Ellipsis, conjunct agreement and the interpretation of collective predicates

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The possibility that the verb agrees in person, number or gender with only one member of a conjoined subject has proven to be a difficult phenomenon for formal syntactic and semantic modeling. A number of competing analyses have been offered for its instantiations in different languages (Munn 1993, Aoun et al. 1994, 1999, Babyonyshev 1996, Sadler 2004, Tantalou & Badecker 2005, Soltan 2006, Marušič et al. 2007, 2015, Bhatt & Walkow 2013), and one of the main points of division among these approaches is the possibility that they emerge via clausal conjunction followed by a type of ellipsis referred to as clausal reduction (see especially Aoun et al’s arguments for this view regarding Arabic, and Marušič et al’s arguments against it based on the Slovenian data) – as opposed to default/resolved agreement likely emerging from a phrasal conjunction structure for the subject. In this paper, I tackle the question whether clausal reduction is a possible (or even the only) way instances of single conjunct agreement in gender are derived in Serbo-Croatian (S-C).

Marušič et al. refer to the compatibility of single conjunct agreement with collective predicates as in (1), as a crucial argument against the clausal reduction analysis. Their assumption is that if the underlying structure of the sentences manifesting single conjunct agreement involved clausal conjunction, a semantic violation should emerge if their predicate was of the collective type.

(1) a. Krava in njena teleta so se pasla skupaj
   cowF and her calvesN are refl grazeN-PL together
   ‘A cow and her calves were grazing together.’
   b. *Krava se je pasla skupaj in teleta so se pasla skopaj
   cow refl is grazed together and calves are refl grazed together

While the particular example faces several problems, such as the possibility that the collective adverb scopes over the clausal conjunction, the argument points out two important questions:

1) Is it correct to assume that clausal reduction structures, argued by the proponents of the ellipsis analysis to be the underlying structure of the sentences involving single conjunct agreement, exclude any of the readings available to the sentences with collective predicates (as assumed by Marušič et al)?
2) As single conjunct agreement is the option which is more likely to emerge under clausal reduction than default agreement, does the choice of single conjunct agreement exclude, or at least make less available some of the readings of collective predicates, while making the others more prominent?

In this paper we report on two experiments conducted to investigate these questions. The experiments targeted Serbo-Croatian, a language which allows for all the cross-linguistically attested surface patterns of single conjunct agreement (Willer Gold et al. 2016).

Experiment 1 (Exp1) was a self-paced reading experiment combined with comprehension questions, where the questions were instrumentalized to indicate the chosen interpretation of the participant. Each item had the form in (2), with a preverbal conjoined subject consisting of an FPI first conjunct and a NPI second conjunct.

(2) SELF-PACED READ SENTENCE:
Princeze i derišta su se nadmetala u vrištanju, a drugi su bili zaustveni poslom.
princessFPI and bratNPI AuxPI Refl compete in screaming and the others were busy working
‘(The) princesses and (the) brats were competing in screaming and the others were busy working’

NEXT SCREEN: Who were the brats competing with?
   a) other brats, b) princesses, c) other brats and princesses.

The experiment involved three conditions: FCA, LCA and Default agreement on the verb. The prediction of the clausal reduction analysis was that single conjunct agreement
conditions (FCA, LCA) will prompt the participants to select the **Prototypical Ellipsis Reading (PER)** of the type in (2a) more, compared to **Default** (or in a more radical version where single conjunct agreement only emerges via ellipsis, to only select those).

A very low rate of PER resulted in all three conditions. The numbers are too low to reliably compare, but interestingly, FCA triggered less PERs (only 2) than Default (6). The participants mostly went for the **Conjunct as a Whole Reading (CWR)** in (2b), with the **Sum of Conjuncts Reading (SCR)** in (2c) also fairing relatively well, as shown in Figure 1. The results of the experiment thus either failed to confirm the ellipsis analysis, or questioned the assumption that clause conjunction only allows PER. One possibility is that in a verb-second language such as S-C, only postverbal subjects have the ellipsis structure available (Aoun et al 1994, 1999, Bhatt & Walkow 2013, Polinsky 2014).

To disentangle these options, we conducted a second experiment as an equivalent of Exp1, except that: a) it included only post-verbal subjects, and b) it included one additional condition: **Adverb**, illustrated in (3), where all the conjuncts and all the verbs were MPI, but the presence of adverbs implied a conjunction of bigger structures than just nominals, followed by ellipsis of some of the material (see (4) for the assumed pre-ellipsis structure).

(3) Na stanici su se rastajali razdrago učenici i zabrtno roditelji.
    on station aux refl partedMPI cheerfully pupilsMPI and worriedly parentsMPI
    ‘Pupils cheerfully and parents worriedly parted with each other at the station.’

(4) Na stanici su se rastajali razdrago učenici i zabrtno su se rastajali roditelji.
    on station aux refl partedMPI joyfully pupilsMPI and worriedly aux refl partedMPI parentsMPI
    ‘Pupils joyfully parted with each other and parents worriedly parted with each other at the station.’

Regarding the condition **Adverb**, if the assumption about the readings made available by the clausal reduction structure is correct, it is expected to yield only PER. And just like in Exp1, regarding the conditions repeated in the VS order, the conjunction reduction analysis predicts single conjunct agreement conditions to trigger a higher number of PER.

Results for the repeated conditions, given in Figure 2, show no differences in the VS order compared to SV (even fewer of PER are chosen). Results for the new condition, given in Figure 3, suggest that clausal reduction allows for all three readings (in line with Schein 2014), and that PER is somewhat strengthened at the expense of SCR by the introduction of the adverbs: there is still a domination of CWR, but PER here dominates SCR.

The paper additionally provides Reaction Times (RT) data for the agreeing verb, the entire sentence, and the time taken to choose the answer, a statistical analysis of the significance of all the relevant quantitative differences (Multinomial Logistic Regression for the reading types, and ANOVA for RTs), and discusses the experimental results in light of the theory of conjunct agreement. I argue that ellipsis does not exclude CWR, but only SCR, which requires phrasal conjunction to derive the sum-referent. This may be obviated by accommodating a discourse-old sum-referent (plausibly present in syntax as a null pronoun), which accounts for the presence of SCR in the **Adverb** condition.