretable features that exist in the structure must be deleted in order for the derivation to converge. Agree is the operation driven by the need to eliminate uninterpretable features. In the process of this operation, interpretable ű-features on NPs (or DPs), provide values for uninterpretable unvalued ű-features on the target head. Once they are valued, uninterpretable features can be eliminated. The whole process actually shows that the morphological marking shown on lexical items as a result of agreement is actually the result of syntactic operations.

For the discussion on conjunct agreement below, from the analysis of Chomsky (2000), it is important to point out that Agree is not a simple operation, but in fact, it goes on in three stages ï Probe, Match, and Value. Probing is the starting point of Agree, at which the target (probe) starts searching for a goal having a valued feature compatible with the uninterpretable unvalued feature on the probe. Match examines if the object found in the domain of the probe is a possible goal, whether it contains the necessary feature(s) and can establish the relation of agreement. Value is the final phase, during which the goal is provided with a value. In order for Match to succeed, it is necessary that the goal is within the c-command domain of the probe (to be within the structure contained by the goalôs sister). The matching feature on the goal is the one that is closest to the probe. Apart from matching, movement is also the result of agreement. Movement happens if the probe

contains an EPP feature. This requires the goal to move obligatorily to the Spec position of the probe. Case assignment is also one of the consequences of agreement. There are certain configurations in which structural case is assigned (Accusative is the result of agreement with *v*, and Nominative results from agreement with T). As the goal provides the probe with ű-features, the probe, in turn, values the uninterpretable case feature on the goal.

In order to illustrate this, let us take the sentence in (19) as an example. The verb in the sentence has two arguments, one of which will function as the subject (*Julie*) and the other as the object (*dogs*).

(19) Julie likes dogs.
Julie.f.sg.nom like.3.sg.pres dogs.n.pl

The object receives Accusative case from the *v* head (the position occupied by the lexical verb in English). The T node (responsible for assigning tense to the verb) assigns Nominative to the subject, and in turn, its uninterpretable ű-features are supplied by the subject.

Finally, Bejar (2003) stresses out an important condition on Agree. The NP that supplies the probe with matching features must not have been assigned case previously. If the goal that is closest to the probe has already been assigned case, it creates a defective intervention effect. The given NP can match the probe, but it cannot value, as it is inactive. The result of this situation is default agreement on the goal unless the intervener is subject to EPP-movement. In that case, agreement can be established with a lower goal. Bejar illustrates this with an example from French (example (20) taken from Bejar (2003)). In French, raising across a dative experiencer is forbidden. The dative NP, receiving an inherent Dative case, is inactive, and this makes it a defective intervener. Yet, if the Dative NP is a clitic, it can be moved (for independent reasons). This situation makes it possible

for the second probe (*Margot*) to establish agreement relation with the matrix T, and raise to subject position.

(20) a. Margot semble (*à Francois) [*t* être intelligent]
Margot seems (*to Francois) to.be intelligent
ñMargot seems (*to Francois) to be intelligent.ò
b. Margotj lui semble *t*i [*t*j être intelligent]
Margot him.3.sg.dat seems to.be intelligent
ñMargot seems to him to be clever.ò

An important point Bejarôs (2003) thesis makes is that there are a few types of probe. A probe searching for ű-features can be (among others) a single ű-probe and a split ű-probe.[3] A single ű-probe probes for all ű-features together. A split ű-probe, however, probes for different features separately. An example may be found in Georgian, where person agreement is only controlled by the subject if the direct object fails to match, and number agreement is controlled by the direct object if the subject fails to match.

Another notion important for the purposes of this thesis is default agreement. Default agreement is, in essence, an attempt to save the derivation if regular agreement fails for some reason. Thus, it is possible that in some cases agreement can fail, but the derivation still converges, as it is saved by inserting default agreement features. Bejar (2003) only gives a brief sketch of the mechanism of default agreement. The core of the analysis is that a probe searches for features to match on a goal within its domain, and only if agreement attempts with all possible goals fail, default agreement is applied as a last resort.

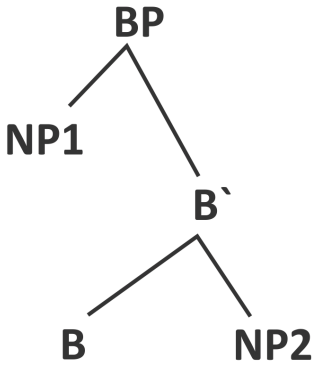
[3] Other types of ű that Bejar (2003) introduces are double-ű, triple-ű. For more information on these types of probes, see Bejar (2003).

4.2. The structure of coordinate phrases

Munn (1993) introduced the widely-accepted structure for coordinate phrases. The starting assumption is that coordinate phrase is not a unique or in any respect special syntactic object, but that it can be incorporated into X-bar theory.

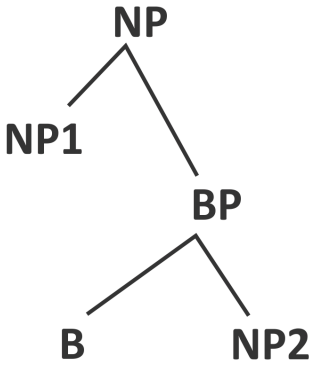
By assumption, coordinating conjunctions (*and*, *or*, *but*) project their own phrase. This phrase is termed Boolean Phrase (BP) (Munn 1993). The first structural representation proposed by Munn was that the conjunction is the head of BP, and that one of the conjuncts (NP2) is the complement to that head, and the other one (NP1) occupies the specifier position. The structure of coordinated phrase could thus be represented as in (21). This configuration was termed ó Spec/Head BPô.

(21)



Yet, he later proposed that actually only one of the conjuncts (NP2) is in the complement position within BP, and that the BP (containing only the head B and NP2 as a complement) is then adjoined to the other conjunct (NP1). This situation is illustrated in (22), and this kind of construct was termed ó Adjoined BPô.

(22)



Munn (1993) lists some arguments for this change of approach. He presents evidence that there is constituency within BP. Following Ross (1967), he takes the possibility of making intentional pauses in speech as a possible (though not a common) constituency test. In (23a-b), it is possible to make a pause after the first conjunct, and before the conjunction. (23c) shows that the conjunction cannot be separated from the second conjunct by a pause, indicating that they have to form a constituent.

(23) a. John left, and he didn't even say goodbye.
b. John left. And he didn't even say goodbye.
c. *John left and. He didn't even say goodbye.

Another piece of evidence provided by Munn (1993) comes from extraposition. According to the examples provided there (repeated here as (24)), only the second conjunct together with the conjunction can be extraposed (24a), whereas extraposing the first conjunct with a conjunction (24b), or just the second conjunct alone (24c) is impossible.

(24) a. John bought a book yesterday, and a newspaper.
b. *John bought a newspaper yesterday a book and.
c. *John bought a book and yesterday, a newspaper.

Whatever the nature of extraposition is, the evidence given above assumes that it only allows for maximal projections to move (Munn 1993).

One more argument Munn (1993) uses against Spec/Head BP is connected to selectional features. If we allow that the whole conjunct phrase is actually labeled and analyzed as BP, we predict that it can be c-selected by a verb. Even though there are verbs that select plural arguments (e.g. *gather*, *be similar*), these arguments never have to be exclusively conjoined phrases. Thus, adopting the Adjoined BP hypothesis has the impossibility of selecting a BP as a direct consequence, as it is just a constituent within the NP.[4]

I will adopt Munnôs (1993) proposal of the structure of coordinate phrase. The phrase will be labeled as BP (Boolean Phrase). It is headed by a coordinating conjunction, where NP2 is the complement of that conjunction, and the resulting construct, BP, is adjoined to NP1.

5. Syntactic accounts

A number of accounts tried to resolve the puzzle of agreement with conjoined NPs and all the specificities related to this particular type of agreement. Some explanations were given in Bahloud and Herbert (1993), Munn (1999), Citko (2004), Doron (2000), Johannessen (1998), Aoun, Benmamoun, and Sportiche (1994, 1999), among others. These accounts try to capture conjunct agreement based on examples from English, Arabic, Hebrew, and a number of other languages. Some recent accounts look into conjunct agreement in Slavic languages. Namely, Marušič, Nevins and Saskida (2007) analyzed

[4] For further arguments in favour of treating the coordinate phrase as an NP that has BP as its adjunct, see Munn (2003).

agreement with the last conjunct in Slovene, and Marušić, Nevins and Badecker (2012) examined grammars of conjunct agreement in an experimental study. Bošković (2009) unifies mechanisms of agreement with the first conjunct and agreement with the last conjunct, and in Bošković (2010), this account is extended to Russian.

Bošković (2009) presents an account based on the operation Agree that unifies mechanisms of first conjunct agreement (FCA) and last conjunct agreement (LCA), but also explains some issues related to Agree itself. An important starting point is that in Serbian we can find two kinds of conjunct agreement. FCA is agreement with the first conjunct, and it is found when the subject is post-verbal. LCA is agreement with the last conjunct, and it is found in the cases where the subject is preverbal. Sentences in (25a-b) provide examples for FCA and LCA in SC, respectively.

(25) a. Juče su uništena sva sela i sve varoši.
yesterday are destroyed.n.pl all villages.n.pl and all towns.f.pl
'All villages and all towns were destroyed yesterday.'

b. Sva sela i sve varoši su juče uništene.
all villages.n.pl and all towns.f.pl are yesterday destroyed.f.pl
'All villages and all towns were destroyed yesterday.' (Bošković 2009)

The account of a unique mechanism of FCA and LCA starts from the general distinction between interpretable/uninterpretable and valued/unvalued features. Number and gender features on the participle, which is the probe, are uninterpretable and unvalued, whereas those features are valued on the goal, but there they can be interpretable and uninterpretable (e.g. gender feature on nouns in Serbian is valued, but it can be uninterpretable to semantics if the grammatical gender does not match the biological gender of the referent). Agreement between the probe and the goal is established in the process of the operation Agree. As illustrated in the previous section, Agree goes on in

three stages: Probe (where the probe is searching for features), Match (which determines whether the goal has the kind of category the probe seeks), and Value (the process of giving value to unvalued features). If the probe has an EPP feature, Value is also followed by pied-piping (choosing the XP to be moved and merged as the Spec of the probe). Bo¿kovíÍ (2009) applies this approach to both FCA and LCA. It is important to note that this account does not focus on full FCA or LCA with a single NP. This means that the participle does not target only one of the conjuncts independently for both number and gender ignoring the other one, but it targets BP for number and gender agreement, and the BP agrees as a whole. In Bo¿kovíÍ (2009), this is illustrated by the examples of FCA and LCA failure given here in (26). The ungrammaticality of (26a) shows that the participle does not agree with the first conjunct in both number and gender, and (26b) confirms that the first conjunct cannot value the participle alone.[5]

(26) a. *Juļe je uni¿tena jedna varo¿ica i sva sela/ jedno selo.
yesterday is destroyed.f.sg one town.f.sg and all villages.n.pl/one village.n.sg
ñOne town and all villages/one village was destroyed yesterday.ò

b. *Sva sela/ Jedno selo i jedna varo¿ica je juļe
all villages.n.pl/one village.n.sg and one town.f.sg is yesterday
uni¿tena.
destroyed.f.sg
ñAll villages/one village and one town was destroyed yesterday.ò

Turning now to the agreement process, in the case of LCA, the subject with conjoined nouns moves in front of the participle, i.e. the participle has an EPP feature requiring the subject to merge as its Spec. For this reason, Agree will involve pied-piping,

[5] Anticipating further discussion, let us just note here that some speakers of Serbian find the examples in (aa) grammatical.

too. During the operation Agree, the participle probes for gender and number features. As claimed in Boǧkoviĺ (2009) (drawing on Maruǧiļ et al. 2007), BP is inherently plural. The probe thus matches the inherent plural feature on the BP, and it receives gender from the structurally higher first element. Thus, both BP and the first conjunct are valuators. The standard assumption is that valuators are those that determine pied piping. If an element provides features for the probe, the maximal projection of that element will undergo pied-piping. The very issue of pied-piping arises at this point, since both BP and the first conjunct, as valuators, can be pied-piped (Serbian allows for the extraction of NP1 from a conjunction, see Stjepanoviĺ 1998). This leads to ambiguity and makes pied-piping impossible. The impossibility of pied-piping blocks the valuation of the necessary features. At this point, in order to prevent a crash, the computation has the option of applying the default gender, or resorting to Secondary Agree. This operation starts from the assumption that uniterpretable features must be deleted. They are deleted after valuation, since only valued features can be deleted. Still, valued uninterpretable features, such as gender on the goal[6], are also deleted after Match. This would mean that the gender feature on the first conjunct is deleted after the first case of Match (after which Agree was unsuccessful due to the impossibility of pied-piping), which leaves the option for the BP to value the number feature (number on BP is interpretable, and thus is not deleted upon first Match), and the second conjunct to value the gender feature. This is what happens when the participle probes again for a second attempt of Agree. Since NP2 cannot be extracted out of a conjunction, and is thus not pied-pipeable, there is no choice, the whole BP undergoes movement to the Spec of the probe. On the other hand, in the cases of FCA, no movement

[6] Gender feature on nouns can be interpretable or uninterpretable, depending on whether gender on the noun corresponds to biological gender of the referent. In this sense, those nouns whose gender matches the biological gender on the referent bear interpretable gender feature, whereas nouns whose referent is inanimate bear uninterpretable gender feature. According to the account presented here, uninterpretable gender is deleted after Match, while interpretable gender cannot be deleted. This prediction is borne out according to the evidence from conjunct agreement in Serbian presented in the following section.

of the conjuncts is required, hence no pied-piping, and nothing prevents NP1 from valuing the participle for gender.

Bo̧kovi Í (2009) provides a uniform non-language specific account incorporating conjunct agreement into an existing mechanism. However, there are some issues that require further attention as regards both number and gender agreement.

Concerning gender agreement, Bo̧kovi Í records some cases of FCA/LCA parallelism breakdown if the conjunct that does not determine the agreement is masculine. Namely, in that case, FCA is possible, but LCA is not, as demonstrated in (27) (example (34) in Bo̧kovi Í (2009)).

(27) a. Juḷe su uni̧tena sva sela i svi gradovi.
yesterday are destroyed.n.pl all villages.n.pl and all towns.m.pl
b. Juḷe su uni̧teni sva sela i svi gradovi.
yesterday are destroyed.m.pl all villages.n.pl and all towns.m.pl
c. *Svi gradovi i sva sela su juḷe uni̧tena.
all towns.m.pl and all villages.n.pl are yesterday destroyed.f.pl
d. Svi gradovi i sva sela su juḷe uni̧teni.
all towns.m.pl and all villages.n.pl are yesterday destroyed.m.pl
ñAll cities and all towns were destroyed yesterday.ò

This breakdown is explained by the fact that the masculine gender on the first conjunct in (27d) is also the default. Default values are ignored by semantics, thus if an element contains a default feature, LF interface can proceed with interpretation as if it were not there. Hence, if an element contains the default feature, it does not get deleted on that element in the process of Match, it is just treated as not being there. If the participle has its gender feature valued as masculine plural by a noun bearing that feature, it is the default at the same time, and for that reason the uninterpretable gender feature is not deleted on the

participle. This leads to a problem, since a unique valuator for the probe cannot be determined, so the derivation should crash. The system still has the option to delete gender feature on the participle and replace it by default, and it is exactly what it does in (27d). The gender feature is thus deleted, and the only feature that remains on the participle is number, which is valued by the BP. Now the unique valuator exists, and the whole BP is moved.

Anticipating an overview of agreement patterns that speakers of Serbian employ in their active production, it can be noted that the problem with Boġkoviĺ ôs (2009) analysis is that, for some speakers, Secondary Agree seems to be possible, and LCA is possible in examples like (27c). An example is given in (28).

(28) Raļunari i maġine su upravljale fabrikom, te je dosta radnika
computers.m.pl and machines.f.pl are governed.f.pl factory, so is a.lot.of workers
otpuġteno.
were.fired
ñComputers and machines governed the factory, so a lot of workers were fired.ò

According to the previous account, this situation should be ruled out. This problem should be given an adequate solution.

Another problem concerning gender mismatches is the one where conjuncts involve feminine+feminine, or feminine+neuter combinations and the participle can take both feminine and default agreement under different circumstances. For example, as shown in (29) (example (36) in Boġkoviĺ (2009)), feminine gender on the first conjunct prevents LCA if the second conjunct is neuter. Default masculine agreement makes this sentence acceptable, as (29b) illustrates.

(29) a. *Sve ǵene i sva deca su doǵla.

all women.f.pl and all children.n.pl are came.n.pl

b. Sve ǵene i sva djeca su doǵli.

all women.f.pl and all children.n.pl are came.m.pl

ñAll women and all children came.ò

Boǵkoviĺ (2009) explains this by positing that gender feature on the NP1 is interpretable, as ǵeneô(women) is also female biologically. The same logic is applied whenever gender on a noun matches the biological gender of the referent. As this feature is valued, it is not deleted after Match. Once again, we have a situation where it is not possible to determine a unique valuator for the probe (number is valued by the BP, and gender by NP1). The system then resorts to default agreement, deleting the gender feature on the participle, and replacing it with default. Maruǵiļ et al. (2012) add an interesting point to this issue. Based on the research they conducted on Slovene, they concluded that the claim that interpretable gender on the first conjunct blocks LCA is not borne out in Slovene, as they managed to find a significant percentage of LCA in the cases where FPL and NPL nouns were conjoined.

The problem of interpretable gender extends to some further instances of FCA/LCA parallelism breakdown. At first glance, nothing should be strange with conjuncts with uniform number and/or gender specification. Indeed, with masculine conjuncts there are no problems with agreement either when both conjuncts are plural, or when only one of them is plural, as demonstrated in (30) (example (44) in Boǵkoviĺ (2009)).

(30) a. Juļe su prodani svi magarci i svi psi.

yesterday are sold.m.pl all.m.pl donkey.m.pl and all.m.pl dog.m.pl

ñAll donkeys and all dogs were sold yesterday.ò

b. Svi magarci i svi psi su juče prodani.
all.m.pl donkey.m.pl and all.m.pl dog.m.pl are yesterday sold.m.pl

c. Juče su prodati jedan magarac i svi psi.
yesterday are sold.m.pl one.m.sg donkey.m.sg and all.m.pl dog.m.pl
ñOne donkey and all dogs were sold yesterday.ò

d. Jedan magarac i svi psi su juče prodati.
one.m.sg donkey.m.sg and all.m.pl dog.m.pl are yesterday sold.m.pl

Neuter conjuncts behave differently. If both conjuncts are neuter plural, the participle agrees accordingly, yet if at least one of them is singular when they are preverbal, the derivation will crash. The situation found in practice is illustrated in (31) (example (45) in Bošković 2009). These examples are given for the purpose of comparison of neuter with masculine/feminine, while number issues will be tackled shortly in this section.

(31) a. Juče su prodana sva telad i sva pseta.
yesterday are sold.n.pl all.n.pl calf.n.pl and all.n.pl dog.n.pl
ñAll calves and all dogs were sold yesterday.ò

b. Sva telad i sva pseta su juče prodana.
all.n.pl calf.n.pl and all.n.pl dog.n.pl are yesterday sold.n.pl

c. Juče su prodana sva telad i jedno pseta.
yesterday are sold.n.pl all.n.pl calf.n.pl and one.n.sg dog.n.sg

d. *Juče su prodana jedno tele i sva pseta.
yesterday are sold.n.pl one calf.n.sg and all.n.pl dog.n.pl

e. *Juče su prodana jedno tele i jedno pseta.
yesterday are sold.n.pl one calf.n.sg and one.n.sg dog.n.pl

f. *Sva telad i jedno pseta su juče prodana.
all.n.pl calf.n.pl and one.n.sg dog.n.sg are yesterday sold.n.pl

g. ?Jedno tele i sva paġ ad su juḷ e prodana.[7]
one.n.sg calf.n.pl and all.n.pl dogs.n.pl are yesterday sold.n.pl (Boġkoviĺ 2009)

A problem arises with feminine nouns. Apparently, feminine nouns can trigger feminine agreement regardless of the number on the conjuncts. Sentences in (32) (example (46) in Boġkoviĺ 2009) provide just some of the examples of this phenomenon.

(32) a. Juḷ e su prodane jedna krava i sve ovce.
yesterday are sold.f.pl one.f.sg cow.f.sg and all.f.pl sheep.f.pl
ñOne cow and all sheep were sold yesterday.ò
b. Jedna krava i sve ovce su juḷ e prodane.
one.f.sg cow.f.sg and all sheep.f.pl are yesterday sold.f.pl
c. Jedna krava i jedna ovca su juḷ e prodane.
one.f.sg cow.f.sg and one.f.sg sheep.f.sg are yesterday sold.f.pl

In Boġkoviĺ (2009), this phenomenon is explained by the assumption that feminine gender is capable of percolating to the BP level. In this case, the whole agreement process happens at the BP level and the result is always the same, feminine plural agreement on the participle. What makes feminine, unlike neuter, capable of percolating to the BP is the fact that it can be interpretable, as it is semantically grounded.

Some facts noted earlier for Serbian can present a potential problem to this analysis. As seen in Section 3, in Serbian, it can be found that inanimate nouns trigger both feminine and default agreement, as shown in example (15), repeated here as (33).

(33) a. Tuga i ġalost zavladali su u razruġenom gradu.
sadness.f.sg and grief.f.sg ruled.m.pl are in destroyed city
ñSadness and grief started ruling in the destroyed city.ñ

[7] The acceptability of this example is left for future research in Boġkoviĺ (2009).

b. Godine i starost dale su ovu noć.
years.f.pl and old-age.f.pl gave.f.pl are this.f.sg night
ñThis night is the product of years and old age.ò

It remains unclear what conditions feminine or default agreement in what circumstances, and what the potential restrictions can be. Based on the previous two examples, it can be assumed that the problem lies in the interpretability of features. Clearly, variation appears when gender feature appears on nouns which are not biologically specified for gender, demonstrating that formal and biological gender features do not always go hand in hand.

Number agreement with conjoined NPs has its specificities. Bošković (2009) makes the observation that both FCA and LCA are blocked when individual conjuncts are singular, as shown in (34) (example (37) in Bošković (2009)).

(34) a. *Juče su uništena jedno selo i jedna varoš̌ica.
yesterday are destroyed.n.pl one.n.sg village.n.sg and one.f.sg town.f.sg
ñOne village and one town were destroyed yesterday.ò
b. *Jedna varoš̌ica i jedno selo su juče uništena.
one.f.sg town.f.sg and one.n.sg village.n.sg are yesterday destroyed.n.pl
c. *Juče su uništena jedno selo i sve varoš̌ice.
yesterday are destroyed.n.pl one.n.sg village.n.sg and all.f.pl town.f.pl
d. *?Jedna varoš̌ica i sva sela su juče uništena.
one.f.sg town.f.sg and all.n.pl village.n.pl are yesterday destroyed.n.pl

As already mentioned at the beginning of this section, BP controls number agreement, valuing the uninterpretable number feature of the probe as plural, after which it goes in search for gender. It should be pointed out that one of the main assumptions of the analysis is that the probe that searches for features to match is a non-split ű-probe, which

means that it probes for both gender and number features together. Thus, the participle first matches the number feature on the BP, but probing does not stop there, since BP is not specified for gender. The probe continues the search for gender, which it finds on the first conjunct. Since it should have its number and gender valued together by the same element, it should also match the number of the first conjunct. Consequently, it also probes for number on the first conjunct and, if it does not match the number of BP, the number valuator cannot be uniquely determined, which makes number valuation impossible. The derivation necessarily crashes because, as opposed to gender, number is always interpretable on nouns, and cannot be deleted during Match, therefore there is no possibility of determining a unique valuator in cases when the first conjunct is singular in number. This analysis predicts that the derivation will crash regardless of the number specification of the second conjunct, which is borne out according to the evidence presented in the paper, and in (34) above.

Yet, as noted in Section 3, there are cases where, contrary to the assumption that BP is inherently plural and requires plural agreement, speakers of Serbian employ singular agreement on the verb, as demonstrated in (11), repeated here as (35).

(35) a. U svaḷ emu pravda i istina mora nadvladati.
in everything justice.f.sg and truth.f.sg must.3.sg prevail
ñJustice and truth must prevail in everything.ñ

b. Prijateljstvo sa njemaḷ kim carem i srodstvo sa grḷ kim carevima
friendship.n.sg with German ruler and relation.n.sg with Greek ruler
dade Srbiji drugo lice
gave.sg Serbia.dat different face
ñFriendship with the German ruler and the relation with Greek rulers gave Serbia a different image.

c. Bezazlenost i pravda neka me saļuva.
innosence.f.sg and justice.f.sg let me save
ñMay innosence and justice save me.ñ

The sentences above are recorded by StevanoviĹ (1979), and taken from a corpus of literary works of Serbian authors, which suggests that some speakers actually do find them grammatical. The fact that some speakers can allow singular agreement with coordinate structures should be re-examined. All the examples given in (35) are with uniform gender, and both conjuncts are singular. What should be looked into are cases of conjuncts with different gender and number.

In a footnote, BoġkoviĹ (2009) does tackle cases where singular agreement can be found in Serbian. In that case, it could be assumed that BP has no number specification, which allows for one of the conjuncts to value the number feature of the participle. Evidence from some languages that allow singular agreement with conjoined subjects, such as Spanish, show that they do not have gender specification on BP. Serbian might be acting in a similar way in this specific case. Another option, and a more probable one according to him, is that the speaker who finds a sentence with singular number agreement with a conjunct phrase acceptable treats only the conjunct involved in agreement as a subject, and the remaining conjunct as an afterthought. In that case, BP is not a real subject to that speaker. It may be added at this point that a third possibility might be that a speaker views the conjuncts collectively as one entity, in the same way that an English speaker can view *ham and eggs* collectively and assign singular to the verb, as in e.g. *Ham and eggs was served for breakfast*.

MaruġiļĹ et al. (2012) present some experimentally obtained data from Slovene that helped to determine what kinds of conjunct agreement grammars exist in this language.

One of the most important conclusions they arrived at is that true syntactic optionality exists and that speakers of the same language may actually have different grammars, but also that different grammars may be found within a single speaker. All of the grammars presented in the paper rely on the assumption that participle is a split ű-probe, receiving number from BP and gender either by default or from one of the conjuncts. BP is capable of computing its own number, thus it is specified as plural if one of the arguments is plural, dual if both arguments are singular, or undefined if one or both of the arguments lack ű-features. Lack of ű-features occurs when one or both of the conjuncts is a numerically quantified NP (an NP that refers to 5 and up entities), or when one or both of the conjuncts is a CP. However, it is not specified for gender since it is not capable of computing its own gender.

The grammars of conjunct agreement in Slovene differ in whether agreement targets the BP level only, or the probe looks inside BP to find a value for its unvalued features. Four grammars are identified in this account. The first two of them employ agreement with BP only, without looking inside it to find the necessary features. In both of the grammars, BP is targeted. If the BP has computed its number according to the above rules, the resulting number value is assigned to the participle. The participle does not probe any further for gender, and since gender feature does not exist on BP, default masculine gender is assigned. The other grammar is at play if BP was unable to compute number, and is left unspecified both for number and gender. Under these circumstances, both number and gender are assigned by default, and the resulting agreement is masculine plural. The remaining two grammars require the probe to look inside BP in order to find the necessary values for its unvalued features. In both cases, agreement targets the BP first. If BP is specified for number, the probe receives this number specification, and it looks inside the BP to find a value for gender on one of the conjuncts. In case that BP is unspecified for

number, the probe looks inside to search further for both number and gender. Since in preverbal environment Slovene records both LCA and first-conjunct agreement, both NP1 or NP2 can be valuators for gender. The probe targets one of the conjuncts for number, and if it receives number from that conjunct, it must receive gender from it, too. Marušič et al. (2012) propose that variability within a specific agreement mechanism does not exist, they are consistent, but different mechanisms may be employed by different speakers, and even a single speaker can employ different grammars. Therefore, grammars are not speaker-dependent, a speaker may use any of them, or more of them on different occasions. The problem with this account is that it defines the grammars in detail, yet it is still unable to give a unified explanation for what causes a speaker to use a particular grammar in a particular situation.

Returning to number issues tackled in Bošković (2009), a comparison can be made between his account and the one of Marušič et al. (2012). The latter also experimentally examined patterns of agreement when one of the conjuncts is singular. It was found that singular number on one of the conjuncts had no effect on number agreement. No singular agreement was found with conjoined subjects in Slovene. Singular number on one of the conjuncts, however, did interfere in the process of agreement in the experiment in that it prevented gender agreement for a particular conjunct if that conjunct was singular. The system presented above captures this by introducing a condition that a value for gender on the participle can be supplied from a conjunct whose number feature has the same value as the number feature that the participle has already gained after agreement with BP, provided that the agreement goes further than BP, as in grammar types 3 and 4 (Marušič et al. 2012). This goes in line with the explanation of agreement breakdown if one of the conjuncts is singular given in Bošković (2009). This account also requires the probe to

receive gender features from the element that has the same number specification provided by the BP.

The following section presents some experimentally gained data on conjunct agreement in Serbian. Relying on the data presented above, it explores the agreement patterns found in everyday use of speakers of Serbian.

6. Agreement patterns with conjoined subjects in Serbian

In order to get a clearer picture of how speakers of Serbian actually employ conjunct agreement, a survey was conducted. It was partially based on the experiments described in Marušić, Nevins and Badecker (2012), with some modifications. This section gives a brief description of the aims of the survey, the issues explored, and the methodology employed.

The aim of the research was to test how gender, number, animacy and position affect participle agreement with subject conjunct phrases. Considering all the data presented above, the aim was to see how speakers of Serbian employ conjunct agreement and how the given factors influence the process of agreement. Four basic issues are tackled:

(36) Issue 1: FCA ï LCA parallelism breakdown when one of the conjuncts is masculine
Issue 2: Gender agreement mismatches when feminine and neuter nouns are conjoined
Issue 3: Number mismatches

The exploration of Issue 1 is influenced by the account in Bošković (2009) presented in the previous section. There it was claimed that if the conjunct that does not determine the agreement is masculine, FCA can be found, but LCA is blocked and the

participle will always take default agreement (as in (27) above). The aim was to examine if there is a possibility of having feminine agreement and if so, under which circumstances this is available.

Issue 2 was also brought to attention by Bogdanović (2009). Apparently, if feminine and neuter nouns are conjoined, LCA is blocked, as opposed to FCA, which does not present a problem. This issue was tested to check which factors affect FCA-LCA parallelism breakdown. This breakdown was examined using combinations of feminine+neuter and neuter+feminine NPs, so as to test in which situations speakers of Serbian would employ feminine, neuter or default masculine agreement.

Finally, Issue 3 deals with number. It involves testing whether speakers of Serbian can employ singular agreement in language production and if so, whether it is agreement with the whole conjunct phrase (BP), or with only one conjunct. Additionally, the factors possibly determining this choice are also tackled.

The research was conducted with 60 participants, all of whom are second-year university students. The participants were asked to do a production task. They were given sentences with missing suffixes for the participle, and (in the cases where gender was the focus of testing) missing spots to be supplied with auxiliary verbs. Since both number and gender feature surface on the participle, all the test-examples were in past tense. The examples were similar to the one in (37).

(37) Pas i maļka __ pregë__ put.
Dog.m.sg and cat.f.sg __ crossed_ road
ñA dog and a cat crossed the road.ò

In sum, 40 test-examples were presented to the participants. These examples attempted to tackle all of the 4 issues presented above. For Issue 1, a total of 8 test-examples was presented, with combinations of MSG+FSG, and MPL+FPL, involving 4 conditions: two sentences with preverbal conjuncts (both conjuncts animate or both conjuncts inanimate), and two sentences with postverbal conjuncts, with the same conditions. Further examples always involved 4 sentences for every combination of conjuncts, where two were preverbal (animate and inanimate) and two were postverbal (animate and inanimate). For Issue 2, there were 4 combinations of conjuncts, FPL+FPL, NPL+NPL, FPL+NPL, and NPL+FPL, with 4 sentences for each condition. Issue 4 was studied on the basis of 16 sentences involving combinations of feminine and neuter singular and plural. The order of the sentences was randomized, and in addition to these, there were 20 other sentences acting as fillers or distractors, having regular subjects with one NP.

6.1. Issue 1: Conjunct agreement when one of the conjuncts is masculine

Recall from Section 5, that Bo̧gkoviĺ (2009) makes the observation that masculine gender on the first conjunct blocks LCA when the conjunct phrase is preverbal, whereas FCA is allowed. This breakdown in the parallelism between FCA and LCA was explained by the fact that masculine is the default gender. Default values are ignored by semantics, and the uninterpretable gender feature is not deleted on the participle after Match, causing the computation to resort to default agreement.

The aim of the survey was to test whether LCA is possible if the conjuncts are M+F, and if so, under which circumstances this happens. Eight test-examples were used, with 2 conditions ï MSG+FSG and MPL+FPL (2 examples with preverbal (animate + inanimate), and 2 with postverbal (animate + inanimate) conjuncts for each condition). The

sentences that were used to test this issue are given in (38), and the results of the first condition are given in the tables in (39).

(38) a. Pas i maḷka __ preġ__ opasan put ġetajuĺi po poljani.
dog.m.sg and cat.f.sg __ crossed_ dangerous road walking across field
ñA dog and a cat crossed a dangerous road walking across a field.

b. Miġ i tastatura __ juḷe otkaza___ dok sam kucala
mouse.m.sg and keyboard.f.sg __ yesterday broke_ while am.1p.sg typed.f.sg.
seminarski rad.
seminar paper
ñThe mouse and keyboard broke yesterday while I was typing my seminar paper.ò

c. Na sastanku povodom projekta __ bi__ samo Ivan i Marija.
at meeting about project __ were_ only Ivan.m.sg and Marija.f.sg
òOnly Ivan and Marija were at the meeting about the project.ò

d. Preko leta svima __ najviġe prija__ pesak i voda.
in summer everyone __ most enjoyed_ sand.m.sg and water.f.sg
ñIn summer, everyone mostly enjoyed the sun and sand.ò

(39)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	100%
			inanimate	98.3%
		feminine	animate	-
			inanimate	-
	postverbally	masculine	animate	98.3%
			inanimate	75%
		feminine	animate	-
			inanimate	-

Table 3: Results for MSG+FSG

Number	Position	Gender	Animacy	Result
singular	preverbally	masculine	animate	-
			inanimate	1.7%
		feminine	animate	-
			inanimate	-
	postverbally	masculine	animate	-
			inanimate	21.7%
		feminine	animate	-
			inanimate	3.3%

Table 4: Results for MSG+FSG

As the results show, preverbally, there is no feminine agreement whatsoever. It looks as if the speaker does not register the fact that there is a feminine noun present. It is still unclear whether this agreement is masculine, i.e. agreement with the first element, or default agreement.

With postverbal conjunct phrases, there should be no problem with agreement, as it is expected that the verb will agree with the first conjunct. What deserves some attention here are the cases of singular agreement. In the cases where the conjoined nouns are inanimate, 21.7% of the conjuncts trigger MSG agreement.

It can be noted here that the examples follow the pattern proposed by Corbett (1983). The percentage of singular agreement is highest when the conjunct phrase is postverbal and inanimate. Postverbal environment for inanimate nouns is the most favourable one for single-conjunct agreement. The issue of number agreement will be tackled shortly within Issue 3.

The second condition (MPL+FPL) examines the number and gender features the participle surfaces with when there are no number issues to intervene. Both conjuncts are plural, and their animacy and position are varied. Examples of the sentences that were used to test this issue are given in (40), and the table in (41) presents the results of the survey.

(40) a. Drugovi i drugarice __ zajedno poġ__ u ġkolu.
boy-friends.m.pl and girl-friends.f.pl __ together started_ in school
ñBoys and girls started school together.ò

b. Raļunari i maġine __ upravlja __ fabrikom, te je dosta
computers.m.pl and machines.f.pl __ ran_ factory so is a-lot-of
radnika otpuġteno.
workers fired
ñComputers and machines ran the factory, so a lot of workers were fired.ò

c. U klupama __ sede__ drugovi i drugarice.
in class __ sat_ boy-friends.m.pl and girl-friends.f.pl
ñBoys and girls sat in the class.ò

d. U radu __ ispitivan__ motivi i posledice.
in paper __ examined_ motives.m.pl and consequences.f.pl
ñMotives and consequences were examined in the paper.ò

(41)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	100%
			inanimate	56.7%
		feminine	animate	-
			inanimate	43.3%
	postverbally	masculine	animate	100%
			inanimate	100%
		feminine	animate	-
			inanimate	-

Table 5: Results for MPL+FPL

No instances of singular agreement were found, as expected. Still, in preverbal contexts, all animate conjuncts triggered MPL agreement on the verb. An interesting point is that with inanimate conjuncts, when they occur preverbally, 56.7% speakers used MPL agreement on the participle, and 43.7% used FPL agreement, thus resulting in LCA. This undoubtedly poses a problem to Boġkovií ôs (2009) account, where he claims that

masculine on the first element prevents LCA. Still, the results show that LCA is still possible but on condition that the conjuncts are inanimate.

The results of the survey for the first condition within Issue 1 can fit into to the account in Bošković (2009), with some modifications. Looking at preverbal conjuncts first (Table 3 and 4), it can be observed that if two conjoined nouns with M+F gender combination are found in front of the participle, they trigger masculine agreement in almost all instances. The explanation offered for this situation is that M gender is the default at the same time, and default features are ignored by semantics. Thus, if an element bearing the default gender feature values the uninterpretable gender feature on the participle as M (default), the uninterpretable feature on the participle cannot be deleted, as it is ignored by semantics. The computation intervenes and saves the derivation by deleting the gender feature on the participle and inserting the default, as described in Bošković (2009) and presented in Section 5. According to the results of the survey, this happens regardless of the animacy specification of the noun, and thus regardless of the interpretability of the gender feature on the noun.

As Table 3 and Table 4 show, in postverbal environment, animate conjuncts produce the same result as their preverbal counterparts. Almost all participants use the default masculine agreement. Inanimate conjuncts trigger MPL agreement in the majority of instances, too. A number of participants applied singular agreement, and by that they actually achieved full FCA for both features. Number agreement is left aside for now, and discussed in more detail within Issue 3.

If M+F plural nouns are conjoined (Table 5), the results for animate conjuncts follow the scenario given above. Yet, the resulting agreement pattern for inanimate conjoined nouns is not predicted by Bošković's (2009) account. Roughly half of the

participants find it grammatical to apply FPL agreement, and thus produce the unexpected LCA pattern. If we follow the account given above, this situation cannot receive an adequate explanation under the assumption that M on the first conjunct is the default. Still, if we assume that M gender is actually uninterpretable (as the referent of the noun is inanimate, and therefore not biologically masculine), the analysis can proceed according to the analysis of the basic FCA-LCA pattern presented in Boġkoviĺ (2009). In that case, the participle receives number from the BP, and gender from NP1, in which case a unique valuator cannot be determined, which blocks pied-piping. Upon Secondary Agree, NP2 values the participleôs uninterpretable gender feature as feminine, and the whole BP undergoes pied-piping, resulting in LCA. Under this assumption, it could be concluded that variability between speakersô grammars exists (which was also the conclusion of Maruġiļ et al. (2012)). In the grammar of some speakers, M is marked as default on nouns, which makes it invisible to semantics. Other speakers have M gender characterized as interpretable or uninterpretable, depending on the animacy specification of the noun. This explanation still fails to determine reasons why some speakers would have their grammars differentiated in this why and what factors determine whether M feature would be characterized as either interpretable/uninterpretable or default. A more detailed account is necessary, and the one that would be able to include other agreement patterns, such as those that are under observation within the following issues.

6.2. Issue 2: Gender agreement when feminine and neuter nouns are conjoined

The part of the survey covering Issue 2 was concerned with conditions under which FCA, LCA or default agreement can be found with feminine and neuter conjuncts. As noted earlier, when conjoined, whether uniform or with mixed genders, feminine and

neuter nouns can trigger either feminine, neuter or default agreement. Test examples for this issue were designed to check under which circumstances we get FCA, LCA or default agreement when feminine and neuter nouns are conjoined. Sixteen test-examples were used, covering 4 conditions ï FPL+FPL, NPL+NPL, FPL+NPL, NPL+FPL (2 examples with preverbal (animate + inanimate), and 2 examples with postverbal (animate + inanimate) conjuncts for each condition). Sentences with both feminine or both neuter conjuncts were used in order to test under which circumstances we can expect to have default agreement with uniform non-masculine conjuncts. The results of the survey for the first condition (FPL+FPL) are presented in (43), and test examples are given in (42).

(42) a. U toku nedelje kupovine, sve majke i kĺerke __ iġ__ po
in course of-week shopping all mothers.f.pl and daughters.f.pl __ went_ in
prodavnicama u potrazi za odeĺom.
shops in search for clothes
ñDuring the shopping week, all mothers and daughters went to the shops in search for clothes.ò

b. Patike i cipele __ bi__ na popustu samo u toku te nedelje.
trainers.f.pl and shoes.f.pl __ were_ at discount only in course-of that week
ñTrainers and shoes were at a discount only during that week.ò

c. Maġu __ poseti__ tetke i strine kada je izaġla iz porodiliġta.
Maġa __ visited_ aunts.f.pl and aunts.f.pl[8] when is.3p.sg came-out of hospital
ñAunts visited Maġa when she came out of the hospital.

d. Najbolje rezultate __ da__ terapije i veġbe.
best results __ gave_ therapies.f.pl and exercises.f.pl
ñTherapies and exercises gave the best results.ò

[8] Serbian has different words for fatherôs or motherôs sister (*tetka*), and fatherôs sister-in-law (*strina*), both of which are glossed and translated using the English equivalent *aunt*.

(43)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	-
			inanimate	11.7%
		feminine	animate	100%
			inanimate	88.3%
	postverbally	masculine	animate	10%
			inanimate	32.2%
		feminine	animate	90%
			inanimate	67.8%

Table 6: Results for FPL+FPL

Feminine agreement is observed in most of the cases. Still, preverbally, animate conjuncts trigger FPL agreement in 100% of the cases. Inanimate conjuncts give different patterns preverbally. Namely, feminine agreement is still found in the majority of cases, whereas in 11.7% default MPL agreement is found on the participle. Postverbally, the situation is more varied. Animate conjuncts trigger FPL agreement in most cases, but there are still a number of cases (10%) where default MPL is found with animate conjuncts. It is different with inanimate conjuncts, where 67.8% of the subjects use FPL, as opposed to 32.2 of them who opt for the default MPL.

A similar situation is found when two neuter plural nouns are conjoined. The results still differ in certain factors. The table in (45) gives an overview of the resulting agreement patterns for the test examples given in (44).

(44) a. Telad i prasad __ pi__ vodu na izvoru kad je zalazilo sunce.
calves.n.pl and pigs.n.pl __ drank_ water at spring when is set sun
ñCalves and pigs drank water in the sunset.ò

b. Trenerova znanja i iskustva __ bi__ dragocen__ ļitavom timu
coachôs knowledge.n.pl and experience.n.pl __ were_ precious_ to-whole team
na poļetku sezone.
at start of-season
ñThe experience and knowledge of the coach were precious at the beginning of the season.ò

c. Najviġe __ se isplati__ prasad i jagnjad.
most __ se.refl pay-off_ pigs.n.pl and lambs.n.pl
ñPigs and lambs were the most profitable.ò

d. U toku veļere, oduġevljenje gostiju __ izazva__ razna jela i
in course-of dinner delight of-guests __ caused_ various dishes.n.pl and
piĺa sa Mediterana.
drinks.n.pl from Mediterranean
ñDuring the dinner, the guests were delighted by Mediterranean dishes and drinks.ò

(45)

Number	Position	Gender	Animacy	Percentage
plural	preverbally	masculine	animate	50%
			inanimate	10.3%
		feminine	animate	-
			inanimate	-
		neuter	animate	50%
			inanimate	89.66%
	postverbally	masculine	animate	37.5%
			inanimate	3.57%
		feminine	animate	-
			inanimate	-
		neuter	animate	62.5%
			inanimate	96.43%

Table 7: Results for NPL+NPL

Preverbally, the situation is equal, 50% of participants employed default agreement, and the other half assigned the participle the suffix for NPL agreement. Inanimate conjuncts trigger NPL agreement in 89.66% of instances, whereas a small number of speakers still employ masculine plural.

A similar pattern is found postverbally. Here animate conjuncts are taken to agree in MPL in a smaller percent of instances (37.5%), while the amount of those that agree in NPL is larger than in preverbal cases (62.5%). The situation with inanimate conjuncts is even more clear-cut than with preverbal cases, as here almost all subjects use NPL agreement on the participle.

Turning now to instances of agreement with mixed gender conjuncts, the following two conditions deal with agreement patterns with the combinations of FPL+NPL, and NPL+FPL. The test examples for the first of the two conditions are presented in (46), and for the second one in (48). The results of the first condition are presented in (47), whereas (49) outlines the results of the second condition.

(46) a. Krave i telad su mirno pas__ po polju.
cows.f.pl and calves.n.pl are peacefully grazed_ across field
ñCows and calves grazed peacefully in the field.ò

b. Okolnosti i vremena su bi__ teġk__ za sve stanovnike te zemlje.
circumstances.f.pl and times.n.pl are were_ hard_ for all inhabitants that country
ñThe circumstances and times were hard for all the inhabitants of that country.ò

c. Po dvorišġtu su razdragano kljuca__ kokoġke i pilad.
across yard are cheeerfully pecked_ hens.f.pl and chicken.n.pl
ñHens and chicken pecked cheerfully in the yard.ò

d. Pri izboru pobednika, komisiji su bi__ najvaġnij__ sposobnosti i
in choosing winner jury are were_ most-important_ abilities.f.pl and
razmiġljanja kandidata.
reasoning.n.pl of-candidates
ñIn choosing the winner, the jury paid most attention to the abilities and reasoning of the candidates.ò

(47)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	66.7%
			inanimate	38.3%
		feminine	animate	28.3%
			inanimate	1.7%
		neuter	animate	5%
			inanimate	60%
	postverbally	masculine	animate	18.3%
			inanimate	26.9%
		feminine	animate	81.7%
			inanimate	67.31%
		neuter	animate	/
			inanimate	5.77%

Table 8: Results for FPL+NPL

When feminine and neuter conjuncts are combined in preverbal position, the results are again quite varied. MPL agreement prevails with animate nouns. LCA, NPL agreement, is found only in 5% of the cases. With inanimate nouns, the situation is drastically different. Namely, inanimate conjuncts trigger NPL agreement in 60% of the cases, MPL is found in 38.3%, and FPL agreement is negligible (only one instance).

Postverbally, both with animate and inanimate nouns FPL agreement prevails. Thus FCA is the most common pattern. It is followed by the default MPL agreement, which is slightly more common with inanimate conjuncts. If the pattern of gender on the conjuncts is reverse, slightly different agreement patterns can be found, as presented in (49).

(48) a. Deca i ǵivotinje su posta__ dobri drugari nakon posete
children.n.pl and animals.f.pl are become_ good friends after visit
zoološkom vrtu.

to-zoo

ñThe children and the animals became good friends after the visit to the zoo.ò

b. Dela i reļi su gradi__ njegov autoritet u kompaniji iz dana u
actions.n.pl and words.f.pl are built_ his autority in company from day to
dan.
day

ñHis actions and words built his authority in the company day by day.ò

c. Priredbi su prisustvova__ deca i uļiteljice.
show are attended_ children.n.pl and teachers.f.pl

ñChildren and teachers attended the show.ò

d. Radnike su najbolje motivisa__ dostignuća i nagrade.
workers are best motivated_ achievements.n.pl and prizes.f.pl

ñAchievements and prizes were the best motivation for the workers.ò

(49)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	98.3%
			inanimate	68.3%
		feminine	animate	1.7%
			inanimate	26.7%
		neuter	animate	-
			inanimate	5%
	postverbally	masculine	animate	21.7%
			inanimate	33.3%
		feminine	animate	-
			inanimate	-
		neuter	animate	78.3%
			inanimate	66.7%

Table 9: Results for NPL+FPL

Preverbally, the great majority of participants employed default masculine agreement with this combination of conjuncts, especially when animate nouns are conjoined. In 26.7%, however, LCA was found.

In the cases where conjuncts are postverbal, default agreement gives way to FCA. Namely, default MPL agreement is recorded in 21.7% with animate conjuncts, and 33.33% with inanimate. The rest is FCA, i.e. NPL agreement.

To sum up the results presented for Issue 2, a few observations can be made and a few patterns recorded. When it comes to same-gender conjuncts, feminine conjuncts trigger feminine agreement always if they are animate and preverbal. If they are inanimate and preverbal, they can trigger masculine agreement, too (cf. the results of Corbett (1983) and Stevanoviĺ (1979) corpus research presented in Section 3). Even though masculine agreement is recorded with animate postverbal conjuncts, most of the informants opted for masculine agreement when the conjuncts are postverbal and inanimate. Neuter conjuncts trigger both neuter and masculine if they are animate and preverbal, and mostly neuter if they are inanimate and preverbal. If postverbal, neuter agreement is the most frequent type of agreement according to the results of this research. Most of the informants opted for masculine agreement when the conjuncts are postverbal and animate, as opposed to feminine agreement in the previous condition.

With mixed animate preverbal conjuncts, masculine agreement prevails. With mixed inanimate preverbal conjuncts, masculine agreement prevails in the NPL+FPL combinations, but it does not do so with FPL+NPL, where LCA is dominant. Postverbally, with mixed conjuncts FCA prevails, and the percentage is higher with animate conjuncts.

As the results for Issue 2 suggest, agreement is highly dependent on the animacy specification of the nouns. Animacy features should thus be properly incorporated in the system and their interdependency with gender features and the subsequent agreement patterns should receive adequate explanation. Rappaport (2006) proposes a way to explain how the interplay of formal and semantic features of a noun affects the agreement process.

Both agreement and concord (agreement between a noun and its modifiers) are taken to be the result of feature sharing (based on Frampton and Gutmann (2000)). Slavic languages exhibit concord in ű-features, i.e. adjectives and determiners within the nominal phrase agree with the noun in person, gender and number, as illustrated in (50).

(50) Gledam zanimljivu emisiju.
watch.pres.1p.sg interesting.acc.f.sg show.acc.f.sg
ñIôm watching an interesting show.ò

It is assumed that the ű-features of the head noun are projected to the adjective, and that they are available on the adjective for spellout. The case feature is also available on both the noun and the adjective, and when one of the features is assigned a value, the other feature is automatically supplied with that value. It is thus enough for *v* to value only one of the case features, and it will be automatically distributed to the other one.

The feature sharing approach is applied to the cases of referential (semantic) and formal (grammatical) agreement. While formal agreement takes into account only the grammatical specification of a noun, semantic agreement goes beyond grammatical information and employs semantic information. Slavic languages exhibit both types of agreement, as (51) shows for Serbian.

(51) a. Ġkolski psiholog je odrġao zanimljivo predavanje.
school.m.sg psychologist.m.sg is kept.m.sg interesting lecture
b. Ġkolski psiholog je odrġala zanimljivo predavanje.
school.m.sg psychologist.m.sg is kept.f.sg interesting lecture
ñThe school psychologist gave an interesting lectureò

In (51a) formal agreement is employed, as the participle agrees in MSG form, the form corresponding to the formal gender feature on the noun. In (51b), however, semantic agreement in gender can be found. The participle agrees in FSG (regardless of the fact that the noun is grammatically masculine) since the referent is a female person.[9]

Rappaport (2006) distinguishes between grammatical features (f-features), those that come within the lexical specification of a noun, and referential features (r-features), those that reflect semantic properties of the noun. Animacy is a formal feature, and it is highly predictable. F-animacy is not obligatorily inherently specified on nouns as a part of lexical information, and in case that a noun does not contain this specification, a value for animacy can be supplied based on the value of r-animacy via a redundancy rule. For instance, if a noun has referential animacy specified as [r-animacy: +], this entails that its formal animacy receives the specification [f-animacy: +]. This situation is illustrated in (52).

(52) girl: [r-animacy: +] Ÿ [f-animacy: +]

The noun *girl* has its r-animacy specified as [r-animacy: +], whereupon the redundancy rule supplies its f-animacy feature with the same value. R-features are not redundant in the system and the existence of r-values is justified, as they are a part of the meaning of a noun, and they can also help provide a value for f-animacy. Gender is another feature that is predictable on animate nouns from the meaning of the lexeme. It is connected to the biological gender of the referent, and supplied on the noun by a redundancy rule. For instance, if a noun is listed with a referential feature specification [r-animacy: +, sex: male], its formal features will be specified as [f-animacy: +, gender: masculine] via a

[9] The possibility of semantic agreement is available only if the speaker uses the noun *psiholog*, which is grammatically masculine, to refer to a female person. However, for speakers of Serbian, there is a possibility to use the politically correct term *psihološkinja*, which is grammatically feminine, and thus avoid the semantic agreement which may sound awkward to some speakers.

redundancy rule. A problem arises in the cases where formal features are not determined by referential features. Such are the cases where a noun has formal gender specification without any ñjustificationò from referential features, i.e. when gender specification is found on inanimate nouns. An important note on formal features is that they do not need to be licensed by referential features, but can be inherently specified within the lexical value of a lexeme. In this sense, an inanimate noun can be specified as grammatically masculine, feminine or neuter despite the fact that it does not have semantic justification for this. Serbian (as most other Slavic languages) assigns formal gender to nouns based on their morphology. Gender is assigned according to the morphemes the nouns end in. According to Rappapport (2006), Agree sees only formal features, therefore the lack of semantic features should not present a problem. Sometimes it may also happen that r-features predict a certain value for f-features, but f-features are already inherently specified, and this specification overrides the redundancy rule. This can, for example, be observed with animate nouns which are specified as having neuter gender, instead of masculine or feminine which is predicted to appear according to r-features. Rappaport (2006) further applies this approach to explain the difference between agreement and concord in Slavic languages.

Taking into account the proposal of Rappaport (2006) and the data from the research, an important connection between formal and semantic features may be established, attempting to explain their subsequent effects on agreement. A correlation between the theory of Rappaport (2006) and the account of Bo$kovi (2009, 2011) can be established with respect to the treatment of features. What Bo$kovi (2009, 2011) treats as interpretable features are those formal features that are supplied on the noun via redundancy rules and that correspond to r-features. Uninterpretable features are formal

features supplied inherently on the noun, without semantic ground and the possibility of semantic interpretation.

Starting from the nouns with uniform gender specification, two patterns are observed when the combination of FPL+FPL nouns occurs preverbally. In the case where the functional features correspond to the semantic ones, speakers unanimously employ feminine agreement. Here formal features are supplied on nouns via redundancy rules (F [r-animacy: +, sex: female] Ÿ [f-animacy: +, gender: feminine]). If a noun denotes an animate female entity, the gender feature is supplied according to r-features, and is thus interpretable on the noun. According to Bo¿kovi Í (2009), if the feature of the probe is valued as interpretable, it is not deleted after Match. In this case, when Secondary Agree is initiated, the gender feature on NP2 matches the one already assigned to the participle, and agreement may proceed according to the regular LCA pattern.

On the other hand, if nouns are inanimate there is a possibility of having default masculine agreement apart from the regular and expected feminine. In this case, the F feature on the noun is specified inherently according to the lexical specification of the noun. Redundancy rules for gender assignment do not apply, as an inanimate noun does not have referential gender features. The resulting situation is that now a formal feature, which has the possibility of being interpretable, does not have semantic ground. This mismatch between formal and referential features leads to problems with agreement, resolved by inserting the default feature. For the speakers that treat the gender feature on the noun as uninterpretable and do not refer to r-features, agreement can proceed with the normal LCA pattern given in Bo¿kovi Í (2009). Yet, there are still a number of speakers who opt for default agreement. They apply default features precisely in the environment in which the formally assigned feminine feature is not provided by a redundancy rule, and

thus has no referential feature to support it. At this point, it can be assumed that only those speakers that have a problem relating a formally assigned feature that is in principle interpretable to its corresponding referential feature may have a problem in assigning these features to the participle, and this problem is resolved by default agreement. The problem results from the absence of redundancy rules or their failure to apply and establish relation between formal and referential features.

Regarding agreement with postverbal conjuncts, a problem again arises in the case where a formal feature is assigned without semantic backup. When gender on the nouns is uninterpretable and assigned inherently, there is a problem in valuing the participleôs unvalued gender feature. This again results in employing the default MPL agreement.

With neuter preverbal conjuncts, the situation is different. Neuter gender is always uninterpretable, as it does not exist biologically. Thus, the feature specification of an animate N noun may include [r-animacy: +, sex: female/male] Ÿ [f-animacy: +, gender: neuter]. The mismatch between grammatical and biological gender leads to the assignment of the default to the participle with half of the speakers, while the other half assigns neuter despite the conflicting features. It can again be concluded that those speakers who take into consideration the interplay between formal and semantic feature specification of the nouns have a problem assigning a purely formal feature to an animate entity. Those speakers resolve the problem by resorting to default. For those speakers that do not take semantic features into consideration, regular LCA applies. If, on the other hand, the nouns denote inanimate entities, there is no mismatch between f-features and r-features simply because there is no biological gender on the noun and the gender feature is supplied on the noun inherently and lexically. Therefore, if we take that regular LCA is at play here, we may use

it to explain how agreement functions on inanimate neuter nouns for both groups of speakers.

In postverbal position, the prevailing pattern of agreement is NPL, as predicted in Boġkoviĺ (2009). However, as opposed to feminine, the majority of default agreement is actually found with animate neuter nouns. This goes in line with the data presented so far. The conflict that exists between formal and referential features and the failure of redundancy rules to apply forces default gender assignment.

Agreement with conjuncts with different gender follows the pattern proposed above. If nouns of different gender specification are conjoined, problems with agreement usually appear in the places where there is a mismatch between formal and referential features. Starting from the combination of FPL+NPL, with animate nouns the majority of speakers employ MPL agreement. The results of the survey fit into the account of Boġkoviĺ (2009) with the modifications proposed here. As the gender feature on NP1 is interpretable, it is valued on the probe as such, and therefore not deleted after Match. When Secondary Agree is initiated after the inability to pied-pipe due to the impossibility of determining a unique valuator for all unvalued ű-features, the probe matches NP2, which does not have the corresponding gender feature, leading to a crash. The derivation is saved by inserting the default masculine gender. Yet, if the nouns denote inanimate referents, the majority agreement pattern is NPL, i.e. LCA. This is also expected in the system so far, as the gender feature on the first noun is uninterpretable. Agreement then proceeds according to the regular FCA pattern for the speakers that do not take into account r-features. For those speakers that do consider both formal and referential features, the lack of biological gender specification on the first conjunct triggers MPL agreement on the participle, and prevents LCA.

Postverbally, the majority of participants applied FCA. Still, a greater percentage of FPL appears where this gender feature is supplied on the basis of referential features. If the feminine gender feature is uninterpretable, supplied inherently, the percentage of default agreement increases. The mismatch between formal and semantic features is the cause of this state of affairs. Feminine gender is a feature that can be semantically justified, but under these circumstances, it is not provided by redundancy rules, and it does not have support from r-features.

Combining NPL+FPL preverbally yields mostly masculine plural agreement with both animate and inanimate nouns. Starting from animate nouns, since neuter is always uninterpretable and supplied lexically, and in this case its r-gender does not correspond to the f-gender features, there is a mismatch leading to an inability to assign neuter to the participle. At this point, the derivation is saved by inserting the default masculine gender feature. On the other hand, if both nouns are inanimate, and the regular LCA pattern is supposed to apply, this should result in FPL agreement. Although for a number of speakers this pattern is functional, it is not found in a great number of instances. Instead, the majority of participants employ the default. This may again be due to a mismatch between formal and referential features. Feminine gender feature on the second conjunct is supplied lexically, without any matching referential features. When conjuncts are placed after the verb, FCA prevails. This goes in line with the data above.

The conclusions reached according to the results within Issue 2 can be extended to include Issue 1 as well. With animate MPL+FPL nouns agreement is always MPL. This is expected, as NP1 bears interpretable gender. Interpretable gender is not deleted upon first Match, and it prevents gender assignment upon Secondary Agree, which forces default feature assignment. On the other hand, agreement with inanimate preverbal nouns results

in two patterns. If the speaker takes into consideration both r-features and f-features, a problem will arise during agreement with NP1, which is formally masculine, but with no referential gender specification. The conflict is resolved by default feature assignment. For those speakers who employ only f-features, regular LCA applies, resulting in FPL agreement.

To sum up the data presented thus far, a general pattern can be established. Preverbal conjuncts with interpretable gender mostly trigger default agreement, unless NP2 bears the same gender feature as NP1. In this case, the gender feature on the probe corresponds to the one on the conjuncts. The reason for this is that interpretable features are not deleted after Match. During Secondary Agree, it is necessary for the gender on NP2 to match the one already assigned to the participle. If it does not do so, the system intervenes by the insertion of the default. When nouns with uninterpretable gender are looked into, two kinds of grammars can be distinguished among speakers. Some speakers do not associate formal to semantic features, while others take into consideration the semantic specification on the noun. For those speakers that consider only formal features, agreement targets f-features only, and agreement patterns correspond to those predicted in Bo̧gkoviĺ (2009). Those speakers that associate formal to semantic features experience problems with agreement in the cases where redundancy rules for feature assignment fail to apply. Agreement takes into account both f-features and r-features. Thus, if a feature is assigned formally, and does not correspond to the one that was supposed to be assigned by the redundancy rule, the noun will trigger default agreement on the probe. Conversely, if a feature that can be interpretable is assigned only formally, and the corresponding semantic feature does not exist (therefore no redundancy rule can apply), the probe can be assigned default gender.

6.3. Issue 3: Number mismatches

In order to test whether (and under which circumstances) speakers of Serbian can employ singular agreement on the participle with a conjoined NP subject, another task was designed for the participants. The study of this issue involved the results obtained for the first condition given in Issue 1, where both conjuncts are singular. Additionally, 16 test-examples were given to the participants to complete, where all the instances contained conjuncts with mixed number and gender functioning as the subject. The first two conditions include combinations of singular + plural, and the remaining two conditions use plural + singular conjuncts, and for each condition there are 2 examples with preverbal (animate + inanimate), and 2 examples with postverbal (animate + inanimate) conjuncts. These examples also reveal interesting facts on gender agreement, as well as on the interplay between number and gender features.

As presented in Issue 1 (Table 4), singular agreement can be employed on the participle with conjoined subjects. Roughly a fifth of the participants employed singular agreement in an environment that is most favourable for this kind of agreement according to Corbett (1983). All of the instances of singular agreement were found in the examples where the conjunct phrase was postverbal, and both nouns referred to inanimate entities.

The first group of examples presented to the participants to test this issue includes two sets of sentences in which singular + plural nouns are conjoined. Condition 1 examines the combination of FSG+NPL nouns, and comprises 4 examples. Tables in (54) outline the results for Condition 1. The sentences presented to the participants to test this issue are given in (53).

(53) a. Krava i telad __ krenu__ ka kuĺi pre nego što padne mrak.
cow.f.sg and calves.n.pl __ went_ towards house before than get dark
ñA cow and some calves went towards the house before it got dark.ò

b. Preporuka i uverenja __ bi__ neophod__ na konkursu za
recommendation.f.sg and certificates.n.pl __ were_ necessary at application for
posao.
job
ñA recommendation and certificates were necessary in the job application.ò

c. Ispred nas __ šeta__ krava i telad.
in-front-of us __ walked_ cow.f.sg and calves.n.pl
ñA cow and some calves walked in front of us.ò

d. Pri upisu na narednu godinu, ni__ bi__ potrebn__ preporuka i
in entering on next year not__ were_ necessary_ recommendation.f.sg and
uverenja.
certificates.n.pl
ñRecommendation and certificates werenôt necessary to enrol at the next year of
studies.ò

(54)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	50.85%
			inanimate	51.67%
		feminine	animate	8.47%
			inanimate	-
		neuter	animate	40.68%
			inanimate	48.33%
	postverbally	masculine	animate	69.09%
			inanimate	50.85%
		feminine	animate	14.55%
			inanimate	11.86%
		neuter	animate	5.45%
			inanimate	6.78%

Table 10: Results for FSG+NPL

Number	Position	Gender	Animacy	Result
singular	preverbally	masculine	animate	-
			inanimate	-
		feminine	animate	-
			inanimate	-
		Neuter	animate	-
			inanimate	-
	postverbally	masculine	animate	-
			inanimate	-
		feminine	animate	10.9%
			inanimate	30.51%
		Neuter	animate	-
			inanimate	-

Table 11: Results for FSG+NPL

Condition 2 involves instances of NSG+FPL conjuncts with the same number of examples. The sentences in (55) were used to test this condition, and the results are presented in (56).

(55) a. Iako je padao mrak, maļe i ostale ģivotinje __ veselo trļa__
althoughis getting dark kitten.n.sg and other animals.f.pl __ cheerfully ran_
po dvorištu.
across yard
ñAlthough it was getting dark, the kitten and other animals were cheerfully running across the yard.ò

b. Naknadno obrazloženje i molbe ni__ uzet__ u razmatranje.
additional explanation.n.sg and appeals.f.pl not__ taken_ into consideration
ñAdditional explanation and appeals were not taken into consideration.ò

c. Radnike __ najbolje motivisa__ unapreĽenje i nagrade.
workers __ best motivated_ promotion.n.sg and prizes.f.pl
ñPromotion and prizes were the best motivation for the workers.ò

d. U istoj prostoriji spava__ __ prase i svinje.
in same room slept_ __ piglet.n.sg and pigs.f.pl
ñA piglet and some pigs slept in the same room.ò

(56)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	41.67%
			inanimate	60%
		feminine	animate	58.3%
			inanimate	40%
		neuter	animate	-
			inanimate	-
	postverbally	masculine	animate	76.67%
			inanimate	47.46%
		feminine	animate	6.67%
			inanimate	6.78%
		neuter	animate	1.67%
			inanimate	3.39%

Table 12: Results for NSG+FPL

Number	Position	Gender	Animacy	Result
singular	preverbally	masculine	animate	-
			inanimate	-
		feminine	animate	-
			inanimate	-
		neuter	animate	-
			inanimate	-
	postverbally	masculine	animate	-
			inanimate	-
		feminine	animate	-
			inanimate	-
		neuter	animate	16.67%
			inanimate	40.68%

Table 13: Results for NSG+FPL

In both sets of sentences, the patterns of agreement are similar. If the slight differences in percentages are neglected, conjunctions of NPs with different number values trigger mostly default agreement if they are preverbal. LCA is also found, and with greater frequency when a FPL animate noun is the second conjunct. If the second conjunct is NPL, default agreement is preferred, although LCA does exist in almost half of the cases.

Postverbal environment is preferred for singular agreement, as already mentioned above. The results obtained here follow the pattern. Since in these conditions the singular noun is the first conjunct, it is interesting to see what happens to FCA. For both conditions

FCA in the form of singular agreement is found both with animate and inanimate conjuncts. With animate nouns the percentage is small, and almost negligible, while inanimate nouns triggered singular agreement in 30.51% with a feminine noun, and 40.68% with a neuter noun as the first conjunct. Before providing an account for the patterns observed within Condition 1 and 2, let us first examine another two conditions, where number patterns are reverse.

The following two sets of sentences deal with the possibilities of agreement when the first conjunct is plural, and the second is singular. There are again two groups of sentences, each of them with 4 examples, covering two gender combinations. Condition 3 explores the combination of FPL+NSG. The table in (58) presents the results for this condition. The sentences presented to the participants to test this issue are given in (57). Singular agreement is not found in more than 10%, thus the results are presented only for plural agreement.

(57) a. Krave i tele __ smrġa__ zbog bolesti.
cows.f.pl and calf.n.sg __ lost-weight_ because-of illness
ñSome cows and a calf lost weight because of an illness.ò

b. Zahvaljujuĺ i njenom dolasku u grupu, nove ideje i oduġevljenje __
thanks-to her arrival to group new ideas.f.pl and thrill.n.sg __
unapredi__ posao.
improved_ work
ñThanks to her arrival to the group, new ideas and thrill improved the work.ò

c. Od te bolesti najpre __ obole__ krave i tele.
from that illness first __ suffered_ cows.f.pl and calf.n.sg
ñSome cows and a calf were the first to suffer from that illness.ò

d. Trenera __ od svega najviše brinu__ povrede i neiskustvo igrača.
coach __ of all most worried_ injuries.f.pl and inexperience.n.sg of-players
ñInjuries and inexperience of the players worried the coach the most.ò

(58)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	93.3%
			inanimate	55.93%
		feminine	animate	5%
			inanimate	32.2%
		neuter	animate	1.67%
			inanimate	3.39%
	postverbally	masculine	animate	33.33%
			inanimate	12.07%
		feminine	animate	66.67%
			inanimate	84.48%
		neuter	animate	-
			inanimate	1.72%

Table 14: Results for FPL+NSG

Condition 4 uses the combination of NPL+FSG. The examples presented to the participants to test this issue are given in (59), and the results are outlined in the table in (60). Singular agreement is not found in more than 10%, thus the results are presented only for plural agreement.

(59) a. Ne znajuć i kada je početak programa, deca i majka __
not knowing when is start of-programme children.n.pl and mother.f.sg __
stig__ sat vremena ranije.
arrived_ hour time earlier
ñNot knowing when the programme was supposed to start, children and the mother arrived an hour earlier.ò

b. Dodatna ulaganja i cena __ odvrati__ bračni par od
additional investments.n.pl and price.f.sg __ discouraged_ couple from
kupovine kuć e.
buying house

ñAdditional investments and the price discouraged the couple from buying the house.ò

c. Novogodišnju priredbu __ pripremi__ deca i nastavnica
New-Yearôs programme __ prepared_ children.n.pl and teacher.f.sg
ñThe children and the teacher prepared the New-Yearôs programme.ò

d. Na red __ došl__ pitanja i analiza.
on turn __ came_ questions.n.pl and analysis.f.sg
ñIt was time for questions and analysis.ò

(60)

Number	Position	Gender	Animacy	Result
plural	preverbally	masculine	animate	83.33%
			inanimate	78.33%
		feminine	animate	11.67%
			inanimate	8.33%
		neuter	animate	5%
			inanimate	11.67%
	postverbally	masculine	animate	35%
			inanimate	25%
		feminine	animate	-
			inanimate	-
		neuter	animate	65%
			inanimate	75%

Table 15: Results for NPL+FSG

The results for both conditions follow a similar pattern. If the conjuncts are preverbal, agreement is mostly default. What might be singled out as interesting is agreement with the first conjunct in FPL+NSG combination of inanimate conjuncts used by some speakers. If the conjuncts are postverbal, FCA is the pattern employed by the majority.

According to the results, singular agreement with conjoined NPs is actively used by some speakers. The relevant question is whether this is real agreement with the whole BP, as in the cases above, or only one of the conjuncts is taken into account. Bošković (2009) comments on this issue speculating that two reasons might be responsible for singular agreement. One reason might be that BP is not specified for number, and in that case one

of the conjuncts will supply both number and gender on the participle. The assumption that BP does not need to be specified for gender is illustrated by examples from English and Spanish given here in (61) (example (48) in Boǧkoviĺ (2009)).

(61) a. There is a woman and a man in the garden.

b. Llegó Juan y Miguel.
arrive.sg Juan and Miguel
ñJuan and Miguel arrived.ò

The fact that singular agreement is grammatical for speakers of these languages confirms that BP does not need to have inherent plural number specification. In this case, the participle probes for number on one of the conjuncts. The second option might be that the probe targets just one of the NPs for agreement, treating the other NP as an afterthought, or an apposition.

The results of the survey show that singular agreement consistently appears only with postverbal conjuncts. Either the option that only the first element agrees, or the option that BP does not have number specification might be used to explain this state of affairs. Under the assumption that BP is not specified for number, it could be said that Agree targets NP1 for both gender and number specification as BP has neither of the two. If this approach was applied to explain why preverbal agreement with conjuncts with different number and gender does not yield singular agreement, it would not be able to provide an adequate account. Take for example the combination of FSG+NPL or NSG+FPL. If the first conjunct, which is singular, values both the number and gender feature of the probe, pied-piping would not even be an issue. NP1 would be the unique valuator, and it should be the only element that undergoes movement. The results show that this is not the case, and that agreement can be either default or LCA, depending on other factors, but NP1 is

never extracted on its own. Looking at combinations of conjuncts where a plural conjunct occupies the position of NP1, as in FPL+NSG and NPL+FSG, it can be observed that LCA does not even exist, or it exists only in few individual instances. Postulating that BP has no number specification is not even necessary in this situation, it fits into the existing agreement pattern. It can be assumed that BP values the number feature, and NP1 values gender on the participle. Due to the impossibility of pied-piping caused by the impossibility of determining the unique valuator, Secondary Agree is initiated and it fails as the number specification on NP2 does not match the number specification of the participle. Number feature is interpretable, and as such, it is not deleted on the participle after first Match, and it must match the number feature on the second conjunct, which is not the case here. In order to prevent a crash, default masculine plural agreement is inserted.

Regular FCA pattern, however, will not explain why some speakers allow FCA with singular conjuncts. Under this approach, it is expected that the number feature will be valued as plural by the BP. The reason why singular agreement is allowed only with postverbal conjuncts may be due to a computation issue. Namely, the speaker that allows single-conjunct agreement is most probably targeting only NP1, treating NP2 as an afterthought, or an apposition.

There is, however, an issue that should not be neglected. In Section 3, it was noted that some authors found singular agreement with preverbal conjuncts in the literature. Examples from the literature with singular agreement are presented in (11), repeated here as (62).

(62) a. U svaḷemu pravda i istina mora nadvladati.
in everything justice.f.sg and truth.f.sg must.3.sg prevail
ñJustice and truth must prevail in everything.ñ

b. Prijateljstvo sa njemaḷkim carem i srodstvo sa grḷkim carevima
friendship.n.sg with German ruler and relation.n.sg with Greek rulers
dade Srbiji drugo lice.
gave.sg Serbia.dat different face
ñFriendship with the German ruler and the relation with Greek rulers gave Serbia a different image.ñ

c. Bezazlenost i pravda neka me saḷuva.
innocence.f.sg and justice.f.sg let me save
ñMay the innocence and justice save me.ñ

The sentences above, although unusual, are acceptable to speakers of Serbian. The reason for their acceptability lies in their meaning. In all examples, both conjuncts can be observed as constituting one entity. Thus *justice and truth* in the first sentence, or *friendship and relation*, or *innocence and justice* in the remaining two have a similar and related meaning and can be taken to refer to a single entity (just as *ham and eggs* can be observed as a single entity in English, and require singular agreement). This can be checked by means of a replacement test, replacing one of the conjuncts with a noun with different or opposite meaning. Thus, if the noun *pravda* (ójusticeô) from the first example is replaced by a different noun (e.g. *nepravda* óinjusticeô), the sentence becomes unacceptable, as in (63).

(63) *U svaḷemu nepravda i istina mora nadvladati.
in everything injustice.f.sg and truth.f.sg must.3.sg prevail
ñInjustice and truth must prevail in everything.ñ

The same would happen if in the other examples one of the nouns were replaced by one that is not connected to the other noun by its meaning. The semantic factor is thus crucial when deciding whether preverbal conjuncts may trigger singular agreement.

Bringing together the data presented for number agreement, it can be concluded that singular agreement is not a result of the LCA-FCA pattern. Singular agreement does exist in certain highly limited contexts in Serbian, where it can be explained by problems with computation. If the conjuncts are preverbal, they can trigger singular agreement on the condition that their meaning is closely connected and that they are observed as a whole. If they appear postverbally, only the first conjunct is targeted for agreement, while the second conjunct is treated as a separate element.

7. Concluding remarks

Subjects consisting of two conjoined NPs are specific in their behaviour in the process of agreement with the verb. This behaviour is specific in that, instead of one NP, there are two NPs involved in the process of feature probing, matching and valuing. In this thesis, agreement in number and gender features was examined using data from English and Serbian. Serbian language provides a means to explore both types of agreement, as it shows overt agreement for both number and gender.

One of the most detailed accounts on conjunct agreement was presented in Boǥkoviĺ (2009). There FCA and LCA are united and explained by means of a single process. This process relies on the Chomskian 3-stage operation Agree, which includes Probe, Match and Value. The participle has uniterpretable ű-features, and in order to satisfy them, it initiates the first stage of this process, and probes for the corresponding

feature on the conjunct phrase. It matches BP (which is inherently specified as plural) for number, and goes in search for gender, which it finds on the NP1. Both the BP and NP1 now value the uninterpretable features on the participle, and the existence of two valuators blocks pied-piping of the subject to preverbal position, as both of the valuators can be pied-piped. The process of agreement is initiated again, via Secondary Agree. In this process, the probe now matches NP2 for gender, and since there is no conflict, the whole BP can be pied-piped to preverbal position, giving the LCA pattern. FCA is the expected pattern when the conjuncts are postverbal, as there is no pied-piping, so the participle receives number from the BP and gender from NP1.

The proposed account incorporates the difference between interpretable and uniterpretable features, as their existence affects agreement. Thus, all uninterpretable features are deleted after Match. If they are interpretable (like number feature, or M or F gender on animate nouns), they are not deleted on the participle after Match, causing agreement mismatches in certain contexts, which are resolved by default agreement in most cases.

In order to test how speakers of Serbian employ agreement with conjoined subjects, a survey was conducted. The results invariably show that animacy is an important factor determining the outcome of subject-verb agreement. Drawing on Rappaport (2006), a connection was established between formal features participating in the agreement process, and semantic (or referential) features of the referent itself. Semantic (or r-features) of the noun can help provide a value for its formal (or f-features). Under this account, a noun that has the r-feature specification in the form of [r-animacy: +, sex: female] receives the following formal feature specification: [f-animacy: +, gender: feminine], by means of redundancy rules. Redundancy rules do not apply if the noun already has inherently

specified formal features, such as grammatical gender features in Serbian, and fail to apply if the formal specification of a noun does not correspond to the r-feature specification. The account of Rappaport (2006) relates to Bošković (2009, 2011) in that interpretable features are those that are provided on the noun by redundancy rules, whereas uninterpretable are those that are only formally assigned, without establishing any correlation to r-features.

The survey on conjunct agreement in Serbian recorded patterns that go in line with Bošković (2009, 2011), with some modifications concerning the interpretability of features. Namely, if both conjuncts bear interpretable features, the unvalued gender feature on the probe is valued as interpretable, and therefore not deleted after Match. When Secondary Agree is initiated, the gender feature on the second conjunct must match the gender feature already supplied on the participle. If the feature is identical, the participle surfaces with the form corresponding to both conjuncts (F or M). If the features on conjuncts are interpretable but with different specification, in the course of Secondary Agree, NP2 is supposed to match the gender feature already assigned to the participle by NP1 in Primary Agree. Since this does not happen, the derivation is saved by inserting the default.

When the account is extended to conjuncts with uninterpretable gender, two patterns with two groups of speakers can be distinguished. Some speakers do not associate formal to semantic features and do not need to apply redundancy rules. Other speakers search for semantic justification of formal features. For the former, agreement patterns with conjoined nouns with uniterpretable gender follow the account of Bošković (2009). The latter experience problems with agreement whenever a formal feature that can be interpretable does not have semantic ground, or when a formal feature is assigned

inherently, despite the existing semantic feature, in which case redundancy rule fails to apply. In both cases, the derivation is saved by introducing default gender features.

Number agreement with conjoined subjects follows the proposed FCA-LCA pattern. Some exceptions to this pattern do occur, and unpredicted singular agreement may appear, though in highly restricted circumstances. Singular agreement is the consequence of the interference of semantic factors into the existing system. If conjuncts are preverbal, they can trigger singular agreement only on condition that the whole conjunct phrase can be interpreted in such a way that both conjuncts are observed as constituting a whole. On the other hand, if singular agreement appears with postverbal subjects, its most probable cause is a computation problem; the participle targets only NP1 for agreement and does not treat the subject as a conjunct phrase, but rather as an NP with an additional NP as an apposition.

Conjunct agreement is an issue whose exploration can shed light on the process of agreement in general. As a non-standard type of agreement, it points out to the possible contexts in which the operation Agree may experience problems, or even fail to apply. The data presented in this thesis undoubtedly show that formal features, whose valuation drives the operation Agree, can be, and often are, connected to the referential features of the noun. What remains to be examined in the future are the exact nature of this correlation, and its influence on agreement in wider contexts.

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