

Agreement with Disjoined Subjects in German

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Summary: This paper summarizes and discusses a series of rating studies that investigate agreement with disjoined subjects in German. In German, the finite verb agrees in person (1, 2, 3) and number (SG, PL) with the subject. If the subject is disjoined, we can make the following five observations:

- O1: There is PL-agreement unless both disjuncts are SG. Then, SG-agreement is possible as well, and even slightly preferred if both disjuncts are third person.
- O2: If the two conjuncts differ in person, PL-agreement is the clearly preferred option.
- O3: Closest conjunct agreement is marginally available and rated significantly better in VS order than SV order. CCA is marginal for number but considered good for person under VS order.
- O4: Number agreement does not depend on the type of disjunction (INCL(usive) vs. EXCL(usive)).
- O5: Syncretic verb forms can alleviate a conflict between mismatching persons.

Altogether, the present study replicated the results of recent work about conjunctions. As for number agreement, the most important difference to conjunctions is that disjunctions of two SG show optionality between singular and plural agreement. We propose that this is not accidental but due to the special semantics of disjunctions. We tentatively suggest that the optionality in agreement expresses an underlying conflict between the *conjunction property* of disjunctions (disjunctions as conjunctions of epistemic possibilities) and the *anti-conjunction property* (disjunctions do not build sets unlike conjunctions).

Background: While agreement with conjunctions has been the subject of thorough investigation (see e.g. Marušič et al. 2015, Nevins and Weisser 2018, Murphy and Puškar 2018 for overviews), agreement with disjunctions has not been discussed that often. The main observations for conjunctions in various languages are **I.** that there are different ϕ -feature resolution strategies, most notably resolved agreement (i.e. conjunctions resolve number to plural) and CCA (i.e. number is taken from the linearly closest conjunct), **II.** that CCA is connected to VS order (first observed in Aoun et al. 1994 for Arabic languages), **III.** that there are syncretism effects (see e.g. Citko 2005), and **IV.** that agreement is not influenced by meaning (see e.g. Haslinger et al. 2019 for typological work on distributivity markers of conjunctions). As for disjunction, there is not so much work on number and person agreement: Foppolo and Staub (2020) report for English and Italian that a disjunction of two SG can control SG or PL agreement (with a slight preference for SG in English) and that EXCL *or* does not differ from non-EXCL *or*. (This is exactly what we found for German.) Weiss (2015) reports that CCA is the preferred strategy in German disjunction. However, in this study, person and number agreement were separated properly. We therefore conducted a larger study and investigated person and number agreement with German disjoined subjects more closely.

Method: Procedure: We conducted a large acceptability judgment study in three questionnaires (Q1, Q2, Q3), each comprising several experiments. Participants were asked to judge German sentences with disjoined subjects using the Likert-scale 1-4. In Q3, there was an additional reading question for whether the disjunction is understood as EXCL or INCL. All questionnaires were hosted on L-Rex. **Material:** In Q1, we tested how number agreement is affected by the number of the disjuncts (PL-PL, SG-SG, PL-SG, SG-PL) and by word order (SV, VS). Q1 contained 32 test items (like e.g. (1)) and 48 fillers. In Q2, we tested how person agreement (1/2SG, 3SG, 3PL) is affected by the person of the disjuncts (1/2SG-3SG, 3SG-2/1SG) and by word order (SV, VS). Q2 contained 24 test items and 48 fillers. Half of the items used a finite verb which is syncretic for 1SG and 3SG (2-b); the other half used non-syncretic verbs (2-a). In Q3, we tested if the meaning of the disjunction affects agreement. We adapted the design by Foppolo and Staub (2020): Items appeared in SV order with SG-SG-disjuncts as subjects, and varied in the meaning of *or* (ambiguous (3-b), exclusive (3-a)) and in agreement. Q3 contained 16 items and 32 fillers.

- (1) a. *Das Regal*/*die Regale* *oder der Tisch*/*die Tische* **wird/werden** morgen geliefert.
the shelf.SG/PL or the table.SG/PL will.be.SG/PL tomorrow delivered
- b. Morgen **wird/werden** *das Regal*/*die Regale* *oder der Tisch*/*die Tische* geliefert.
tomorrow will.be.SG/PL the shelf.SG/PL or the table.SG/PL delivered
- (2) a. *Ich* *oder mein Mann* **werde/wird/werden** morgen vorbeikommen.
I or my husband will.1SG/3SG/3PL tomorrow come.over

- b. *Ich oder mein Steuerberater kann/kann/können dir bei dem Formular helfen.*
 I or my accountant can.1SG/3SG/3PL you with the form help
- (3) a. *Der Schweizer oder der Italiener wird/werden morgen das Rennen gewinnen.*
 the Swiss or the Italian will.SG/PL tomorrow the race win
 [Q:] CAN THE SENTENCE MEAN THAT BOTH ATHLETES WILL WIN?
- b. *Der Schweizer oder der Italiener wird/werden morgen am Rennen teilnehmen.*
 the Swiss or the Italian will.SG/PL tomorrow in.the race participate
 [Q:] CAN THE SENTENCE MEAN THAT BOTH ATHLETES WILL PARTICIPATE?

Participants: Not counting non-native speakers and unattentive participants, 67 participants completed Q1 (Øage: 37.2), 69 participants Q2 (Øage: 27.5), and 37 participants Q3 (Øage: 28.2). The links to the questionnaires were sent to first semester students of linguistics or German studies as well as random acquaintances. All participants were naive to the purpose of the study.

Results: The rating results for each experiment were analyzed in two-factorial ANOVAs, testing whether the mean ratings differ between groups. All effects reported in O1-O5 above were statistically significant ($p < 0.05$, details omitted): [O1] was observed when comparing same-number disjuncts in SV order and VS order. [O3] was observed by comparing CCA constructions in SV and VS order for number and person. [O2] was observed by comparing the different agreement options for the different person combinations both in SV and VS order. [O5] was observed when comparing syncretic and non-syncretic verbs in sentences with a combination of 1st and 3rd person that had singular agreement in SV order and VS order. [O4] was observed when comparing the combinations of different readings the speakers had (looking at the answer to the interpretation question) and verb agreement.

Towards an analysis: In A1-A5, we informally sketch an idea how the observations O1-O5 may be accounted for. Before doing so, we have to lay out some *basic assumptions*: Following Zimmermann (2000), we assume that disjunctions can be conjunctions of (hidden) epistemic possibilities at the propositional level ($A \text{ or } B \models \diamond A \text{ and } \diamond B$). We further assume that disjunctions do not compute a number feature from their disjuncts, given that they do not build sets of individuals (unlike conjunctions): Evidence for this comes from the facts that they do not license collective predicates (4-a) and that they do not allow cumulative interpretations (4-b). Thus, the verb receives ϕ -values from with the individual disjuncts.

- (4) a. *Morgen werden [*ich oder mein Mann*] uns in der Stadt treffen.
 tomorrow will.PL I or my husband us in the city meet
Intended: ‘Tomorrow, I or my husband will meet in the city.’
- b. [*Klaus oder Peter*] haben genau vier Schweine gefüttert.
 Klaus or Peter have.PL exactly four pigs fed
Meaning: ‘Klaus fed exactly four pigs or Peter fed exactly four pigs.’

[A1] Taking these assumptions together, the verb has to realize potentially conflicting information from different sources: (I.) PL from the conjunction at the propositional level. (II.) The number values from the individual disjuncts. Now, conflicts can be resolved in favor of the conjunction-property or the anti-conjunction property of disjunctions: The former yields PL-agreement; the latter PL- or SG-agreement, depending on the number of the disjuncts. This derives that SG-SG disjunctions allow and even prefer SG-agreement over PL-agreement. On the other hand, the presence of a PL disjunct increases the pressure to use PL-agreement, as this realizes the PL disjunct as well as the plurality of the propositional conjunction.

[A2] A conflict in person improves the acceptability of PL-agreement with SG-SG-disjunctions. While SG-agreement would enforce a choice between the person features, 3PL-agreement avoids this conflict by realizing the propositional conjunction instead. [A3] We tentatively suggest that the fact that VS order has a stronger tendency for CCA is a grammatical illusion (cf. Haider 2010): If the verb precedes the disjoined subject, the speaker first only encounters the verb and the DP in the first disjunct. On the other hand, if the verb follows the disjoined subject, the speaker is already aware that there is a disjunction (see Bruening and Khalaf (2020) for a formalization). [A4] The standard approach to the INCL-EXCL distinction is to say, that, semantically, disjunctions are not different and that the distinction happens at the pragmatic level (see e.g. Grice (1989), Chevallier et al. (2008)). Thus, this distinction falls outside of the core grammar and is expected to not affect grammatic agreement. [A5] Finally, syncretic verb forms are

another way to avoid conflicts with mismatching person (similarly to PL-agreement). Thus, the absence of a conflict in person with syncretic forms should increase the chances for SG-agreement.

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