Sharing effects of split conjuncts in German*

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Abstract

Split conjunction refers to discontinuous coordinate structures in which conjuncts are spread across the clause. In German, split conjuncts show connectivity effects such as plural agreement on the finite verb. This paper argues for an underlying biclausal structure with subsequent deletion of redundant material in the last conjunct—also known as a stripping analysis. We propose that the connectivity effects are caused by Multiple Dominance of shared constituents, which subsequently move out of the coordinate structure in order to be linearized. Evidence for this proposal comes from word order restrictions with plural agreement and multiply bound pronouns, an incompatibility with collective predicates, lack of sloppy identity readings, and the possibility of cumulative quantifier readings.

1 Introduction

Split conjunction (SC) refers to a discontinuous coordinate structure in which conjuncts are separated by some intervening material, so that the last conjunct and the coordinator occur at the end of the sentence (Konietzko 2016). Subject as well as object coordinations can be split across a clause, as is shown with the examples in (1), taken from German newspaper corpora.[1]

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[1]All corpus examples in this paper were retrieved from the DWDS corpus (*Digitales Wörterbuch der deutschen Sprache*) on December 1st, 2023, accessible at https://www.dwds.de/r. Furthermore, all additional data not cited from the literature were double-checked with around 10 native speakers of German.

(1) *Examples of split conjuncts from the DWDS corpus*

a. **Die Not** hat ihn erzogen und **der Krieg**.
the hardship have.3SG him raised and the war
'The hardship has raised him, and the war.' (Die Zeit, 17.10.1969)

b. **Der Papa** hat es getan und **der Großpapa**.
the father have.3SG it done and the grandfather
'The father did it, and the grandfather.' (Die Zeit, 01.08.2002)

c. Gerade hat **ein Starbucks** geöffnet und **ein Prada-Laden**.
currently have.3SG a Starbucks opened and a Prada.store
'A Starbucks is open right now, and a Prada store.' (Der Tagesspiegel, 08.08.2003)

d. **Die Aromapore** hat man ihn genannt und **die Filtertüte**.
the aroma.pore have.3SG IMP him called and the filter.bag
'They called him the aroma pore, and the filter bag.' (Die Zeit, 09.09.1999)

e. Die Richterin hat aber **die Geduld** verloren und **die Hoffnung**.
the judge have.3SG but the patience lost and the hope
'The judge, however, lost her patience and her hope.' (Berliner Zeitung, 12.07.2003)

This construction has not gone unnoticed in the literature. Split conjuncts are often subsumed under analyses of *stripping* or *bare argument ellipsis* – clausal conjunction with a focused remnant and deletion of identical material in the second conjunct (Hankamer and Sag 1976, Depiante 2000, Merchant 2003). More examples for German are given in (2), while (3) and (4) extend the cross-linguistic picture to English and Dutch.

(2) *German* (Konietzko 2016: ch. 2, 18)

a. **Maria** hat ein Buch gekauft, und **Petra**. *subject SC*
Maria have.3SG a book bought and Petra
'Maria bought a book, and Petra.'

b. Maria hat **ein Buch** gekauft und **eine Zeitschrift**. *object SC*
Maria have.3SG a book bought and a newspaper
'Maria bought a book, and a newspaper.'

(3) *English* (Munn 1993: 15, Merchant 2003: 1)

a. **Abby** speaks passable Dutch, and **Ben**, too. *subject SC*

b. John bought **a book** yesterday, and **a newspaper**. *object SC*

(4) *Dutch* (Koster 2000: 16,17)

a. **Jan** ging weg en **Peter**. *subject SC*
Jan went.3SG away and Peter
'Jan and Peter went away.'

b. Zij heeft **Marie** gezien en **mij**. *object SC*
she have.3SG Mary seen and me
'She saw Mary and me.'

This paper will focus on SC in German, in particular on the observation that subject SC is possible with plural agreement. This option was first noticed by Prinzhorn and Schmitt (2010); they provide the data in (5)-(6). Examples of SC with plural agreement, however, can also be found in corpora, shown in (7).

(5) Gestern sind **der Hans** angekommen und **der Bernd**.
yesterday be.3PL the Hans arrived and the Bernd
'Yesterday Hans arrived, and Bernd.' (Prinzhorn and Schmitt 2010: 166)

(6) Gestern haben **der Hans** gehustet und **der Bernd**.
yesterday have.3PL the Hans coughed and the Bernd
'Yesterday Hans coughed, and Bernd.' (Prinzhorn and Schmitt 2010: 177)

(7) *Corpus examples of split conjuncts with plural agreement*[2]

a. Auf gleiche Weise wurden **das Dur-Aluminium** erfunden und
on same way be.PASS.PST.3PL the major.aluminum invented and
das Penicillin.
the penicilin
'Major Alumnium and Penicillin was invented in the same way.'
(Spoerl, Alexander: Mit der Kamera auf du, München: Piper 1957)

b. Hier werden **das muslimische Zuckerfest** gefeiert und **der**
here be.PASS.3PL the Muslim sugar.festival celebrated and the
Nikolaus.
St.Nicholas
'Over here, the Muslim sugar festival is celebrated, and St. Nicholaus.'
(Die Zeit, 29.08.1997)

c. Im Seitenflügel sind **die Kirchenmusikschule** untergebracht
in.the side.wing be.PASS.3PL the christian.music.school located
und **die Verwaltung**.
and the administration
'The Christian music school and the administration are located in the side wing.' (Berliner Zeitung, 02.10.1998)

[2]Judging from our small corpus search, there seems to be a preference for passive voice when it comes to the production of subject SC sentences. It is unclear what could be the cause of this bias. Our analysis, to be presented in section 3, is compatible with active and passive voice.

A note on the availability of polarity sensitive particles is in order. Particles like German *auch* are often taken to be obligatory in stripping scenarios, though a detailed discussion in particular with respect to the syntactic function of the remnant is often missing in the literature. For English subject SC, the additive particle seems to be necessary, in contrast to object SC where it is optional. For German, Konietzko (2016: ch. 2,18-19) reports that both conjuncts must receive parallel accentuation, in case the additive *auch* is left out in the second conjunct. SC in Dutch is reported without an additive in (4), though see Broekhuis (2018) for examples of Dutch SC with the additive *ook*. The obligatoriness of additives in certain environments has been observed before, but the licensing conditions are a matter of a longstanding debate (Kaplan 1984, Krifka 1999, Bade and Renans 2021). Interestingly, we can observe for German that once SC shows plural agreement, additive adverbs are not allowed to occur anymore (8). Split conjuncts with plural agreement seem to enforce a single-event reading which would be blocked by additive adverbs. Since this paper is focused on the derivation of SC with plural vs. singular agreement, and the presence of additive particles makes a direct comparison impossible, we will henceforth only consider singular SC examples *without* additive particles (though note that for many speakers they sound more natural with an additive in the second conjunct).

(8) Gestern sind **Hans** angekommen und (*auch/*sogar) **Bernd**
yesterday be.3PL Hans arrived and also/even Bernd
(*auch/*sogar).
also/even
'Yesterday Hans arrived, and Bernd too/even.'

While the SC cases that involve singular agreement (3)-(4) are predominantly analyzed as biclausal structures with subsequent ellipsis or ATB-movement (Merchant 2018, Johnson 2018), examples like (5) and (6) seem to give rise to a monoclausal analysis in which the DP conjunction *der Hans und der Bernd* triggers plural agreement but is furthermore split by movement of the second conjunct. Indeed, Prinzhorn and Schmitt (2010) argue for such a theory to account for the plural agreement data in German SC. They make several other interesting observations with respect to plural agreement in SC, which they admit do not fall out of the monoclausal movement account. We will go through a subset of them briefly in the remainder of the introduction, as this will be the data set our theory will ultimately be able to derive.

One key property of plural SC structures is their restrictedness to a certain word order. The corpus examples with singular agreement show variability with regard to the position of the first conjunct. For example, in both (1a) and (1b) the first conjunct precedes the finite verb, in contrast to (1c) were both conjuncts follow it. However, in all corpus examples with plural agreement (7), both conjuncts always follow the finite verb. This is indeed a more general property, as is shown with the minimal contrasts in (9)-(10). Essentially, if one of the conjuncts occupies the prefield, plural agreement is impossible.[3]

[3] A reviewer reports that similar effects can be found in Dutch.

(9) **Der Hans** ist/*sind gestern angekommen und **der Bernd**.
the Hans be.3SG/PL yesterday arrived and the Bernd
'Yesterday Hans arrived, and Bernd.' (Prinzhorn and Schmitt 2010: 166)

(10) **Der Hans** hat/*haben gestern gehustet und **der Bernd**.
the Hans have.3SG/PL yesterday coughed and the Bernd
'Yesterday Hans coughed, and Bernd.' (Prinzhorn and Schmitt 2010: 177)

The observation is not restricted to prefields though. In embedded clauses, plural agreement is also blocked, shown in (11). What seems to license plural agreement is the requirement that no conjunct precedes the finite verb.

(11) a. Ich denke, dass **Hans** ankam/*ankamen und **Bernd**.
I think that Hans came.3SG/PL and Bernd
'I think that Hans and Bernd came.'

b. Ich denke, dass **Hans** angekommen ist/??sind und **Bernd**.
I think that Hans came be.3SG/PL and Bernd
'I think that Hans and Bernd came.'

c. Ich denke, dass **Hans** gehustet hat/??haben und **Bernd**.
I think that Hans coughed have.3SG/PL and Bernd
'I think that Hans and Bernd coughed.'

A seemingly parallel observation from Prinzhorn and Schmitt (2010) relates to the co-indexation pattern of split conjuncts with a shared possessor phrase, see (12)-(13). The possessive pronoun *ihre* can refer to a feminine singular individual (here possibly a referent mentioned in the preceding context) or a plural individual (here Hans and Bernd). Both readings are available in (12) but only the former is possible in (13).

(12) Ihre$_{i+j/k}$ Mutter haben gestern nur **der Hans**$_i$ angerufen und **der**
POSS.3PL mother have.3PL yesterday only the Hans called and the
Bernd$_j$.
Bernd
'Yesterday only Hans called their mother, and Bernd.'
(Prinzhorn and Schmitt 2010: 180)

(13) Gestern haben nur **der Hans**$_i$ ihre$_{*i+j/k}$ Mutter angerufen und **der**
yesterday have.3PL only the Hans POSS.3PL mother called and the
Bernd$_j$.
Bernd
'Yesterday only Hans called their mother, and Bernd.'
(Prinzhorn and Schmitt 2010: 180)

The pattern carries over to indefinites. A possessive pronoun can be jointly bound by two DPs merged in separate conjuncts in plural SC structures, but only if the possessor phrase occupies the prefield, compare (14) to (15).

(14) Ihren$_{i+j/k}$ (gemeinsamen) Chef haben gestern [**ein** **Mitarbeiter**]$_i$
POSS.3PL (same) boss have.3PL yesterday an employee
angerufen und [**ein** **Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'

(15) Gestern haben [**ein** **Mitarbeiter**]$_i$ ihren$_{*i+j/k}$ (gemeinsamen) Chef
yesterday have.3PL an employee POSS.3PL (same) boss
angerufen und [**ein** **Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'

The agreement options of the SC pattern pose a challenge to monoclausal as well as biclausal analyses. On the one hand, the separation of the conjuncts across the clause suggests an underlying sentential coordination with deletion of identical material in the second conjunct. On the other hand, we can observe an additional SC pattern where sharing effects in the form of plural agreement and jointly bound possessive pronouns suggest a DP conjunction approach in which the second conjunct is split off by movement to the right periphery. The possibility of such sharing effects is, however, restricted in that shared constituents have to precede both conjuncts.
Both biclausal and monoclausal approaches will be discussed in section 2. In section 3, we will develop a biclausal analysis of split conjuncts in German as a case of bare argument ellipsis, in the tradition of many previous accounts (Depiante 2000, Merchant 2003, Kolokonte 2008, Zhang 2009, Konietzko and Winkler 2010, Wurmbrand 2017). We propose that the challenging sharing effects shown in (5)-(6) and (12)/(14) can be captured by Multi-dominance, along the lines of Citko (2005) and Grosz (2015). This analysis enforces an underlying coordination of TPs with a shared CP-layer to which multiply dominated constituents move in order to be linearized. The unacceptability of (11) and (13)/(15) naturally follows, since the multiply dominated constituents stay in situ. Finally, (9)-(10) constitute violations of the Coordinate Structure Constraint (Ross 1967), as sharing requires TP-coordination. Hence, singular agreement is the only viable option in these structures. Section 4 provides additional evidence for the size of conjuncts and the underlying elided/shared structure with respect to strict/sloppy identity readings, cumulative quantifier readings, and collective predicates. Section 5 concludes.

2 Previous accounts of split conjuncts

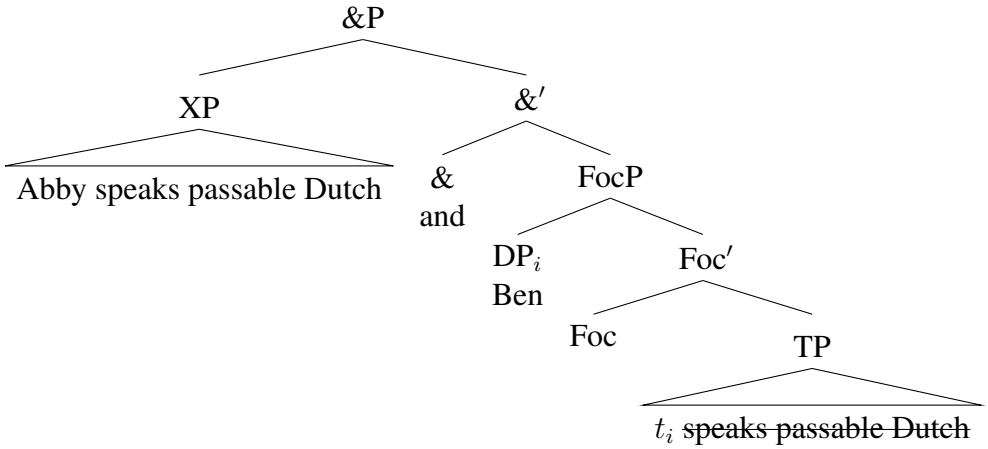
In this section, we will discuss previous analyses of split conjuncts. Biclausal accounts are usually discussed under the term stripping, "a rule that deletes everything in a clause under identity with corresponding parts of a preceding clause except for one constituent (and sometimes a clause-initial adverb or negative)" (Hankamer and Sag 1976: 409). Whereas biclausal ellipsis accounts can capture the singular agreement cases more readily, monoclausal movement approaches straightforwardly predict the sharing effects regarding agreement and possessive pronouns. Ultimately, no previous account will be able to derive the core data set of section 1.

2.1 Biclausal accounts of stripping

A dominant analysis of stripping involves an underlying conjunction of clauses, where material identical in both conjuncts is some way reduced or deleted in the second conjunct (Hankamer 1979, Wilder 1995, Hartmann 2000, Merchant 2003, Wurmbrand 2017). In (16), we illustrate such an account in more detail. Given that the remnant (in this case *Ben*) is often accented contrastively, the analysis is sometimes enriched with focus movement out of the constituent, which will be marked for deletion or non-pronounciation. What is usually left open in such accounts is how the additive *too* enters the derivation. A likely assumption would be that it forms an adjunct to FocP. We also refrain from assigning a syntactic category to the first conjunct, as this is often left uncommented in previous works.

(16) *Stripping analysis (Merchant 2003, Wurmbrand 2017)*

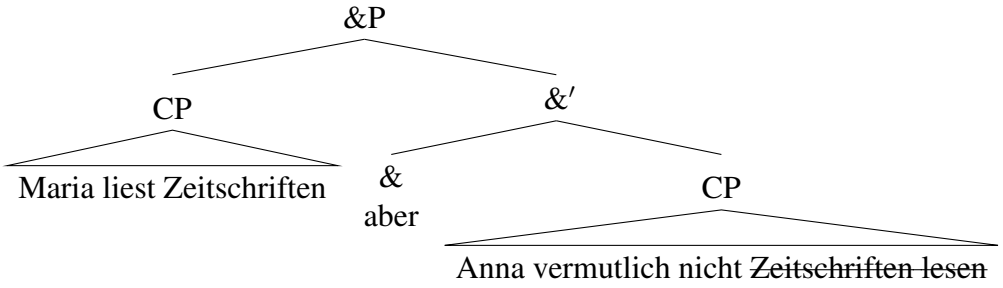
Abby speaks passable Dutch, and **Ben**, too.



A concrete implementation of stripping cases in German along the lines of a clausal conjunct analysis is provided by Konietzko and Winkler (2010), see (17). In parallel to (16), large conjuncts are coordinated, while constituents subject to identity are being deleted in the second conjunct.

(17) *Stripping analysis for German (Konietzko and Winkler 2010: 1447)*

Maria liest Zeitschriften, aber **Anna** vermutlich nicht.
Maria read.3SG magazines but Anna probably not
'Maria reads magazines, but Anna probably not.'



Due to the biclausal structure, singular agreement on the finite verb falls out naturally. An ellipsis approach, however, cannot easily account for plural agreement (recall the data in (5) and (6)) since there is no way for the T head to access the ϕ-features of the subject in each conjunct. Neither is there a way to derive multiply bound pronouns (shown in (12) and (14)) since it is not possibly for the possessive pronoun to be c-commanded by both subjects jointly. To conclude, the sharing effects cannot be captured with a large conjunct analysis.[4]

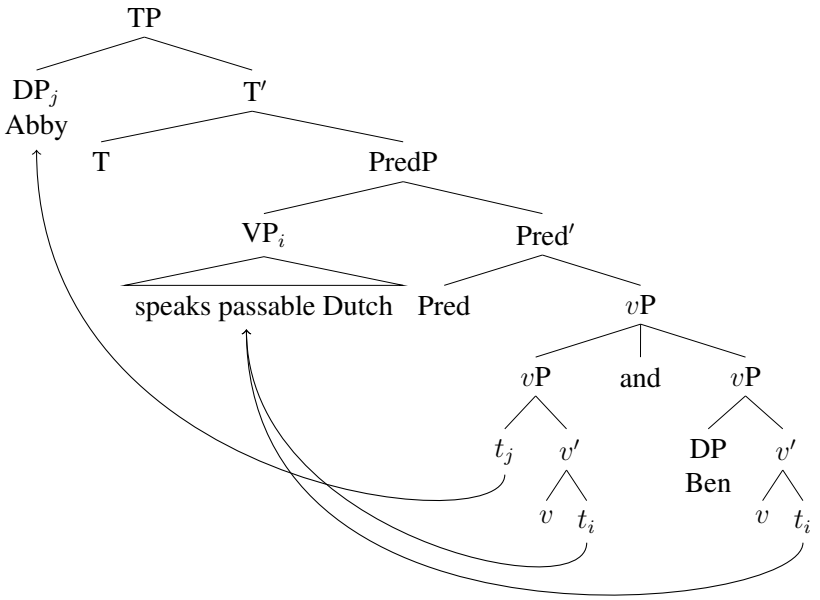
2.2 Low vP coordination to account for stripping

Another way to derive stripping cases, and by that also split conjuncts, is to assume a low conjunction structure of vPs. Such an analysis unifes the missing material in the second conjunct with the first conjunct via ATB-movement. This account was first put forward by Johnson (2009) for gapping structures, but can be readily extended to stripping. A Johnson-style analysis for split conjuncts is shown in (18), where the VP is ATB-moved out of both conjuncts. Johnson argues that asymmetric extraction of the subject out of the first conjunct is licensed since A-movement is invisible to the Coordinate Structure Constraint (CSC) (see also Lin 2001).

[4]The stripping account presented in Winkler (2005) suffers from similar drawbacks. In contrast to the analysis in (17), polarity phrases (ΣP) are being conjoined and identical material is sideward moved from the second to the first conjunct. While the conjuncts are slightly smaller, there are still two separate T heads scoping over each subject individually, blocking any possibility of plural agreement.

(18) *Small conjunct analysis (cf. Johnson 2009)*

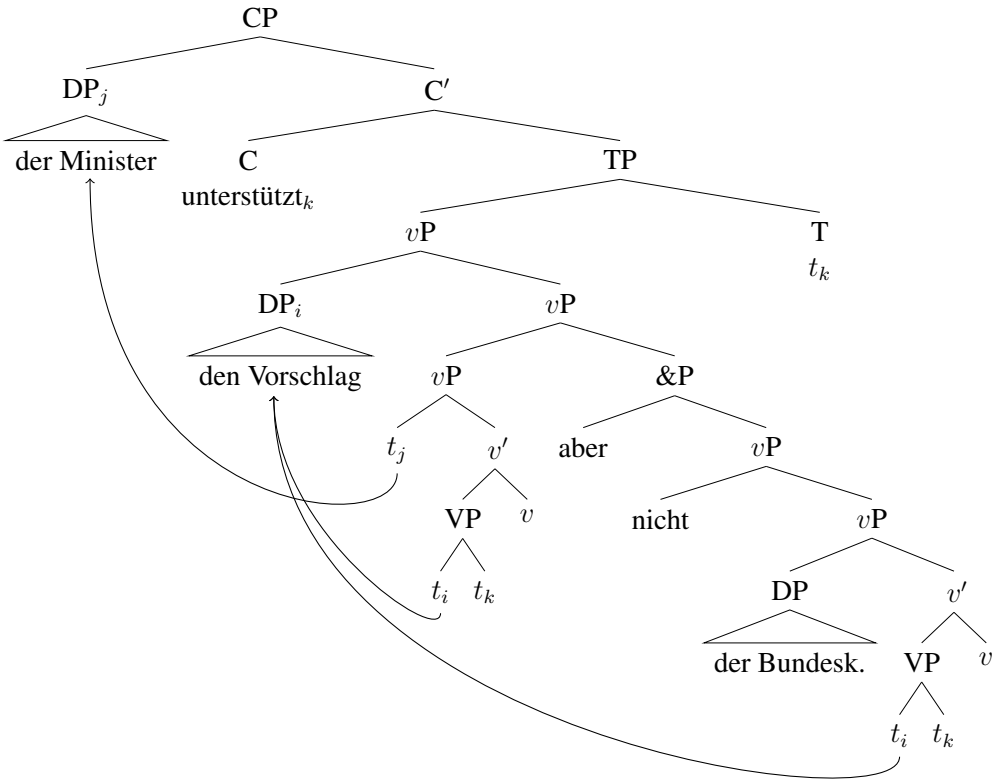
Abby speaks passable Dutch, and **Ben**, too.



Licensing of asymmetric subject extraction does not carry over to German since subject movement to spec,TP has been called into question (Grewendorf 1989, Diesing 1992, Wurmbrand 2001). Thus, subject movement is likely to take place from spec,vP to spec,CP, which is an uncontroversial case of A'-movement and hence falls under the restriction of the CSC. Presumably for this reason, Konietzko's (2016) analysis of stripping adopts a conjunction structure that involves adjunction (Munn 1993), as is shown in (19). The adjunction structure ensures that extraction of *der Minister* out the first conjunct is licensed even though this operation constitutes A'-movement. As in (18), identical material in both conjuncts is ATB-moved out of the coordination. Note also that the finite verb ATB-moves separately to C via T, as German V2 clauses are assumed to be CPs.

(19) *Small conjunct analysis for German (Konietzko 2016: ch.4, 84)*

Der Minister unterstützt den Vorschlag, aber nicht **der Bundeskanzler**.
the minister support.3SG the proposal but not the chancellor
'The minister supports the proposal, but not the chancellor.'



The structure in (19) has potential to give us a better handle on SC cases involving plural agreement since the T head is now shared via the low coordination of vPs. Furthermore, Konietzko (2016) argues that ATB-movement cannot be solely responsible for unpronounced constituents in the second conjunct. The participles in (5)-(7) would therefore stay in situ, and be subject to deletion in the second conjunct. The joint projection of the T node in (19) opens up the possibility for a ϕ-probe on T to agree with both subjects, resulting in plural agreement, as was shown in (5)-(7). The details of the agreement mechanism would have to be worked out though. If we were to assume *Multiple Agree* (Chomsky 2000, Hiraiwa 2001, 2005), where a probe can agree with two goals simultaneously, there are potential locality issues that could arise. To restrict the application of Multiple Agree, it is often argued to only be possible if the goals are equidistant to the probe. Following Chomsky's (2000: 122) equidistance principle e.g., goals are equidistant to a probe if they constitute multiple specifiers of a phrase which is immediately c-commanded by the probe (see also Rackowski and Richards 2005). However, this is not the case in (19).

Furthermore, the analysis in (19) does not offer a way to tie agreement options to the position of the subject. Recall from the data in (9) and (10) that plural agreement is impossible if one of the subjects occupies the prefield. With an adjunction structure like (19), there is no reason why subject movement of *Hans* is prohibited once T agrees with both subjects. More likely, what is needed to account for the agreement possibilities in

German SC is a combination of (17) and a version of (19) in which the conjunction structure is subject to the CSC (i.e., no adjunction structure). More concretely, singular agreement would then be derived by a large conjunct analysis, and plural agreement follows from low coordination of vPs, which outputs (5)-(6), and at the same time bars asymmetric extraction due to violations of the CSC, resulting in the unacceptability of plural agreement in (9)-(10). While this sounds like a promising account, the approach does not extend to the binding observations in (12)-(15). Given that each conjunct is merged in its own TP, there is no possibility to have a possessor phrase in object position be c-commanded, and hence bound, by both conjuncts simultaneously. Nor does ATB-movement of the possessor phrase to the shared prefield enable joint binding of the subjects.[5]

2.3 Plural agreement via a monoclausal analysis

The discussion in the previous two sections revealed that plain SC without sharing effects is best captured by a large conjunct analysis. In this section, we will entertain the idea that SC with sharing effects is derived from direct DP-conjunction, followed by movement of the coordinator and the second conjunct to the right periphery of the sentence. This is tentatively proposed by Prinzhorn and Schmitt (2010: 171), but see also Hudson (1976), Munn (1993), Progovac (1998), Cowper and Hall (2000) for a similar suggestion. We sketch an analysis of plural agreement in (20), based on the assumption that German lacks an EPP feature (Diesing 1992, Wurmbrand 2001, 2006) and that split conjunction is made possible by adjunction of the coordinator and the second conjunct to the first conjunct (Munn 1993, Hartmann 2000). As both subjects form an underlying DP-coordination structure, plural agreement falls out naturally, the same way it is derived in non-split conjunction structures. The monoclausal analysis also allows for possessive pronouns to be bound by both subjects simultaneously, as it was shown in (12) and (14). In such cases, the entire DP-conjunction acts as an antecedent for the (syntactically re-constructed) possessor phrase, again in parallel to non-split configurations.

[5] Independent of its applicability to SC structures, a reviewer points out that the analysis in (19) makes a more general problematic prediction: We would expect ATB-extraction out of adjunct clauses to be licensed also outside of coordination structures. This prediction is, however, not borne out, see (i).

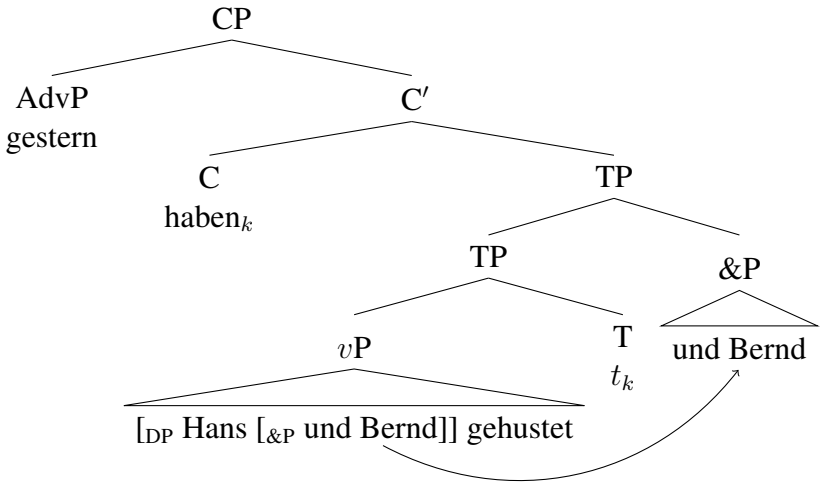
(i) *[Die Gurke]$_i$ habe ich t_i geschnitten, nachdem Klaus t_i geschält hatte.
the cucumber have I cut after Klaus peeled had
'I cut the cucumber, after Klaus had peeled it.'

The reviewer argues that this data point raises general doubts about the proposal in (19). We agree with the reviewer but also note that the unacceptability of (i) is presumably related to the licensing conditions of *parasitic gaps* (Engdahl 1983) more generally, which are known to be restricted to untensed adverbial clauses in German. As expected then, (ii) is grammatical since the adverbial clause is not tensed.

(ii) [Die Gurke]$_i$ habe ich t_i geschnitten, ohne t_i zu schälen.
the cucumber have I cut without to peel
'I cut the cucumber, without peeling it.'

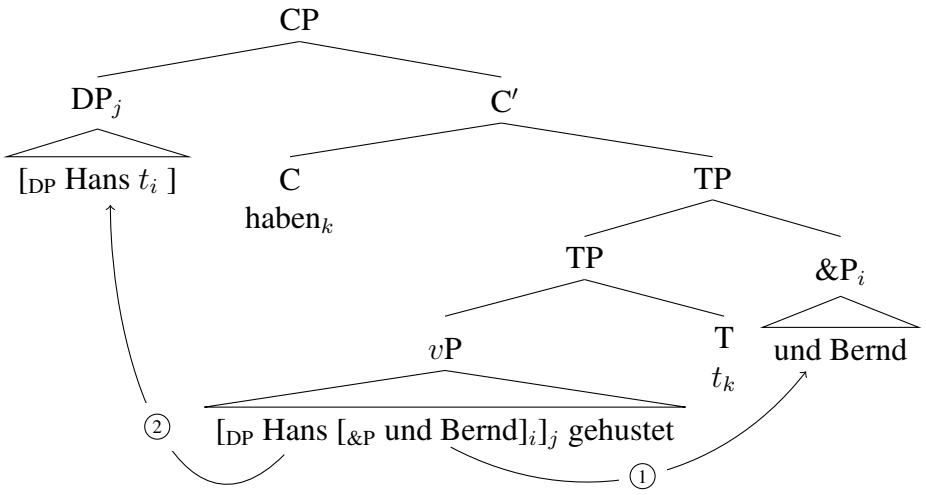
Nevertheless, an adjunction analysis along the lines of (19) requires one to engage with the derivation of parasitic gaps more generally to provide a more comprehensive explanation of the SC data.

(20) Gestern haben **der Hans** gehustet und **der Bernd**.
yesterday have.3PL the Hans coughed and the Bernd
'Yesterday Hans coughed, and Bernd.'



However, the monoclausal approach also faces some challenges. One immediate consequence of the analysis in (20) is that plural agreement should also be possible in embedded clauses, contrary to what was shown in (11). The only difference to (20) is that verb movement is blocked due to the presence of the complementizer in (11). Thus, nothing prevents the verb to undergo Agree with the DP-conjunction in T.
Another data point which does not follow is the unacceptability of plural agreement in (9)-(10) where one subject precedes the finite verb. To see this, let us look at a concrete derivation for plural agreement in (21).

(21) **Der Hans** hat/*haben gestern gehustet und **der Bernd**.
the Hans have.3SG/PL yesterday coughed and the Bernd
'Yesterday Hans coughed, and Bernd.'



The order of movement operations in (21) is dictated by the Strict Cycle Condition (Chomsky 1973), which bars all movement lower in the tree than the highest projection. Hence, *und Bernd* is extracted out of the coordinate structure first, effectively turning movement of *Hans* to spec,CP into remnant movement.
Is it feasible to account for the unacceptability of the structure in (21) via the interaction of extraction and remnant movement? If so, we would be able to explain why only singular agreement is possible, as this is the fall back option, which can be derived by large conjunct coordination and ellipsis. However, the type of interaction seems to be licensed. Theories which take the type of remnant movement and the type of movement creating the remnant into account (Müller 1998, Grewendorf 2003) cannot provide a reason why remnant movement should not take place in (21). According to the *Condition of Unambiguous Domination* (Müller 1996, 1998), remnant movement cannot occur if it is of the same type as the movement that creates the remnant. The types taken into consideration are wh-movement, topicalization, A-movement, and extraposition, among others (Müller 1998: 241). Since the type of movements needed for split conjuncts are arguably different from each other, (21) does not violate the Condition of Unambiguous Domination. Hence, plural agreement in (9)-(10) is predicted to be grammatical, contrary to fact.
Grewendorf (2003, 2015) builds on the assumptions of Müller (1996, 1998) but furthermore introduces a hierarchy which additionally constrains the type of movements, in that remnant movement has to be of a higher type than remnant creating movement. The hierarchy ranks movement types in the following way from high to low: *A'-movement as operator movement* $<$ *A'-movement as non-operator movement* $<$ *adjunction movement* $<$ *A-movement* (Grewendorf 2003: 79). Under the assumption that extraposition is adjunction movement, the plural option in (21) is predicted to be grammatical since topicalization (A'-movement and in this case the remnant movement) ranks higher than adjunction movement. Thus, neither Grewendorf's hierarchy nor Müller's Condition of Unambiguous Domination exclude plural agreement in (9)-(10).[6]
Finally, one last data point that the monoclausal analysis fails to explain is why adjoined &Ps can extrapose but never topicalize, see (22). Since this is a general challenge the adjunction approach faces (Postal 1998, Zhang 2009), it also applies to SC cases with plural agreement. Given that the coordinator and the second conjunct form one constituent, they should be able to undergo fronting.

(22) a. [Tall and slim]$_i$ though Helen is t$_i$ ...

b. *[and slim]$_i$ though Helen is [tall t$_i$] ...

c. *[und **der Bernd**]$_i$ sind gestern [**der Hans** t$_i$] angekommen
and the Bernd be.3PL yesterday the Hans arrived
'Hans and Bernd arrived yesterday.'

This section has shown that neither biclausal nor monoclausal accounts can successfully derive the complex data set of SC in German. From the discussion, it seems clear that

[6] Assuming that rightward movement is a PF-operation (Truckenbrodt 1995, Göbbel 2013, Hartmann 2013) does not help since this would arguably predict no interaction of agreement and split conjuncts.

a coordination of large conjuncts can derive the basic data of SC, that is SC without sharing effects. A monoclausal account, however, raises more questions than it answers. In the next section, we aim to derive the sharing effects from a biclausal analysis with the option of multi-dominance.

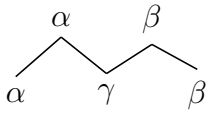
3 Sharing effects via multi-dominance

In section 2, we argued that split conjunction with singular agreement falls out from a clausal ellipsis account without any stipulations. We now propose to analyse plural agreement structures in a similar fashion, but with one crucial addition: ϕ-feature information on finite verbs can produce plural agrement if the syntactic node encoding such features is taken to be shared, and as such multiply dominated by both conjuncts in the coordination. The basic idea of multi-dominance and how it can account for shared structure in SC will be developed in section 3.1, where we also address the issue of linearisation. In section 3.2, we adopt an extension to the standard Agree account (Grosz 2015), which is made possible by multi-dominance. Section 3.3 will be dedicated to the word order restrictions we discussed so far with shared structure. It turns out that they naturally follow from the fact that multiply dominated material needs to escape the coordinate structure in order to be linearized (Citko 2005).

3.1 Multi-dominance and linearization

Minimalist syntax defines two sub-cases of the operation Merge: external and internal Merge (Chomsky 2005). Certain properties of coordination structures have shown that there might be a third sub-case, that is parallel Merge (23). The third type combines the first two sub-cases in that (i) two categories, i.e. the two mothers, have not been in a relation before, and (ii) they each contain a sub-part of the other, i.e. the shared constituent.

(23) Parallel Merge:

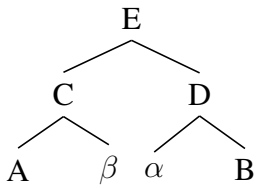


Multi-dominance analyses have been developed for coordination phenomena[7] such as *Right Node Raising* (McCawley 1982, Goodall 1983, Muadz 1991, Moltmann 1992, Wesche 1995, Wilder 1999, Abels 2004, Wilder 2008, Gracanin-Yuksek 2007, 2013, Bachrach and Katzir 2007, 2009, Kluck 2009, de Vries 2013, Grosz 2015), *Gapping*

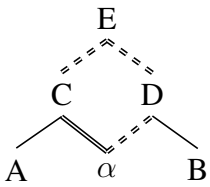
[7]Some subordinate structures make use of MD as well, e.g *parentheticals* (McCawley 1982, de Vries 2007) and *amalgams* (Guimarães 2004, van Riemsdijk 2006, Johnson 2013). Additionally, some multi-dominance approaches consider internal Merge, i.e. movement, as a form of parallel Merge (Starke 2001, Gärtner 2002a, Johnson 2012, Gracanin-Yuksek 2007, 2013, Bachrach and Katzir 2007, 2009, Fox and Johnson 2016). I will, however, not adopt this idea here for several reasons that will become obvious in the following discussion.

(Wesche 1995, Gracanin-Yuksek 2007, Citko 2012), and *ATB-wh-questions* (Williams 1978, Goodall 1983, Moltmann 1992, Citko 2005, 2006, Gracanin-Yuksek 2007, 2013).
One important issue that immediately arises with multi-dominance structures is linearisation. Syntactic relations such as dominance and c-command do not refer to precedence relations, that is, they do not determine the order of words at PF. One attempt to derive precedence of the terminals from the hierarchy in a syntactic tree has been made in the form of the Linear Correspondence Axiom (LCA). Kayne (1994) proposed that linear orders can be read off asymmetric c-command relations that hold between terminals. This poses several restrictions on syntactic trees in general. Most importantly, every terminal must be contained in a structure which asymmetrically c-commands another structure containing other terminals. All terminals that satisfy this relation are then collected in a set of ordered pairs which ultimately map onto the linear order of a one-dimensional string of terminals. Not only does the LCA predict the linear order of the terminals, it also determines which syntactic structures are possible.
Multi-dominance structures by definition violate the condition of irreflexivity, which is illustrated in (24). In (24a), the order of terminals is irreflexive, e.g., β precedes α since β is contained in structure C which asymmetrically c-commands D which contains α. In (24b), however, the shared node α is obligatorily dominated and asymmetrically c-commanded by the same node C. Consequently, α has to precede itself since precedence is mapped onto asymmetric c-command and α is contained (double line) in the structure that asymmetrically c-commands α itself (dashed double line). Since nothing can precede itself, the tree is not linearisable.

(24) a. Irreflexivity:



b. MD and Irreflexivity: $*\alpha \prec \alpha$



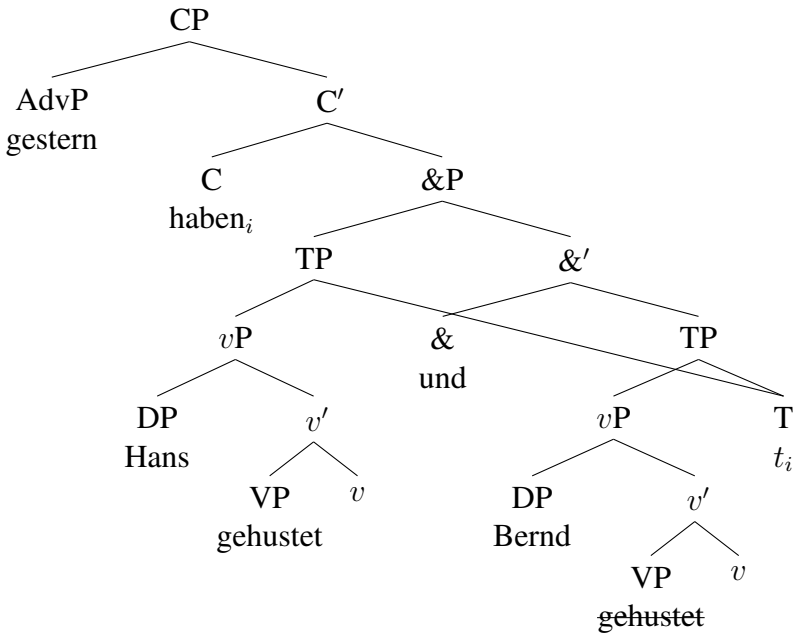
One solution to the linearisation problem is offered in Wilder (1999, 2008), in which a modified version of c-command is defined not in terms of dominance but in terms of *full* dominance which excludes the shared nodes. An alternative solution to the linearisation problem is suggested by Citko (2005) who assumes that shared constituents simply have to move out of the structure in which they are multiply dominated so that they can be linearized in a non-shared position. Since traces are invisible to the LCA, asymmetry violations do not arise. The advantage of this account is that the definition of c-command does not have to be modified in order to linearise multiple dominance structures. The account will be given supportive evidence by the word order order restrictions of German SC with plural agreement, and will thus be adopted by the current proposal.
In line with Citko (2005), we will assume that in order to linearise a multi-dominance structure the shared constituents have to move out of the coordinate structure. Citko suggests that this is exactly what happens for ATB-*wh*-questions of the form *I wonder what Hänsel recommended and Gretel read*. After the *wh*-phrase is merged as an object to both verbs respectively, it has to move out of the coordinate TP in which it is

shared. Since the LCA operates at PF, the copy of the shared constituent is not visible to the LCA, thus the construction is perfectly linearisable. Independent evidence for this obligatory movement comes from exceptional *wh*-movement in ATB-questions of *wh*-in-situ languages like Chinese, Korean and Japanese.

With these observations in mind, we now come back to split conjuncts. As was argued above, only shared constituents have to move, non-shared constituents can stay in-situ. Let us assume that plural agreement in German SC is the result of a shared T head, making it necessary for the head to move out of the structure in which it is shared. In order to provide the right environment for the shared nodes to move out of the coordinate phrase, we will adopt a coordination at the TP level. TP-coordination ensures that the finite verb can move to C, and thus leave behind a multiply dominated trace or unpronounced copy that does not cause a problem with linearisation. The sentence in (6) then has the structure in (25).[8] The shared T node moves out of the coordinate structure to adjoin to C, while the participles stay in-situ. The multiply dominated T node ensures that the auxiliary c-commands both subjects which in turn enables plural agreement. We assume that subjects stay in situ in German since German does not display an EPP-feature (Grewendorf 1989, Diesing 1992, Wurmbrand 2001, 2006, Bobalijk and Wurmbrand 2005).

(25) *SC with plural agreement*

Gestern haben **der Hans** gehustet und **der Bernd**.
yesterday have.3PL the Hans coughed and the Bernd
'Yesterday Hans coughed, and Bernd.'



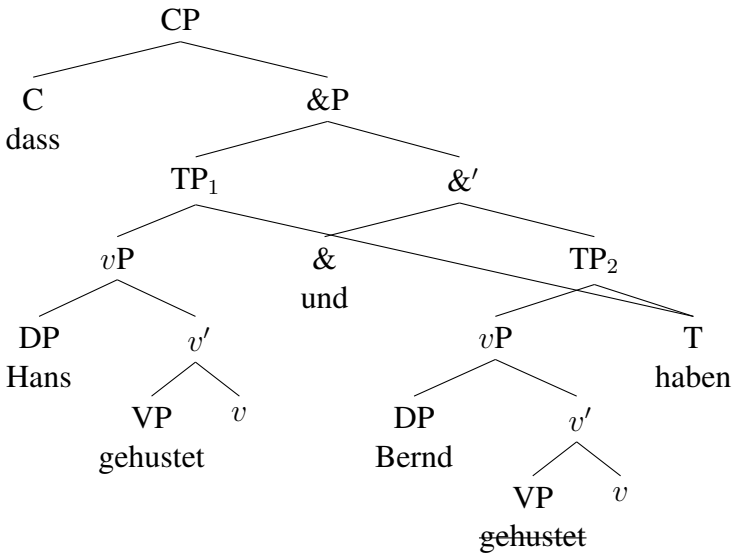
[8]Plural agreement in (5) can be analysed in a similar way since the arguments which constitute the goals for agreement only differ with respect to their θ-roles, *angekommen* being an unaccusative verb and *gehustet* being an unergative verb. This structural difference has no consequence for the following analysis. Thus, (25) serves to explain plural agreement in (6) as well as (5).

Following standard notions of Agree, ϕ-feature agreement is analyzed as feature copying of ϕ-features from the external argument to T via downward Agree. In (25), T is equidistant to two disjoint goals, one in each conjunct. In section 3.2, we will provide more details on the consequences for such configurations and how it can result in plural agreement.

Before we move on to the details of the Agree mechanism, let us briefly address the unavailability of plural agreement in embedded structures, which was shown in (11). This restriction immediately follows from the assumption that shared nodes have to move out of the structure in which they are shared. We illustrate the structure for (11c) in (26). Due to the presence of the complementizer, the C head does not trigger T-to-C movement, thus the auxiliary is trapped in its multiply dominated position and cannot be linearized. More concretely, *haben* is contained in TP_1 and TP_2, yet TP_1 asymmetrically c-commands TP_2. This leads to a linearization statement that violates irreflexivity. In other words, *haben* has to precede itself. Note that this issue does not arise with the trace/copy of T in (25), as linearization statements are invisible to unpronounced structure. Singular agreement is still an option in (11), as it does not involve multi-dominance and therefore is licensed in embedded clauses. We will come back to the derivation of singular agreement in section 3.3.

(26) *SC with plural agreement in embedded clauses*

??Ich denke, dass **Hans** gehustet haben und **Bernd**.
I think that Hans coughed have.3PL and Bernd
'I think that Hans and Bernd coughed.'



One might wonder at this point how different sharing mechanisms like multi-dominance and ellipsis interact with each other. Plural agreement morphology in SC structures can only be generated if the T node is equally distant to each of its goals, i.e., the singular subject in each conjunct. This configuration can only be achieved via multi-dominance, where Agree takes place in T's multiply dominated base position. If T were to be ATB-moved to C, there would be two instances of T in its base position each interacting

with another subject. The same holds under ellipsis, where the second instance of T is not pronounced. As for the participle, there is no reason for it to have access to both conjuncts (no agreement, no binding). The null hypothesis, then, is that it is present in each conjunct but elided under identity. Thus, we predict that the participle can stay in situ since there is no issue with linearization.
In principle, there are always many options to generate coordinations with unpronounced material. One is ellipsis, another one is multi-dominance. Often we cannot tell from a surface structure whether it is generated with one or more than one mechanism. Though certain output filters can restrict an operation from applying. When it comes to multi-dominance, one such output filter is linearization. It restricts multi-dominance to apply only in structures where a multiply dominated constituent is able to escape the coordination. This explains why plural agreement is blocked in embedded SC structures. Another output filter would be the Coordinate Structure Constraint, which is responsible for the word order restrictions with plural agreement in matrix clauses, as we will argue in section 3.3. As far as we can see, ellipsis does not underly a certain output filter (other than presumably the parallelism requirement). So we predict SC with singular agreement to be possible in many more constellations than SC with plural agreement, which seems to be true.

3.2 Summative agreement

The plural agreement in SC structures constitutes a case of *summative* agreement. This type of agreement can occur in a coordinate structure where one agreement target can agree with the sum of two disjoint agreement controllers, instead of agreeing with each controller on its own. Summative agreement has been observed to be an option in English (Postal 1998, Yatabe 2003, Wilder 2008), Russian (Kazenin 2002), and German (Schwabe and von Heusinger 2001). We adopt the theory of summative agreement presented in Grosz (2015), which was originally developed for Right-Node-Raising structures that show similar plural agreement options, shown in (27).[9]

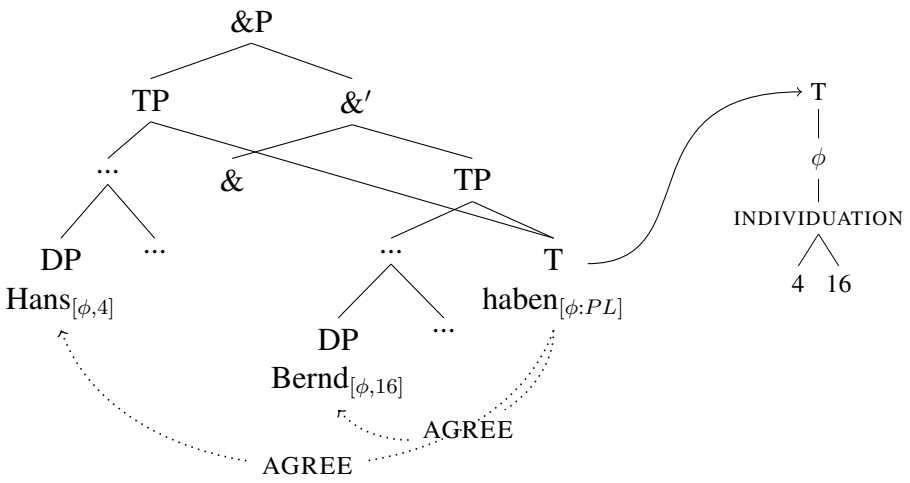
(27) [Der Gustav ist stolz, dass **die Tina**] und [der Otto ist froh, dass **der**
the Gustav is proud that the Tina and the Otto is glad that the
Tom] nach Nigeria reisen werden/*werdet/wird.
Tom to Nigeria travel will.3PL/will.2PL/will.3SG
'Gustav is proud that Tina, and Otto is glad that Tom, will travel to Nigeria.'
(Grosz 2015: 9)

Grosz (2015) analyzes (27) as underlyingly bi-clausal with multiply dominated constituents. Linearization is regulated by c-command and dominance notions developed in Gracanin-Yuksek (2007, 2013). The key idea to summative agreement is that referential features structurally encoded in DPs get copied onto T via Agree. It might be objected that after the probe has agreed with one goal it stays inactive for the other goal, i.e. the verb can only agree with one subject. However, under the assumption of multi-dominance neither subject is closer to the verb than the other, thereby allowing

[9]Earlier observations have already been made by Postal (1998) and Wilder (2008).

both agreement operations to happen simultaneously (see also Citko 2005: 481). In (28), we show how this plays out in detail. Two distinct referential features result in plural agreement whereas one referential feature results in singular agreement. This is achieved by including referential features as part of hierarchically structured ϕ-feature bundles into the INDIVIDUATION node (Harley and Ritter 2002). Number agreement is now determined as follows: If the INDIVIDUATION node of the ϕ-probe in T is branching, as it is the case in SC structures with a multiply dominated T head copying distinct referential features from each conjunct (28), number is spelled out as plural. If the INDIVIDUATION node is not branching, which is generally the case in derivations where only one DP serves as the goal for Agree and thus only one referential feature is copied, number is spelled out as singular. Hence, SC structures with singular agreement do not involve multi-dominance of T.

(28) Summative Agreement:



Crucially, summative agreement is only possible if nodes are shared between conjuncts. An ATB-style analysis for example would not offer the right underyling structure for summative agreement to take place (Grosz 2015, Wilder 2018). Only a multi-dominated inflectional node like T can simultaneously access each of the non-shared singular subjects, as this T head is equidistant to both agreement goals. Such locality coditions are not given in the equivalent ATB-scenario. In the base position, there would be two T heads each equipped with a ϕ-probe agreeing with a different subject. Even if one assumes that Agree is delayed (for some reason) so that Agree only happens when T ATB-moves to C, the analysis would still face a locality problem since the two subjects would not be equally distant to the probe (recall the discussion in section 2.2). This section has shown how sharing effects such as plural agreement can be derived under an ellipsis approach with the additional help of multi-dominance. Since T c-commands both subjects, the referential features of these two disjoint subjects are copied onto the T node via Agree, resulting in a branching INDIVIDUATION node which in turn triggers plural agreement. The next section focuses on the word order restriction presented in section 1.

3.3 Word order restrictions

For the blocking effects of plural agreement in (9)-(10), we have to take a step back and reconsider the structure of the coordinate phrase. A closer look at (25) and (28) reveals that we adopted a coordinate structure in which the coordinator is the head of its own functional projection (Wilder 1994, Johannessen 1998, Zhang 2009). Independent support for this structure comes from the observation that topicalizing the coordinator with the second conjunct is ruled out, as was shown in (22), independent of whether the verb exhibits singular or plural agreement. The coordinator and the last conjunct are not allowed to move because they do not form a constituent but an intermediate projection.[10] As it turns out, the nature of the coordinate phrase and the assumptions made for linearizing multi-dominated constituents will also provide an explanation for the lack of plural agreement in (9)-(10). Recall that whenever a SC structure contains shared material, it has to provide landing positions outside of the coordinate structure in order for the shared material to move out. Thus, SC with plural agreement is derived as a coordination of TPs. Consequently, if one of the subjects moves up to spec,CP, a constituent is asymmetrically extracted out of one conjunct, which is illustrated in (29). Hence, the ungrammaticality of (9) and (10) follows naturally from a violation of the Coordinate Structure Constraint (Ross 1967).[11,12]

[10] In minimalist' terms, the coordinator and the last conjunct form a syntactic object that is neither minimal nor maximal.

[11] The structure in (10) is derived completely in parallel.

[12] A reviewer remarks that the same contrasts we showed in (9)-(10) can be found with embedded V2 clauses, shown in (i).

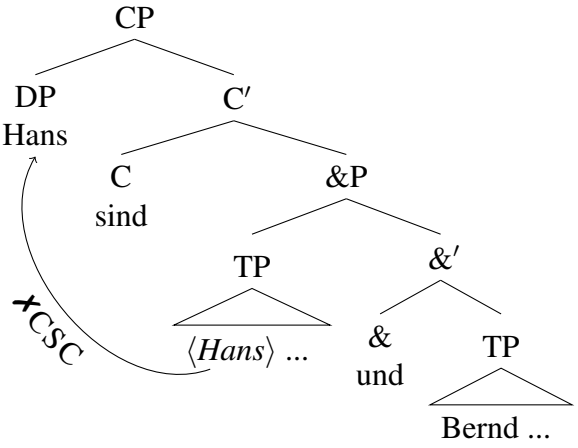
(i) a. *Ich glaube, **Hans** kamen (gestern) an und **Bernd**.
I believe Hans came.3PL yesterday PART and Bernd
'I believe Hans and Bernd came.'

b. *Ich glaube, **Hans** sind angekommen und **Bernd**.
I believe Hans be.3PL came and Bernd
'I believe Hans and Bernd came.'

The fact that we can find the same word order restrictions in embedded V2 clauses and in (matrix) declarative clauses suggests the same underlying syntax. This observation has been made before but is often related to the interpretational effect embedded V2 clauses have. Embedded V2 clauses imply commitment to p by the subject of the matrix predicate. Similarly, matrix declaratives imply speaker commitment to p, see Gärtner (2002b), Truckenbrodt (2006), and Woods (2016) for more discussion.

(29) *CSC violation with plural SC structures*

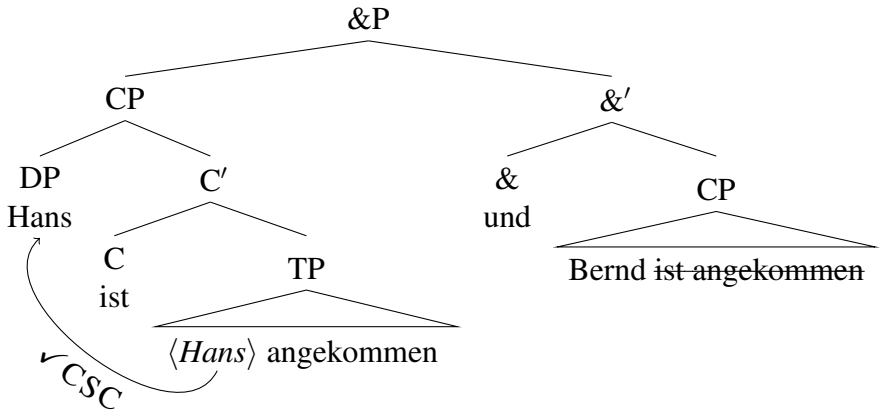
*__Der Hans__ sind gestern angekommen und __der Bernd__.
the Hans be.3PL yesterday arrived and the Bernd
'Yesterday Hans arrived, and Bernd.'



In contrast, SC structures with singular agreement do not involve sharing and thus do not depend on landing positions outside the coordination. They can be analyzed under the large conjunct account (Merchant 2003, Wurmbrand 2017), e.g., as a coordination of CPs (Konietzko and Winkler 2010), as is shown in (30) for the sentence in (9).

(30) *No CSC violation with singular SC structures*

__Der Hans__ ist gestern angekommen und __der Bernd__.
the Hans be.3SG yesterday arrived and the Bernd
'Yesterday Hans arrived, and Bernd.'

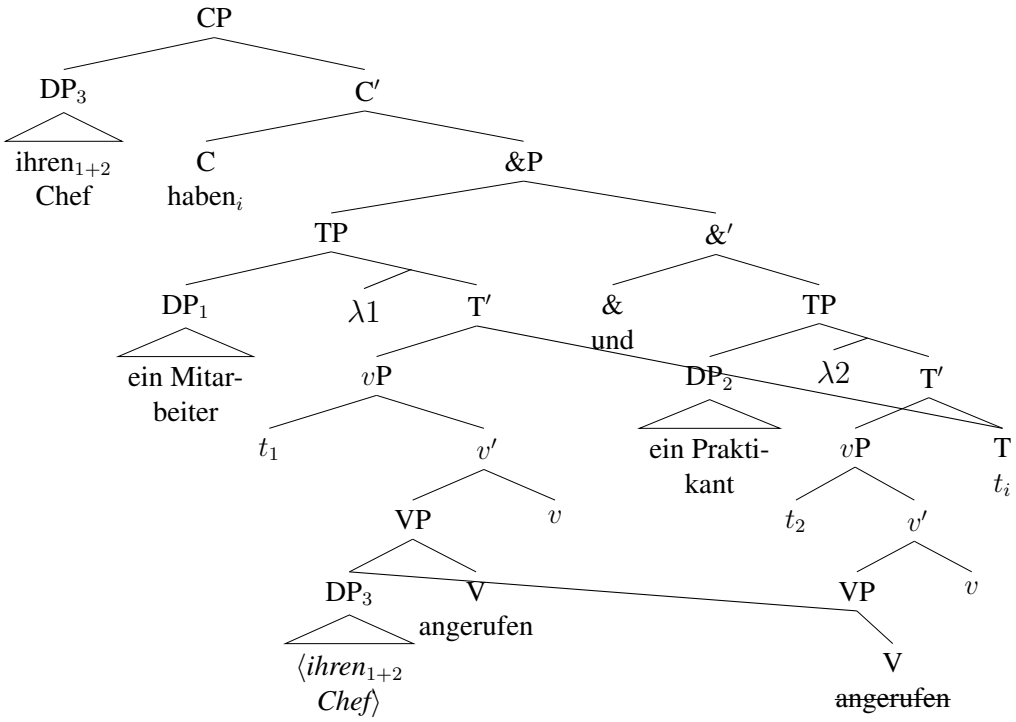


This type of coordinate structure does not predict CSC violations to occur, therefore no word order restrictions are observed with singular SC structures.
We now turn to the binding data introduced in (12-15).[13] In parallel to the agreement data, the pattern of variable binding of possessive pronouns reveals that direct objects

[13]The predictions of the current account are presented based on the contrast between (14) and (15). The rationale is the same for (12) and (13).

have to move out of the coordinate structure, in case they are multiply dominated. We provide the underlying analysis of (14) in (31). Under the assumption that A'-movement reconstructs for binding (Chomsky 1995, Romero 1998, Fox 1999) and that pronouns have to be c-commanded in order to be bound (Heim and Kratzer 1998), a jointly bound possessive pronoun is able to be generated in the plural SC structure in (14). As can be seen in (31), both the T node and the possessor phrase *ihren Chef* are multiply dominated and thus need to move out of the TP-coordination.[14]

(31) Ihren$_{i+j}$ (gemeinsamen) Chef haben gestern [**ein** **Mitarbeiter**]$_i$
POSS.3PL (same) boss have.3PL yesterday an employee
angerufen und [**ein** **Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'



Crucially, the MD account also provides an explanation why the jointly bound possessor phrase has to move to the prefield, which rules out (32). If the joint co-reference reading

[14] One might wonder why the structure cannot be saved by a referential interpretation of the possessive pronoun. After all, possessive pronouns do not have to be variable bound in order to be licensed. We follow a long tradition in this regard (Reinhart 1983, Grodzinsky and Reinhart 1993, Heim 1998, Büring 2005) which argues for a principle that enforces binding in environments where the meaning to be derived by co-reference or variable binding is indistinguishable. For concreteness, we adopt the principle in (i).

(i) *Have Local Binding!* (Büring 2005: 121)
For any two NPs α and β, if α could bind β (i.e. if it c-commands β and β is not bound in α's c-command domain already), α must bind β, unless that changes the interpretation.

With this rule in place, variable binding is required for the joint reading in (31). This in turn requires c-command, which can only be achieved via multi-dominance. The word order restrictions, shown in (31)-(32), follow accordingly.

is the result of multi-dominance, the linearization algorithm filters out structures like (32) where the multiply dominated direct object stays in situ.

(32) *Gestern haben [**ein Mitarbeiter**]$_i$ ihren$_{i+j}$ (gemeinsamen) Chef
yesterday have.3PL an employee POSS.3PL (same) boss
angerufen und [**ein Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'

Interestingly, joint readings are only available in plural SC structures. Singular SC structures do not allow for such a reading, independent of word order. The only reading the sentences in (33) can receive is if the possessive pronoun refers to a salient female referent in the previous discourse and the modifier *gemeinsamen* is left out.

(33) a. *Gestern hat [**ein Mitarbeiter**]$_i$ ihren$_{i+j}$ (gemeinsamen) Chef
yesterday have.3SG an employee POSS.3PL (same) boss
angerufen und [**ein Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'

b. *Ihren$_{i+j}$ (gemeinsamen) Chef hat gestern [**ein Mitarbeiter**]$_i$
POSS.3PL (same) boss have.3SG yesterday an employee
angerufen und [**ein Praktikant**]$_j$.
called and an intern
'Yesterday an employee and an intern called their boss.'

The fact that the sentences in (33) block jointly bound pronoun readings altogether suggests that SC with singular agreement is indeed derived via a large conjunct analysis, as was shown in (30). In a structure like (30), there is no way in which a possessive pronoun contained in a direct object can be c-commanded by both subjects simultaneously, thus bound readings are excluded.

4 Further evidence for biclausality and sharing

The discussion in the previous sections made clear that in order to give a full account of split conjuncts, we need to extend the stripping analysis by allowing heads as well as arguments to be multiply dominated. To further investigate the validity of the present proposal, some diagnostics are provided in this section. In section 4.1, we will provide two independent arguments for the size of conjuncts proposed in (29) and (30), respectively. Further tests in sections 4.2 and 4.3 are based on the idea that a multiply dominated constituent is only generated once, whereas identical constituents in ellipsis structures constitute multiple occurrences. In order to distinguish multiply dominated constituents from ATB-moved constituents we will take summative agreement in section 4.3 as a criterion, which only the former can show but not the latter. Finally, section

4.4 will address data concerning collective predicates, which will eventually provide an argument against the monoclausal analysis.

4.1 The size of the conjuncts

In (29) and (30), we proposed that plural agreement in SC requires a TP-coordination, while singular agreement does not do so. Independent evidence for a difference in size correlating with the presence of plural agreement comes from intonational cues. Prinzhorn and Schmitt (2010) notice an intonational break/breath pause (= |) preceding the coordinator with singular agreement but not with plural agreement, see (34). They interpret the lack of a break in (34b) as an indication that plural agreement in SC involves a monoclausal analysis.

(34) a. **Der Hans** hat gehustet | und **der Bernd** auch.
the Hans have.3SG arrived and the Bernd too
'Yesterday Hans arrived, and Bernd too.' (Prinzhorn and Schmitt 2010: 165)

b. *Gestern sind **der Hans** angekommen | und **der Bernd**.
yesterday be.3PL the Hans arrived and the Bernd
'Yesterday Hans arrived and Bernd.' (Prinzhorn and Schmitt 2010: 169)

The contrast in (34) also falls out under the current analysis. Recall that (34a) constitutes a coordination of CPs, whereas (34b) is a CP which contains a coordination of TPs. It has been argued that intonation phrases are mapped to root clauses or speech acts, while intonational breaks indicate intonation phrase boundaries (Downing 1970, Nespor and Vogel 1986, Selkirk 2011). Truckenbrodt (2005, 2015) specifically argues for German that intonation phrases are mapped to CPs, or rather "unembedded ForcePs", as there is a strong tendency for an intonation phrase to be linked to a speech act. Hence, a pause is predicted to occur in (34a), where two CPs are coordinated. In (34b), the entire sentence constitutes a CP, thus no pause is expected between conjuncts.
The size of the conjuncts can also be diagnosed by substituting the DP in the second conjunct with a wh-phrase (based on a test by Ott and de Vries 2016: 650). The substitution should not be possible in SC structures with plural agreement since the second conjunct cannot provide an underlying CP structure in order for wh-movement to take place. This prediction is borne out, see (35). The effect gets strengthened by the juxtaposition of two different speech acts – again, a scenario that is only possible if two separate CPs are coordinated.

(35) A: I know which of the students passed the exam. Do you have an idea or do you want me to tell you?

B: Ich vermute, gestern hat/*haben **Emma** bestanden – und
I suspect yesterday have.3SG/have.3PL Emma passed and
wer noch?
who else
'I suspect Emma passed the exam yesterday – and who else?'

With this independent evidence in place, we can now move on to diagnostics that investigate further predictions the current MD account makes with respect to shared vs. elided material.

4.2 No sloppy identity

In coordinations involving of VP-ellipsis, two readings are commonly observed for pronouns, one is a strict reading and one is a sloppy reading (Ross 1967, Sag 1976, Williams 1977, Partee 1978). This is illustrated with the possessive *her* in (36). Given that pronouns can be interpreted as referential or bound, the two readings are traditionally analyzed by assigning *her* a referential reading in the strict case, while *her* receives a bound reading in the sloppy case (Sag 1976, Reinhart 1983). The analysis obeys the identity condition on ellipsis for each reading, as the pronoun either simply refers to Emma across conjuncts (strict), or constitutes a variable which is bound in each conjunct by the respective subject (sloppy).

(36) Emma walked her dog and Frida did ~~walked her dog~~, too.

$\rightsquigarrow_{strict}$ *Emma walked Emma's dog and Frida walked Emma's dog*
Emma$_i$ walked her$_i$ dog and Frida$_j$ walked her$_i$ dog.

$\rightsquigarrow_{sloppy}$ *Emma walked Emma's dog and Frida walked Frida's dog*
Emma λx walked x's dog and Frida λx walked x's dog

We will now probe for an interaction between plural agreement and the availability of sloppy readings of fronted objects in SC structures. A precondition for a sloppy reading is that there are two occurrences of a shared object in the coordination, which can only be provided by an ellipsis analysis. Under a multi-dominance analysis, there is only one occurrence of the shared object (Barros and Vicente 2011, Wilder 2018). Strict readings, on the other hand, should be available under both analyses. Given our current analysis of split SC, sloppy readings should be possible with singular agreement, but not with plural agreement.
As shown in (37), split conjuncts with singular agreement allow for the sloppy reading (in addition to the strict reading). This is predicted by the CP-coordination analysis, as it involves ellipsis throughout, and thus two instances of the possessive pronoun where one is elided.[15]

(37) *SC with singular agreement*

Seinen	Hund	hat	**Peter**	gestern	ausgeführt	und	**Bernd**.
POSS.3SG	dog	have.SG	Peter	yesterday	taken.out	and	Bernd

'Peter walked his dog yesterday, and Bernd did, too.'

$\rightsquigarrow_{strict}$ *Peter walked Peter's dog and Bernd walked Peter's dog*

$\rightsquigarrow_{sloppy}$ *Peter walked Peter's dog and Bernd walked Bernd's dog*

[15]Note that the possessor is marked for singular, thereby excluding a jointly bound reading, which would be a third reading.

Split conjuncts with plural agreement are licensed in a coordination of TPs where the shared object *seinen Hund* moves to Spec,CP. If there is only one constituent in the first place, as it is the case with multiply dominated constituents, a sloppy identity reading should be blocked altogether. This is corroborated by the example in (38). The most prominent reading of (38) is one where Peter's dog is taken out by Peter and Bernd, which is a strict reading.

(38) *SC with plural agreement*

Seinen Hund haben **Peter** gestern ausgeführt und **Bernd**.
POSS.3SG dog have.PL Peter yesterday taken.out and Bernd
'Peter walked his dog yesterday, and Bernd did, too.'

$\rightsquigarrow_{strict}$ *Peter walked Peter's dog and Bernd walked Peter's dog*

$\not\rightsquigarrow_{sloppy}$ *Peter walked Peter's dog and Bernd walked Bernd's dog*

The absence of a sloppy identity reading supports our analysis of SC with plural agreement as a coordination of TPs with a jointly projected CP layer, as it enforces sharing of whichever constituent is moved to the prefield. This test provides an additional diagnostic apart from the jointly bound readings of the possessor in section 3.3 – one that is based on the fact that multi-dominance involves only one consituent, in contrast to ellipsis. The next section also aims at providing evidence for TP vs. CP coordination, but is based on cumulative readings of quantifiers in object position.

4.3 Cumulative readings

Wilder (2008) points out that quantifiers can receive a summative interpretation in Right Node Raising structures, which is illustrated in (39). A multi-dominance account can in principle provide an explanation since a shared constituent by definition only occurs once. Hence, the shared object *a total of fifteen cars* can accumulate the number of cars bought by Mary and John in (39). In contrast, an ellipsis account evidently cannot provide an explanation for the summative reading of (39), as the underlying structure basically matches the non-summative reading in (39b).

(39) Mary bought and John stole a total of fifteen cars. (Wilder 2008: 253)

a. *summative reading*: Mary bought five cars and John stole ten cars.

b. *non-summative reading*: Mary bought a total of fifteen cars and John stole a total of fifteen cars.

Applying this test to split conjuncts yields the expected result. Plural agreement creates a sharing structure in which the direct object is shared and moves to the prefield. Thus, the summative reading is possible and (40a) can be followed up by (40b) accordingly.

(40) *Agreement plural: ✓ summative reading*

a. Insgesamt zehn Fragen haben **Maria** in der Prüfung beantwortet
a.total.of ten questions have.PL Maria in the exam answered
und **Frida**.
and Frida
'A total of ten questions were answered by Maria and Frida.'

b. ... Fünf für Maria und fünf für Frida.
five for Maria and five for Frida
'Five for Maria and five for Frida.'

Split conjuncts with singular agreement, however, do not allow for the summative reading since an elided second occurrence of the quantifier in the second conjunct enforces summation in each conjunct separately. Hence, only the non-summative reading is possible.

(41) *Agreement singular: ✗ summative reading*

a. Insgesamt zehn Fragen hat **Maria** in der Prüfung beantwortet
a.total.of ten questions have.SG Maria in the exam answered
und **Frida**.
and Frida
'A total of ten questions were answered by Maria and Frida.'

b. #... Fünf für Maria und fünf für Frida.
five for Maria and five for Frida
'Five for Maria and five for Frida.'

The sections so far provided additional evidence for two different underlying structures depending on the presence of summative agreement, that is TP-coordination vs. CP-coordination. Note that the data provided in sections 4.1-4.3 are also compatible with a monoclausal analysis of SC with plural agreement. Hence, the next section is dedicated to the behaviour of collective predicates in split conjuncts, a property where the predictions of the monoclausal and the biclausal analysis come apart.

4.4 Collective predicates

There are certain types of verbs that require their subjects to denote a plurality since they yield a *collective* interpretation, compare the distributive verb *move* in (42) to the collective verb *gather* in (43).

(42) a. Emma and Frida moved the car.

b. Emma moved the car and Frida moved the car.

(43) a. Emma and Frida gathered in the classroom.

b. *Emma gathered in the classroom and Frida gathered in the classroom.

A collective-reciprocal reading of predicates is achieved via reciprocal verbs such as *collide* or *meet*. Some of these verbs come with a reciprocal anaphor such as *each other* or *together* in order to assure their reciprocal meaning (Hoeksema 1983: 68). Usually, these verbs have transitive counterparts, from which they want to be distinguished. We assume that plural DPs as well as the conjunction of singular DPs denote plural individuals under which a collective predicate can be licensed. A plural individual is often assumed to be formed with a non-boolean coordinator combining e-type arguments to form the union of the conjuncts (Link 1983, Schwarzschild 1996). The coordinator in SC structures, however, combines clauses, that is t-type arguments. Such conjunctions are usually assumed to be formed with boolean conjunction (i.e., set intersection). With nothing else being said, the current account predicts SC structures involving collective predicates to be unacceptable. The example in (44) seems to confirm this prediction.

(44) ??Gestern sind **mein Chef** aneinander geraten und **meine Mutter**.
yesterday be.PL my boss with.one.another tangle and my mom
'Yesterday my boss and my mom came face to face with each other.'

The judgement in (44) is not very sharp, and seems to be in conflict with the intuitions given by Prinzhorn and Schmitt (2010) for data such as (45).

(45) Gestern sind **der Lastwagen** zusammengestoßen und **der Geländewagen**.
yesterday be.3PL the truck collided and the SUV
'Yesterday, the truck and the SUV collided.' (Prinzhorn and Schmitt 2010: 190)

In order to investigate the acceptability of sentences like (45) and (44), we conducted an acceptability judgement study. The rest of this section will briefly report on the results.

Participants. 36 female and male students from universities of Berlin participated in this study. The age ranked from 19 to 45 with an average of 25.3. All participants were native speakers of German.

Materials. Each participant rated 20 test sentences and 32 filler sentences on a scale from 1 to 5 (1 = highly acceptable, 5 = not acceptable). Test sentences were created on the basis of the two factors COLLECTIVITY and NUMBER, resulting in a 2x2 design with four conditions, shown in Table 1 (see (45) and (5) for translations). Each participant was presented with one condition out of each test item.

The test items were counterbalanced with respect to the type of auxiliary (half of the verbs were combined with *sein* 'be', the other half with *haben* 'have'). In order to ensure a collective reciprocal interpretation, the following three types of predicates were used in this study: verbs with the reciprocal prefix *zusammen* 'together', verbs with

	collective	**distributive**
singular	Gestern ist der Lkw zusammen-gestoßen und der Pkw.	Gestern ist der Lkw ange-kommen und der Pkw.
plural	Gestern sind der Lkw zusammen-gestoßen und der Pkw.	Gestern sind der Lkw ange-kommen und der Pkw.

Table 1: Four conditions for one test item.

the reciprocal pronoun *einander* 'each other', and verbs with a reciprocally interpreted plural reflexive *sich*. The position of the reflexive/reciprocal pronoun was controlled for over items. Half of the collective predicates were constructed with the reflexive *sich* which always immediately followed the V2 position, the other half of the collective predicates were constructed with a reciprocal prefix/pronoun which appeared with the verb inside the coordination. In parallel, half of the distributive predicates were constructed with a (reflexively interpreted) reflexive pronoun which always immediately followed the V2 position. It was assured that on the one hand all non-reciprocal verbs are intransitive and on the other hand all reciprocal verbs possess a non-ambiguous reciprocal interpretation (reziproka tantum). The subjects were chosen to denote two-membered pluralities to assure strong reciprocity (Langendoen 1978: 179). Due to the rare occurrence of SC in written language, the fillers were slightly manipulated in terms of their grammaticality and semantics. Over half of the fillers contained coordinate structures.

Results. In Figure 1, we show the overall ratings participants gave for each condition, where violin plots show the overall distribution and the mean is indicated with a red line. Although the mean ratings were rather low for all conditions, we can observe that singular distributive ($M = 3.92$, $SD = 0.96$) and plural distributive ($M = 3.86$, $SD = 0.94$) predicates were rated slightly better than singular collective ($M = 4.21$, $SD = 0.84$) and plural collective ($M = 4.19$, $SD = 0.8$) predicates. Given the in-between subject design, we carried out a two-factorial ANOVA (without repeated measures) to determine the effects NUMBER and COLLECTIVITY. We then measured effect sizes with Cohen's f statistic (Cohen 1988), where the values .1, .25, and .4 represent small, medium, and large effect sizes, respectively. The ANOVA revealed a significant main effect for COLLECTIVITY ($F(1, 716) = 22.54$, $p < .001$) with a small effect size ($f = .18$), but no effect for NUMBER ($F(1, 716) = 0.4$, $p = 0.53$). There was also no significant interaction between COLLECTIVITY and NUMBER ($F(1, 716) = 0.14$, $p = 0.71$). Post-hoc t-tests confirmed that distributive predicates were rated significantly better than collective predicates ($t(718) = 4.75$, $p < .001$) and that there was no significant difference in rating between singular and plural agreement ($t(718) = -0.62$, $p = 0.53$).

Discussion. The important finding emerging from this judgement study is that collective predicates are judged significantly less acceptable than distributive predicates in SC structures, thereby providing support for the tentative judgement in (44). The type of number agreement does not seem to play a role, indicating that plural agreement is an option, at least in SC constructions where the finite verb precedes the coordination.

Figure 1: Raw acceptability judgements for the survey on a 5-point Likert scale

Collective predicates, however, are degraded, as they stay inside the coordination in all test conditions. The results are in line with the current proposal under which shared constituents result from multi-dominance. Plural agreement is a possibility in the SC structures tested in this study since multi-dominance of the T node provides access to the singular subjects of each conjunct. Furthermore, the word order ensures that the shared constituent has moved out of the TP-coordination to C. Collective predicates, however, are incompatible with the underlying biclausal analysis since they require a plural individual formed with an e-type coordinator. The results also serve as an argument against a monoclausal analysis where the split conjunction starts off as a conjunction of two DPs forming a plural individual, as discussed in section 2.3.

It should be noted that the overall low acceptability rates were rather low in all conditions. Hence, the conclusions drawn from this acceptability study can only be preliminary. Reasons for the low acceptability ratings can be found in the modality of the study and the fact that the SC structures under investigation are presumably not very frequent in written registers. Additionally, test items were presented out of the blue without context, which did not control for the fact that split conjuncts are usually discussed in accordance with a particular information structure, hence felicitous only in carefully constructed scenarios (Winkler 2005, Konietzko and Winkler 2010, Konietzko 2016). Future modifications of the design is required to replicate the results with overall higher acceptance ratings. Another natural extension of this study is to investigate the worder order effects with collective predicates. More concretely, one question arising from the current analysis is whether the acceptability improves with fronted collective predicates in SC constructions. As discussed above, multi-dominance per se does not enable the formation plural individuals though there are proposals deriving collective readings with boolean conjunction, albeit with additional (silent) operators (Winter 2001, Champollion 2015). In how far these proposals can be made compatible with multi-dominance structures remains to be seen.

5 Conclusion

The multi-dominance approach provides a new analysis for split conjuncts that takes sharing effects into account. The proposal derives the basic non-sharing effects from a stripping account, a coordination of CPs with subsequent deletion of identical material in the second conjunct. German additionally displays sharing effects in the form of plural agreement and multiply bound possessor phrases. We proposed that these effects can be captured by multiple dominance of constituents inside the coordinate phrase. As shared constituents impose a restriction on linearization (Citko 2005), they are only possible in restricted word order configurations, which is derived via a coordination of TPs with a jointly projected CP-layer. Several other observations fall out from the proposal, including the lack of sloppy identity readings and summative readings of quantifiers in SC with plural agreement. Finally, a first attempt to measure the availability of collective predicates in split conjuncts seems to provide evidence against a mono-clausal analysis of SC with plural agreement.

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