Agreement switch in verb-echo answers: Evidence for Distributed Ellipsis

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Abstract

In this article, we claim that syntactic objects undergoing ellipsis can participate both in syntactic and PF operations. The empirical domain explored is the interaction between single conjunct agreement and verb-echo answers in South Slavic (Marušič et al. 2007, Marušič et al. 2015, Willer-Gold et al. 2016, Willer-Gold et al. 2018). We provide several strands of evidence that verb-echo answers in South Slavic are derived via verb-stranding VP ellipsis. We present an analysis for the agreement options in verb-echo answers according to which Vocabulary Insertion replaces a Q-variable on lexical heads (Halle 1991), and ellipsis is a syntactic procedure that deletes Q-variables (Saab 2022). The interaction between Distributed Ellipsis, internal merge and Agree-Copy necessary to account for our data follows naturally from this view of ellipsis.

Key words: ellipsis, single conjunct agreement, verb-echo answers, Q-variable, Distributed Ellipsis

1 Introduction

In an early argument for a transformational approach to ellipsis, Ross (1969) puts forward the observation that the material properly included in the ellipsis site can control agreement reflected in morphology outside the ellipsis site (see, e.g., (1), adapted from Ross 1969, page 273, and (2) from Merchant 2013, page 704).

(1) Some people think there are no such rules, but there {*is/are}.

(2) a. First, there were bananas available, and then there {weren't/ *wasn't}.

b. First, there were going to be bananas available, and then there {weren't/ *wasn't}.

Building on Ross's line of reasoning, the present contribution focuses on the interaction of agreement and ellipsis in short answers to polar questions, which in several languages can consist of the lexical verb alone, sometimes accompanied by a polarity particle and an auxiliary clitic (i.e., verb-echo answers; see, e.g., (3) from Bosnian/Croatian/Serbian, henceforth BCS). Note that although the examples throughout the paper will be illustrated by BCS, the grammatically judgements hold for their equivalents in Slovenian.

(3) A: Jel' kupuje Ivan šećer?
Q buy.3SG Ivan sugar
'Is Ivan buying sugar?'

B: Da, kupuje.
yes buy.3SG
'Yes, he is (buying sugar).'

While such data pose a number of important questions (see, a.o., Goldberg 2005, Gribanova 2013, Gribanova 2017, Gribanova 2020, Holmberg 2016, Mendes and Ruda 2019, Mendes 2020, Ruda 2022, Mendes and Ruda 2022 and references therein), the present focus will be on exploring the potential of agreement-related facts in this context to help us determine the optimal analytical approach to ellipsis of this type.[1] The empir-

[1]The term 'verb-echo answer' comes from Holmberg (2016). Importantly, verb-echo answers are not blind repetitions of the finite verb from the antecedent clause, as the ϕ-morphology on the verb sometimes needs to be updated in the answer, as in (i):

ical basis for the discussion will come from experimental studies of *switch agreement* in South Slavic languages, known for their rich array of conjunct agreement strategies (resolved/default, hierarchical, and closest conjunct agreement; see, e.g., Marušič et al. 2015, Willer-Gold et al. 2016, Willer-Gold et al. 2018; for the theoretical modeling of conjunct agreement in South Slavic see, e.g., Corbett 1983, Bošković 2009, Franks and Willer-Gold 2014, Murphy and Puškar 2017).

While post-verbal conjoined (&P) subjects allow only first conjunct agreement in South Slavic, pre-verbal &P subjects allow default (black in our examples below), first conjunct (blue), and last conjunct (red) agreement (see Marušič et al. 2015, Willer-Gold et al. 2016, Willer-Gold et al. 2018).

(4) *VS order*

U trgovini su { *izložene/ izložena/ *izloženi } [$_{\&P}$
in shop AUX.PL displayed.F.PL displayed.N.PL displayed.M.PL [$_{\&P}$
ogledala i lampe].
mirrors.N.PL and lamps.F.PL]
'Mirrors and lamps were displayed in the shop.'

(5) *SV order*

[$_{\&P}$ Molbe i rješenja] su { ovjerene/ ovjerena/
[$_{\&P}$ request.F.PL and resolution.N.PL] AUX.PL verified.F.PL verified.N.PL

(i) A: Jel' kupuješ šećer?
Q buy.2SG sugar
'Are you buying sugar?'
B: Da, kupujem.
yes buy.1SG
'Yes, I am (buying sugar).'

The empirical contribution of the present article relies on cases where agreement morphology in the answer is distinct from the agreement morphology that appears in the question.

ovjereni } pečatom.

verified.M.PL by stamp

'Requests and resolutions were verified by stamp.'

Regarding single conjunct agreement only, our focus here, the generalization that arises can be stated compactly as follows:

(6) **Single conjunct agreement generalization**: For single conjunct agreement morphology, SV word order allows both first and last conjunct agreement, whereas VS word order allows only first conjunct agreement.

Following Marušič et al. (2015), we assume that single conjunct agreement is sensitive to hierarchical structure or to linear order, depending on the stage of the PF-cycle in which it applies. Specifically, in this framework, which we refer to as Distributed Agree, the Agree operation is divided into two procedures: Agree-Link, connecting a probe and a goal, processed in the syntax proper, and Agree-Copy, processed in PF, where morphosyntactic features are passed onto the probe. In PF Agree-Copy can be sensitive either to hierarchical structure or to linear structure, depending on whether it applies before or after linearization. As a result, these agreement patterns provide a unique setting to test different approaches to ellipsis.

In order to investigate the interaction between single conjunct agreement and verb-echo answers, we first establish the availability of verb-stranding ellipsis derivations for verb-echo answers, as schematized in (7). We support this claim in Section 3 with different tests showing also that argument ellipsis is unlikely to be available in the language and just like *pro*-drop, it would struggle to deliver verb-echo answers with single conjunct agreement.

(7) A: Jel' kupuje Ivan šećer?

Q buy.3SG Ivan sugar

'Is Ivan buying sugar?'

B: Da, kupuje ~~[$_{VP}$ Ivan *t* šećer]~~.

yes buy.3SG ~~[$_{VP}$ Ivan *t* sugar]~~

'Yes, he is (buying sugar).'

The empirical support for the analysis of ellipsis proposed here comes from an experimental study investigating single conjunct agreement options in verb-echo answers in contexts where the antecedent question of the verb-echo answer has an &P subject (Willer-Gold et al. 2019, Willer-Gold et al. 2021, Ristić et al. 2021, Willer-Gold et al. 2022 and Willer-Gold et al. in prep). Focusing on single conjunct agreement and leaving default masculine aside for the moment, the experimental results show that the agreement options observed with &P subjects in verb-echo answers are the same agreement options that the answer would have if its underlying word order matches that of the question:

(8) *VS order*

A: Jesu li izložena [$_{\&P}$ ogledala i lampe] u trgovini?

AUX.PL Q displayed.N.PL [$_{\&P}$ mirrors.N.PL and lamps.F.PL] in shop

'Were mirrors and lamps displayed in the shop?'

B: Da, { *izložene=su/ izložena=su/

Yes, displayed.F.PL=AUX.PL displayed.N.PL=AUX.PL

izloženi=su }.

displayed.M.PL=AUX.PL

'Yes. They were (displayed in the shop).'

(9) *SV order*

A: Jesu li [$_{\&P}$ molbe i rješenja] ovjerena pečatom?
AUX.PL Q [$_{\&P}$ request.F.PL and resolution.N.PL] verified.N.PL by stamp
'Were requests and resolutions verified by stamp?'

B: Da, { ovjerene=su/ ovjerena=su/
Yes, verified.F.PL=AUX.PL verified.N.PL=AUX.PL
ovjereni=su }.
verified.M.PL=AUX.PL
'Yes. They were (verified by stamp).'

In (9), but not in (8), the pattern of single conjunct agreement in the answer can be distinct from that within the question; hence the name *switch agreement*. Strikingly, the switch shows agreement with a conjunct that is not visible on the surface in the elided version. The following generalization summarises these results:

(10) **Verb-echo agreement generalization:** For single conjunct agreement, the agreement morphology options in a verb-echo answer are the same as the options in the antecedent, taking into account the position of the participial verb in relation to the subject.

In what follows, we offer an analysis of the verb-echo agreement generalization relying on establishing the derivational timing of ellipsis, subject fronting and agreement procedures. Importantly, we take ellipsis to be an instruction to forgo Vocabulary Insertion (see e.g. Wasow 1972, Bartos 2000, Saab 2008, Saab 2022), adopting the idea that syntactic heads that can be realized phonologically contain a Q-variable, and that Vocabulary Insertion is the replacement of this variable by a morphological exponent (Halle 1991,

Noyer 1992, Embick 2015). Ellipsis is thus seen as deletion of Q-variables in the syntax, which bleeds Vocabulary Insertion in PF (Saab 2022). We call this approach *Distributed Ellipsis*, as the elements and operations involved in the final result arise from different parts of the grammar. Specifically, the Q-variable is a lexical feature, and the deletion of this variable takes place in the narrow syntax, which bleeds subsequent Vocabulary Insertion in PF. Distributed Ellipsis provides precisely the type of flexibility that is needed to account for the verb-echo agreement generalization, allowing Q-less elements to participate both in grammatical operations in the syntax proper and in the PF-cycle (see Abels 2012, Section 2.2.4, Park 2017, Section 4.2.1 and Park to appear for analyses along these lines, and for independent evidence that syntactic objects marked for ellipsis in the syntax can be re-merged outside the ellipsis site; see also Section 4 below). Furthermore, we assume that ellipsis must be sensitive to some degree of isomorphism beyond lexical identity alone (*pace* Merchant 2001, 2013, Chung 2006) in order to constrain the single conjunct agreement options in verb-echo answers.

We lay the groundwork for discussing the major focus of this paper by presenting single conjunct agreement and the mechanics of Distributed Agree in Section 2. In Section 3, we present a battery of tests demonstrating the availability of verb-stranding VP ellipsis in verb-echo answers and the unavailability of argument ellipsis in BCS and Slovenian, as well as the inability of *pro*-drop to produce verb-echo answers with single conjunct agreement. In Section 4, we present our experimental investigation on single conjunct agreement in verb-echo answers and provide an analysis in terms of Distributed Ellipsis. Section 5 offers a discussion of some theoretical consequences of our findings for the theory of ellipsis, which is followed by a general conclusion in Section 6.

2 The single conjunct agreement generalization: Experimental investigation and Distributed Agree

In this section, we provide experimental support for the single conjunct agreement generalization in BCS and Slovenian, as well as an analysis of this pattern based on the Distributed Agree framework from Marušič et al. (2015).

2.1 Experimental investigation

Recall the single conjunct agreement generalization:

(11) **Single conjunct agreement generalization**: SV word order allows both first and last conjunct agreement, whereas VS word order allows only first conjunct agreement.

This pattern has emerged from experimental studies on conjunct agreement in the South Slavic varieties Slovenian and BCS, reported in Willer-Gold et al. (2016) and Willer-Gold et al. (2018) (see also Marušič et al. 2015), which employed elicited production and acceptability judgment experiments to verify the conjunct agreement patterns in contexts such as (4)–(5) above.

The elicited production experiments were designed to prompt free production of conjunct agreement patterns with a large number of native speakers of Slovenian and BCS (n=180) with data collected at six research locations across the South Slavic region (Ljubljana in Slovenia, Sarajevo in Bosnia and Herzegovina, Zadar and Zagreb in Croatia, and Novi Sad and Niš in Serbia).

The study manipulated word order in the model sentence [SV,VS] and the gender combination of the plural conjuncts in the prompts [MM,FF,NN,MF,MN,FM,NM,FN,NF]. The model sentence contained a subject, a simple NP in masculine singular, an auxiliary,

a participle and an adverb. The model sentences in the SV condition [subject-aux-verb-adverbial] were presented in Experiment 1a, as in (5), and the model sentences in the VS condition [adverbial-aux-verb-subject] in Experiment 1b, as in (4). The prompt in the two experiments was the conjunction phrase subject [ConjP]. The crossing of the three genders in two conjuncts resulted in nine gender combination conditions, with six items per condition, resulting in 54 stimuli experimental items in Experiments 1a and 1b. An example of a trial from Experiment 1a, with the SV order in the model sentence and the FN combination of conjuncts in the prompt, is shown in (12).

In the experiment, a model sentence first appeared on the screen, and the participants' task was to read the model sentence out loud and to press a continue button. Next, a prompt appeared on the screen, and the task was to read the prompt and complete the sentence based on the preceding model sentence using the prompt as the sentential subject.

(12) *SV order*

Model sentence: Prijevod je ovjeren pečatom.
translation.M.SG aux.SG verified.M.SG by.stamp
'The translation was verified by stamp.'

Prompt: Molbe i rješenja
requests.F.PL and resolutions.N.PL
'Requests and resolutions'

The recordings were used to transcribe the production response to the conjunction phrase prompt. The agreement markers on the verbal responses were coded for the gender value and were used to calculate the production rate (%) for the conjunct agreement patterns for the nine gender combinations in response to the SV (Experiment 1a) and VS (Experiment

1b) word orders in the model sentence.

Experiment 1a/SV word order results indicated a preference for last conjunct agreement and default agreement, with all three options, first conjunct (e.g., neuter in NF=18%), last (e.g., neuter in FN=53%), and default (e.g., masculine in FN=36% and NF=46%) agreement attested beyond the level of error, see the graph on the left in Figure 1. On the other hand, Experiment 1b/VS word order results indicated an overall preference for first conjunct agreement (e.g., neuter in NF=93%), against last conjunct agreement (e.g., neuter in FN=4%) and default agreement (e.g., masculine in NF=5% and FN=5%), see the graph on the right in Figure 1. The NF combination of conjuncts was selected for presentation of the results in Figure 1, as it transparently illustrates the contrast in conjunct agreement patterns in the SV and VS word order as captured by the single conjunct agreement generalization (for a detailed discussion of results for all nine conditions, see Willer-Gold et al. 2016).

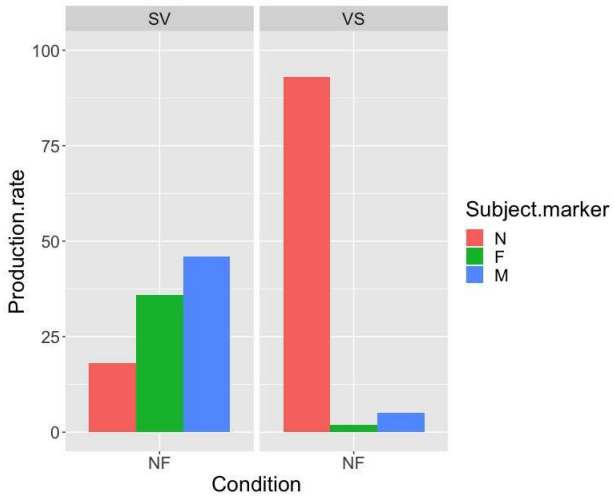

Figure 1: Conjunct agreement in SV and VS word order: Elicited production experiment (n=180). Comparison of production rate for closest conjunct agreement in SV (the green bar on the left) with increase in the production rate in VS (the red bar on the right) and distal conjunct agreement in SV (the red bar on the left) with a decrease in the production rate in VS (the green bar on the right) (adapted from Willer-Gold et al. 2016).

A follow-up acceptability judgment experiment was designed to collect ratings for the agreement patterns attested by the presented elicited production experiments with the same sample of six varieties of South Slavic (n=120). The experimental design manipulated the word order [SV,VS] and the gender combination of conjuncts (all gender combinations to the exclusion of MM). The structure of the items corresponded to the one of the model sentence from the elicited production experiment, with the conjunction phrase in the subject position. The two word orders were crossed with eight gender combinations to form sixteen conditions with four items per condition, resulting in 64 experimental items. In this experiment, the participants read each sentence and rated them on a Likert scale from 1–5 for acceptability.

The results from the acceptability judgment experiment are in line with the elicited judgment study, showing a significantly lower acceptability for *distal* conjunct agreement in the VS word order compared to the SV order. The results from the two tasks are directly compared in Figure 2, where the graph to the left shows the significant difference in the percentage of the production rates and the graph to the right the significant difference in the acceptability judgement ratings of first conjunct agreement in the SV order and last conjunct agreement in the VS order (labeled as *distal*).

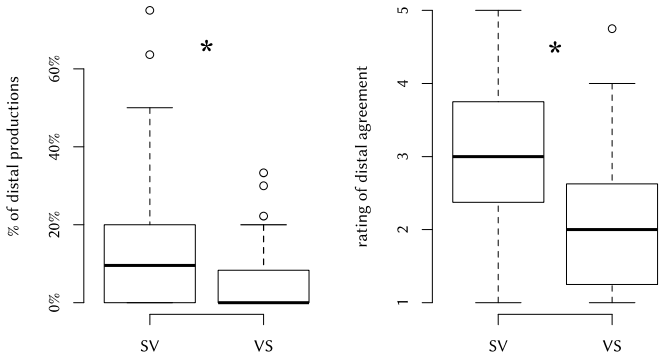

Figure 2: Distal conjunct agreement in SV and VS word order: Elicited production experiment (n=180) (left) and acceptability judgment experiment (n=120) (right). Distal conjunct agreement shows a significant increase in the production rate and acceptability ratings in SV compared to VS word order (as reported in Willer-Gold et al. 2018).

2.2 *Analysis in terms of Distributed Agree*

In this paper, we adopt, in general terms, the analysis of single conjunct agreement offered by Marušič et al. (2015), where the operation Agree is divided into two steps (see also Benmamoun et al. 2009, Arregi and Nevins 2012, Bhatt and Walkow 2013): Agree-Link, taking place in the syntax and establishing a connection between the probe and the goal, and Agree-Copy, taking place in PF, where the morphosyntactic values are passed onto the probe. Agree-Copy is sensitive either to hierarchical structure or to linear order, depending on the stage of the PF-cycle in which it applies.[2]

According to Marušič et al. (2015), whose view is further supported experimentally in Mitić and Arsenijević (2019), &P can only compute a number value (typically plural in South Slavic), but not a gender value. Agree-Copy with &P can only value the number feature of the probe on the participial head (Part), leaving the gender feature unvalued. Another Agree-Copy operation is thus called for, so that the residual unvalued gender feature on the participial probe can be properly valued, targeting one of the conjuncts inside &P as a possible goal. The choice between them depends on the ordering of operations. Both &P, typically specified as plural, and the selected conjunct can provide a feature value for the probe on Part.[3] If Agree-Copy applies before linearization, the higher con-

[2]There are conditions on single conjunct agreement in South Slavic which we do not discuss in detail here. Specifically, single conjunct agreement is in general restricted to inanimate plural conjuncts. We refer the reader to Marušič et al. (2015), Willer-Gold et al. (2016) and Willer-Gold et al. (2018) for further discussion of the data and their analysis. Accordingly, in this paper we restrict the discussion to inanimate plural conjuncts, where single conjunct agreement is possible.

Additionally, focusing on Slovenian, Marušič et al. (2015) divide speakers into two groups depending on whether they accept single conjunct agreement or not. As our focus in this paper is on single conjunct agreement, this dialectal variation will not be discussed here either. We refer the reader to Marušič et al. (2015) for further discussion of the experimental data and a technical implementation of these grammars.

[3]A natural condition to impose on this procedure is that the features supplied to the probe from these two sources do not mismatch, resulting in conflicting number specifications. Conflicting grammatical instructions often lead to unacceptability (see, e.g., Fox and Pesetsky 2005, Mendes and Nevins 2021, Mendes and Kandybowicz 2021, among others). Since number computation in &P typically results in plural, single conjunct agreement is also restricted to plural conjuncts, providing a handle on Marušič et al.'s (2015) *Consistency Principle*, which restricts single conjunct agreement to conjuncts that match the number feature of &P by stipulation (see Hiraiwa 2001, Nevins 2007 and Nevins 2011 for similar effects and proposals in the

junct is selected; if Agree-Copy applies after linearization, the linearly closest conjunct is selected. When the subject is in a post-verbal position, as in (4), repeated here in (13), these two different orderings of operations yield the same result for single conjunct agreement, as the first conjunct is both the highest and the linearly closest one to the probe. Crucially, Agree-Copy with the second conjunct is never possible when the subject stays in a post-verbal position, as the highest conjunct is also the linearly closest to the probe.

(13) *VS order*

U trgovini su { *izložene/ izložena/ *izloženi }
in shop AUX.PL displayed.F.PL displayed.N.PL displayed.M.PL
ogledala i lampe.
mirrors.N.PL and lamps.F.PL
'Mirrors and lamps were displayed in a store.'

(14) a. V+Part $[_{\&P}$ $Conj_1$ $[_{\&'}$ & $Conj_2$]] (Agree-Copy$\prec$Linearization)

b. V+Part$\frown Conj_1 \frown$&$\frown Conj_2$ (Linearization$\prec$Agree-Copy)

On the other hand, with pre-verbal subjects, as in (5), repeated here in (15), these different orderings of operations matter. If Agree-Copy applies before linearization, the highest conjunct is selected, whereas if the Agree-Copy takes place after linearization, the second conjunct is selected. Two options of single conjunct agreement are thus available with pre-verbal subjects, as illustrated in (15).

(15) *SV order*

Molbe i rješenja su { ovjerene/ ovjerena/
request.F.PL and resolution.N.PL AUX.PL verified.F.PL verified.N.PL

domain of Multiple Agree). We refer the reader to Marušič et al. (2015) for further discussion of this effect.

ovjereni } pečatom.

verified.M.PL by stamp

'Requests and resolutions were verified by stamp.'

(16) a. [$_{\&P}$ Conj$_1$ [$_{\&'}$ & Conj$_2$]] V+Part (Agree-Copy$\prec$Linearization)

b. Conj$_1$⌒&⌒Conj$_2$⌒V+Part (Linearization$\prec$Agree-Copy)

Thus, with pre-verbal subjects, different orderings of operations lead to different outcomes.[4] The single conjunct agreement generalization follows from the dynamics of Agree-Copy within the PF-cycle, specifically from the interaction between Agree-Copy and linearization.[5]

[4]The highest conjunct in [Spec,&P] and the probe are not in a c-command relation. However, Agree-Copy utilising this conjunct in the SV order can in principle be viewed as picking up directly on c-command relations, under the assumption that elements that are merged as specifiers, in our case the pre-verbal subject and the first conjunct in &P, can be merged as left-adjuncts, and that c-command is defined in terms of categories rather than segments of categories (see May 1985, Chomsky 1986, Kayne 1994; e.g., α c-commands β iff α and β are categories and every category that dominates α also dominates β):

(i) [$_{TP}$ [$_{\&P}$ Conj$_1$ [$_{\&P}$ & Conj$_2$]] [$_{TP}$ V+Part ...]]

Evidence that specifiers can be merged as left-adjuncts comes from examples where elements apparently embedded in the subject position can participate in variable binding and NPI licensing:

(ii) a. [**Every girl**'s father] thinks **she** is a genius. (Reinhart 1983, p.177)

b. [**Nobody**'s articles] are **ever** published fast enough. (Kayne 1994, p.23)

The c-command configuration is often seen as the core notion in grammatical relations, and thus the residual Agree-Copy mechanism can be taken to navigate the type of relation that is available to it at different stages of the derivation, namely c-command before linearization and linear order after linearization. If it is true that highest conjunct agreement with SV is ungrammatical for some speakers, as reported in Bošković (2009), and highest conjunct agreement requires the adjunction structure shown in (i), we might speculate that this unavailability can be deduced from the lack of the adjunction structure in (i) in this particular grammar.

[5]Another recent proposal for single conjunct agreement patterns in BCS has been offered by Murphy and Puškar (2017). Though we cannot provide an in-depth discussion of their approach here, we would like to point out two reasons to reject their system in favor of ours. The first reason, a conceptual one, is the unnecessary use of global constraints (Lakoff 1970, Lakoff 1971). In particular, Murphy and Puškar's analysis depends on two constraints of this type, one demanding that the ordering of operations from the initial cycle of the derivation be the same in subsequent cycles and the other demanding the operation Move to have an effect on the output. The second reason is empirical. In their analysis, single conjunct agree-

Finally, while outside the domain of single conjunct agreement, an asymmetry is observed regarding the availability of default masculine on the verb, which is grammatical in the SV word order, but not in VS. This asymmetry is arguably a result of *index agreement* (Willer-Gold et al. 2016, see also Wechsler and Zlatić 2003, Smith 2017b, Smith 2017a). The main idea is that the default masculine feature is available for &P (Willer-Gold et al. 2016), and that index agreement requires the agreement controller to c-command the target (Smith 2017b, Smith 2017a). This requirement, according to Smith (2017a), is responsible for the effect found with collective nouns such as *committee*, *government* and *team* in some dialects of British English. When singular, these nouns can trigger plural morphology on the verb, but only if they are in a pre-verbal position (e.g., *The committee are here*/**There are a committee here*).

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ment is a by-product of asymmetric Agree within the &P targeting one of the conjuncts. Feature copying targets &P, specified for gender, and not individual conjuncts. The system struggles with the known pattern of *sandwiched agreement* in Slovenian (see (i); see Marušič et al. 2007, Marušič et al. 2015, Marušič and Nevins 2020), where two gender probes target different conjuncts, which implies that &P itself doesn't have a gender feature. If feature copying targets gender specified on &P, the difference in gender agreement on the verbal elements requires further stipulations.

(i) Včeraj so **bile** [krave in teleta] **prodana**.
yesterday AUX been.F.PL [cow.F.PL and calf.N.PL] sold.N.PL
'Yesterday cows and calves were sold.'

Murphy and Puškar point to data where the closest conjunct has a modifier that linearly intervenes between the &P and the probe. They correctly note that in this case it is not the linearly closest NP that controls agreement:

(ii) [Crteži na kojima su šume] i [slike na kojima su jezera] su {
drawing.M.PL on which are forest.F.PL and painting.F.PL on which are lake.N.PL are
prodate/ *prodata }.
sell.PRT.F.PL sell.PRT.N.PL
'Drawings of forests and pictures of lakes were sold.'

This type of example can easily accommodated within the current framework, if NP modifiers belong to different PF cycles,and hence are not considered by Agree-Copy after linearization.

3 Verb-echo answers in BCS and Slovenian

In this section we present several strands of evidence that verb-echo answers in BCS and Slovenian are derived via verb-stranding VP ellipsis and not argument ellipsis or *pro*-drop, the former being a natural option to consider given that VP ellipsis is clearly independently available in BCS and Slovenian, as (17) illustrates.[6]

(17) Ana bi svaki put došla na sastanak, ali danas nije ~~[došla na~~
Ana would every time come to meeting, but today NEG.AUX.3.SG ~~[come to~~
~~sastanak]~~.
~~meeting]~~
'Ana would come to the meeting every time, but today she didn't.'

Initial evidence for the availability of verb-stranding VP ellipsis in BCS and Slovenian verb-echo answers comes from adjunct-inclusive interpretations, illustrated here in (18) (see Landau 2018, 2020, among others, for discussion).

(18) *Adjunct-inclusive interpretation*

A: Jesi li ispekao tortu prema receptu?
AUX.2SG Q baked.M.SG cake according.to recipe
'Did you bake the cake according to the recipe?'

B: Da, ispekao sam. I zato je tako fina.
yes baked.M.SG AUX.1SG and why AUX.3SG so tasty
'Yes, I did (bake it according to the recipe). And that's why it turned out so tasty.'

[6]For the sake of exposition, we present examples from BCS; as mentioned in the Introduction, Slovenian patterns in the same way in all relevant respects.

This inclusion of the adjunct in the interpretation of the verb-echo answer despite its non-pronunciation is predicted straightforwardly if verb-echo answers in these languages can be derived by verb-stranding VP ellipsis, as indicated for (18B) in (19).

(19) Da, ispekao sam ~~[$_{VP}$ *t* tortu *prema receptu*]~~. ...
yes baked.M.SG AUX.1SG ~~[$_{VP}$ *t* cake *according to recipe*]~~
'Yes, I did (bake it according to the recipe). ...'

Apart from verb-stranding VP ellipsis, verb-echo answers could in principle also be derived via argument ellipsis. However, subject argument ellipsis seems in general not to be operative in BCS and Slovenian. In particular, if argument ellipsis were available here, we should be able to observe null arguments with the quantificational interpretation (see e.g. Saito 2007 and Takahashi 2014, among others). The example in (20), where the subject cannot be associated with the quantificational interpretation, shows that this prediction is not borne out in BCS and Slovenian (the context used here enforces the quantificational interpretation of the subject).

(20) *QP subjects cannot be dropped independently.*

A: Poginulo je pet vojnika u Nemačkoj.
died.N.SG AUX.3SG five soldiers in Germany
'Five soldiers died in Germany.'

B: *I poginulo je ~~[$_{QP}$ pet vojnika]~~ u Engleskoj.
and died.N.SG AUX.3SG ~~[$_{QP}$ five soldiers]~~ in England
Intended: 'And five soldiers died in England.'

However, in the verb-echo answer environment, which is conducive to a verb-stranding VP ellipsis derivation (see, e.g., Holmberg 2016; Gribanova 2017; McCloskey 2017;

Mendes 2020; Sato and Maeda 2020; Ruda 2022), the quantificational interpretation of the omitted argument is possible, as in (21). One crucial difference between (20B) and (21B) is that in the former the VP adjunct is overt, whereas in the latter it is omitted. The presence of the adjunct in (20B) suggest that the VP has not been omitted, whereas its absence in (21B) suggests that the elided constituent is not the quantificational argument itself, but a constituent properly including it, namely the VP.

(21) *QP subjects can be dropped in verb-echo answers.*

A: Jel poginulo pet vojnika u Nemačkoj?
AUX.Q died.N.SG five soldiers in Germany
'Did five soldiers die in Germany?'

B: Da, poginulo je ~~[$_{VP}$ *t* [$_{QP}$ pet vojnika] u Nemačkoj]~~.
yes died.N.SG AUX ~~[$_{VP}$ *t* [$_{QP}$ five soldiers] in Germany]~~
'Yes, five soldiers died in Germany.'

Notice also that the verb-echo answer in (21B) cannot be the result of subject *pro*-drop, independently available in the language, as plural pronoun subjects trigger plural morphology on the verb plus gender agreement, as illustrated in (22). In the verb-echo answer in (21B), the verb has neuter singular agreement, a default value which is realised on the verb in the context of subject QPs in BCS and Slovenian (see (21A)).

(22) a. Poginuli su oni.
died.M.PL AUX.PL they
'They died.'

b. *Poginulo je oni.
died.N.SG AUX.SG they
Intended: 'They died.'

The contrast between (21) and (22) can thus be accounted for if the quantificational subject can be elided as part of a larger elliptical structure, enabled by polarity focus, a point which we return to in Section 4.

In addition to these empirical arguments, we would like to point out two theory-internal ones. First, in recent work Landau (2021) argues that only ⟨e⟩-type elements can be targeted by argument ellipsis.[7] While a number of questions remain to be addressed (a.o. the omission of QP arguments), if this hypothesis can be maintained, it offers another argument against an argument ellipsis analysis of verb-echo answers in BCS and Slovenian. In particular, such answers make available the ellipsis of such non-⟨e⟩-type elements as idiom chunks (see (23)), argumental adverbs (see (24)), argumental measure phrases (see (25)), proper names (see (26)), and predicate nominals (see (27)), unlike what Landau documents for Hebrew null objects, undergoing argument ellipsis on this account.

(23) *Idiom chunk: directed to a boxer after a boxing match*

A: I, jesi li išao glavom kroz zid?
and AUX.2.SG Q go head through wall
'Did you go with your head through the wall (= be stubborn)?'

B: Da, išao sam.
yes went.M.SG AUX.1.SG
'Yes, I did (go with my head through the wall/be stubborn).'

[7] According to Landau (2021), in argument ellipsis, *pro* is base-generated in the position of the argument gap, constraining its distribution, and the antecedent is then copied to that position after Transfer. The correct analysis of argument ellipsis is orthogonal to the point which we explore here.

(24) *Argumental adverb*

A: Je li se Perica hrabro ponašao kod zubara?
AUX.3.SG Q SE Perica bravely behaved.M.SG at dentist
'Did Perica behave bravely at the dentist?'

B: Da, ponašao se.
yes behaved.M.SG SE
'Yes, he did (behave bravely at the dentist).'

(25) *Argumental measure phrase*

A: Jesi li (zaista) težio 70 kg?
AUX.2.SG Q (really) weighed.M.SG 70 kg
'Did you really weigh 70 kg?'

B: Da, težio sam.
yes weighed.M.SG AUX.1SG
'Yes, I did (weigh 70 kg).'

(26) *Proper name*

A: Jesi li dao svojoj mački ime Garfield?
AUX.2SG Q given.SG.M self's cat name Garfield
'Did you give your cat the name Garfield?'

B: Da, dao sam.
yes given.SG.M AUX.1SG
'Yes, I did (give my cat the name Garfield).'

(27) *Predicate nominal*

A: Jesu li princevi postali žabe?
AUX.3PL Q princes become.PL.M frogs
'Did the princes become frogs?'

B: Da, postali su.
yes become.PL.M AUX.3PL
'Yes, they did (become frogs).'

The second theoretical argument has an important ingredient, crucial for the interaction between ellipsis and agreement, central for the present paper. Cross-linguistically, arguments which are cross-referenced by agreement have been argued to resist argument ellipsis. We will refer to this tendency as the anti-agreement generalization (see (28); see Saito 2007, Şener and Takahashi 2010, Takahashi 2014, see also Oku 1998), which is often explained theoretically by appeal to the following logic: under the assumption that in argument ellipsis the argument position is empty in the narrow syntax (either receiving interpretation under LF-copying, or being derivationally deleted), ϕ-probing fails to target an argument that has undergone argument ellipsis and, as a consequence, the derivation crashes (failed ϕ-probing implicates a crash in the system developed in Chomsky 2000, 2001). Consider the following example from Japanese, which, in contrast with South Slavic languages, lacks agreement morphology on the verb.

(28) a. Sannin-no mahootukai-ga Taroo-ni ai-ni kita.
three-GEN wizard-NOM Taroo-DAT see-to came
'Three wizards came to see Taroo.'

b. *e* Hanako-ni-mo ai-ni kita.
e Hanako-DAT-also see-to came
Lit. 'e came to see Hanako, too.'

In all our testing examples the relevant omitted argument is the subject, which in BCS and Slovenian typically controls agreement morphology on the verb. Hence, taking into account the anti-agreement generalization, we expect subject argument ellipsis not to be available in these languages. While the ultimate source of the anti-agreement generalization is not our main focus here, we would like to draw attention to the fact that our approach to ellipsis, as flagged in the introduction, is not based on either LF-copying or pruning of syntactic constituents, at least as far as verb-echo answers in BCS and Slovenian are concerned, but we rather take ellipsis to be an instruction to forgo Vocabulary Insertion.

There are two ways to make the notion of argument ellipsis exploited in the anti-agreement generalization consistent with the proposal put forward here. One is to assume that, in contrast with VP ellipsis, argument ellipsis is indeed either LF-copying or deletion/pruning of constituents, in which case the logic above would apply in any of its versions. The other is to adapt the ideas from Saab (2020), where this issue is already addressed under the approach to ellipsis which we adopt here. In particular, Saab's idea has three ingredients. First, according to the case filter (Chomsky and Lasnik 1977), overt nominals need case, that is the value of K, in PF. Second, Saab assumes that K is optionally merged with nominal elements. Third, agreement is parasitic on K in that K's features signal which nominal can be the target of agreement. Thus, if a nominal enters the derivation without K, it has to be deprived of phonological pronunciation, in Saab's terms by blocking Vocabulary Insertion, in order to prevent a case filter violation. This is what argument ellipsis is. In fact, as emphasized by Saab, nominal phrases such as null argu-

ments in Japanese can be shown to lack case (Saito 2007).[8] Only nominals that lack K and thus cannot be targeted by agreement can be subject to argument ellipsis, achieving the desired result for the anti-agreement generalization.

Finally, the last point we would like to make in this section is that while South Slavic languages are typically *pro*-drop, and at least subject *pro*-drop is likely available in verb-echo answers, an analysis in terms of *pro*-drop cannot derive any examples of single conjunct agreement and thus cannot account for the verb-echo agreement generalization. Namely, there are in principle two options to refer to both conjuncts via *pro*-drop. The first would be to use a null pronoun version of *they* (e.g., pro_{they}), substituting for the entire &P. However, when a pronoun is used to do so in contexts where the gender values of the conjuncts mismatch, it has to be masculine, yielding masculine gender agreement on the verb, which is not the only option available in the relevant data sets.

A second possibility would be to *pro*-drop each conjunct individually (e.g., pro_{they} & pro_{they}), but then we are left with the overt coordinator, which cannot be elided independently in these languages.

[8]The main argumentation is based on the fact that in Japanese accusative arguments prevent the well-known process of *ga/no* conversion, which allows, in descriptive terms, the conversion of a nominative subject into a genitive one inside prenominal modifier clauses:

(i) [Taroo-ga/-no itta] tokoro
[T.-NOM/-GEN went] place
'the place that Taro went' (adapted from Saito 2007)

However, this process is blocked in the presence of an accusative argument (see (iia)), but not if this argument is unpronounced (see (iib)).

(ii) a. *[Hanako-**no** *kare-o* turete iku] tokoro-wa Nagoya-zyoo -desu.
[H.GEN *he*-ACC take] place-TOP Nagoya-castle -is
'The place that Hanako is taking him is the Nagoya Castle.'
b. [Hanako-**no** *e* turete iku] tokoro-wa Nagoya-zyoo -desu.
[H.GEN *e* take] place-TOP Nagoya-castle -is
'The place that Hanako is taking him is the Nagoya Castle.' (adapted from Saito 2007)

(29) *VS order*

A: Jesu li izložena ogledala i lampe u trgovini?
AUX.PL Q displayed.N.PL mirrors.N.PL and lamps.F.PL in shop
'Were mirrors and lamps displayed in the shop?'

B: *Da, { izložene=su/ izložena=su/
Yes, displayed.F.PL=AUX.PL displayed.N.PL=AUX.PL/
izloženi=su } *pro* i *pro*.
displayed.M.PL=AUX.PL *pro*.N.PL and *pro*.F.PL
Intended: 'Yes. They were (displayed in the shop).'

(30) *SV order*

A: Jesu li molbe i rješenja ovjerena pečatom?
AUX.PL Q request.F.PL and resolution.N.PL verified.N.PL by stamp
'Were requests and resolutions verified by stamp?'

B: *Da, *pro* i *pro* { ovjerene=su/ ovjerena=su/
Yes, *pro*.F.PL and *pro*.N.PL verified.F.PL=AUX.PL verified.N.PL=AUX.PL
ovjereni=su }.
verified.M.PL=AUX.PL
Intended 'Yes. They were (verified by stamp).'

Thus, we assume that *pro*-drop is not an adequate mechanism to elucidate the single conjunct agreement data patterns which are the main focus of this paper (though it is adequate to account for the default agreement pattern, likewise attested experimentally in the verb-echo answer environment, see Section 4.1). Ellipsis is implicated.

In sum, we take all of the above to indicate that verb-echo answers in BCS and Slovenian result from verb-stranding VP ellipsis, and not argument ellipsis or *pro*-drop.

4 The Verb-echo generalization: Experimental investigation and Distributed Ellipsis

In this section we discuss single conjunct agreement in verb-echo answers. We start by presenting the experimental results that support the verb-echo agreement generalization, and then we move on to presenting our analysis in terms of Distributed Ellipsis.

4.1 Experimental investigation

The verb-echo agreement generalization, repeated here in (31), is based on the empirical results from an experimental study on switch agreement in native speakers of six South Slavic varieties, presented in Willer-Gold et al. (2021), Ristić et al. (2021), Willer-Gold et al. (2022) and Willer-Gold et al. (in prep). The study used both forced-choice and acceptability judgment tasks to probe the robustness of conjunct agreement patterns in verb-echo answers to polar questions, as in (8)–(9) above.

(31) **Verb-echo agreement generalization:** For single conjunct agreement, the agreement morphology options in a verb-echo answer are the same as the options in the antecedent, taking into account the position of the participial verb in relation to the subject.

A three-alternative forced choice task (similar to Staub 2009) was chosen as a substitute for an elicited production task. A fully-crossed 2x2 design manipulated word order in the question [SV,VS] and the presence of the auxiliary in the answer [with,without], with 24 items per condition, resulting in 96 experimental items for BCS and for Slovenian. The structure of the question in the SV condition was [aux-pol-subject-verb-adverbial] for BCS and [aux-pol-subject-adverbial-verb] for Slovenian, and in the VS condition it was [aux-pol-verb-subject-adverbial] for BCS and [aux-pol-adverbial-verb-subject] for Slovenian. The subject of the question was a NF conjunction phrase. This combination

of genders was chosen for its transparency with respect to diagnosing agreement patterns, for example first conjunct agreement (e.g., neuter in (32)) and second conjunct agreement (e.g., feminine in (32)). Conjunct agreement in the question was consistently with the preferred *closer* conjunct, that is the second conjunct (feminine) in the SV order and the first conjunct (neuter) in the VS order (Willer-Gold et al. 2016, Willer-Gold et al. 2018). The answer was composed of the polarity phrase and the verb alternatives, either followed by the auxiliary or not, [pol-verb-(aux)]; with the two components presented independently (see (32) below). In the answer, the three verbal forms alternated in gender [masculine, feminine, neuter] and were coded for the agreement patterns: closest conjunct agreement, that is agreement with the same conjunct as in the question, labeled as *old* (e.g., neuter in (32)); distal conjunct agreement, that is agreement with the other conjunct than the one in the question, labeled as *switch* (e.g., feminine in (32)); and default agreement, that is agreement with the conjunction phrase, labeled as *def* (masculine in (32)).

In the experiment, the question appeared first and was followed by the onset of the answer (the polarity phrase). Lastly, the three verbal alternatives were presented on the screen. The participants' task was to select the alternative that serves as the best continuation of the answer. The responses were recorded for purposes of the analysis.

The *old* agreement, primed by the agreement pattern in the question, was expected to obtain the highest choice rate overall. Therefore, the primary interest of the study was the production rate of *switch* agreement in the SV vs. the VS condition, as an indicator of unattested *distal* conjunct agreement. Based on previous empirical findings (see Section 2.1), a reduction in choice rate of *switch* agreement in the VS condition would provide evidence that speakers reconstruct the word order from the question in the ellipsis site, and based on this word order compute agreement, with the *switch* agreement alternative in the VS condition encoding the unattested *distal* agreement.

(32) *VS order*

a. Jesu li izložena ogledala i lampe u trgovini?
AUX.PL Q displayed.N.PL mirrors.N.PL and lamps.F.PL in shop
'Were mirrors and lamps displayed in the shop?'

b. Nego što nego,...
indeed
'Indeed...'
{ izložene=su/ izložena=su/
displayed.F.PL=AUX.PL displayed.N.PL=AUX.PL
izloženi=su }
displayed.M.PL=AUX.PL
'...they were (displayed in the shop).'

The experiment tested native speakers of Slovenian and BCS (n=225), with the data collected at the six research locations across the South Slavic region listed for the elicited production and acceptability judgment experiments in Section 2.1.

The results of the forced-choice experiment confirm the predicted main effect of word order with a significant reduction in the choice of *switch* agreement answers in the VS compared to the SV conditions (from 26% to 15%; z=-9.78, $p < .001$, as indicated by the blue-colored bars in Figure 3). These results show that the native speakers of these South Slavic varieties chose significantly less *switch* agreement in the answers to the VS compared to the SV word order in the questions. More generally, the word order effect found in the elicited production study on conjunct agreement (see Section 2.1) was replicated for *switch* agreement answers to polar question in another large scale experiment (225 native speakers of six South Slavic varieties), but with a comparatively more complex 'model sentence/prompt' (the polar question, mismatched gender conjuncts and closest

conjunct agreement). This replication strongly suggests that the native speakers reconstruct the word order from the question at the ellipsis site, which in turn predictably constrains their choice of the agreement alternative, providing strong empirical grounding for the verb-echo generalization. In addition, the results show the highest choice rate for the *old* agreement and no effect of presence or absence of the auxiliary (z=-0.50, p=0.63).

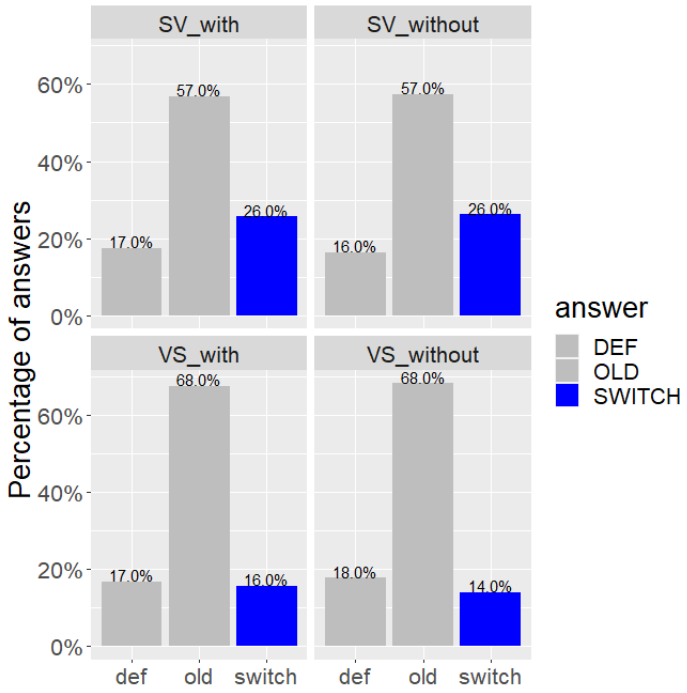


Figure 3: Switch agreement in the SV and the VS word order: Three-alternative forced choice experiment (n=225). Switch agreement is produced significantly less in verb-echo answers to VS polar questions (bottom) than it is to verb-echo answers to SV polar questions (top), irrespective of the presence of the auxiliary in the answer; (from 26% to 15%; z=-9.78, $p < .001$).

As a follow up, conservative criteria were employed to sample participants whose mean value for switch agreement in the VS condition was lower than 10%, that is at error rate in production studies (see, e.g., Franck et al. 2008 for Romance, Badecker and Kuminiak 2007 for Slavic). The application of these criteria yielded a group of 110 native speakers from the six South Slavic varieties, which represented 49% of participants from

the original sample (n=225). The results for this group of native speakers show an even stronger main effect of word order, with a steeper reduction in the choice rate for *switch* agreement in the VS condition (from 27.5% to 2.5%; z=-10.808, p< .001), as indicated by the blue-colored bars in Figure 4). The grammar of this group of native speakers is highly consonant with the verb-echo generalization. The other group of native speakers with switch agreement in the VS condition higher than 10% (n=115, 51%) conflates a mixed group of participants, namely participants choosing only old or only default agreement (across the four conditions), participants reflecting the mean of the original sample, as well as participants with a 'reverse' verb-echo generalisation pattern, with a higher choice rate of switch agreement in VS than SV. The latter sub-group of participants presumably relies on the canonical SV word order at the ellipsis site to calculate the agreement procedures in the VS condition.[9]

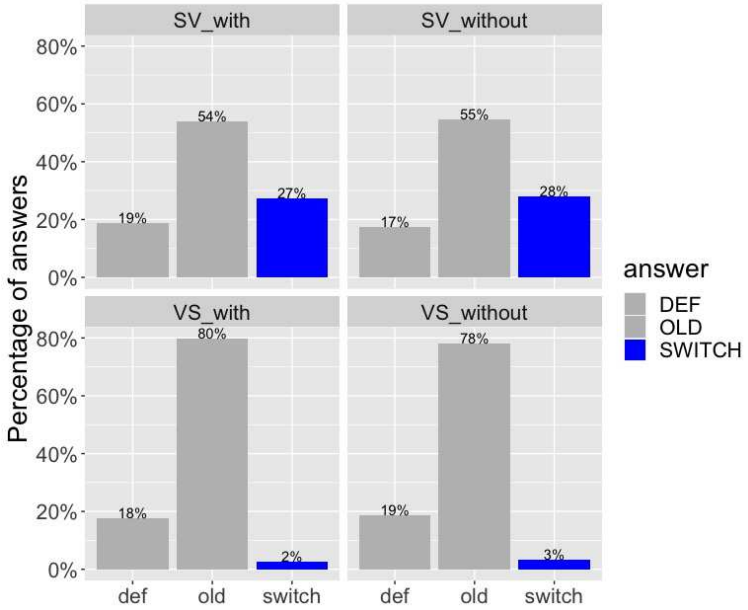


Figure 4: Switch agreement: Three-alternative forced choice experiment, group analysis (n=110). Native speakers with <10% switch agreement in the VS condition; difference between SV and VS from 27.5% to 2.5%; z=-10.808, p < .001.)

[9]For an in-depth discussion of these empirical findings, see Willer-Gold et al. (in prep).

A follow-up acceptability judgment experiment was designed to collect naturalness judgments (Likert scale 1–7) for the agreement procedures in verb-echo answers to polar questions with the native speakers of the South Slavic varieties (n=107). A fully-crossed 2x2x2 design manipulated the word order [SV,VS] in the question, the gender combination of the two conjuncts [MM, NF], and the agreement on the verb in the answer [old, switch], with 24 items per condition, resulting in 96 [NF] and 96 [MM] experimental items for the BCS and for the Slovenian set of materials, exemplified in (33), by crossing the NF gender combination and the VS word order in the question with the switch agreement in the answer. The experimental items for [NF] were those used in the forced-choice experiment, and the experimental items for [MM] were created for the purposes of this experiment. In line with the results from the previous studies, switch agreement in the answer is predicted to be given a significantly lower rating than old agreement; and, more to the point, switch agreement in the answer to the VS word order in the question is predicted to be given a significantly lower rating compared to switch agreement in response to the question with the SV order.

In this experiment, the participants read the question and the answer and rated the naturalness of the answer relative to the preceding question.

(33) *VS order*

A: Jesu li izložena ogledala i lampe u trgovini?
AUX.PL Q displayed.N.PL mirrors.N.PL and lamps.F.PL in shop
'Were mirrors and lamps displayed in the shop?'

B: Nego što nego, izložene=su.
indeed displayed.F.PL=AUX.PL
'Indeed, they were (displayed in the shop).'

The results confirmed the predictions stated above and, crucially, a main effect of word order was found only for the NF combination of conjuncts (and not in MM 'switch' and 'old' conditions), with a significant reduction of switch agreement judgments in the VS compared to the SV word order in the question (from 5.06/7 to 3.15/7; t=2.929, p = 0.003**), as indicated by the blue bars in Figure 5. The main effect of word order was also found for NF old in the opposite direction, with an increase of old agreement in the VS compared to the SV condition.

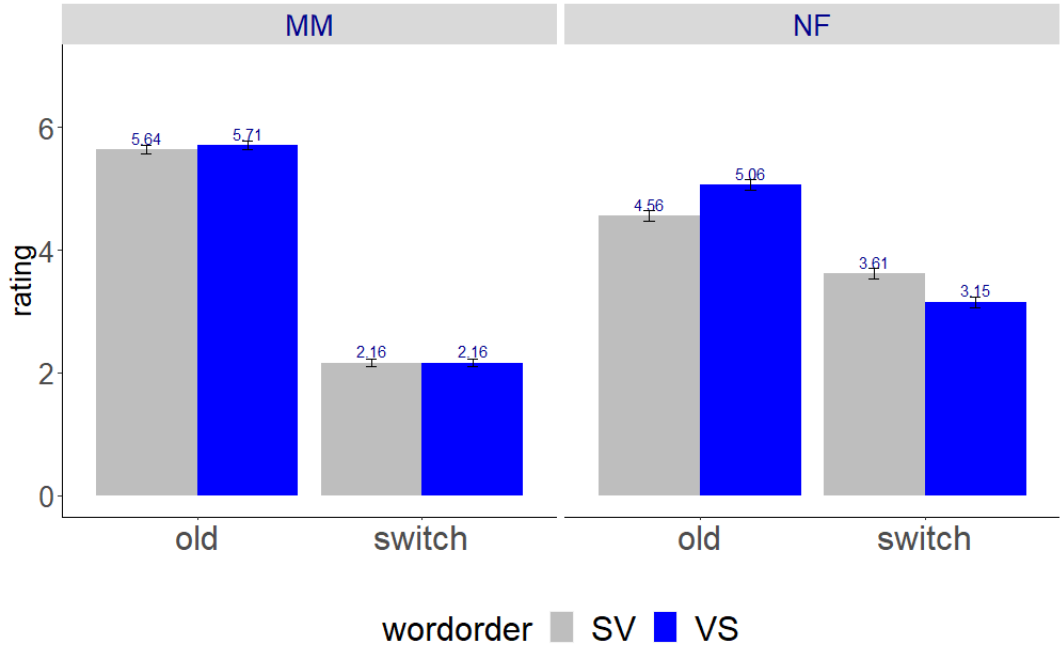


Figure 5: Switch agreement in the SV and the VS word order: Acceptability judgment experiment (n=107). Switch agreement is rated significantly lower in verb-echo answers to VS (blue bar) than SV (grey bar) polar questions for [MM] and [NF] gender combinations of plural conjuncts, e.g. from 5.06 to 3.15; t=2.929, p = 0.003**.

An additional index of preference, measuring the difference in rating between old and switch agreement, shows that the dispreference for switch agreement in VS remains higher than in SV when analyzed by item (see Figure 6).

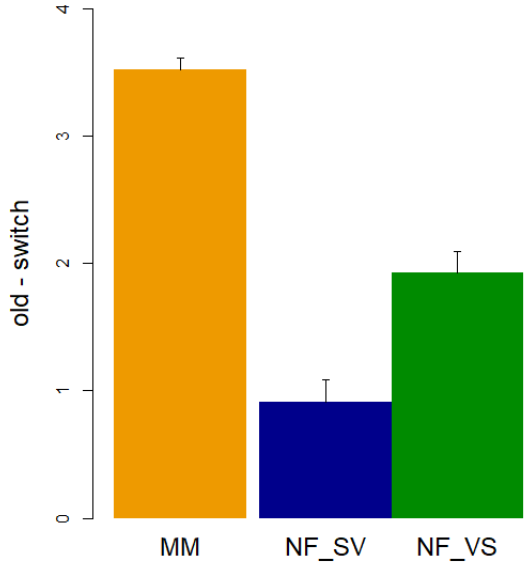


Figure 6: Switch agreement in SV and VS word order: Acceptability judgment experiment (n=107). Differences in rating between old and switch agreement by condition shows that the dispreference for switch agreement is higher in verb-echo answers to VS (green bar) than SV (blue bar) polar questions.

In sum, in testing the choice rates and naturalness judgements for switch agreement in verb-echo answers to polar questions, the main effect of word order was found in the forced choice and the acceptability judgment experiments, respectively. This word order effect indicated significantly lower production and acceptability of switch agreement (*distal* agreement) in answers to VS questions, providing strong empirical support for the verb-echo agreement generalization.

4.2 Analysis in terms of Distributed Ellipsis

4.2.1. Proposal

Our goal is to account for the verb-echo agreement generalization (see (31) above), which suggests is that the single-conjunct agreement options of verb-echo answers are those that

are predicted to arise if the answer has the same underlying word order as the antecedent question. Our proposal is that the baseline examples have the following representations:

(34) *VS order*

A: Jesu li izložena [ogledala i lampe] u trgovini?
AUX.PL Q displayed.N.PL [mirrors.N.PL and lamps.F.PL] in shop
'Were mirrors and lamps displayed in the shop?'

B Da, izložen-a/*-e=su ~~[$_{VP}$ *t* [ogledala i lampe] u~~
yes displayed-N.PL/-*F.PL=AUX.PL ~~[$_{VP}$ *t* [mirrors.N.PL and lamps.F.PL] in~~
~~trgovini]~~.
~~shop]~~
'Yes, they were (displayed in the shop).'

(35) *SV order*

A: Jesu li [ogledala i lampe] izložena u trgovini?
AUX.PL Q [mirrors.N.PL and lamps.F.PL] displayed.N.PL in shop
'Were mirrors and lamps displayed in the shop?'

B: Da, ~~[ogledala i lampe]~~ izložen-a/-e=su ~~[$_{VP}$ *t t* u~~
yes ~~[mirrors.N.PL and lamps.F.PL]~~ displayed-N.PL/-F.PL=AUX.PL ~~[$_{VP}$ *t t* in~~
~~trgovini]~~.
~~shop]~~
'Yes, they were (displayed in the shop).'

The position of the subject in relation to the participial verb in the answer is the same as that in the question. Apart from Agree-Link and Agree-Copy, there are three operations interacting in these examples, namely, verb movement, VP ellipsis and subject raising,

which, we argue, apply in this specific order. The VS example in (34) is straightforward. V vacates the VP before ellipsis, and since the subject stays inside the VP, in a post-verbal position, only first conjunct agreement is possible. That is, agreement cannot switch. However, in (35) the subject rises after VP ellipsis, and hence, at the point of the derivation when ellipsis applies, it is inside the ellipsis site. We contend that the elided subject can nonetheless still rise to a pre-verbal position. In other words, the pre-verbal subject is not elided independently, which we have shown to be impossible in BCS and Slovenian in Section 3; it lacks pronunciation, despite being in a pre-verbal position, by virtue of being inside the VP when VP ellipsis takes place. From the pre-verbal position, the subject &P can now feed both highest/first and closest/last conjunct agreement, and hence agreement switch is possible.[10]

The explanation of this pattern has four ingredients, which we will spell out in the remainder of this section. The first ingredient is rooted in the question/answer dynamics and the felicity conditions on verb-echo answers as reduced clauses. The second is related to the identity condition on ellipsis, which has to be sensitive to some degree of isomorphism. The third is associated with the nature of ellipsis itself, and the fourth is related to the timing of the relevant operations.

Question/answer dynamics Polar answers, including verb-echo answers, as reduced clauses, have to target exactly the proposition that is introduced by the polar question, $\{p, \neg p\}$ (Hamblin 1973). Since changes in the subject/verb word order typically lead

[10]Notice that if the verb-echo answers in South Slavic could be derived by a verb-stranding TP ellipsis derivation even in cases of SV antecedents, an analytical option widely adopted in the literature (Holmberg 2016, Gribanova 2017, Mendes 2020, among others), the possibility of agreement switch would also be predicted, as head movement would flip the order of the subject and the verb:

(i) Verb ~~[$_{\text{TP}}$ subject *t*]~~

While this is an interesting result, it doesn't come close to handling the verb-echo agreement generalization. In particular, if the derivation in (i) were the only option responsible for single conjunct agreement, then first conjunct agreement would be predicted to be the *only* available pattern, contrary to fact.

to changes in information structure (see Godjevac 2000, Stjepanović 2007, among others, for discussions of word order in BCS), and elided constituents are unable to signal a conversational move by means of word order, preserving the subject/verb ordering of the question in the underlying structure of the elliptical answer is a natural way to ensure that the answer targets the alternatives presented by the polar question felicitously.

Identity conditions on ellipsis We assume that elided constituents need to be syntactically isomorphic with their antecedents to some extent, which in our examples prevents reshuffling the conjuncts inside the elided &P (see Ross 1969, Chomsky 1972, Lasnik 2001, Tanaka 2011, Rudin 2019, Ranero 2020 and Saab 2022 for different approaches, including more nuanced views on syntactic identity, all of which can work for our present purposes; *pace* Chung 2006, Merchant 2001, 2013, Abels 2017). The order of the conjuncts in the antecedent must be maintained in the ellipsis site in the answer, as otherwise the restriction on the agreement options observed in VS would not be ensured, as illustrated in (36).

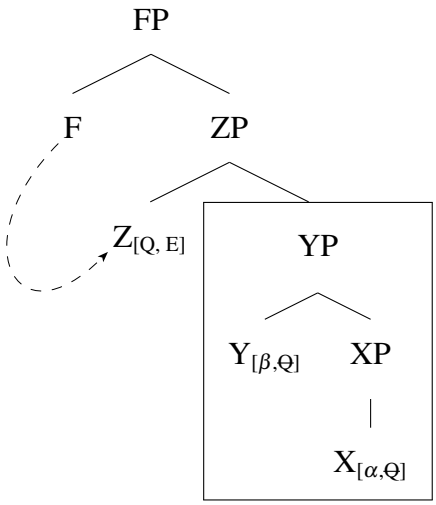
(36) a. Da, izložena=su ~~[$_{VP}$ *t* [ogledala i lampe] u~~
yes displayed.N.PL=AUX.PL ~~[$_{VP}$ *t* [mirrors.N.PL and lamps.F.PL] in~~
~~trgovini]~~.
~~shop]~~
'Yes, mirrors and lamps were displayed in the shop.'

b. Da, izložene=su ~~[$_{VP}$ *t* [lampe i ogledala] u~~
yes displayed.F.PL=AUX.PL ~~[$_{VP}$ *t* [lamps.F.PL and mirrors.N.PL] in~~
~~trgovini]~~.
~~shop]~~
'Yes, lamps and mirrors were displayed in the shop.'

Before moving on to the next ingredient, something needs to be said about the position of the auxiliaries. We assume that they are generated in T and then are placed in second position, following the participle, as a late prosodic inversion (see Bošković and Nunes 2007 and Ionova 2019; see also Migdalski 2016 for a discussion of alternative proposals). As in this study we are concerned with participal number/gender agreement with third person subjects, we do not discuss the person/number agreement on the auxiliary.

Implementation of ellipsis We adopt the Q-deletion approach (Saab 2022), which we call Distributed Ellipsis, in combination with Aelbrecht's (2010) licensing mechanism via Agree between the licensor and the head bearing the [E] feature (cf. Merchant 2001, though recall that he assumes ellipsis as PF deletion and [E] as imposing the mutual entailment condition at LF, neither of which are adopted by Saab 2022). In this implementation, Vocabulary Insertion replaces Q-variables on syntactic terminals in PF (Halle 1991, Embick 2015), and ellipsis is a syntactic operation that deletes Q-variables, thus bleeding lexical insertion in the PF cycle. To illustrate, in a configuration such as (37), where F is the licensor head and [E] is a feature on Z, the Q-variables in its complement, YP, are deleted in the syntax, as a result of which only Z, whose Q-variable is intact, is targeted by Vocabulary Insertion.

(37)



Timing of operations Importantly, since Q-deletion does not implicate either obliteration of the whole syntactic terminals or any further tampering with their morphosyntactic features, Q-less elements are still available to other grammatical operations, both in the narrow syntax and in the PF-cycle (though see Lipták and Saab 2016 for further discussion on the interaction between ellipsis sites and morphological operations). We contend that this flexibility is exactly what is behind the observed single conjunct agreement patterns, and in particular the possibility of agreement switch in verb-echo answers with SV antecedents. Namely, we suggest that the elided argument loses its Q-variables in the syntax as part of VP ellipsis before being promoted to the subject position in the case of the SV structure (see Park 2017, Park to appear, and Stigliano 2022 for analyses of other elliptical phenomena along these lines). Being morphosyntactically active, the subject is thus an eligible target for Agree-Link in the syntax and Agree-Copy in PF, identically to what would be the case if ellipsis had not applied. Importantly, as we demonstrate below, the ordering of the syntactic operations involved in deriving the patterns (V-to-Part movement, ellipsis (as Q-deletion), and subject &P raising) can be deduced from the successive merge of the heads triggering these operations in the clausal spine.

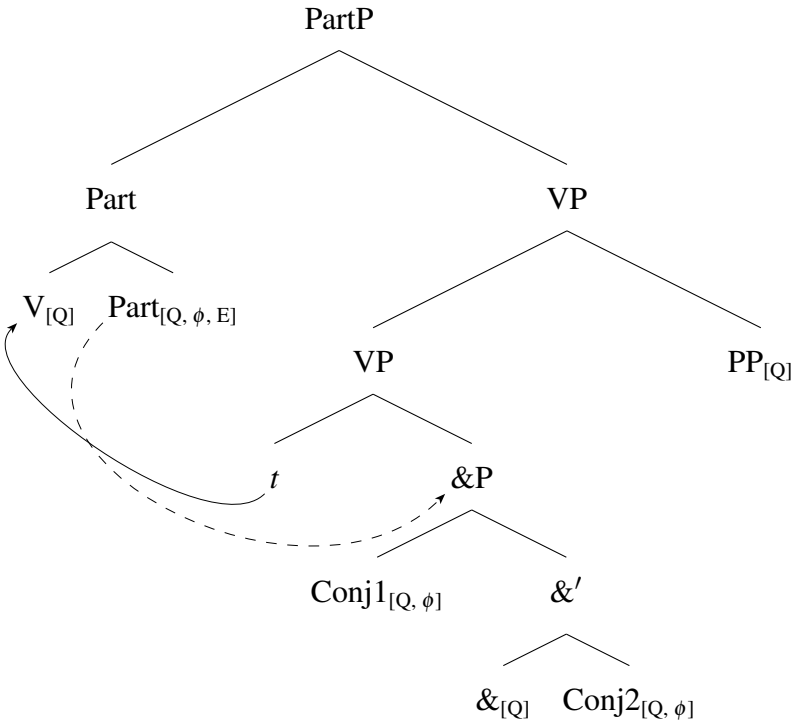
An important outcome of this analysis is that the experimentally observed patterns can be derived by combining previous analyses of the phenomena under discussion, namely the Q-deletion approach to ellipsis and the ordering of Agree-Link and Agree-Copy for single conjunct agreement. We now turn to the specific implementation, where each pattern of single conjunct agreement in verb-echo answers is discussed in detail.

4.2.2. Derivations

The representation in (38) presents the stage of the derivation where Part(iciple)P has been completed by merging the Part head with VP, containing V, the subject &P, and

an adjunct PP.[11] The [ϕ] bundle on Part triggers Agree-Link, linking the probe with the &P, and V moves to Part (as we assume it does in non-elliptical structures in South Slavic too). All terminals bear the Q-variable, and Part is merged with an [E]-feature, which triggers Q-deletion in its complement once its licensor, a polarity head with a focus feature, is introduced into the structure:

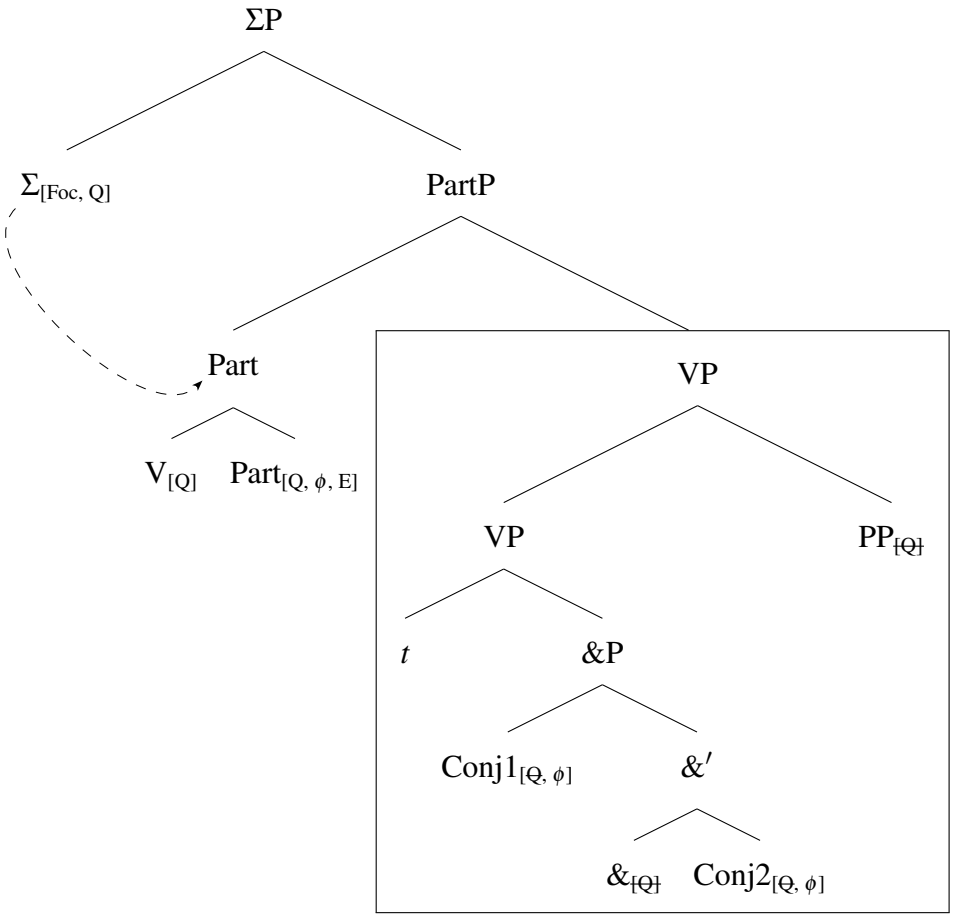
(38)



The next step is merging Σ, which introduces polarity focus and licenses VP ellipsis by Agree with the [E]-bearing Part, licensing the deletion of all Q-variables in its c-command domain, as illustrated in (39).

[11] While we represent the subject as the complement of V in this section to maintain consistency with the type of examples used throughout the paper (passives, which represent the majority of the experimental materials, alongside unaccusatives), the derivations of unergative and transitive structures are parallel in all relevant respects.

(39) *Agree between Σ and [E]-bearing Part, Q-deletion inside the VP*



In VS structures, exemplified again in (40), the syntactic derivation is completed by merging T and C heads, whose internal features we omit for the sake of the clarity of exposition.

(40) A: Jesu li izložena ogledala i lampe u trgovini?
AUX.PL Q displayed.N.PL mirrors.N.PL and lamps.F.PL in shop
'Were mirrors and lamps displayed in the shop?'

B: Da, { *izložene=su/ izložena=su/
yes displayed.F.PL=AUX.PL displayed.N.PL=AUX.PL

izloženi=su }.

displayed.M.PL=AUX.PL

'Yes. They were (displayed in the shop).'

In this case, when the syntactic structure is shipped off to PF, the first conjunct is both hierarchically highest and linearly closest to the probe (see (41)), which is why first conjunct agreement is available here, but last conjunct agreement is not.[12]

[12]Notice that default masculine plural is possible even when the underlying structure of the verb-echo answer is VS (matching the antecedent), in contrast with VS in non-elliptical clauses (see (4) in the main text). This difference is compatible with the claims which we make in this paper. As signaled in Section 3, a *pro*-drop derivation can deliver this result, as indicated in (i), representing a possible answer to the question in (40) in the main text.

(i) *VS: default masculine*

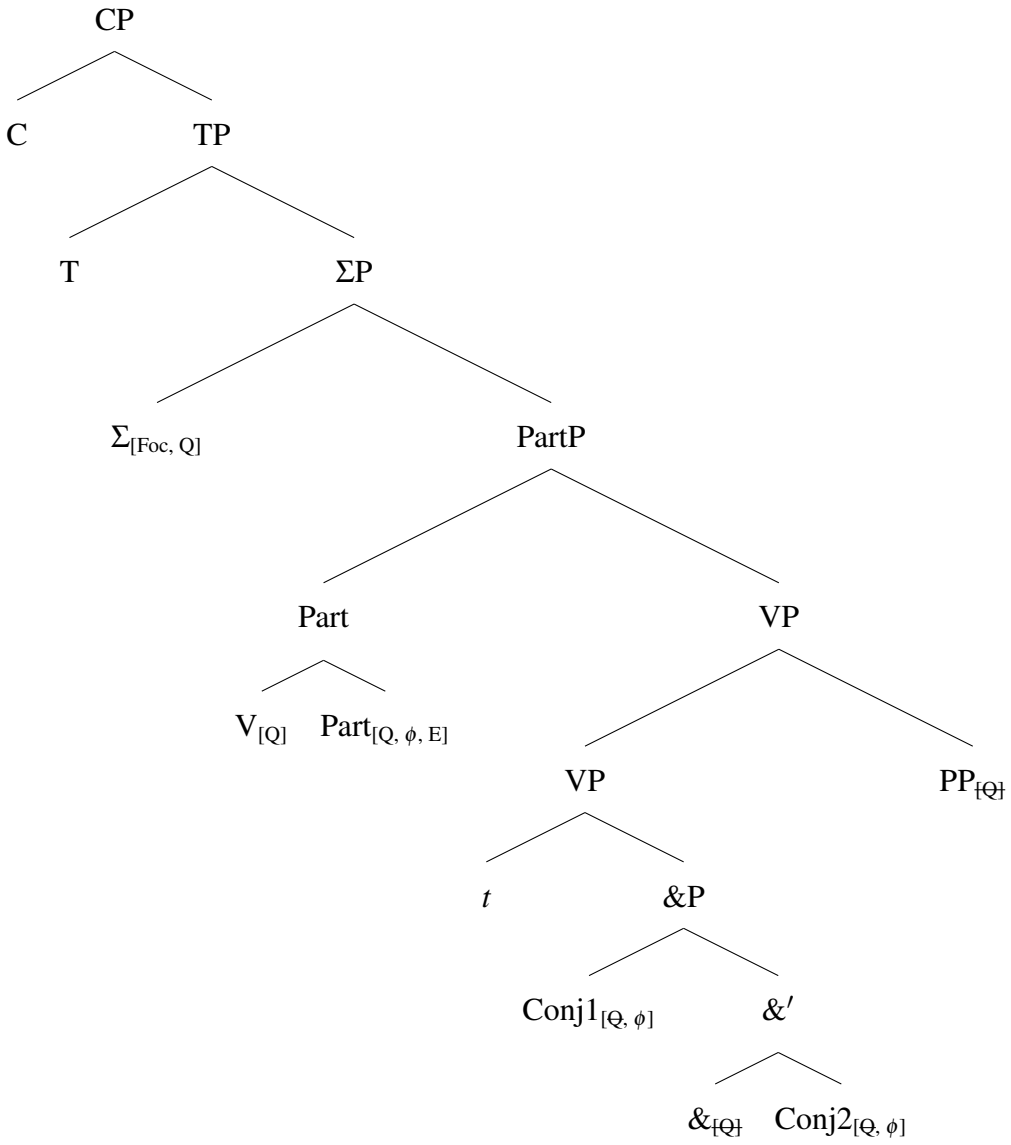
B: Da, izloženi=su *pro*.
yes displayed.M.PL=AUX.PL *pro*.M.PL
'Yes, they were (displayed in the shop).'

If VP-ellipsis is implicated in examples like (i) to guarantee the adjunct-inclusive interpretation, the default masculine may be plausibly accommodated as a *vehicle change* effect (Fiengo and May 1994, a.o.), by assuming that the subject internal to the ellipsis site can be pronominal, despite the &P correlate in the antecedent.

(ii) *VS: default masculine, a vehicle change derivation*

B: Da, izloženi=su ~~[VP *t pro*.MPL u trgovini]~~.
yes displayed.M.PL=AUX.PL ~~[VP *t pro*.MPL in shop]~~
'Yes, they were displayed in the shop.'

(41) *Underlying verb-subject order: Agreement switch is impossible.*



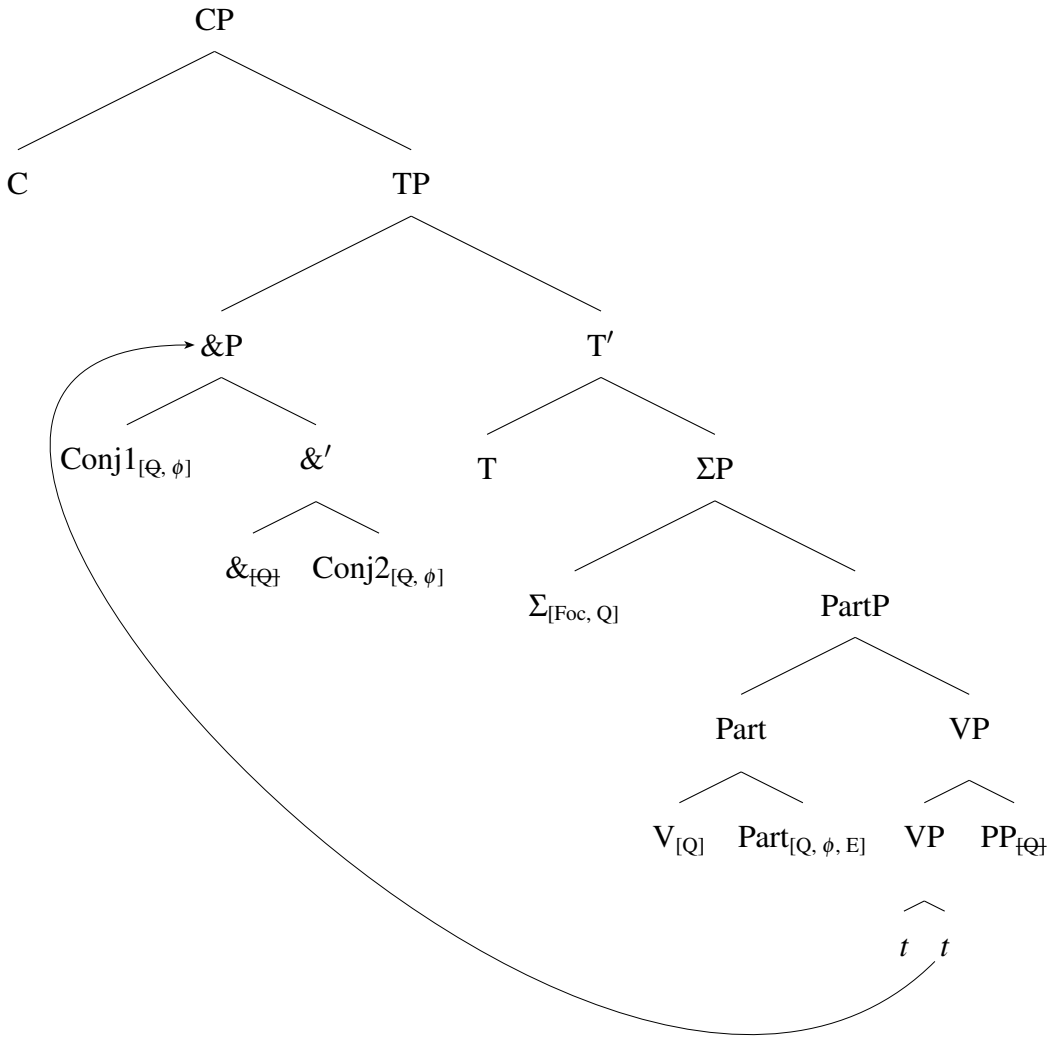
The derivation of an SV structure, yielding data such as (42), involves the additional step of subject &P movement.

(42) A: Jesu li molbe i rješenja ovjerena pečatom?
AUX.PL Q request.F.PL and resolution.N.PL verified.N.PL by stamp
'Were requests and resolutions verified by stamp?'

B: Da, { ovjerene=su/ ovjerena=su/
yes verified.F.PL=AUX.PL verified.N.PL=AUX.PL
ovjereni=su }.
verified.M.PL=AUX.PL
'Yes. They were (verified by stamp).'

In particular, when T is merged, &P moves to its specifier, as in (43), which is followed by the introduction of C.

(43) *Underlying subject-verb order: Agreement switch is possible.*



Since &P movement takes place after Q-deletion, &P is deprived of its Q-features prior to movement (in contrast with V). From the pre-verbal position, the Q-less &P triggers first conjunct agreement if Agree-Copy takes place before linearization, and last conjunct agreement if Agree-Copy takes place after linearization.[13]

[13]We assume that traces, created by chain reduction (Chomsky 1995, Nunes 2004), implicate obliteration and not only Q-deletion (*pace* Saab 2022). If the lower copy of the promoted &P had not been obliterated in (43), but had merely lost its Q-variables, Agree-Copy after linearization could ambiguously target either the first conjunct in the lower copy or the last conjunct in the higher copy, leading to first or last conjunct agreement. While this ambiguity would not be problematic for this particular example, as both agreement options are available with pre-verbal &Ps, we adopt an obliteration approach to traces, as there is independent evidence coming from different phenomena that conflicting instructions in PF typically lead to unacceptability (Fox and Pesetsky 2005, Ko 2014, Mendes and Kandybowicz 2021, Mendes and Nevins

Let us consider our account of the verb-echo agreement generalization in some more detail.The first crucial aspect of our approach is that ellipsis, implemented in terms of Q-deletion here, must be primarily taken to be a syntactic operation rather than PF-deletion. This is so because Q-deletion and internal merge must be interleaved to derive verb-echo answers with last conjunct agreement. This interaction is a corollary of the proposal put forward in Saab (2022). Since last conjunct agreement can only obtain with pre-verbal subjects and since subjects cannot be elided independently in BCS and Slovenian, the subject loses its Q-variables by virtue of being inside the verbal projection affected by ellipsis. From this position the Q-less subject can thus feed last conjunct agreement. In short, ellipsis sites must have a PF-cycle, so that last conjunct agreement can be obtained, and ellipsis and internal merge must be able to interrelate. The Q-deletion view of ellipsis, which we refer to as *Distributed Ellipsis*, can deliver these effects.[14]

As noted in subsection 4.2.1, the raising of a Q-less subject is only available if the antecedent also has a pre-verbal subject. We assume that this effect arises as a felicity condition, as changing the underlying word order would disrupt the information structure

2021).

[14]One important aspect of our analysis of last conjunct agreement with pre-verbal subjects is the resulting effect which resembles *non-constituent deletion* approaches (e.g. Morgan 1973, Hankamer 1979, Kimura 2010, Abe 2015, Ott and Struckmeier 2016), without actually resorting to such a process.

(i) *SV order*

Da, ~~molbe i rješenja~~ { ovjerene=su/ ovjerena=su/
yes ~~request.F.PL and resolution.N.PL~~ verified.F.PL=AUX.PL verified.N.PL=AUX.PL
ovjereni=su } ~~pečatom~~.
verified.M.PL=AUX.PL ~~by stamp~~
'Yes, requests and resolutions were verified by stamp.'

While we acknowledge that one might in principle succeed in providing an account of the data in terms of non-constituent deletion, it is important to note that non-constituent deletion is frequently regarded as conceptually problematic. How can a constituent be pruned away from the structure without also removing all the constituents that are properly included in it? To the best of our knowledge, the only approach along these lines which successfully overcomes this difficulty is the one that takes ellipsis to be an instruction to forgo Vocabulary Insertion targeting individual heads (i.e., Stigliano 2022), similarly to what we suggest here.

employed in the antecedent question and verb-echo answer, as reduced clauses cannot properly signal conversational moves by changing the word order, or placing focal stress on unpronounced material. Furthermore, the order of the conjuncts has to be preserved to avoid overgeneration of agreement switch when the antecedent question has a post-verbal subject, an effect that is naturally achieved assuming that the identity conditions on ellipsis require some degree of isomorphism. In the case of post-verbal subjects, the subject of the verb-echo answer needs to stay in the elided verbal position, matching the position of its correlate in the antecedent, and the order of the conjuncts cannot be reversed due to the identity condition. We contend that these two constraints conspire to restrict last conjunct agreement to structures whose antecedent question has a pre-verbal subject.

5 Theoretical consequences and discussion of alternative models

There is a longstanding debate on the nature of ellipsis, and the choice among different approaches depends on balancing different types of sometimes conflicting evidence, as well as theoretical commitments; indeed, nothing excludes the possibility that different types of elliptical constructions are built with different devices. This article contributes to this debate, with the verb-echo agreement generalization aligning well with the Distributed Ellipsis framework, and remaining difficult to accommodate within alternative approaches to ellipsis, without further stipulations about when agreement switch is and isn't possible.

In particular, in the Direct Interpretation approaches and related, the meaning of ellipsis sites is recovered without resorting to complex unpronounced syntactic structure (see, e.g., Lobeck 1995, Ginzburg and Sag 2000, Culicover and Jackendoff 2005, Nykiel and Kim 2021). However, the verb-echo agreement generalization, the core empirical contribution of this article, strongly suggests that verb-echo answers have regular unpronounced syntactic PF structure in the ellipsis sites, and that internal merge can be interleaved with

ellipsis. Without these analytical devices, it is hard to see how one would account for the observation that switch agreement is possible in answers to SV questions, but not in answers to VS questions. Agreement possibilities in verb-echo answers have been shown here not to dependent solely on the surface verbal morphology of the antecedent verb, but instead on the agreement possibilities that the antecedent clause provides given the verb-subject ordering. Clearly, this effect cannot be reduced to morphological priming. The analysis of verb-stranding ellipsis which we advocate for verb-echo answers in South Slavic is already inconsistent with these approaches, as the verb is removed from within the ellipsis site, which calls for a derivational analysis of ellipsis, with ellipsis sites being fully represented in the syntax.

On the other hand, syntactic approaches typically posit fully-specified complex LF representations that lack a PF realization. This line of research has several incarnations and not all of them are fit to account for the verb-echo agreement generalization. In some of these analyses, LF structures corresponding to ellipsis sites are built counter-cyclically after spell-out, basically by copying the antecedent and pasting it in the ellipsis site (Fiengo and May 1994, Chung et al. 1995, Oku 1998, and Landau 2021). Details aside, what is crucial here is that in this type of analysis, ellipsis sites are not associated with a PF representation. If accounting for the verb-echo agreement generalization requires ellipsis sites to have unpronounced PF representations, as we have argued, these analyses will also fall short.

Another set of syntactic approaches takes ellipsis to apply in the syntax proper, either by pruning the structure (Ross 1969) or by a null spell-out of sorts that renders ellipsis sites unavailable for further computations (Aelbrecht 2010, Sailor 2018, 2021, Murphy and Müller 2022).[15] This type of analysis is too strict to account for the sub-portions of

[15]Evidence that ellipsis implicates null spell-out of the silenced material that has been offered in the literature includes a series of apparent bleeding effects in Dutch modal complement ellipsis, exemplified in (i), the lack of verb-stranding ellipsis in V2 languages like Norwegian, which have both verb movement and

the ellipsis site both being targeted by internal merge and feeding Agree-Copy in PF (see especially last conjunct agreement in verb-echo answers, discussed in the preceding section).

The next type of the syntactic approaches to ellipsis is PF-deletion (see, e.g., Merchant 2001, Lasnik 2001, a.m.o.), which faces two problems in the present context, if the pruning of a syntactic constituent is indeed implicated. For last conjunct agreement in SV, Agree-Copy has to apply after linearization to target the linearly closest conjunct to the probe. This means that the morphosyntactic features of the conjunct and the probe must still be available, before the pruning of the VP obtains. However, if linearization implicates structure flattening (Uriagereka 1999, Marušič et al. 2015, a.o.), the structural de-

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verb-phrase ellipsis, as in (ii), and apparent bleeding of object agreement in Hocąk, as in (iii) (the examples below are adapted from Aelbrecht 2010 and Sailor 2022, to which we refer the reader for a more complete data set and further discussion).

(i) *Ik weet niet wie Thomas MOET uitnodigen t_{wie}, maar ik weet wel **wie** hij niet MAG
I know not who Thomas must invite t_{who} but I know AFF **who** he not is.allowed
~~[uitnodigen t_{wie}]~~
~~[to.invite t_{who}]~~.
Intended: 'I don't know who Thomas HAS to invite, but I do know who he isn't ALLOWED to invite.'

(ii) Johan leste ikke Lolita, men Marie { *leste **/gjorde** }.
Johan read.PST not Lolita, but Marie { *read.PST **/do.PST** }
Intended: 'Johan didn't read Lolita, but Marie did.'

(iii) Cecil-ga nee **hį**-hojį anąga Hunter-ga šge nee (***hį**)-ųų.
Cecil-PROP me **1OBJ**-hit and Hunter-PRO also me (***1OBJ**)-do
'Cecil hit me, and Hunter hit me too.'

However, these bleeding relations don't need to be interpreted as the bleeding of the operations involved. More specifically, if the object marker in Hocąk is a clitic moved from inside the ellipsis site rather than an agreement marker, all we need to say to make these examples consistent with our approach to ellipsis as Q-deletion is that the *wh*-element in (i), the moved verb in (ii), and the object clitic in (iii) had lost their Q-variable before the movement operation took place. Ellipsis, as implemented in Aelbrecht (2010) and Sailor (2022), applies before these elements move outside the ellipsis site. However, instead of bleeding the movement operation, ellipsis can be taken to bleed Vocabulary Insertion. While a Q-deletion approach can thus account for these data in this way, a null spell-out/transfer approach to ellipsis cannot account for the verb-echo agreement generalization.

scription of the deletion procedure goes away. That is, ellipsis cannot target constituents (e.g., VP, TP), because this information has been lost in the linearization/flattening process, before ellipsis can kick in. While one could, in principle, try to fix this issue by assuming that linearization doesn't implicate the loss of structural information (Fox and Pesetsky 2005), the second problem for PF-deletion is more dramatic. By placing ellipsis in PF, constituents properly included in the ellipsis site cannot be affected by internal merge, which belongs to syntax proper. In our analysis, subjects that have been elided by virtue of belonging to a verbal projection that has been elided at the point of the derivation where ellipsis applies must be able to move to the pre-verbal position. If ellipsis applies in PF, this particular movement should not be possible.

Finally, in the analysis couched in terms of Distributed Ellipsis (Saab 2022), ellipsis is simply deletion of a lexical Q-variable, which would otherwise receive phonological realization in PF. Ellipsis, *qua* deletion of Q-variables in the syntax, bleeds Vocabulary Insertion in PF, and allows Q-less elements to be re-merged in the structure. As signaled in the introduction, the idea that ellipsis can be taken to result from the lack of Vocabulary Insertion has already been suggested in Wasow (1972) and Bartos (2000), for instance, and the claim that an elided constituent can still be target of movement can be found in Abels (2012) and Park (2017, to appear). This is exactly the type of flexibility that accounting for the verb-echo agreement generalization requires.

The availability of agreement switch with pre-verbal &Ps and its unavailability with post-verbal &Ps implies that a purely semantic identity condition on ellipsis is insufficient (*pace* Merchant 2001, Abels 2017). Furthermore, while supplementing a semantic identity condition with a lexical requirement helps in some cases (e.g. NoNewWords, *John is jealous, but I don't know *(of) who*), it is not enough either (*pace* Chung 2006, Merchant 2013), because it would in principle allow reshuffling the relative order of the conjuncts inside the subject &P in the ellipsis site. Clearly, approaches that impose a

stricter structural matching condition between the antecedent and the ellipsis site, at least in some domains, are better suited to account for the present data set (Chomsky 1965, Lasnik 1995, Tanaka 2011, Rudin 2019, Ranero 2020, Saab 2022).

6 Conclusion

As van Craenenbroeck and Merchant (2013) point out, agreement hasn't played much role in the debate about the abstractness of syntactic representation in the ellipsis site. In this article, we follow Ross's (1969) line of reasoning, combining ellipsis with novel observations and advancements in the domain of agreement, in particular regarding single conjunct agreement, which point to the division of labour between syntax and PF in this domain. We have shown that constituents properly included in the ellipsis must be able to undergo internal merge, in the syntax proper, and they must be able to participate in PF processes from the derived position, outside the constituent undergoing Q-deletion, or else the verb-echo agreement generalization cannot be accounted for. To our knowledge, the idea that internal merge and ellipsis could be interleaved was first suggested in Abels (2012), but it has recently been independently argued for in Park (2017, to appear). Most approaches to ellipsis do not allow this kind of flexibility. However, the Distributed Ellipsis approach does. In this account, ellipsis is the result of the interaction of procedures belonging to different parts of the grammar (morphosyntactic features in lexical heads, Vocabulary Insertion in PF, and deletion of Q-variables in the syntax), opening the door for the type of interaction with single conjunct agreement that is needed to account for the verb-echo agreement generalization.

Pursuing this Distributed architecture further may yield future research that will unveil other phenomena that require constituents properly included in the ellipsis site to be available to both syntactic and PF operations. Finally, our analysis has also contributed to the debate on the identity conditions on ellipsis, showing that ellipsis requires at least some

degree of isomorphism, and thus a purely semantic identity condition cannot suffice. The interaction between ellipsis and agreement is in this way placed back at the forefront of debates about the nature of ellipsis, and, more broadly, the architecture of the grammar, as both Distributed Agree and Distributed Ellipsis require a highly derivational system, in which different grammatical procedures can interact.

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