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Müller (2017): Structure removal in complex prefields

Claim:

- While German is traditionally analysed as a verb-second language, there are cases where it seems that more than one constituent occupies the prefield position in front of the finite verb
- The existing literature offers two types of analysis of this so called complex prefield construction: one assumes multiple constituents in the SpecC domain, the other approach maintains the verb-second property of German by analysing the complex prefield as a single VP which is lacking an overt V head.
- This paper argues that both approaches are empirically well motivated and though thought of as mutually exclusive, evidence for both approaches can be found
- Structure removal in syntax is presented as a possible solution to this conflicting evidence: in the beginning, a single VP constituent is fronted. However, after Remove deletes the VP shell, the VP-internal constituents reassociate into the structure as multiple specifiers of C

1 Introduction

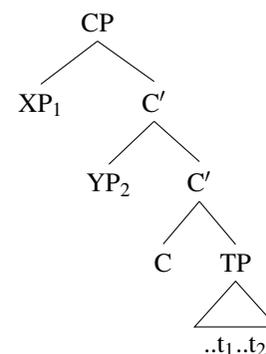
- German is a V2-language, which means that in a declarative sentence the finite verb is in the second position, preceded by *one* constituent
 - The sentence-initial constituent is said to be in the prefield or SpecC domain
 - However, there are cases in which more than one constituent can be found in this position:
- (1) a. [Den Fahrer] [zur Dopingkontrolle] begleitete ein Chaperon
the rider_{acc} to doping.test accompanied a chaperone_{nom}
'A chaperone accompanied the rider to the doping test'

- b. [Mit ihm] [in der Spitzengruppe] fuhren Martin Elmiger (IAM), Bryan with him in the first.group rode Martin Elmiger (IAM) Bryan Nauleau (Europcar) und Serge Pauwels (MTN-Qhubeka) Nauleau (Europcar) and Serge Pauwels (MTN-Qhubeka) 'Martin Elmiger, Bryan Nauleau and Serge Pauwels rode with him in the first group.'

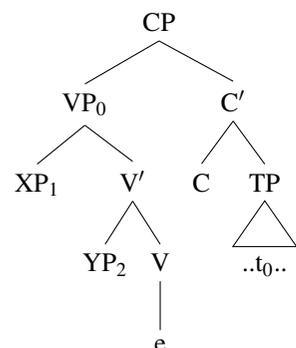
- Two different approaches:

- **Multiple constituency approach:** in this approach, there are indeed two (or even more) constituents in the prefield (2). The verb-second property of German is thus viewed as violable.
- **Single constituency approach:** this type of analysis suggests that what looks like a complex prefield is just a single fronted VP-constituent with an empty head (3).

(2) Multiple constituency approach



(3) Single constituency approach



- *Claims:*

1. Both approaches are empirically motivated
2. Structure removal in syntax exists
3. Structure removal can account for complex prefields and brings both approaches together: the fronting of a VP with an empty head is followed by removal of the VP shell

2 Conflicting evidence

2.1 Evidence for single constituency

- The single constituency approach is more accepted in theory-oriented work on complex prefields
- Advantage: the verb-second property of German can be maintained without postulating exceptions

2.1.1 Clause-mate condition

- As observed by Fanselow (1993), the two items in a complex prefield must be clause mates

- (4) a. [CP [VP₀ Fahrern₁ EPO₂] [C' sollte man besser nicht t₀ geben]]
 riders_{dat} erythropoietin_{acc} should one better not give
 'One should not give riders EPO'

- b. *[CP Fahrern₁ EPO₂ [C' sollte man nicht t₁ sagen [CP dass
 riders_{dat} erythropoietin_{acc} should one not say about
 sie t₂ genommen haben]]]
 they taken have
 'One should not say about riders that they took EPO'

- (4a) is grammatical, because both DPs are arguments of the verb *geben*
- In (4b) one argument is the argument of the matrix verb and the other DP the argument of the embedded verb, which results in ungrammaticality
- The ungrammaticality of (4b) could not be explained in a multiple constituency approach: what would block successive-cyclic long-distance topicalization of two separate constituents?

2.1.2 Order restrictions

- The ordering restrictions of the complex prefield items are the same as the ordering restrictions in the middle field
- Unmarked order: dative DP before accusative DP, DP before PP
- Easiest explanation: the prefield constituent *is* the middle field constituent

- (5) a. [CP Fahrern₁ EPO₂ [C' sollte man besser nicht geben]]
 riders_{dat} EPO_{acc} should one better not give
 'One should not give riders EPO'
- b. ?[CP EPO₂ Fahrern₁ [C' sollte man besser nicht geben]]
 EPO_{acc} riders_{dat} should one better not give
 'One should not give riders EPO'
- c. dass man Fahrern₁ EPO₂ gegeben hat
 that one riders_{dat} EPO_{acc} given has
 'that one gave riders EPO'
- d. ?dass man EPO₂ Fahrern₁ gegeben hat
 that one EPO_{acc} riders_{dat} given has
 'that one gave riders EPO'

2.1.3 Massive prefield placement

- A complex prefield can optionally consist of even more than two items

- This is expected in a single constituency approach: the fronted VP can include more than two items
 - In a multiple constituency approach, one would have to postulate several features on C that trigger movement
 - Another unwanted consequence is that one does not only weaken the verb-second property by allowing verb-third, but also verb-fourth, verb-fifth and so on
- (6) [Im April] [jede Woche] [den Fahrern] [ein EPO-Paket] hätte er lieber
in April every week the riders an EPO.package should he better
nicht schicken sollen
not send have
'He should better not have sent the riders an EPO package every week in April'

2.1.4 Indefiniteness constraint

- For some German speakers, topicalization of a vP containing a subject and an object is possible. The subject has to be indefinite though.
- (7) [_{vP} (?*Diese) Linguisten Langusten gegessen] haben hier noch nie t₀
these linguists_{nom} crawfish_{acc} eaten have here yet never
'Linguists have never eaten crawfish here'
- The analogous complex prefield construction is also possible:
- (8) [_{vP} (?*Diese) Linguisten Langusten] haben hier noch nie t₀ gegessen
these linguists_{nom} crawfish_{acc} have here yet never eaten
'Linguists have never eaten crawfish here'
- Note that the indefiniteness constraint still holds, which is expected under a single constituent analysis
 - Under a multiple constituent analysis, the indefiniteness constraint comes out of nowhere, since topicalization of definite DPs is possible in German

2.2 Evidence for multiple constituency

2.2.1 Freezing effects

- Freezing: an item cannot be moved out of an item that has itself undergone movement (a moved constituent is "frozen" for movement of items out of that constituent)

- A freezing effect can be found in complex prefield constructions:

- (9) a. [_{CP} [_{VP} Da₃ [_{DP} dem Team] [_{PP} t₃ zu] gratuliert] [_C hat Bernard
there the team to congratulated has Bernard
Hinault]]
Hinault
'Hinault has congratulated the team on that'
- b. *[_{CP} Da₃ [_{DP} Dem team] [_{PP} t₃ zu] [_C gratulierte Bernard Hinault]]
there the team to congratulated Bernard Hinault
'Hinault congratulated the team on that'

- An in situ PP allows extraction of the R-pronoun *da* ('there')
- (10a) shows that R-pronoun extraction via scrambling within the VP is possible even when the VP has undergone topicalization
- R-pronoun extraction is impossible in (10b), although under a single constituency analysis, one would expect (10a) and (10b) to behave identically. This is not the case and the freezing effect is predicted under a multiple constituency approach (since PP would definitely not be in its base position there)

2.2.2 Barss' generalization effects

- *Barss' generalization*: a quantified item γ contained in a moved XP α cannot take scope via reconstruction over an item β that c-commands α 's trace and is c-commanded by α
- (10) Jeden Fahrer zu Dopingkontrolle begleitet hat ein Chaperon
each rider to.the doping.test accompanied has a chaperone
'There is a chaperone who accompanies each rider to the doping test'
'*For each rider, there is a chaperone who accompanies him to the doping test'
- In (11), the object DP cannot have wide scope over existential quantifier subject DP, because the subject DP c-commands the trace of the object DP and is c-commanded by the moved VP
- (11) [Jeden Fahrer] [zur Dopingkontrolle] begleitet ein Chaperon
each rider to.the doping.test accompanies a chaperone

$\forall > \exists$: 'For each rider, there is a chaperone who accompanies him to the doping test'
 $\exists > \forall$: 'There is a chaperone who accompanies each rider to the doping test'

- Complex prefields do not trigger Barss' generalization effects (12), both readings are possible. This follows straightforwardly if the object DP *jeden Fahrer* is not part of a fronted VP (like in (11)), but a separate constituent of CP

2.2.3 Negative polarity items

- Negative polarity items must be c-commanded by a negative expression

- (12) a. [DP₂ Keinen Berg] hat [DP₁ auch nur irgendein Fahrer] t₂ im Sitzen
 no hill has also only some rider seated
 bewältigt
 conquered
 'No hill was conquered by a rider without getting out of the saddle.'
- b. *Im Sitzen hat [DP₁ auch nur irgendein Fahrer] [DP₂ Keinen Berg]
 seated has also only some rider no hill
 bewältigt
 conquered
 'No hill was conquered by a rider without getting out of the saddle.'

- In (12a), the negative polarity item *auch nur irgendein* is included in the subject DP and is licensed only when topicalization of the negative object DP takes place. In (12b) the object stays in situ and cannot license the NPI
- A single constituency approach predicts that licensing of the NPI should be blocked by the intervening VP
- Under the multiple constituency approach, licensing after complex predicate formation is expected

- (13) a. ??Keinen Berg im Sitzen bewältigt hat auch nur irgendein Fahrer
 no hill seated managed has also only some rider
 'No hill was conquered by a rider without getting out of the saddle.'
- b. Keinen Berg im Sitzen hat auch nur irgendein Fahrer bewältigt
 no hill seated has also only some rider managed
 'No hill was conquered by a rider without getting out of the saddle.'

- (13a) shows genuine VP topicalization, licensing of the NPI is not possible
- (13b) involves a complex prefield. Here licensing of the NPI becomes possible, providing an argument for the multiple constituent approach

2.2.4 Idioms

- In principle, parts of idioms can undergo topicalization

- (14) a. Die Flinte hat er zu früh ins Korn geworfen
 the musket has he too early into.the grain thrown
 'He gave up to early'
- b. Ins Korn hat er die Flinte geworfen
 into.the grain has he the musket thrown
 'He gave up'

- *Generalization*: all parts of an idiom must be connected by c-command in surface representations
- Expectation regarding complex prefields: under a single constituency approach, an idiomatic interpretation should become impossible (because the VP would block c-command), but under a multiple constituency approach an idiomatic reading should be unproblematic, since the fronted parts of the idiom are able to c-command the C'-internal verb
- As (Beispiel) shows, the right prediction is the one made by the multiple constituency approach: the idiomatic interpretation in a complex prefield construction is preserved

- (15) [DP Die Flinte] [PP ins Korn] sollte er nicht zu früh werfen
 the musket into.the grain should he not too early throw
 'He should not give up too early'

2.2.5 Extraposition to VP

- (16) a. [DP Den Wertungssiegern t₁] ihren Preis überreicht [CP₁ die noch
 the classification.winners their price given who still
 anwesend waren] hat Abraham Olano bei der Siegerehrung in Bilbao
 present were has Abraham Olano at the ceremony in Bilbao
 'Abraham Olano gave the classification winners who were still present
 their prices at the ceremony in Bilbao'

- b. *_[DP Den Wertungssiegern t₁] ihren Preis <sub>[CP₁ die noch anwesend
the classification.winners their price who still present
waren]</sub> hat Abraham Olano bei der Siegerehrung in Bilbao überreicht
were has Abraham Olano at the ceremony in Bilbao given
'Abraham Olano gave the classification winners who were still present
their prices at the ceremony in Bilbao'

- In (16a) the relative clause which is modifying the dative DP is extraposed to the fronted VP
- If one analyses the fronted item of a complex prefield as a VP (like in the single constituency approach) extraposition of the relative clause to the VP should be grammatical too
- But as (16b) shows, this is not the case

3 Interim summary

- So far, arguments for both the single constituency and the multiple constituency approach have been presented:

Single constituency	Multiple constituency
clause-mate effects	freezing effects
order restrictions	Barss' generalization effects
massive prefield placement	NPIs
complex long topicalization	idioms
indefiniteness constraint	left dislocation
	extraposition to VP

- *Problem: how can a complex prefield show properties of a single constituent and of multiple constituents at the same time?*
- **Solution:** it is indeed the case that both structures are present in the derivation, but not at the same time. The structure starts with a single constituent in the "complex" prefield and ends up with multiple specifiers of C.

4 Structure removal

- Conflicting representations in syntactic derivations are usually accounted for by displacement
- But some conflicting representations stay unresolved
- Müller (2017) makes the proposal that in addition to *Merge* there is a second elementary operation that modifies representations: *Remove*
- *Remove* is defined as the complementary operation to *Merge*: while *Merge* builds structure, *Remove* removes structure
- As the mirror operation to *Merge*, *Remove* shows similar properties and obeys the same constraints:

Merge

- Feature driven: triggered by [\bullet F \bullet] features
- Applies to heads or phrases: [\bullet F₀ \bullet] [\bullet F₂ \bullet]
- Obeys the Strict Cycle Condition
- External or internal

Remove

- Feature driven: triggered by [-F-] features
- Applies to heads or phrases [-F₀-], [-F₂-]
- Obeys the Strict Cycle Condition
- External or internal

- (17) *Strict Cycle Condition*
Within the current XP α , a syntactic operation may not exclusively target some item δ in the domain of another XP β if β is in the domain of α .
- (18) *Domain* (Chomsky (1995))
The domain of a head X is the set of nodes dominated by XP that are distinct from and do not contain X.

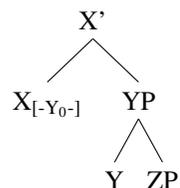
4.1 Removal of heads

- Removal of heads is triggered by [-F₀-] features
- The head bearing the [-F₀-] feature can remove a head of its complement or a head of its specifier
- If a head gets removed its highest projection is also taken away (because a head's projection cannot exist independently of the head)
- If the removed head had a complement, the complement "survives" and is reintegrated into the structure by reassociation (*not Merge*)

- If the removed head had both a complement and a specifier, the complement and specifier are reassociated in a way that maintains their linear and hierarchical order: the complement of the removed head reassociates with the removal-triggering head (thus replacing the removed head's maximal projection) while the specifier becomes the specifier of the removal-triggering head.

(19) *Removal of heads:*

(a) Merge ($X_{[\bullet Y \bullet]} \dots [-Y_0-]$, YP):



(b) Remove ($X_{[-Y_0-]}$, Y):



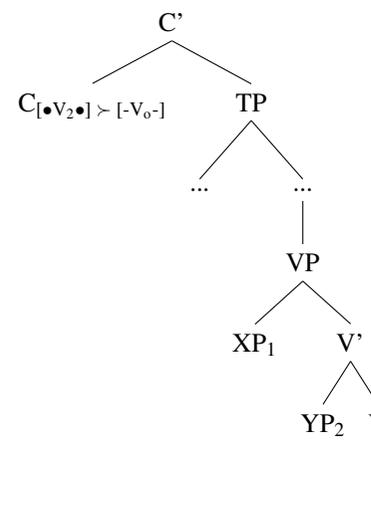
5 Analysis of complex prefields

5.1 Basic idea

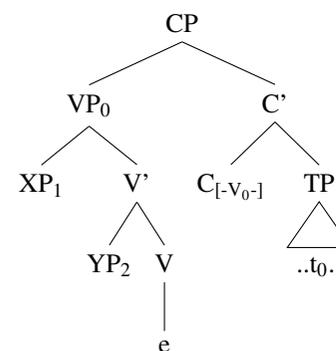
- In complex prefield constructions, Remove applies to the head of the specifier of C
- C bears a $[\bullet V_2 \bullet]$ feature that triggers movement of a remnant VP (it is presupposed that the V head has left its base position prior to this movement)
- The complex VP is fronted and merged in SpecC
- After that, structure removal takes place, triggered by $[-V_0-]$ on C
- Since the V head is removed, all V projections are removed as well and the VP-internal material is temporarily unattached

- The unattached material is reassociated with the triggering head's projection in an order-preserving way
- This results in a structure in which C has multiple specifiers

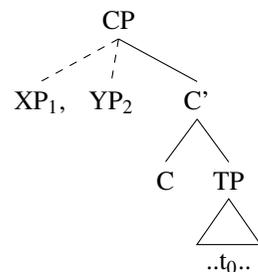
(20) a) *Pre-movement structure:*



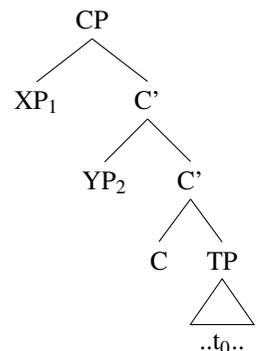
b) *VP fronting:*



c) *Structure removal:*



d) Reassociation:



5.2 Deriving the evidence for single and multiple constituency

- **Clause-mate condition:** The C head has only one structure building feature in German, therefore only one constituent can move to the prefield.
- **Order restrictions:** The order of items in a complex prefield is identical to the order in the VP because it is the VP that is moved to the prefield. VP-internal scrambling cannot take place after the VP has moved (due to the Strict Cycle Condition)
- **Massive prefield placement:** The VP can have arbitrarily many constituents (due to the option of V' recursion). After structure removal, all of them become specifiers of C.
- **Indefiniteness constraint:** topicalization of projections containing a definite subject are ungrammatical. Possible solution: topicalization cannot affect con-

stituents higher than vP. By assumption, only indefinite subjects stay in vP. Therefore the ungrammaticality of definite subjects in a complex prefield is derived by assuming that it is always a verbal category that is fronted.

- **Negative polarity items:** Licensing of NPIs is determined at LF on the basis of output representations (and therefore after structure removal). It is fed by Remove because removing the VP shell creates the context in which c-command becomes possible.
- **Barss' generalization effects:** Like licensing of NPIs, relative scope is a LF-phenomenon and determined on the basis of output representations. After structure removal there is no VP that could prevent a quantifier in the prefield from taking scope over an item in the middle field
- **Idioms**
- **Extrapolation to VP**

6 Outlook and discussion

- The feature [-V₀-] on C is only needed when the VP that undergoes topicalization is empty-headed: how can this be derived?
- One possibility: recoverability
- Successful application of Remove can only be guaranteed if the content of the removed item can be recovered in some way, this would rule out removal of an overt lexical V
- However, it is still unclear *why* C has to bear [-V₀-] when a VP without its overt head has been topicalized
- Possible answer: a general constraint against unbound V traces
- Such a constraint blocks fronting of VPs with a V trace that would be left unbound
- This constraint could be reformulated in a way that it applies to the final output of a derivation
- A VP with an unbound V trace after topicalization is thus possible in the sense that it can be created by the derivation, however, due to the constraint against unbound V traces, V has to be deleted in the final representation

- That's where structure removal comes in: it is a last resort operation that rescues a derivation with an unbound V trace
- Therefore, the instantiation of [-V₀-] on C can be said to be optional: if C bears [-V₀-] and a VP with an unbound V trace has been topicalized, Remove can successfully apply. If C bears [-V₀-] in the presence of an overt V, the derivation will crash (because of recoverability). If C does not bear [-V₀-] and a VP with an unbound V trace has been fronted, the derivation crashes too (because of the constraint against unbound V traces)

References

Müller, Gereon. 2017a. Structure removal: An argument for feature-driven Merge. *Glossa* 2(1), 28.

Müller, Gereon. 2017b. *Structure removal in complex prefields*. Natural Language and Linguistic Theory.