

Investigation of Slovenian copular agreement*

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Abstract

This paper reports on a detailed investigation of agreement inside simple predicative sentences. In this type of sentence, both noun phrases are in the nominative, so in principle either one can trigger agreement on the copular verb. We examine various types of copular constructions and show that regardless of the type of predicative sentence, when a plural is combined with a singular, it is always the plural that agrees. Similarly, when a dual is combined with a singular, the dual wins out. But when we combine a dual and a plural, the copula can agree with either of the two noun phrases, with a preference for the noun phrase following the copula. We discuss the relevance of these findings for recent literature on predication.

1 Introduction

An old observation about copular number agreement in Slovenian, which goes back at least to Breznik (1934), holds that the copular verb in Slovenian agrees with the plural nominal rather than with what appears to be the surface subject, (1). The most influential reference grammar of Slovenian (Toporišič 2000) describes this as follows: “The subject has no influence on predicate agreement when the “predicate” is in the plural or the dual” (our translation), giving (2) and (3) as examples. Toporišič (2000) also gives (4) which combines a plural noun phrase with a noun phrase coordinating two singular nouns but does not comment on this single example or on the generality of its pattern. He also makes no claim as to what happens when a dual and a plural noun phrase are combined.

- (1) Smrt so vrata v nebesa.
death.SG AUX.PL door.PL to heaven
‘Death is the doors to heaven.’ (Breznik 1934:p. 217)
- (2) To mesto so Brežice.
this town.SG AUX.PL Brežice.PL
‘This town is Brežice.’ (Toporišič 2000:p. 609)
- (3) Ta par sta Rodinova ljubimca.
this couple.SG AUX.DU Rodin’s.DU lover.DU
‘This couple are Rodin’s lovers.’ (Toporišič 2000:p. 609)

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- (4) Starši sta oče in mati.
 parents AUX.DU father and mother
 ‘Parents are a father and a mother.’ (Toporišič 2000:p. 609)

A further set of illustrating examples of this type is in (5) below.

- (5) a. Ta vas so Ponikve.
 this village.SG AUX.PL Ponikve.PL
 ‘This village is Ponikve.’
 b. To pobočje so Lašte.
 this slope.SG AUX.PL Lašte.PL
 ‘This slope is Lašte.’
 c. Ta risanka sta Lolek in Bolek.
 this cartoon.SG AUX.DU Lolek and Bolek
 ‘This cartoon is Bolek and Lolek.’

Breznik (1934) and Toporišič (2000) do not attempt to provide an explanation, they just describe the facts. Even from a descriptive perspective, however, there is room for improvement. First, the discussions in Breznik (1934) and Toporišič (2000) include examples of only a subset of the different types of predicative clauses that have been described in the literature. And secondly, they only mention two combinations of non-matching-number noun phrases, failing to mention what happens when a dual and a plural noun phrase are combined.

In this paper we explore these structures a bit more systematically, determine what the relation between dual and plural noun phrases in copular structures is, and see if Slovenian copular agreement can tell us something about copular constructions more generally. Note that certain aspects of copular-clause agreement patterns have received a lot of attention in the literature (agreement with NP1, NP2, etc.), see den Dikken and O’Neill (2017), Heycock (2012), etc. But these discussions seem irrelevant for the pattern described so far since the shared observation from the traditional Slovenian literature was simply: the plural and the dual always win out over the singular.

2 Copular clauses

Different types of copular clauses [hereafter CC] that involve two noun phrases have been identified. Typically CCs are divided into: identificational CCs [ICC], as in (6a), predicational CCs [PCC], as in (6b), specificational CCs [SCC], as in (6c), and equative CCs [ECC], as in (6d), see Higgins (2015), den Dikken and O’Neill (2017), etc.

- (6) a. This is X. → ICC
 b. X is my favorite Y. → PCC
 c. My favorite Y is X. → SCC
 d. X is Y. → ECC

This classification has been questioned, among others, by Den Dikken (2006), Mikkelsen (2005), Heycock (2012). For the most part these alternative views have proposed to reduce the four categories into a smaller set of categories by merging various types of CC together.

Den Dikken (2006), for example, collapses SCCs and ECCs.

CCs that have the shape *A is B* are typically composed of a subject and a predication, where it is not always obvious which of the two noun phrases is the subject and which one is the predication. If we can identify which of the two noun phrases is the subject, it may be possible to make a further division on the basis of the definiteness or other similar properties of the subject noun phrase and of the predicate noun phrase. We will not, however, spend much time discussing the classification; we will simply adopt it in order to present the Slovenian agreement facts.

2.1 Plural Agreement in Copular Clauses

As explained in section 1, whenever one of the noun phrases in a CC is plural and the other singular, the copula agrees with the plural noun phrase. This is true of ICCs, i.e. CCs of the type given in (7).

(7) This is X_{PL} . ICC

Example (8) demonstrates this for ICCs with definite NPs, (9) for ICCs with indefinite NPs and (10) for ICCs with a personal pronoun.

(8) To (mesto) { *je / so } Brežice.
 this.SG town.SG AUX.SG AUX.PL Brežice.PL
 ‘This is Brežice.’

(9) a. To { *je / so } ene hlače.
 this.SG AUX.SG AUX.PL some pants.PL
 ‘These are some pants.’
 b. Ta kos obleke { *je / so } ene hlače.
 this.SG piece.SG clothing.SG.GEN AUX.SG AUX.PL some pants.PL
 ‘This piece of clothing are some pants.’

(10) To { *je / so } oni.
 this.SG AUX.SG AUX.PL they.PL
 ‘This is them.’

The distribution of the syntactic roles of the two noun phrases is irrelevant to this patterning, so that reversing the syntactic roles of the plural and the singular noun phrases has no effect on agreement, which is still plural. This is shown in (12)–(14), which all represent the format given in (11).

(11) These Y_{PL} are X_{SG} . ICC

(12) Tile hribi { *je / so } Martuljkova skupina.
 this.PL mountains.PL AUX.SG AUX.PL Martuljek.SG group.SG
 ‘These mountains are the Martuljek group.’

(13) Martuljkova skupina { *je / so } tile hribi.
 Martuljek.SG group.SG AUX.SG AUX.PL this.PL mountains.PL
 ‘The Martuljek group is these mountains.’

(14) Tile kamni { *je / so } ena stara hiša.
 this.PL rock.PL AUX.SG AUX.PL one.SG old.SG house.SG
 ‘These rocks are an old house.’

The next type of CCs we look at are PCCs, i.e. CCs with the shape from (15) below.

- (15) X_{PL} are my favorite $NOUN_{SG}$. PCC

In this type, too, agreement on the copula is always with the plural noun phrase, regardless of the definiteness of the subject noun phrase. Example (16) demonstrates this for definite, and (17) for indefinite subjects.

- (16) Brežice { *je / so } moje najljubše mesto.
Brežice.PL AUX.SG AUX.PL my.SG favorite.SG town.SG
'Brežice is my favorite town.'

- (17) Hlače { *je / so } moje najljubše oblačilo.
pants.PL AUX.SG AUX.PL my.SG favorite.SG clothing.SG
'Pants are my favorite piece of clothing.'

If the syntactic roles of the plural and the singular noun phrases are reversed, as in (18), the plural still wins out, as shown in (19)–(20).

- (18) X_{SG} are my favorite $NOUN_{PL}$. PCC

- (19) Martuljkova skupina { *je / so } moji najljubši hribi.
Martuljek.SG group.SG AUX.SG AUX.PL my.PL favorite.PL mountain.PL
'The Martuljek group are my favorite mountains.'

- (20) Nočna mora { *je / so } moje najljubše sanje.
night.SG nightmare.SG AUX.SG AUX.PL my.PL favorite.PL dream.PL
'Nightmare is my favorite dream.'

Moving on to the next type of CCs, we present examples of the type from (21a) and (21b) below, i.e., SCCs.

- (21) a. My favorite $NOUN_{SG}$ are X_{PL} . SCC
b. My favorite $NOUN_{PL}$ are X_{SG} .

In this type of construction, a plural noun phrase in any syntactic role forces the agreement on the copular verb to be plural, as demonstrated in the set of examples from (22) through (25). Note that this is true regardless of the position / syntactic role of the plural noun phrase and regardless of its definiteness. In (22) it is the second noun phrase that is in the plural, and it is a definite noun phrase; in (23) the plural is on an indefinite noun phrase in the second position; and in (24)–(25), it is the first noun phrase that is in the plural (whereas the second noun phrase is singular definite and singular indefinite, respectively).

- (22) Moje najljubše mesto { *je / so } Jesenice.
my.SG.N favorite.SG.N town.SG.N AUX.SG AUX.PL Jesenice.PL
'My favorite town is Jesenice.'

- (23) Moja najljubša obleka { *je / so } hlače.
my.SG favorite.SG clothing.SG AUX.SG AUX.PL pants.PL
'My favorite clothing is pants.'

- (24) Moji najljubši hribi { *je / so } Martuljkova skupina.
my.PL favorite.PL mountain.PL AUX.SG AUX.PL Martuljek.SG group.SG
'My favorite mountains are the Martuljek group.'

- (25) Moje najljubše sanje { *je / so } nočna mora.
 my.PL favorite.PL dream.PL AUX.SG AUX.PL night.SG nightmare.SG
 ‘My favorite dreams are a nightmare.’

Turning to the last type of CCs, we present ECCs, i.e. the CC type in (26).

- (26) a. X_{SG} are Y_{PL} . ECC
 b. X_{PL} are Y_{SG} .

On a par with the other types of CCs presented above, ECCs also exhibit plural agreement on the copula regardless of the relative order of the singular and the plural noun phrase, as demonstrated in (27) and (28).

- (27) a. Topničarji { *je / so } Arsenal.
 Gunners.PL AUX.SG AUX.PL Arsenal.SG
 ‘The Gunners are Arsenal.’
 b. Arsenal { *je / so } Topničarji.
 Arsenal.SG AUX.SG AUX.PL Gunners.PL
 ‘Arsenal is the Gunners.’
- (28) a. Oni { *je / so } on.
 They.PL AUX.SG AUX.PL he.SG
 ‘They are him.’
 b. On { *je / so } oni.
 he.SG AUX.SG AUX.PL they.SG
 ‘He is they.’

To briefly recapitulate, this section showed, echoing previous literature, that in CCs that combine a plural noun phrase and a singular noun phrase, agreement is always plural. We systematically demonstrated for all four types of CCs typically posited in the literature that this holds irrespectively of the distribution of the syntactic roles / relative order of the singular and the plural noun phrase, as well as of characteristics such as definiteness, or the common noun / pronoun distinction.

2.1.1 A note on personal pronouns

Note that personal pronouns behave differently, which is why we have avoided examples where a personal pronoun cooccurs with a noun phrase in a copular clause. In short there is a preference for agreement with the pronoun in the construction, but this preference is not absolute. Firstly, first and second person pronouns always win regardless of number, (29)–(30). Between first and second person, in an ECC, whichever comes first (whichever is in the subject position) is the one that will win, (31).

- (29) a. Jaz { sem / *so } možgani te operacije.
 I AUX.1P.SG AUX.3P.PL brains.PL this operation PCC
 ‘I am the brains of this operation.’
 b. Možgani te operacije { sem / *so } jaz.
 brains.PL this operation AUX.1P.SG AUX.3P.PL I SCC
 ‘The brains of this operation is me.’
- (30) a. Ti { si / *so } možgani naše ekipe.
 you.SG AUX.1P.SG AUX.3P.PL brains.PL this operation

- ‘You are the brains of our team.’ PCC
- b. Možgani naše ekipe { si / *so } ti.
 brains.PL our team AUX.2P.SG AUX.3P.PL you.SG
 ‘The brains of our team is you.’ SCC
- (31) a. Jaz { sem / *si } ti.
 I AUX.1P.SG AUX.2P.SG you.SG
 ‘I am you.’ ECC
- b. Ti { *sem / si } jaz.
 you.SG AUX.1P.SG AUX.2P.SG I.
 ‘You are me.’ ECC

The situation with third person pronouns is slightly more complicated, which may be partially related to reasons that will become clear in section 4. In PCCs and SCCs, when a plural personal pronoun is used the plural wins out, (32), which is in accordance with the claim we just presented about the advantage of personal pronouns in the determination of agreement.

- (32) a. Oni { *je / so } moja najljubša ekipa.
 they.PL AUX.SG AUX.PL my.SG favorite.SG team.SG
 ‘They are my favorite team.’ PCC
- b. Moja najljubša ekipa { *je / so } oni.
 my.SG favorite.SG team.SG AUX.SG AUX.PL they.PL
 ‘My favorite team is them.’ SCC

But when the personal pronouns is third person singular, it is not the pronoun that wins, as shown in (33).

- (33) a. Pazi na Zidana! On { *je / so } možgani te ekipe.
 watch on Zidane he.SG AUX.SG AUX.PL brain.PL this team
 ‘Watch Zidane! He is the brain of this team.’ PCC
- b. Pazi na Zidana! Možgani te ekipe { *je / so } on.
 watch on Zidan brain.PL this team AUX.SG AUX.PL he.SG
 ‘Watch Zidane! The brain of this team is him.’ SCC

Even ICCs, such as (34), behave alike. While third person plural pronouns win, third person singular pronouns do not, (35).

- (34) a. Verjameš v vesoljce? Tista pikica { *je / so } oni.
 believe in aliens.PL that dot.SG AUX.SG AUX.PL they.PL
 ‘Do you believe in aliens? That dot is them.’ ICC
- b. Verjameš v vesoljce? Oni { *je / so } tista pikica.
 believe in aliens.PL they.PL AUX.SG AUX.PL that dot.SG
 ‘Do you believe in aliens? They are that dot.’ ICC
- (35) a. Poznaš Vidovo mamo? Tele čačke { *je / so } ona.
 know Vid’s mom this.PL scribble.PL AUX.SG AUX.PL she.SG
 ‘Do you know Vid’s mom? These scribbles are her.’ ICC
- b. Poznaš Vidovo mamo? Ona { ??je / so } tele čačke.
 know Vid’s mom she.SG AUX.SG AUX.PL this.PL scribble.PL
 ‘Do you know Vid’s mom? She is these scribbles.’ ICC

A similar situation holds for ECC, except that judgments are less sharp in these cases. A third person plural pronoun wins when combined with a singular noun phrase, (36), but when a

singular third person pronoun is used with a plural noun phrase, both auxiliaries seem possible, (37).

- (36) a. Vidite te ljudi? Oni { *je / so } Valter.
 see these people.PL they.PL AUX.SG AUX.PL Valter.SG
 ‘Do you see these people? They are Valter.’ ECC
 b. Vidite te ljudi? Valter { *je / so } oni.
 see these people.PL Valter.SG AUX.SG AUX.PL they.PL
 ‘Do you see these people? Valter is them.’ ECC
- (37) a. Poznaš Dalija? On { ?je / ?so } nadrealisti.
 know Dali he.SG AUX.SG AUX.PL surrealists.PL
 ‘Do you know Dali? He is the surrealists.’ ECC
 b. Poznaš Dalija? Nadrealisti { *je / ?so } on.
 know Dali surrealists.PL AUX.SG AUX.PL he.SG
 ‘Do you know Dali? He is the surrealists.’ ECC

In what follows, we will only use copular clauses with two noun phrases or copular clauses with two third person pronouns, in order to avoid possible interventions of person.

2.2 Dual agreement in copular clauses

Just like with combinations of a plural and a singular noun phrase in CCs, combinations of a dual and a singular noun phrase can also generally be said to trigger non-singular agreement on the copula. This is shown in (38) for ICCs, in (39)–(40) for PCCs, in (41)–(42) for SCCs, and in (43)–(44) for ECCs.

- (38) To { *je / sta } onadva / Rodinova ljubimca / dvojčka.
 this.SG AUX.SG AUX.DU they.DU Rodin’s lovers.DU twins.DU
 ‘This is them / Rodin’s lovers / ...twins.’ ICC
- (39) Ribi { ?*je / sta } moje najljubše znamenje.
 fish.DU AUX.SG AUX.DU my.SG favorite.SG sign.SG
 ‘The Pisces is my favorite zodiac sign.’ PCC
- (40) Rodinova ljubimca { ?*je / sta } moj najljubši kip.
 Rodin’s lovers.DU AUX.SG AUX.DU my.SG favorite.SG figure.SG
 ‘Rodin’s lovers is my favorite figure.’ PCC
- (41) Moje najljubše znamenje { ?*je / sta } ribi.
 my.SG favorite.SG sign.SG AUX.SG AUX.DU fish.DU
 ‘My favorite sign is the Pisces.’ SCC
- (42) Moj najljubši kip { ?*je / sta } Rodinova ljubimca.
 my.SG favorite.SG figure.SG AUX.SG AUX.DU Rodin’s lovers.DU
 ‘My favorite figure are Rodin’s lovers.’ SCC
- (43) a. Dvojčka { *je / sta } WTC.
 twins.DU AUX.SG AUX.DU WTC.SG
 ‘The Twin Towers are the WTC.’ ECC
 b. WTC { *je / sta } dvojčka.
 WTC.SG AUX.SG AUX.DU twins.DU
 ‘The WTC are the Twin Towers.’

- (44) a. Onadva { *je / sta } on.
 They.DU AUX.SG AUX.DU he.SG
 ‘They are him.’ ECC
- b. On { *je / sta } onadva.
 he.DU AUX.SG AUX.DU they.SG
 ‘He is they.’

The dual unequivocally wins out in ICCs and ECCs. In PCCs and SCCs, our judgments on combinations of a singular and a dual noun phrase are somewhat less straightforward (as indicated in (39) through (42)); even in these cases, however, the dual still seems more natural to us. Furthermore, while the singular may be less clearly impossible in these cases, the perfect acceptability of the dual is always undisputed.

2.3 [Dual] is [Plural] / [Plural] is [Dual]

While the judgments for the two combinations presented above, i.e., *[Singular] is [Plural]* and *[Singular] is [Dual]*, are fairly clear, the two combinations involving a dual noun phrase and a plural noun phrase are far less obvious. To set the stage, we start off by presenting some examples for which the judgments seem rather clear. These data suggest that at least at first sight, neither the dual nor the plural can be said to clearly take precedence over the other number. In ECCs it seems that it is the dual that takes precedence over the plural, (45)–(46).

- (45) Context: ‘Two Spikes’ and ‘(Three) White Heads’ are alternative names for the same mountain (e.g. a mountain that is seen as two spikes from one valley and as three peaks from another valley).
- a. Dve špici { sta / ? so } (Tri) Bele glave.
 two spikes.DU AUX.DU AUX.PL three white.PL heads.PL
 ‘The Two Spikes are the (Three) White Heads.’ ECC
- b. (Tri) Bele glave { sta / ?? so } Dve špici.
 three white.PL heads.PL AUX.DU AUX.PL two spikes.DU
 ‘The (Three) White Heads are the Two Spikes.’
- (46) Suppose that two physics experiments observed a similar event but interpreted it differently, e.g., LHC interpreted it as two pions, while Belle interpreted it a four mesons.
- a. LHC-jeva piona { sta / ? so } Bellovi mezoni.
 LHC’s pion.DU AUX.DU AUX.PL Bell’s meson.PL
 ‘LHC’s pions are Bell’s mesons.’ ECC
- b. Bellovi mezoni { sta / ?* so } LHC-jeva piona.
 Bell’s meson.PL AUX.DU AUX.PL LHC’s pion.DU
 ‘Bell’s mesons are LHC’s pions.’

Since there seems to be a preference for agreement with pronouns, as shown in section 2.1.1, we would expect a plural pronoun to require plural agreement and a dual pronoun to require dual agreement, so we need to look at cases where pronouns are used on both sides of the copula. When both a dual and a plural pronoun are used, as in (47), judgments become less clear. It seems that for some speakers it is the relative position of the two pronouns that may be the decisive factor, for others the phi-features of the pronouns, e.g., with first person pronouns possibly attracting agreement more than third person pronouns.¹

¹Note that if one of the noun phrases is realized by a dropped pronoun/*pro*, that one always wins.

- (47) a. Onadva { ?? sta / ? so } oni.
 they.DU AUX.DU AUX.PL they.PL
 ‘The two of them are them.’ ECC
- b. Oni { sta / ?? so } onadva.
 they.PL AUX.DU AUX.PL they.DU
 ‘They are the two of them.’

In line with the relatively greater difficulty of determining the winning pattern of agreement, as demonstrated above, the split between acceptable and unacceptable versions is rather unclear, too. While in many cases the dual-agreement version seems better, the plural-agreement version does not seem completely ungrammatical either, eg. (48)–(50).

- (48) Ti dve stvari { sta / ?? so } Rodinovi Calajski meščani.
 these two things.DU AUX.DU AUX.PL Rodin’s.PL Calais.PL burghers.PL
 ‘These two things are Rodin’s Burghers of Calais.’ ICC
- (49) Ta dva kovančka { bosta / ?? bojo } snežakove oči.
 these two coin.DU AUX.DU AUX.PL snowman’s.PL eye.PL
 ‘These two coins will be snowman’s eyes.’ ICC
- (50) Te tri stvari { sta / ?? so } Rodinova ljubimca.
 these three things.PL AUX.DU AUX.PL Rodin’s.DU lovers.DU
 ‘These three things are Rodin’s lovers.’ ICC

Similarly, our judgments for the lone plural-dual example from Toporišič (2000), i.e., for (4) above, repeated here as (51), are also not very clear-cut. Plural agreement is certainly possible, but depending on other factors, such as the position of the copula relative to the two noun phrases, one or the other agreement can be preferred.

- (51) Starši sta oče in mati. = (4)
 parents AUX.DU father and mother
 ‘Parents are a father and a mother.’ (Toporišič 2000:p. 609)
- (52) Starši so oče in mati.
 parents AUX.PL father and mother
 ‘Parents are a father and a mother.’

- (i) Look there’s Tone and Slavka.
 Očitno pro.DU { sta / *so } oni.
 apparently AUX.DU AUX.PL they.PL
 ‘Apparently they.DU are them.PL.’
- (ii) Look there’s Tone, Peter, and Slavka.
 Očitno pro.PL { *sta / so } onadva.
 apparently AUX.DU AUX.PL they.DU
 ‘Apparently they.PL are them.DU.’

There is a further complication which we cannot really go into. Copular clauses with a silent pronoun seem very restricted, and examples combining an inanimate silent pronoun with a noun phrase that is of different number appear to be simply impossible.

- (iii) Do you see that object in the corner?
 Še vedno pro.SG { *je / *so } moje najljubše sanke.
 still always AUX.SG AUX.SG my favorite sled.PL
 ‘That is still my favorite sled.’

In order to address the questions left open by these murky judgments, we set up an online experiment testing agreement in copular clauses. The methodology and results of this experiment will be presented in the following sections.

3 Experiment

3.1 Methodology

The experiment was carried out online using the Ixex Farm tool (Drummond 2011). The experiment consisted of 30 test examples grouped in 5 conditions, with an additional 30 fillers (which were test items for a different experiment) and 8 practice examples. The 30 target items were interspersed with the 30 fillers.

For every test example, subjects were asked to fill the gap by selecting, from the given three options, the auxiliary they found most appropriate for a particular copular sentence. For all examples, the list they had to choose from consisted of the singular, the dual and the plural forms of the present-tense auxiliary, which were always presented all at the same time and always in the same order: *je – sta – so* ‘is – are.DU – are.PL’.

The conditions we tested were as given in (53)–(57). As reported above, there does not seem to be any real difference in number agreement between ICCs, PCCs, SCCs, and ECCs, which is why we did not differentiate between the four types of constructions in our experiment. All examples were ICCs, in which one of the noun phrases started with a demonstrative.² Additionally, having a demonstrative in the first or the second noun phrase was also incorporated in the experiment as a variable, such that approximately half of the sentences had the demonstrative in the first noun phrase and the other half in the second noun phrase.³

(53) SINGULAR *copula* PLURAL

Petrovo kosilo ____ tista kurja bedra v pečici.
 Peter’s lunch.SG this chicken legs.PL in oven
 ‘Peter’s lunch are these two chicken legs in the oven.’

(54) SINGULAR *copula* DUAL

Tale kupček kamenja ____ zadnja kipa lokalnega kiparja.
 this pile.SG stone last figure.DU local sculptor
 ‘This pile of stones are the last two figures of a local sculptor.’

(55) DUAL *copula* SINGULAR

Tista dva pomečkana lista ____ naša kupoprodajna pogodba.
 this two crushed papers.DU our selling contract.SG
 ‘These two crushed papers are our selling contract.’

(56) DUAL *copula* PLURAL

²We should acknowledge that the classification of our examples is not entirely clear to us. As they all contained two definite noun phrases, they could be seen as ECCs, but given that one of these definite noun phrases was a noun phrase with a demonstrative, these constructions appear to be comparable to ICCs.

³The original design of the experiment had the position of the demonstrative as a controlled variable – demonstrative in the first position vs. demonstrative in the second position, which would roughly correspond to the distinction between PCC and SCC, but due to a flaw in the design of the experiment, subjects were not shown the same number of the two types of sentences in each condition. Nevertheless, we were able to learn from the data that there is no difference between the two types of clauses in terms of agreement.

Ta dva polkroga ____ tvoji možgani.
 this two half-circles.DU your brains.PL
 ‘These two half-circles are your brains.’

(57) PLURAL *copula* DUAL

Vse knjige iz naše knjižnice ____ ta dva kupa papirja.
 all books.PL from our library this two piles.DU paper
 ‘All books from our library are these two piles of paper.’

Note that in the singular–plural combination we only tested the SINGULAR *copula* PLURAL condition. As we demonstrated in Section 2.1 above, the singular–plural combination generally seems clear and thus not in need of additional experimental verification. Therefore, we decided to include one of the orders for this combination (i.e., the SINGULAR *copula* PLURAL condition) in the experiment as a control condition, and to leave the other condition for this combination (i.e., the PLURAL *copula* SINGULAR condition) out of the experiment in order to keep the number of test items and hence the size of the experiment manageable for the subjects.

3.2 Participants

The experiment was posted online on the KSEnJa website (<https://sites.google.com/view/ksenja>) and then advertised through social media. 25 participants completed the experiment. Four participants were excluded because they self-reported coming from an area where the local dialect is a predominantly non-dual variety of Slovenian.⁴

3.3 Results

The results of our experiment are in Table 1. We ran a number of tests on the data. First we wanted to know whether the presence of the demonstrative in one of the two noun phrases had any effect on the type of agreement (i.e., on whether the chosen agreement was with the noun phrase containing the demonstrative or not). We fitted a linear mixed model to predict this interaction. The model included Subject and Item as random effects. Standardized parameters were obtained by fitting the model on a standardized version of the dataset. The model’s total explanatory power is substantial (conditional $R^2 = 0.58$) and the part related to the fixed effects alone (marginal R^2) is of $5.56e-05$. Within this model, the effect of having the demonstrative is not significant ($\beta = 7.32e-03$, $SE = 0.10$, std. $\beta = 0.02$, $p = 0.943$). For the remainder of the analysis we are treating the two conditions (having the demonstrative in the first noun phrase, having the demonstrative in the second noun phrase) as a single condition.

Given what we concluded about copular clauses combining a plural and a singular noun phrase in section 2.1 above and as explained in section 3.1, we used the condition SG *copula* PL (as in example (53)) as a control condition. Our judgments, as well as judgments less systematically reported in previous literature, indicate that the agreement options in this condition are clear: plural agreement seems to be the only possibility. As shown in Table 1 our experimental setting yielded over 95% of plural in this condition, 0% of dual and under 5% of singular. Given that the singular seems impossible in this condition, we assume that these 5% of singular responses are essentially errors, possibly a type of attraction error in the sense of Bock and Miller (1991).⁵

⁴Slovenian dialects differ substantially in the extent of the presence of dual morphology. See Jakop (2008) for a detailed study of the presence of dual across dialects or Marušič, Žaucer, Plesničar, Razboršek, Sullivan, and Barner (2016) for a comprehensive map of the distribution and the extent of dual marking in Slovenian dialects.

⁵Attraction errors are caused by the proximity of a noun phrase of different number. So, it is not something grammar would produce but something a production model could explain.

	SG	DU	PL
SG <i>copula</i> PL	4.76%	0.00%	95.24%
SG <i>copula</i> DU	7.94%	92.06%	0.00%
DU <i>copula</i> SG	5.56%	93.65%	0.79%
PL <i>copula</i> DU	0.00%	63.49%	36.51%
DU <i>copula</i> PL	0.79%	26.98%	72.22%

Table 1: Summary of the results of our agreement experiment. The shaded cells either have 0% or else their response is so low that we consider it an error, possibly an attraction error.

	DU	PL
PL <i>copula</i> DU	63.49% $\approx \frac{2}{3}$	36.51% $\approx \frac{1}{3}$
DU <i>copula</i> PL	26.98% $\approx \frac{1}{3}$	72.22% $\approx \frac{2}{3}$

Table 2: Results of the two conditions with dual and plural noun phrases.

A similar amount of singular responses were recorded also in the two conditions with dual and singular noun phrases—SG *copula* DU and DU *copula* SG. In both cases the predominantly selected form of the copula was the dual *sta*, in both cases over 92%, but some singular responses were also recorded. A Welch two sample t-test shows that the amount of singular in these two conditions is not different from the amount of singular in condition SG *copula* PL, where we assumed the singular to be a type of (attraction) error (comparing amounts of the singular in SG *copula* DU and SG *copula* PL: $t = -0.9325$, $df = 38.826$, $p\text{-value} = 0.3568$; comparing amounts of the singular in DU *copula* SG and SG *copula* PL: $t = -0.2132$, $df = 39.987$, $p\text{-value} = 0.8323$). Given the similarity of these effects, we assume that in these two conditions the singular should also be seen as a type of (attraction) error. This means, in turn, that we can conclude that dual agreement is the only option for copular clauses combining a dual and a singular noun phrase, much like what we had explained to be the case for copular clauses combining a plural and a singular noun phrase.

Performing a Welch two sample t-test on the other results, we see that the dual and the plural responses in the DU *copula* PL condition and the PL *copula* DU condition, respectively, are significantly different from the assumed attraction error (dual in DU *copula* PL vs. singular in SG *copula* DU: $t = 2.6487$, $df = 24.039$, $p\text{-value} = 0.01405$), while they are not significantly different from each other ($t = -1.0186$, $df = 39.785$, $p\text{-value} = 0.3146$). The same is true if we compare dual responses in the PL *copula* DU condition with plural responses in the DU *copula* PL condition ($t = 0.94186$, $df = 39.87$, $p\text{-value} = 0.3519$); statistically speaking, there is no difference between the two results.

3.4 Discussion

In Support of claims from the previous literature, our study confirms that the plural and the dual always win out over the singular, regardless of the type of copular construction; we corroborated these claims with an additional, more systematic set of introspection-based data, and we also provided experimental data for one of the orders of the singular-plural combination and for both orders of the singular-dual combination.

A possible explanation for why the plural and the dual would consistently win out over the singular is relative markedness. Formally speaking, the plural and the dual are generally viewed as more marked than the singular, so the fact that in singular-plural and singular-dual

combinations agreement is plural and dual, respectively, can be attributed to the higher markedness of these number values. If we extend such a formal markedness-based explanation to the dual-plural combination, we presumably predict that the dual will win out over the plural given that the dual is typically considered more marked than the plural (e.g. [Greenberg 1963](#), [Nevins 2011](#)). This prediction does not seem to be borne out, however, given that the dual-plural combination did not yield a clear winner. (Note that not having a clear winner also means that it cannot simply be the case that the relative markedness was determined incorrectly and that it is in fact the plural that is more marked; if that was the case, then the plural should consistently win out over the dual, but our results show a situation without a clear winner.)

Another possible approach that could be seen in the context of markedness is couched in the semantics of the singular, dual and plural. It has been claimed that the plural is actually semantically number-neutral and can as such sometimes be used for any number ([Sauerland 2003](#), [2008](#):among others). This is reflected in the [Sauerland \(2003\)](#)-based example in (58), which is false even if Lina has one child (cf. also [Martí 2020](#)), as well as in the fact that the question from (59a) can also be answered with the singular, as in (59b) ([Marušič and Žaucer to appear](#)).

- (58) Lina nima otrok.
Lina NEG-has child.GEN.PL
'Lina doesn't have children.'
- (59) a. Ali ima Črt otroke?
Q has Črt child.ACC.PL
'Does Črt have children?'
b. Ja, ima enega.
yes has one
'Yes, he has one.'

Similarly, the dual has been claimed to be semantically less restricted than the singular, essentially meaning 'one or two' and therefore able to also cover reference to singular items, whereas the singular is said to be narrower and thus not able to cover reference to dual sets ([Dvořák and Sauerland 2006](#), [Sauerland 2008](#)). With respect to the agreement patterns that our study identified, this approach correctly predicts that the dual and the plural will strictly win out over the singular. However, the prediction that this approach makes with respect to the dual-plural combinations is not quite borne out: the prediction of this approach would be that the plural will strictly win out over the dual, but the results of our study do not identify either the plural or the dual as a clear winner.

4 The bigger picture

Our data show that in Slovenian copular constructions agreement is neither strictly with NP1 nor strictly with NP2, but that it is rather sensitive to the featural specifications of the two noun phrases.

All the examples we have seen above were with mixed-numbered noun phrases. We were not explicit about this above (nor did our experiment test for this), but undisputedly, when the two noun phrases are both singular, the copula is also singular, and no other form of the copula is possible, as shown in (60).⁶ Similarly, copular clauses with two dual noun phrases can only

⁶*Fičko* was a popular small car produced in Yugoslavia between the sixties and the eighties. The official name was *Zastava 650/750/850*.

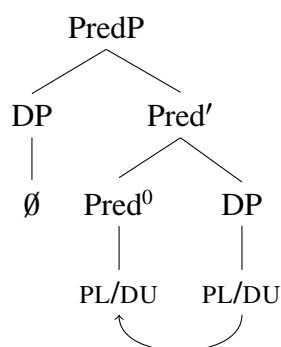
have dual agreement, and copular clauses with two plural noun phrases can only have plural agreement.

- (60) Ta avto { je / *sta / *so } Petrin fičko.
 this car.SG AUX.SG AUX.DU AUX.PL Petra's.SG fičko.SG
 'This car is Petra's fičko.'

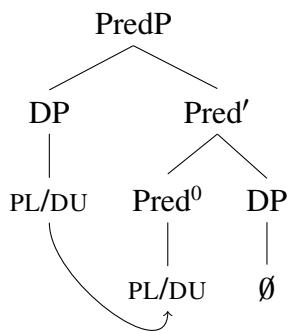
Leaving such simple copular clauses with same-numbered noun phrases aside, let us start the discussion by restricting ourselves to copular constructions non-pronominal mixed-numbered noun phrases. The fact that if a non-singular noun phrase exists the copula agrees with the non-singular noun phrase can be modeled if we assume that the probe is looking for a feature in both directions and if we assume that number features are privative (an assumption shared also by Preminger 2014, Franks 2020, among others), that is, if singular means the absence of [plural]/[dual]. With these two assumptions, the first part falls out naturally. Sample derivations are sketched in (61).

- (61) Sample derivations

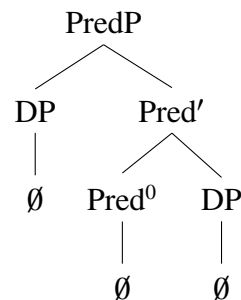
SG copula PL/DU



PL/DU copula SG



SG copula SG



As explained above, agreement patterns are different when a copular clause contains a pronominal. Pronouns have person features on top of the number features that the auxiliary probes for. Person features probe first, and once an Agree relation is established between the auxiliary probe and the goal, all features need to be valued on the probe. So even though NP1 has no number feature in (62) (partially repeated from (30)) it still controls agreement on the copula.

- (62) Ti si možgani naše ekipe.
 you.SG AUX.2P.SG brains.PL our team
 'You are the brains of our team.'

This is not true, however, of third person singular pronouns. Assuming phi-features are privative (as, e.g., in Preminger 2014), third person singular pronouns have neither any number nor any person features, so they cannot control agreement. As shown in section 2.1.1, when a third person singular pronoun is coupled with a plural noun phrase, the copula is in the plural.

Such an account and the presented derivations explain why singular agreement never surfaces when a non-singular noun phrase is present; however, this does not explain the situation we observed above in copular clauses that combine a dual and a plural noun phrase. We saw that in such cases the copula can agree with either of the two noun phrases and that there is an asymmetry in the sense that agreement with NP2 is more likely than agreement with NP1. At this point we do not have a clear answer about what happens there. It appears that various

factors might play a role in these cases, and the situation is clearly complex, so in what follows we only mention one possible factor as a speculation for what one could consider looking at in future work.

4.1 Enclitic vs. proclitic

The Slovenian copula is a clitic realized as an element of the second-position clitic cluster, and one factor that might affect agreement patterns has to do with two different options for how the copular clitic can be pronounced. The pronunciation of Slovenian second-position clitics varies between procliticization and encliticization (cf. Bošković 2001), with procliticization perhaps being the default option (Orešnik 1984). When pronounced proclitically, the auxiliary is part of the same prosodic word as the plural noun phrase *tvoji možgani* “your brains” in example (63) (based on (56) above); in this case, plural agreement seems preferred. Similarly, if the auxiliary is pronounced as a proclitic in (64) (based on (57) above) it is pronounced in the same prosodic word as the dual noun phrase *ta dva kupa papirja* “these two piles of paper”. But if the auxiliary is pronounced as an enclitic, dual agreement may be preferred in (63) and plural agreement in (64). Variation in agreement could thus perhaps reduce to variation in the pronunciation of the auxiliary clitic, and moreover, if procliticization is indeed the default realization for Slovenian clitics, as suggested by Orešnik (1984), then the greater likelihood for the copula to agree with the second NP might also follow simply from properties of Slovenian cliticization.

- (63) Ta dva polkroga { sta / so } tvoji možgani.
 this two half-circles.DU AUX.DU AUX.PL your brains.PL
 ‘These two half-circles are your brains.’
- (64) Vse knjige iz naše knjižnice { sta / so } ta dva kupa papirja.
 all books.PL from our library AUX.DU AUX.PL this two piles.DU paper
 ‘All books from our library are these two piles of paper.’

On a more general note, if procliticization vs. encliticization of the copula turned out to be the main factor behind agreement patterns in copular clauses with a dual and a plural NP, this would mean that agreement is sensitive to prosodic structure, which would further suggest that agreement (or at least a part of the entire process) happens after spell-out to PF (cf. Marušič, Nevins, and Badecker 2015).

4.2 5&Ups

Just like many (if not all) other Slavic languages, Slovenian has another type of noun phrases triggering specific agreement: certain quantifiers and all noun phrases with a numeral higher than 5 (henceforth 5&Ups) trigger (default) neuter singular agreement, see (65).

- (65) a. Pet otrok je igralo nogomet.
 five child.M.GEN.PL AUX.SG played.N.SG football
 ‘Five children played football.’
- b. Šest punc je streljalo z lokom.
 six girl.F.GEN.PL AUX.SG shot.N.SG with bow
 ‘Six girls shot bows.’
- c. Deset telet je ležalo v senci.
 ten calf.N.GEN.PL AUX.SG lay.N.SG in shade
 ‘Ten calves lay in the shade.’

The emergence of default neuter singular agreement is typically analyzed as a lack of feature specifications at the DP level (cf. Marušič and Nevins 2010). On the basis of what we said above, the prediction for copular clauses seems to be that 5&Ups should behave like singulars. The existing literature does not mention cases where 5&Ups participate in copular clauses, and since our experiment did not contain any such examples either, this section will just briefly present a few such examples and report our judgments.

Given that both singular noun phrases and 5&Ups trigger singular agreement, combining a 5&Up with a singular noun phrase should, straightforwardly, result in singular agreement as the only option. This is indeed what we find, as shown in (66).

- (66) a. To je (mojih) deset miši.
 this AUX.SG my.GEN.PL ten mouse.GEN.PL
 ‘These are (my) ten mice.’
 b. Pet jajc je moj najljubši zajtrk.
 five eggs AUX.SG my.SG favorite.SG breakfast.SG
 ‘Five eggs is my favorite breakfast.’
 c. Moj najljubši zajtrk je pet kuhanih jajčk.
 my.SG favorite.SG breakfast.SG AUX.SG five boiled eggs
 ‘My favorite breakfast is five boiled eggs.’

On the other hand, our story above about the privacy of number features and the functioning of probe seems to predict that in a copular construction combining a 5&Up with a plural noun phrase, the copula should be strictly plural. Example (67) shows that whereas our judgments do confirm this prediction to some extent, they are not as categorical as one would expect (the *Four Brave Men* is the group nickname of the first ascenders of Mount Triglav).

- (67) a. Teh osem rok { *je / so } štirje srčni možje.
 these eight hands AUX.SG AUX.PL four brave men.PL
 ‘These eight hands are the Four Brave Men.’
 b. Štirje srčni možje { ??je / ?so } teh osem rok.
 four brave men.PL AUX.SG AUX.PL these eight hands
 ‘The Four Brave Men are these eight hands.’

When we combine a 5&Up with a dual noun phrase, our story above would again predict that the dual will win out, and as shown in (68), this is indeed what we find.

- (68) a. Teh dvajset prstkov { *je / sta } sosedova otroka.
 these twenty fingers AUX.SG AUX.DU neighbor’s children.DU
 ‘These twenty fingers are the neighbor’s children.’
 b. Sosedova otroka { *je / sta } teh dvajset prstkov.
 neighbor’s children.DU AUX.SG AUX.PL these twenty fingers
 ‘The neighbor’s children are these twenty fingers.’

Regarding the lack of a clear difference between the two options in (67), note that this perhaps need not be unexpected if we take into consideration the fact that regardless of some common characteristics, simple singular noun phrases and 5&Ups also have their differences. For example, unlike simple singular noun phrases, 5&Ups do not agree in gender. 5&Ups lack features, which is why agreement with them simply fails. When conjoined, two simple singular noun phrases yield dual agreement, but two conjoined 5&Ups do not. So it may well be wrong to simply expect that whatever holds of simple singular noun phrases in copular constructions should also be true for 5&Ups.

Suppose the Agree operation is first attempted with the first or the second noun phrase. If Agree determines that both noun phrases have at least one phi-feature and that it could therefore agree with either one of them, it proceeds, following the procedure explained above. But if one of the two noun phrases is a 5&Up, Agree determines that it cannot agree with either of the two noun phrases, and (in some cases) fails. In the case it fails, agreement is established with the second noun phrase, following the same logic as we outlined above for dual/plural combinations.

5 Conclusion

When none of the arguments of a Slovenian copular clause is a personal pronoun, the plural and the dual will both win out over the singular, as shown again in (69). This is probably only indirectly related to the fact that the dual and the plural are more marked than the singular. That is, it is not the relative markedness of the number features that determines agreement, but rather the fact that (in a system where features are privative) the unmarked singular does not have any number features which the auxiliary probe could target. As a result the auxiliary agrees with the only available feature in the structure.

- (69)
- a. Ta dva kosa kruha { *je / sta } Petrova košta.
these two pieces.DU bread AUX.SG AUX.DU Peter's meal.SG
'These two pieces of bread are Peter's meal.'
 - b. Petrova košta { *je / sta } ta dva kosa kruha.
Peter's meal.SG AUX.SG AUX.DU these two pieces.DU bread
'Peter's meal are these two pieces of bread.'
 - c. Ti trije kosi kruha { *je / so } Petrova košta.
these three pieces.PL bread AUX.SG AUX.PL Peter's meal.SG
'These two pieces of bread are Peter's meal.'
 - d. Petrova košta { *je / so } ti trije kosi kruha.
Peter's meal.SG AUX.SG AUX.PL these two pieces.PL bread
'Peter's meal are these two pieces of bread.'

In a copular clause that combines the dual and the plural, however, the situation is not as straightforward and the data are less clear. Our judgments for this combination are given in (70), where the dual seems to have some edge over the plural.

- (70)
- a. Ta dva obroka { sta / so } vse Petrove današnje košte.
these two meal.DU AUX.DU AUX.PL all Peter's today's meal.PL
'These two meals are all of Peter's meals of today.'
 - b. Vse Petrove današnje košte { sta / ?*so } ta dva obroka.
all Peter's today's meal.PL AUX.DU AUX.PL these two meal.DU
'All of Peter's meals of today are these two meals.'

Not fully in line with our judgments, the results of our experiment show that there is some preference for the second noun phrase over the first one. We did not provide a definitive answer as to why this should be, but we speculated that it could perhaps be related to the default attachment of the Slovenian auxiliary as a proclitic (rather than an enclitic) and the resulting greater relative proximity of the second noun as the noun phrase to which the auxiliary cliticizes.

We finish by posing two questions about factors that might also be involved in the realization of agreement in copular clauses with a dual and a plural NP. First, do copular clauses combining a dual NP and a plural NP show any interpretational difference depending of whether agreement

is dual or plural, such as a preference for distributive or collective reading of one or the other noun phrase? An interpretational difference we have observed but cannot say anything more about here is the difference between interpreting a (definite) noun phrase as a referring expression vs. interpreting it as a predicate (basically something like “being like X”). Second, what happens when one of the two noun phrases is a coordination? We have some examples that involve coordination in our paper, but things would clearly need to be looked at more systematically. We leave these questions aside for future work.

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