RESEARCH

Agreement and the structure of relative clauses

Boban Arsenijević[1] and Martina Gračanin-Yuksek[2]

[1] University of Niš, Ćirila i Metodija 2, 18000 Niš, Serbia

[2] Middle East Technical University, 06800 Ankara, Turkey

Corresponding author: Boban Arsenijević (b.arsenijevic@gmail.com)

The paper proposes an account of asymmetries in agreement patterns that obtain in restrictive and non-restrictive relative clauses headed by hybrid agreement nouns *d(j)eca* 'children', *braća* 'brothers', and *gospoda* 'gentry' in Bosnian/Croatian/Serbian (BCS). We note that relative clauses headed by hybrid nouns display different possibilities of agreement morphology on the relative pronoun *koji/a/e* 'which', depending, on the one hand, on whether the relative clause is restrictive or non-restrictive and on the other, on the case of the relative pronoun. We argue that the observed differences are the result of a conspiracy of the following factors: (i) hybrid number-agreement nouns introduce a null plural pronoun unspecified for gender (Postal 1966; den Dikken 2001; Torrego and Laga 2015), (ii) all plural case forms of the relative pronoun except for nominative and accusative show full gender syncretism (Alsina and Arsenijević 2012b), and (iii) non-restrictive relative clauses involve a null definite pronoun and attach to the head noun higher than the restrictive relative clauses (Postal 1994; de Vries 2002; 2006). We maintain that the facts discussed in the paper argue against analyses which derive the differences between restrictive and non-restrictive relative clauses from their LF representations, rather than from their overt syntax.

1 Introduction

Restrictive relative clauses (RRCs) and their non-restrictive counterparts (NRCs), although string-identical, exhibit a number of differences in interpretation. While RRCs serve the purpose of restricting the class of entities denoted by the head, NRCs provide additional information about the referent of the head noun. This main interpretive contrast between the two types of relative clauses is reflected in the types of nominal expressions that the relative clause can be predicated of: NRCs may have proper names as their heads, RRCs cannot (apart from exceptional cases when the context contains several people with the same name). By contrast, while RRCs can be headed by a universal quantifier, NRCs are ill-formed with such heads. In English, both RRCs and NRCs can be introduced by the wh-operator *which*, but only RRCs may also be introduced by *that* and have the form of bare relatives and free relatives.

A number of analyses has been put forward that aim at explaining these differences. They can be classified into two groups: (i) analyses in which RRCs and NRCs have the same overt syntax, with differences only at LF (Demirdache 1991; Kayne 1994; Bianchi 2000) and (ii) analyses which postulate differences between RRCs and NRCs in their overt syntax (Jackendoff 1977; Safir 1986; De Vries 2002; 2006; Resi 2011, among others).

In this paper, we investigate agreement between the relative pronoun and the head noun in RRCs and NRCs in Bosnian/Croatian/Serbian (BCS) and argue that differences in agreement patterns that obtain in the two types of relative clauses can only be explained if RRCs and NRCs differ in their *overt* syntax. In particular, we focus on three hybrid nouns in BCS: *d(j)eca*[1] 'children', *braća* 'brothers', and *gospoda* 'gentry', which are morphologically singular, but semantically denote plural entities (Corbett 2006, a.o.). When a hybrid noun heads a RRC, two patterns of agreement between the head noun and the relative pronoun obtain, depending on the case in which the relative pronoun appears (Wechsler and Zlatić 2000): In nominative and accusative, the relative pronoun reflects the noun's morphological features (singular); in other cases, it may agree either with the morphological (singular) or the semantic (plural) features of the head noun. By contrast, the relative pronoun of a NRCs headed by a hybrid noun can reflect either set of features of the head noun (morphological or semantic) across the board (Alsina and Arsenijević 2012a; b). We take the fact that agreement is a phenomenon with phonological consequences to indicate that it cannot be an LF process. Rather, it has to happen at a point in the derivation that precedes spell-out (Chomsky 2000; 2001).[2] Under this assumption, different agreement patterns that the hybrid nouns show in RRCs and NRCs imply that the structures of the two types of relative clauses must be sufficiently different from each other to allow for the observed differences before the level of LF. This in turn argues against the analyses of differences between RRCs and NRCs in (i) above.

The grammaticality data about the agreement with hybrid nouns in this paper are based on a grammaticality judgment questionnaire implemented with 79 subjects, speakers of the Serbian variety. All patterns presented as grammatical had an average score above 4 on a Likert scale from 1 to 5 (1 = completely unacceptable, 5 = completely acceptable), and those presented as ungrammatical had an average score below 2. Other grammaticality judgments are the authors', and are also tested with a number of other speakers.

The paper is organized as follows: in Section 2, we present the general agreement properties of the three hybrid nouns in BCS. In Section 3, we introduce BCS relative clauses and present the patterns of agreement between the hybrid head noun and the relative pronoun in RRCs and NRCs together with the outline of the analysis of the observed phenomena. Section 4 presents our analysis of the agreement facts, and Section 5 provides empirical support for the null plural pronoun and its unspecified gender. In section 6, we survey the existing analyses of the differences between RRCs and NRCs and point out how the data we investigate may be reconciled with different proposals. Section 7 is the conclusion.

---

[1] The pronunciation and spelling of this noun varies across different varieties. While *djeca* (sg: *dijete*) is the standard in Croatia and Bosnia and Herzegovina, *deca* (sg: *dete*) is the standard in Serbia.

[2] Bobaljik and Wurmbrand (2005) argue that agreement obtains at LF. The cost of such an account is a significantly more complex model (a vast amount of agreement patterns are generated and filtered out only at LF as crashed derivations). With this possibility included, our argument is that agreement cannot be taking place before the structural difference between RRCs and NRCs has been established in the course of the derivation.

Accounts in which agreement takes place in two stages, one of which is in narrow syntax (Agree/Link) and the other at PF (Agree/Copy), such as Arregi and Nevins (2013), and most other multi-component views of agreement (a.o. Guasti & Rizzi 2002; van Koppen 2005; Franck et al. 2006; Marušič et al. 2007; 2015; Benmamoun et al. 2009; Franck 2011; Bhat & Walkow 2013; Polinsky 2014) are still compatible with our data.

2 The three BCS hybrid nouns

As mentioned in Section 1, three BCS nouns: *d(ij)ete* 'child', *brat* 'brother' and *gospodin* 'gentleman' differ from typical nouns in the language in not forming morphological plurals (**d(j)eteta, *bratovi, *gospodini*).[3] Instead, these nouns have preserved productive collective forms (*d(j)eca, braća, gospoda*), which take on the plural use. These collective forms are morpho-syntactically singular feminine nouns, i.e. they belong to class II (Mrazović and Vukadinović 1990), just like, for example, the noun *žena* 'woman'. The three collective nouns show hybrid agreement patterns depending on whether the target of agreement is DP-internal or DP-external.

Nouns *braća* 'brothers' and *d(j)eca* 'children' are modified by morphologically feminine singular adnominals, which in BCS agree with nouns in gender, number, and case, but at the same time, they require a plural finite verb, as shown in (1) and (2).

(1)   Moja   starija   braća   idu/*ide   u   kupovinu. (BCS)[4]
       my.F.SG   older.F.SG   brothers   go/*goes   in   shopping
       'My older brothers are going shopping.'

(2)   Sva   pametna   d(j)eca   idu/*ide   u   školu.
       all.F.SG   smart.F.SG   children   go.PL/*go.SG   in   school
       'All smart children go to school.'

The rough generalization seems to be that DP-internally, agreement is dictated by the morphological features of the noun, while DP-externally, it is determined by the semantic features, since both the noun *braća* 'brothers' and the noun *d(j)eca* 'children' are semantically plural (masculine and neuter respectively).

The noun *gospoda* 'gentry' behaves like the nouns *braća* 'brothers' and *d(j)eca* 'children' in that it also has to be modified by adnominals in feminine singular, and differs from them in that it may coocur either with a singular or a plural verb.

(3)   Sva   profinjena   gospoda   puši   /puše   cigare.
       all.F.SG   refined.F.SG   gentry   smoke.SG   /smoke.PL   cigars
       'All the refined gentlemen smoke cigars.'

Thus, the noun *gospoda* 'gentry' may show morphological agreement both DP-internally and DP-externally, and it can also show hybrid agreement, on a par with the nouns *braća* 'brothers' and *d(j)eca* 'children'.

In what follows, we investigate complex noun phrases in which a hybrid noun is modified by a RRC or a NRC, looking into the patterns of agreement with the relative pronoun (RP) that the three collective nouns show in the two constructions. We will see that the RP may reflect either the head noun's morphological features (feminine singular) or the respective semantic features (masculine/neuter plural) depending on the kind of the relative clause (RRC versus NRC) and the case in which the RP appears.

---

[3] Typically, this class of hybrid nouns is listed with four members, including also the noun *vlastelin* 'nobleman' (coll. pl. *vlastela* 'nobility'). Since this word differs from the other three in having also a plural form (*vlastelini* 'nobles'), we do not consider it a full-fledged member of the class. Our analysis is not affected by this move, as this noun behaves like the noun *gospoda* 'gentry' in the relevant respects.

[4] Unless specified otherwise, all the examples in the paper are from BCS. In further text, we thus omit the specification of the language.

3 Hybrid nouns and relative clauses

We only consider the *koji*-series (wh-series) relative clauses in BCS, as only they show agreement with the head of the relative clause. The RP *koji* 'which' agrees with the head of the relative clause in number and gender, regardless of whether the relative clause is restrictive or non-restrictive. This is shown in (4).

(4)   Onaj brod(,)   kojeg   sam   očekivao(,)   je   uplovio u   luku.
         that ship.SG.M which.SG.M Aux.1SG expected.M.SG Aux.3SG sailed   into harbor
         NRC variant: 'That ship, which I have been expecting, has sailed into the harbor.'
         RRC variant: 'The ship that I have been expecting has sailed into the harbor.'

However, when the head of the relative clause is one of the three hybrid nouns (*d(j)eca*, *braća*, *gospoda*), the RP *koji* 'which' shows different types of agreement, depending on whether it introduces a RRC or a NRC (Alsina and Arsenijević 2012b).

In RRCs, agreement marking on *koji* 'which' depends on the case of the RP. When it is in nominative or accusative, the RP agrees with the morphological (FEM.SG.) features of the head noun, as in (5a) and (6a) below. We refer to this kind of agreement as *syntactic agreement. Semantic agreement,* i.e. agreement matching the semantic properties of the (referent of the) nominal expression (MASC./NEUT.PL.), is disallowed, as shown in (5b) and (6b).

(5)   a.   braća   **koja**   me   vole   RRC-NOMINATIVE
               brother.COLL which.NOM.**F.SG** me.ACC   love.3PL ✓*syntactic agreement*
               'brothers that love me'

         b.   *braća   **koji**   me   vole   **semantic agreement*
               brother.COLL which.NOM.**M.PL** me.ACC   love.3PL
               'brothers that love me'

(6)   a.   braća   **koju**   volim   RRC-ACCUSATIVE
               brother.COLL which.ACC.**F.SG** love.1SG   ✓*syntactic agreement*
               'brothers whom I love'

         b.   *braća   **koje**   volim   **semantic agreement*
               brother.COLL which.ACC.**M.PL** love.1SG
               'brothers whom I love'

When the RP appears in any case other than nominative and accusative, it can agree either with the morpho-syntactic features of the head noun (FEM.SG.) or with its semantic properties (MASC./NEUT.PL.). This is shown in (7) for dative.

(7)   a.   braća   **kojoj**   pokazujem kuću   RRC-DATIVE
               brother.COLL which.DAT.**F.SG** show.1SG   house.ACC ✓*syntactic agreement*
               'brothers to whom I am showing the house'

         b.   braća   **kojima**   pokazujem kuću   ✓*semantic agreement*
               brother.COLL which.DAT.**M.PL** show.1SG   house.ACC
               'brothers to whom I am showing the house'

So, in RRCs headed by hybrid nouns, while syntactic agreement is forced when the RP appears in nominative or accusative, either syntactic or semantic agreement is possible in other cases.

NRCs contrast with RRCs in that the RP *koji* 'which' may agree with the hybrid head noun either in morphological or semantic features in all cases.

(8)   a.   moja   braća,   **koja**   me   vole   NRC-NOMINATIVE
               my.F.SG brother.COLL which.NOM.**F.SG** me.ACC   love.3PL ✓*syntactic agreement*
               'my brothers, who love me'

	b.	moja	braća,	**koji**		me	vole	✓*semantic agreement*
		my.my.F.SG	brother.COLL	which.NOM.**M.PL**		me.ACC	love.3PL	
		'my brothers, who love me'						
(9)	a.	moja	braća,	**koju**		volim	NRC-ACCUSATIVE	
		my.F.SG	brother.COLL	which.ACC.**F.SG**		love.1SG	✓*syntactic agreement*	
		'my brothers, whom I love'						
	b. %	moja	braća,	**koje**		volim[5]	✓*semantic agreement*	
		my.F.SG	brother.COLL	which.ACC.**M.PL**		love.1SG		
		'my brothers, whom I love'						
(10)	a.	moja	braća,	**kojoj**		mašem	NRC-DATIVE	
		my.F.SG	brother.COLL	which.DAT.**F.SG**		wave.1SG	✓*syntactic agreement*	
		'my brothers, who I am waving to'						
	b.	moja	braća,	**kojima**		mašem	✓*semantic agreement*	
		my.F.SG	brother.COLL	which.DAT.**M.PL**		wave.1SG		
		'my brothers, who I am waving to'						

We argue that the attested agreement patterns between the hybrid noun and the RP in both RRCs and NRCs arise due to a conspiracy of three factors:

i. The attachment site of the RRC is lower than the attachment site of the NRCs: RRCs attach to the head noun before the point at which the nominal expression establishes reference, which is usually taken to be the merger of the DP layer (Longobardi 1994). On the other hand, NRCs modify referring expressions, i.e. DPs.

ii. The collective forms *d(j)eca* 'children', *braća* 'brothers', and *gospoda* 'gentry', introduce a null plural pronoun unspecified for gender (we adopt a modified version of den Dikken's 2001 analysis of English 'pluringulars', which also show a combination of morpho-syntactic singular with a semantic plural feature).

iii. The plural forms of the RP in BCS *kojima* are syncretic across the three genders in all cases except for nominative and accusative.

In the next section, we spell-out the details of our analysis together with a discussion of the mechanism of plural agreement of hybrid nouns that we assume, which plays a rather central role in our account.

4 The mechanics of agreement

With respect to the make-up of hybrid nouns, we adopt the view that nominal expressions with plural semantics introduce a null plural pronoun (Postal 1966; den Dikken 2001; Citko 2004; Torrego and Laka (2015). We develop an account that relies on den Dikken's analysis of 'pluringulars' and Postal's and Torrego's analyses of expressions of the type *us linguists*. With den Dikken, we assume that hybrid number-agreement nouns involve a null pronoun specified for plural, but rather than representing the pronoun as an alternative-appositive null plural pronoun, as den Dikken does, we place it in the extended projection

---

[5] For some speakers, (9b) is ill-formed. More generally, these speakers find degraded any relative clause in which the relative pronoun is accusative and bears semantic agreement. While for the moment our analysis does not predict these judgments, we believe that they can be explained if the grammar of these speakers contains a requirement that the features checked in the agreement relation between an object NP and v^0 be overtly spelled out (for the details of the analysis, based on the discussion of *što*-relative clauses in Croatian, see Gračanin-Yuksek 2013).

of the noun itself (which is closer to the views of Postal 1966 and Torrego and Laka 2015). More precisely, we believe that since the pronoun denotes plurality, it occupies the Num(ber) projection that dominates the noun. Let us start with den Dikken, and then introduce the modification.

As already mentioned, den Dikken takes the pronoun to be an alternative-appositive null plural pronoun: a plural pronominal DP right adjacent to the singular DP projected by the noun. The probe may target either DP for purposes of agreement, as represented in (11a). Analogously, (11b) presents the analysis applied to BCS hybrid nouns, in this case with a RP introducing a NRC.[6]

(11)　　a.　$[[_{DPi\text{-}Sg}$ the $[_{NP\text{-}Sg}$ government]] $[_{DPj}$ pro] is$_i$/are$_j$ meeting.
　　　　b.　$[[_{DPi\text{-}FSg}$ $[_{NP\text{-}FSg}$ braća]] $[_{DPj\text{-}Pl}$ pro], koja$_{i\text{-}FSg}$/koji$_j$ . . .

As den Dikken's analysis was tailored for English data, where the verb does not agree for gender, it does not address whether the null pronoun is specified for gender or not. Two possibilities are available:

Possibility 1: The pronoun may bear any gender or be unspecified, and semantics and pragmatics eliminate those values that do not match the properties of the referent (e.g. since brothers are male, the null pronoun introduced by *braća* 'brothers' is accepted if masculine and rejected if neuter or feminine). But how come then the morpho-syntactic agreement (FEM.SG) survives pragmatics and semantics (as in (5)-(10))? It is expected that syntactic agreement should be the worst option, as it clashes with both the quantity and the gender properties of the referent.

Possibility 2: The pronoun is unspecified for gender, it only bears PL number, and only triggers number agreement. This is a stronger view, as it excludes masculine, feminine, or neuter gender feature on the null pronoun, which is allowed under Possibility 1. But how come only *masculine* plural forms of the RP are allowed in NRCs, in case forms in which the RP shows gender (and not plurals of just any gender, or in particular feminine plurals, where number would come from the pronoun and gender from the noun, assuming that as argued in a.o. Bošković 2009, number and gender agreement in BCS may have different goals)?

We argue that the Possibility 2 provides a better account of the observed facts, and that what is dubbed semantic agreement of RPs in NRCs is not agreement with the null plural pronoun associated with the hybrid noun, but with a null definite pronoun postulated independently in analyses of NRCs (Postal 1994; de Vries 2002; 2006). On our view, two goals for agreement are available to RPs in RRCs: one which can be agreed with in both gender and number (the noun itself) and one which can be agreed with only in number (the null plural pronoun). The latter is limited to those case forms that do not mark gender, i.e. that are syncretic between all three gender values. In order to capture the asymmetries in agreement patterns between RRCs and NRCs, we modify den Dikken's analysis presented for BCS RPs in (11b), by placing the null plural pronoun in the very projection of the hybrid noun (with Postal 1966 and Torrego and Laka (2015) – rather than having it as an appositive DP as in den Dikken 2001). However, we depart from the above mentioned authors in that we place the pronoun in the Num^0 position, as represented in (12).[7]

---

[6] Throughout the paper, we follow Longobardi (1994) and his Universal DP Hypothesis, taking BCS nominal expressions to also involve a DP. If the assumption that nominal expressions in BCS contain a DP layer turns out to be false, as argued by e.g. Bošković (2008), then our proposal is to be seen as arguing for whatever layer of structure within the NP itself is responsible for establishing reference in the framework that denies the DP (see Despić 2013, for example, for a proposal that derives the distinction between definite and indefinite interpretation of adjectives in the language by appealing to an extra functional layer in the structure of adjectives).

[7] Thus, our analysis of hybrid nouns is reminiscent of the analysis of NPs containing numerals (e.g. Bošković 2006; Despić 2011), which have number, but not gender specifications and take the NP as the complement.

(12) $[_{\text{NumP}}$ pro$_{\text{i-Pl}}$ $[_{\text{NP}}$ braća$_{\text{j-FSg}}]]$, koja$_{\text{j-FSg}}$/koji$_{\text{i-MPl}}$ . . .

The possible targets of agreement for the RP in RRCs are shown in Figure 1.
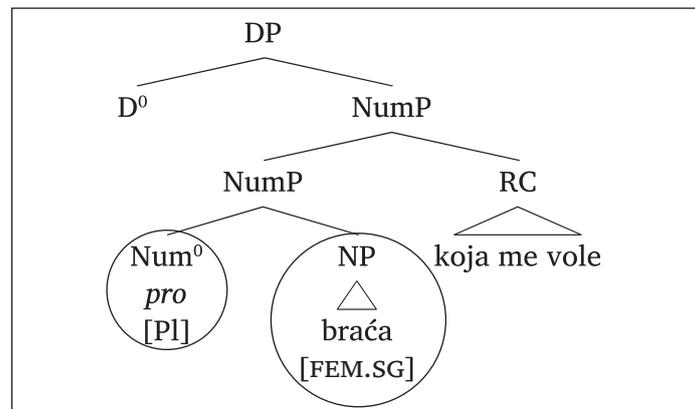
Figure 1: The possible targets of agreement for the RP in RRCs.

Our analysis capitalizes on the fact that syntactic agreement in RRCs is forced exactly in those cases in which the RP marks gender (as observed by Alsina and Arsenijević 2012b). As shown in Table 1, the plural forms of the RP differ across gender only in nominative and accusative, while in all other case forms the three genders show syncretism. It is exactly in nominative and accusative that the RP in a RRC cannot show plural agreement.

	Masculine		Feminine		Neuter	
Nominative	koj-**i**	stolov-i	koj-**e**	jabuk-e	koj-**a**	sunc-a
	which.PL.M	tables.PL.M	which.PL.F	apples.PL.F	which.PL.N	suns.PL.N
Accusative	koj-**e**	stolov-e	koj-**e**	jabuk-e	koj-**a**	sunc-a
	which.PL.M	tables.PL.M	which.PL.F	apples.PL.F	which.PL.N	suns.PL.N
Dative / Locative	koj-**im**	stolov-ima	koj-**im**	jabukama	koj-**im**	suncima
	which.PL	tables.PL.M	which.PL	apples.PL.F	which.PL	suns.PL.N
Genitive	koj-**ih**	stolov-a	koj-**ih**	jabuk-a	koj-**ih**	sunac-a
	which.PL	tables.PL.M	which.PL	apples.PL.F	which.PL	suns.PL.N
Instrumental	koj-**im**	stolov-ima	koj-**im**	jabuk-ama	koj-**im**	sunc-ima
	which.PL	tables.PL.M	which.PL	apples.PL.F	which.PL	suns.PL.N

Table 1: Plural forms of the relative pronoun across case forms.

We propose that when the RP appears in nominative or accusative, it cannot agree with the genderless null plural pronoun because the RP in these cases has only gender-specific forms, so no form of the RP can be inserted based on the values of the pronoun's gender feature. This mismatch is schematically illustrated in (13) for the noun *braća* 'brothers'.

(13)   { *koji* [Number: PL, *****Gender: M**],
       $[_{\text{NumP}}$ **pro$_{\text{Pl}}$** $[_{\text{NP}}$ braća$_{\text{FSg}}]]$ *koje* [Number: PL, *****Gender: F**],
                                                                                               koja [Number: PL, *****Gender: N**] }

Instead, the RP in these cases agrees with the head noun itself, yielding the results indicative of syntactic agreement.

One additional goal for agreement is provided in NRCs: a null definite pronoun, which is introduced into the structure as incorporated in the RP (according to the analyses in de Vries 2002; 2006) or is sitting in the relativization gap (as in Postal 1994). This pronoun shows full semantic agreement, i.e. it carries the features which fit the semantic properties

of the referent both in gender and number (or else a semantic/pragmatic violation is yielded).

It is well known that personal pronouns in BCS may agree with a nominal antecedent, copying its morpho-syntactic fatures, or display semantic agreement, i.e. the features matching the semantic properties of the referent. This is illustrated in (14).

(14) a. Jučer   su   mi   došla   braća.
          yesterday Aux.PL   me.DAT   came.F.SG   brother.COLL
          'My brothers came yesterday.'

      b. **Oni   / ona**   uvijek   dođu   kad   imam   najviše posla.
          They.M.PL / they.F.SG always   come.PL   when   have.1SG   most   work
          'They always come when I am the busiest.'

We take this to indicate that pronouns possess two different sets of features; those that reflect the antecedent's morpho-syntactic properties and those that reflect the semantic properties of the referent. In the normal case, the two sets carry identical values. In the case of a hybrid noun, however, the two sets of values are not identical (FEM.SG. versus MASC.PL. for *braća* 'brothers', *gospoda* 'gentlemen' and NEUT.PL. for *d(j)eca* 'children'), and either set can be lexicalized (spelled-out), as (14) shows.[8]

We assume that the null definite pronoun, present in the structure of NRCs, behaves like any other pronoun, i.e. it agrees with the head noun in the morpho-syntactic features (FEM.SG. in case of the collective nouns in question), but it also reflects the features matching the semantic properties of the referent (MASC.PL.). The RP, which introduces the free relative component in de Vries's analysis of NRCs, may target for agreement either set of features. This results in the RP appearing in the form that matches either the morpho-syntactic features of the head noun (syntactic agreement) or the semantic features of the head noun (semantic agreement). Thus, even though in the structure of NRCs, there are three phi-features-carrying items: (the noun, the genderless plural pronoun, and the definite pronoun), the one targeted for agreement by the RP is the definite pronoun, which is the closest goal. This is shown in Figure 2, which is a simplified version of De Vries' (2006) analysis of NRCs (the target of RP agreement is circled).

---

[8] A reviewer asks whether the pronoun *ona* in (14b) might in fact be neuter plural instead of feminine singular (since the two forms are syncretic in the nominative case). Following the reviewer's advice, we tested the well-formedness of sentences where the pronoun appears with different case marking, as illustrated in (i), and our informants judged them as well-formed.

(i) D(j)eca   su   uvek   za   akciju. Njoj   ništa   nije   teško.
     children   Aux.PL   always   for   action   she.DAT nothing NEG.Aux.3SG difficult
     'Children always want to do things. Nothing is difficult for them.'

The same reviewer asks whether our model with an additional null pronoun in NRCs predicts that NRCs modifying *pluralia tantum* nouns with singular referents such as *vrata* 'door.PL.N', which is morpho-syntactically Neut.Pl but refers to a singular object, will be grammatical also when introduced by a singular RP, contrary to fact. While we recognize that the noun *vrata* 'door' is similar to the hybrid nouns we discuss in that its grammatical features (neuter plural) seem to clash with (at least) the cardinality of the object it denotes (singular), we would like to point out that, unlike the hybrid nouns, *pluralia tantum* nouns *consistently* show syntactic (plural) agreement in all their agreement dependencies. We thus have no evidence that there is, in fact, a clash between the noun's morpho-syntactic and semantic features. It is possible that the referent of the noun *vrata* 'door' in BCS is conceptualized as a plurality, resulting in a consistent plural agreement. In any event, we feel that the differences between the behavior of the hybrid nouns (hybrid agreement) and *pluralia tantum* nouns (reliably plural agreement) are great enough for the predictions of our analysis for the former not to necessarily extend to the latter. We do predict that the morpho-syntactic options on the RP in NRCs for a hybrid agreement head noun will closely correspond to the morpho-syntactic options for an anaphoric personal pronoun, and this prediction indeed seems to be borne out.
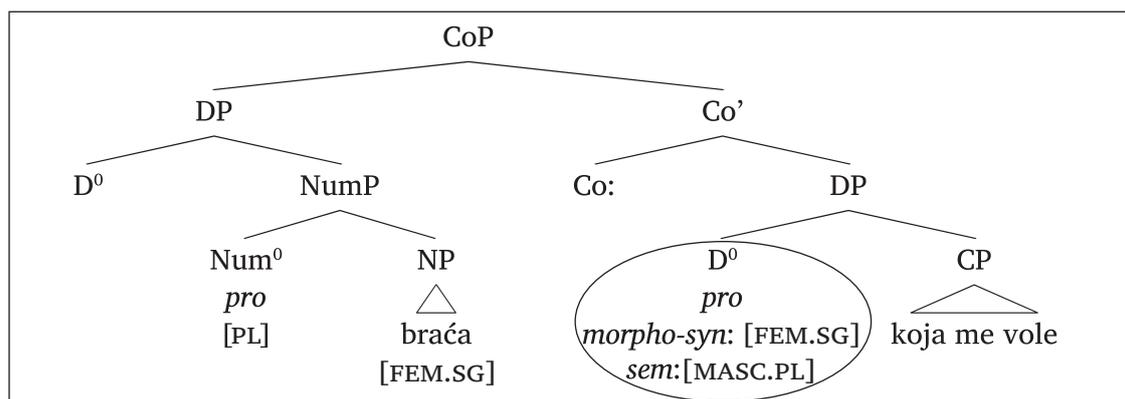
Figure 2: The target of RP agreement in de Vries's structure of the NRC.

Thus, in our analysis, the crucial asymmetry between RRCs and NRCs is in the referentiality of the relativized constituent: while in RRCs it is bound by the nominal head, in NRCs it independently refers (and is co-referential with the head). This view of NRCs is relatively standard in contemporary literature, and has been modeled in different ways, e.g. by a silent definite pronoun within the RP (de Vries 2002; 2006), or by a silent definite pronoun in the gap position (Postal 1994). The asymmetry in referential properties is directly related to a structural asymmetry common to most accounts of the differences between RRCs and NRCs: NRCs are interpreted outside the head DP, while RRCs are interpreted DP internally (ever since Jackendoff 1977).

The analysis yields exactly the empirically confirmed picture: RPs in RRCs show morpho-syntactic agreement and, in gender-syncretic cases also agreement with the null plural pronoun. In NRCs, RPs show full semantic agreement in all case forms, copied not from the plural pronoun, but from the silent definite pronoun, specific to the structure of NRCs.

5 Genderless null plural pronoun

In this section, we briefly outline some evidence for the null plural pronoun introduced by hybrid agreement nouns in BCS and for the view that it indeed involves a specification of plural number but no specification of gender. The evidence is based on the behavior of nominal expressions which behave oddly in respect of agreement: names which carry a morpho-syntactic specification of number and/or gender that does not match the properties of their referent, such as *Diana Dramond* (alias of the writer William P. Kennedy), *Currer Bell* (alias of the writer Charlotte Bronte), *Robert Galbraith* (alias of the female writer J. K. Rowling), *Džukele* ('stray_dogs.F.PL', the name of an all-male rock band), *Eva Braun, Gospodin Pinokio* (both names of all-male rock bands), *Lutajuća srca* ('Wandering Hearts.N.PL', the name of an all-male rock band), *Oružjem protivu otmičara* ('With the Weapons against the Kidnappers', the name of an all-male rock band), *Lanci* ('Chains.M.PL', the name of an all-female soul band).

On our view, the plural pronoun is introduced with collective nouns due to the plurality of their reference. Their clash with the singular number of the nouns is avoided due to the non-countable nature of the singular noun (collective nouns pattern with mass nouns in respect of grammatical number). We thus predict that singular countable nouns will block the introduction of the pronoun even when the reference is clearly plural. This prediction is borne out, as shown in (15a-b). These contrast with (15c), where the band name is not a nominative nominal expression, and hence fails both to provide features for morpho-syntactic agreement and to block the introduction of the plural pronoun.

(15)   a.   *Eva   Braun   su   napravili   dva   hita.   (count F.SG noun)
            Eva   Braun   Aux.PL made.M.PL two   hits
            int. 'Eva Braun made two hits.'

      b.   *Gospodin   Pinokio   su   se   pojavili   1993.   (count M.SG noun)
            Mister   Pinocchio Aux.PL Refl   appear.M.PL 1993
            int. 'Gospodin Pinokio appeared in 1993.'

      c.   Oružjem   protivu otmičara   su   se   ponovo okupili.   (Inst)
            weapon.INST.SG against kidnappers Aux.PL Refl   again   gathered.M.PL
            'Oružjem protivu otmičara regathered.'

As we take the null plural pronoun to be unspecified for gender, a further prediction is that plural count nouns will license semantic gender agreement, but singular nouns will not. This is because in singular count nouns, the strong interpretation of the singular due to the count nature of the noun blocks the introduction of the null plural pronoun. As shown in (16), the second prediction is also born out.

(16)   a.   Džukele   su   svirali   nekoliko   godina.
            stray_dogs.F.PL Aux.PL played.M.PL several   years
            'Džukele played for several years.'

      b.   Lanci   su   bile   pioniri domaćeg   ženskog   soula.
            chains.M.PL Aux.PL been.F.PL pioneers domestic.GEN female.GEN soul.GEN
            'Lanci were the pioneers of the Yugoslav female soul.'

      c.   *Diana Dramond je   napisao   Dobru   sestru.
            D   D   Aux.SG written.M.PL good   sister
            int. 'Diana Dramond wrote The Good Sister.

      d.   *Currer Bell je   posle prvog romana otkrila   svoj identitet.[9]
            C   B   Aux.SG after first   novel   revealed.F.SG own identity
            int. 'Currer Bell revealed her true identity after her first novel.'

BCS systematically projects null plural pronouns unspecified for gender whenever plural semantics is involved, except in the case of morphologically singular count nouns whose strong singular feature blocks it.

6 Implications for analyses of differences between RRCs and NRCs

Two different types of analyses of the asymmetries between RRCs and NRCs can be found in the literature. According to the first type, RRCs and NRCs have the same overt, but differ in their LF syntax (Demirdache 1991; Kayne 1994; Bianchi 2000). The second type of analyses postulates that the difference between RRCs and NRCs is a reflex of their overt syntax (Ross 1967; Jackendoff 1977; McCawley 1982; Safir 1986; de Vries 2002; 2006; Resi 2011).[10] Assuming that agreement, as a core syntactic phenomenon with overt phonological effects, cannot depend on pure LF phenomena, the hybrid agreement facts that we analyzed here provide evidence against the first type of analyses. No analysis of

---

[9] This judgment depends on the awareness of the BCS speaker of the masculine nature of the name Currer. If it is interpreted as a foreign female name, the sentence is grammatical, of course.

[10] Due to space limitations, we leave aside the orphanage approaches such as Ross (1967), McCawley (1982) or especially Safir (1986), in which NRCs are generated independently of the head noun and its projection (and possibly establish a relation only at LF), and those like Resi (2011), where two different types of analyses are employed for the two types of RCs. However, as in these approaches the difference between the two types of RCs obtains in narrow syntax, they are in principle compatible with our data (the only set of facts they may have trouble explaining without additional assumptions is the special behavior of the nominative and accusative forms of RPs in RRCs).

RRCs and NRCs may restrict the asymmetries between the two types of relative clauses to LF and still account for the empirical facts. One of the analyses of which this is true is that of Demirdache (1991), who generates both RRCs and NRCs as NP adjuncts, but then proposes that NRCs move at LF to adjoin to DP. Kayne (1994) and Bianchi (2000) cannot derive the differences in agreement patterns we observed either since on their approach, NRCs, like RRCs, involve the raising of the relativized NP from within the relative clause to a relative-clause-external position (Brame 1968; Schachter 1973; Vergnaud 1974; Åfarli 1994; Safir 1999; Hornstein 2000 and Bhatt 2002), which is only at LF followed by the movement of the (remnant) relative IP to a position where it is no longer c-commanded by D, as shown in Figure 3.
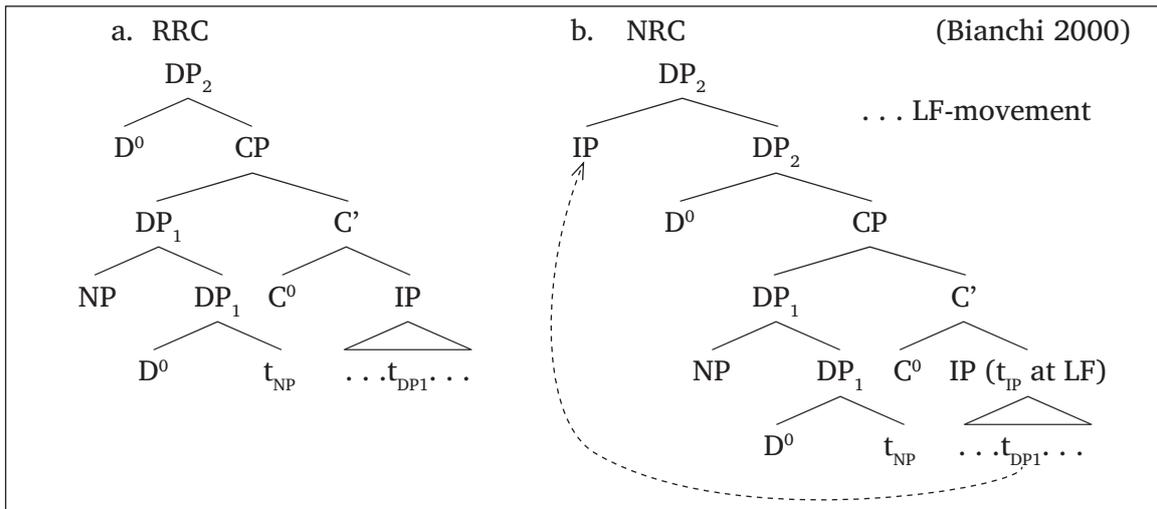
Figure 3: Type 1 – difference between RRCs and NRCs restricted to LF.

On the other hand, our data are compatible with any of the analyses which maintain that RRCs and NRCs have different overt syntax. Jackendoff (1977) and similar accounts propose that RRCs adjoin to the N', while NRCs adjoin to the NP (N_1, N_2, respectively in Jackendoff's terms). In modern terms, RRCs are NP adjuncts, while NRCs are DP adjuncts. On this analysis, illustrated in Figure 4, asymmetries in the agreement between RRCs and NRCs can be derived, assuming adequate specifications for N_1/NP and N_2/DP.
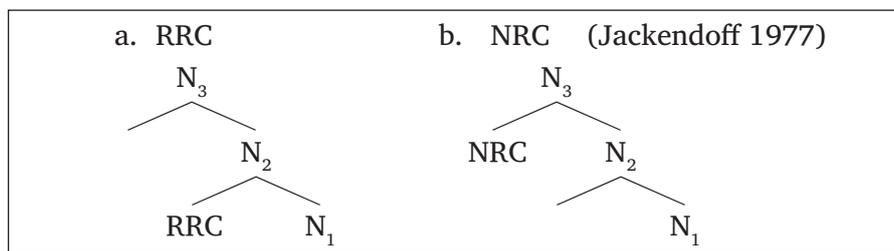
Figure 4: Type 2a – RRCs attach to NP, NRCs to DP.

The observations presented in this paper can also be accounted for on the analysis presented in De Vries (2002; 2006), shown in Figure 5. De Vries argues that, unlike RRCs, NRCs involve a coordinate structure in which the NRC, headed by a null D, is coordinated with the head DP of the NRC by specifying conjunction. The relative pronoun in the second conjunct has a null NP complement (we assume that this NP is a *pro*). Since the features of pronouns match the characteristics of the referent, the features the RP (which agrees with the *pro*) are expected to match the properties of the head DP.
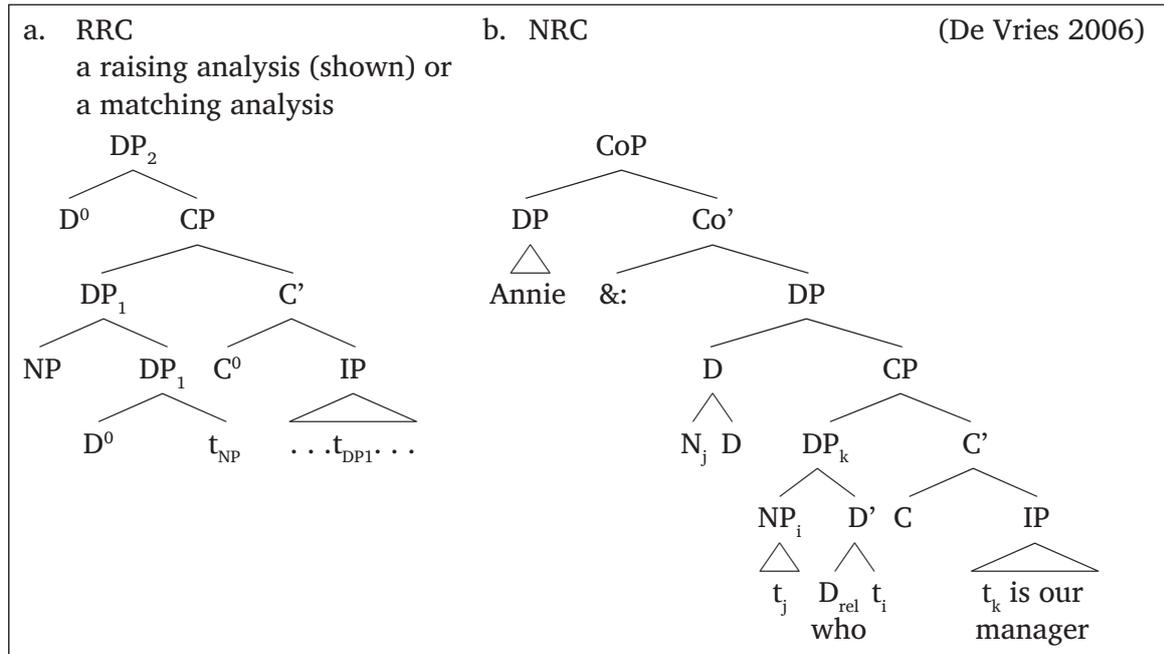
Figure 5: Type 2b – NRCs involve clausal conjunction and a pronoun.

In sum, we hope to have shown that no analysis on which RRCs and NRCs have the same overt syntax is capable of deriving the facts of variable agreement between the RP and the hybrid head noun of relative clauses. Instead, the two types of relative clauses must have different structures at the stage of the derivation where agreement takes place, which must be before spell-out.

7 Conclusion

In this paper we proposed an account of asymmetries in agreement patterns that obtain in RRCs and NRCs headed by hybrid nouns *d(j)eca* 'children', *braća* 'brothers', and *gospoda* 'gentry' in BCS, which implies that RRCs and NRCs cannot have identical structures in narrow syntax. RRCs and NRCs headed by such hybrid nouns display the same behavior in examples where the RP *koji/a/e* 'which' is case-marked dative/locative, genitive, or instrumental. In these cases, alongside morpho-syntactic agreement (feminine singular), so-called semantic agreement (masculine/neuter plural) is also possible. We argued that what is empirically observed as semantic agreement may in principle come from two sources: from the null plural pronoun present in the projection of the head noun itself (in both RRCs and NRCs) or from the null definite pronoun which reflects the properties of the referent (available only in NRCs).

We proposed an analysis in which nouns with plural semantics introduce a null plural pronoun, which acts as a potential goal for number agreement. As the pronoun is unspecified for gender, it is only a possible goal for the agreement of the RP in those case forms which do not distinguish between different values of gender. This yields semantic agreement, restricted to the oblique case forms in RRCs. The morpho-syntactic features of the noun itself are also available for agreement, so there are two goals that the RP can agree with in both RRCs and NRCs. NRCs also contain a null definite pronoun, which, in addition to agreeing with the head noun in its morpho-syntactic features, also reflects the properties of quantity, by its number feature, and when specified, the biological gender of the referent. If the RP targets the former set of features for agreement, we observe syntactic agreement; if it targets the latter, semantic agreement obtains. Thus, unlike in RRCs, in NRCs the RP never agrees with the null plural pronoun in the head DP, but always with the definite pronoun (de Vries 2002; 2006).

RRCs attach too low for their relative pronouns to have access to independently (co-) referring expressions: this is reserved for NRCs, which universally occur on top of the DP layer.

The proposed analysis accounts for the split in agreement patterns between BCS RRCs and NRCs in nominative and accusative and for the RRC-internal asymmetry between nominative and accusative on the one hand, and all other cases on the other. By explaining the asymmetries in the phonologically realized agreement between RRCs and NRCs, our paper also discriminates between two families of analyses of NRCs, in favor of those in which NRCs reach the DP layer in narrow syntax, and against those in which they only get there at LF.

Abbreviations

1 = 1st person; 2 = 2nd person; 3 = 3rd person; ACC = accusative case; Aux = auxiliary; DAT = dative case; F = feminine (in glosses); Fem = feminine (in text); INST = instrumental; M = masculine (in glosses); Masc = masculine (in text); N = neuter (in glosses); NEG = negation; Neut = neuter (in text); NOM = nominative case; PL = plural; Refl = reflexive pronoun; SG = singular

Acknowledgements

Competing Interests

The authors declare that they have no competing interests.

References

Åfarli, Tor. 1994. A promotion analysis of restrictive relative clauses. *The Linguistic Review* 11. 81–100. DOI: http://dx.doi.org/10.1515/tlir.1994.11.2.81

Arregi, Karlos, & Andrew Nevins. 2013. Contextual neutralization and the Elsewhere Principle. In *Distributed Morphology today: Morphemes for Morris Halle,* ed. O. Matushansky et al., 199–222. Cambridge, MA: MIT Press. DOI: http://dx.doi.org/10.7551/mitpress/9780262019675.003.0012

Alsina, Alex & Boban Arsenijević. 2012a. The two faces of agreement. *Language* 88/2. 388–390. DOI: http://dx.doi.org/10.1353/lan.2012.0047

Alsina, Alex & Boban Arsenijević. 2012b. Hierarchies and competing generalizations in Serbo-Croatian hybrid agreement. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG12 Conference.* Stanford: CSLI Publications. (http://web.stanford.edu/group/cslipublications/cslipublications/LFG/17/papers/lfg12alsinaarsenijevic.pdf) (Accessed 17 February 2016)

Benmamoun, Elabbas, Archna Bhatia & Maria Polinsky. 2009. Closest conjunct agreement in head final languages. *Linguistic Variation Yearbook* 9. 67–88. DOI: http://dx.doi.org/10.1075/livy.9.02ben

Bhatt, Rajesh. 2002. The raising analysis of relative clauses: Evidence from adjectival modification. *Natural Language Semantics* 10. 43–90. DOI: http://dx.doi.org/10.1023/A:1015536226396

Bhatt, Rajesh & Martin Walkow. 2013. Locating agreement in grammar: An argument from agreement in conjunctions. *Natural Language and Linguistic Theory* 31. 951–1013. DOI: http://dx.doi.org/10.1007/s11049-013-9203-y

Bianchi, Valentina. 2000. The raising analysis of relative clauses: a reply to Borsley. *Linguistic Inquiry* 31. 123–140. DOI: http://dx.doi.org/10.1162/002438900554316

Bobaljik, Jonathan & Susi Wurmbrand. 2005. The domain of agreement. *Natural Language and Linguistic Theory* 23. 809–865. DOI: http://dx.doi.org/10.1007/s11049-004-3792-4

Bošković, Željko. 2006. Case checking versus case assignment and the case of adverbial NPs. *Linguistic Inquiry* 37. 522–533. DOI: http://dx.doi.org/10.1162/ling.2006.37.3.522

Bošković, Željko. 2008. What will you have, DP or NP? *Proceedings of NELS* 37. 101–114.

Bošković, Željko. 2009. Unifying first and last conjunct agreement. *Natural Language and Linguist Theory* 27. 455–496. DOI: http://dx.doi.org/10.1007/s11049-009-9072-6

Brame, Michael. 1968. *A new analysis of the relative clause: Evidence from interpretive theory*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin (ed.), *Step by step. Essays on minimalist syntax in honor of Howard Lasnik*. 89–155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*. 1–52. Cambridge, MA: MIT Press.

Citko, Barbara. 2004. Agreement asymmetries in coordinate structures. In Olga Arnaudova, Wayles Browne, Maria Luisa Rivero & Danijela Stojanovic (eds.), *Formal approaches to Slavic linguistics: The Ottawa meeting 2003*. 91–108. Ann Arbor: Michigan Slavic Publications.

Corbett, Greville G. 2006. *Agreement*. Cambridge: Cambridge University Press.

Demirdache, Hamida. 1991. *Resumptive chains in restrictive relatives, nonrestrictives and dislocation structure*. Cambridge, MA: MIT dissertation.

Den Dikken, Marcel. 2001. "Pluringulars," pronouns, and quirky agreement. *The Linguistic Review* 18. 19–41. DOI: http://dx.doi.org/10.1515/tlir.18.1.19

Despić, Miloje. 2011. *Syntax in the Absence of Determiner Phrase*. University of Connecticut Ph.D. dissertation.

Despić, Miloje. 2013. Binding and the Structure of NP in Serbo-Croatian. *Linguisic Inquiry* 44. 239–270.

de Vries, Mark. 2002. *The syntax of relativization*. University of Amsterdam dissertation.

de Vries, Mark. 2006. The syntax of appositive relativization: On specifying coordination, false free relatives and promotion. *Linguistic Inquiry* 37. 229–270. DOI: http://dx.doi.org/10.1162/ling.2006.37.2.229

Franck, Julie. 2011. Reaching agreement as a core syntactic process. Commentary on Bock & Middelton reaching agreement. *Natural Language and Linguistic Theory* 29. 1071–1086. DOI: http://dx.doi.org/10.1007/s11049-011-9153-1

Franck, Julie, Glenda Lassi, Ulrich H. Frauenfelder & Luigi Rizzi. 2006. Agreement and movement: A syntactic analysis of attraction. *Cognition* 101. 173–216. DOI: http://dx.doi.org/10.1016/j.cognition.2005.10.003

Gračanin-Yuksek, Martina. 2013. The syntax of relative clauses in Croatian. *The Linguistic Review* 30. 25–49. DOI: http://dx.doi.org/10.1515/tlr-2013-0002

Guasti, Maria Teresa & Luigi Rizzi. 2002. Agreement and tense as distinct syntactic positions. Evidence from acquisition. In Guglielmo Cinque (ed.), *The structure of DP and IP. The cartography of syntactic structures*, 167–194. New York: Oxford University Press.

Hornstein, Norbert. 2000. *Move! A minimalist theory of construal.* Oxford: Blackwell.

Jackendoff, Ray. 1977. *X-bar syntax: A study of phrase structure.* Cambridge, MA: MIT Press.

Kayne, Richard. 1994. *The antisymmetry of syntax.* Cambridge, MA: MIT Press.

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

Mrazović, Pavica & Zora Vukadinović. 1990. *Gramatika srpsko-hrvatskog jezika za strance.* Novi Sad: Dobra Vest.

Marušič, Franc, Andrew Nevins & Amanda Saksida. 2007. Last-conjunct agreement in Slovenian. In Richard Compton, Magdalena Goledzinowska & Ulyana Savchenko (eds.), *Proceedings of formal approaches to Slavic linguistics 2006*, 210–227. Ann Arbor: Michigan Slavic Publications.

Marušič, Franc, Andrew Nevins & William Badecker. 2015. The grammars of conjunction agreement in Slovenian. *Syntax* 18(1). 39–77. DOI: http://dx.doi.org/10.1111/synt.12025

McCawley, James D. 1982. Parentheticals and discontinuous constituent structure. *Linguistic Inquiry* 13. 91–106.

Polinsky, Maria. 2014. What agreement theory can learn from closest conjunct agreement. (Paper presented at the Colloquium Grammatiktheorie, University of Leipzig, 17. July 2014.)

Postal, Paul. 1966. On so-called 'pronouns' in English. In Francis Dinneen (ed.), *Georgetown university monograph series on languages and linguistics*, vol. 19. 177–206. Washington, DC: Georgetown University Press.

Postal, Paul. 1994. Parasitic and pseudoparasitic gaps. *Linguistic Inquiry* 25. 63–117.

Resi, Rossella. 2011. The position of relative clauses in German. *Lingue e Linguaggio* 1. 87–118.

Ross, John R. 1967. *Constraints on variables in syntax.* Cambridge, MA: MIT dissertation. Published as *Infinite syntax!* Norwood, N.J.: Ablex, 1986.

Safir, Ken. 1986. Relative clauses in a theory of binding and levels. *Linguistic Inquiry* 15. 603–638.

Safir, Ken. 1999. Vehicle change and reconstruction in A'-chains. *Linguistic Inquiry* 30. 587–620. DOI: http://dx.doi.org/10.1162/002438999554228

Schachter, Paul. 1973. Focus and relativization. *Language* 49(1). 19–46. DOI: http://dx.doi.org/10.2307/412101

Torrego, Esther & Itziar Laka. 2015. The syntax of φ-features: Agreement with plural DPs in Basque and Spanish. In Beatrice Fernández & Pello Salaburu (eds.), *Ibon Sarasola, Gorazarre. Homenatge, homenaje*, 633–646. Bilbao: UPV/EHU.

van Koppen, M. 2005. *One probe – two goals: Aspects of agreement in Dutch dialects.* Leiden University dissertation.

Vergnaud, Jean Roger. 1974. *French relative clauses.* Cambridge, MA: MIT dissertation.

Wechsler, Stephen & Larisa Zlatić. 2000. A theory of agreement and its application to Serbo-Croatian. *Language* 76. 799–832. DOI: http://dx.doi.org/10.2307/417200