Restructuring by Removal
Gereon Müller (Universität Leipzig)
Workshop on Shrinking Trees, Universität Leipzig October 10, 2016

1. Structure Removal

Proposal:
Syntactic derivations employ two elementary operations modifying representations: In addition to an operation that builds structure – Merge (Chomsky (2001; 2008; 2013)) –, there is a complementary operation that removes structure: Remove.

Conflicting representations:
1. There is substantial evidence for conflicting representations in syntactic derivations.
2. The standard means to account for this is displacement: If some item α shows properties associated both with position P and position Q, then this is due to the fact that α has moved from Q to P.
3. However, there are many cases of conflicting representations that do not lend themselves to analyses in terms of displacement.
4. These latter cases can be straightforwardly derived by structure removal.

Observation:
If Remove exists as the mirror image of Merge, it is expected to show similar properties and obey identical constraints.

Assumptions about Merge:
(i) Merge is feature-driven. It is triggered by designated $\bullet F\bullet$ features, which are ordered on lexical items (Heck & Müller (2007), Abels (2012), Georgi (2014), Müller (2014), and references cited there).
(ii) Merge may apply to heads (incl. head movement in cases of internal Merge) or phrases (incl. XP movement in cases of internal Merge): $\bullet F_0\bullet$, $\bullet F_2\bullet$. (0=min, 2=max.)
(iii) Merge obeys the Strict Cycle Condition in (1) (Chomsky (1973; 1995; 2001; 2008); also cf. the Extension Condition and the No Tampering Condition).
(iv) Merge can be external or internal.

(1) Strict Cycle Condition (SCC):
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.

(2) 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.

Assumptions about Remove:
(i) Remove is feature-driven. It is triggered by designated $[-F-]$ features, which are ordered on lexical items.
(ii) Remove may apply to heads or phrases: $[-F_0-]$, $[-F_2-]$.
(iii) Remove obeys the Strict Cycle Condition.
(iv) Remove can be external or internal.

3) Remove and phrases: complements
a. Merge($X[Y_{[\bullet F_2\bullet]}\succ\cdot,YP]$):
\[ X' \] \[ \underline{X_{[-Y_2-]}} \] \[ \underline{YP} \]
\[ ZP \] \[ Y' \] \[ WP \]

Note:
ZP, WP cannot be removed by X because of the Strict Cycle Condition.

Side remark:
(3) qualifies as a Duke-of-York derivation (see Pullum (1976), McCarthy (2003), and Lechner (2010)).

4) Remove and phrases: specifiers
a. Merge($X'_{[\bullet F_2\bullet]}\succ\cdot,YP$):
\[ X \]
\[ XP \]
\[ ZP \] \[ Y' \] \[ WP \]
\[ X_{[-Y_2-]} \]
\[ UP \]

Note:
Again, ZP & WP cannot be removed by X because of the Strict Cycle Condition.
X might also remove UP in this configuration after YP has been merged. Evidence: (i) Richards (2001) on tucking in with internal Merge. (ii) If ellipsis constructions involve structure removal rather than mere PF deletion (Murphy (2015)), removal of the TP by a \([-T_2-]\) feature on C in German sluicing constructions must take place after wh-movement to SpecC has occurred.

5) **Complement Removal in Sluicing:**

Fritz hat irgendwen gesehen, aber ich weiß nicht \([CP \text{ wen}_1 \text{ C TP der Fritz}\) gesehen hat \(] \)

This opens up the possibility of dislocation without movement (i.e., without internal Merge of ZP in (7)).

6) **Remove and heads: complements w/o specifiers**

- Merge(X'\([\text{\textbullet\ Y} \text{ \textbullet} \text{ \textbullet} ] \bowtie \text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],YP):**

    - Remove(X'\([\text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],Y):**

Note:

Since \([-F_0-]\) removes the head, it takes away the highest projection, and only this. More deeply embedded material (like ZP) is attached to the head responsible for removal and replaces the original item (YP): This works exactly like tree pruning (see Ross (1967, ch. 3)). If there are two or more items in YP (e.g., ZP, WP), they reassemble in their original structural and linear order in the XP domain. Such a reassociation is not an instance of Merge. Also cf. Stepanov (2012) on head movement. And cf. Pesetsky (2016) on Exfoliation (\(\rightarrow\) Appendix).

7) **Remove and heads: complements with specifiers**

- Merge(X'\([\text{\textbullet\ Y} \text{ \textbullet} \text{ \textbullet} ] \bowtie \text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],YP):**

- Remove(X'\([\text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],Y):**

Note:

This opens up the possibility of dislocation without movement (i.e., without internal Merge of ZP in (7)).

8) **Remove and heads: specifiers w/o specifiers**

- Merge(X'\([\text{\textbullet\ Y} \text{ \textbullet} \text{ \textbullet} ] \bowtie \text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],YP):**

- Remove(X'\([\text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],Y):**

Note:

This opens up the possibility of dislocation without movement (i.e., without internal Merge of ZP in (7)).

9) **Remove and heads: specifiers with specifiers**

- Merge(X'\([\text{\textbullet\ Y} \text{ \textbullet} \text{ \textbullet} ] \bowtie \text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],YP):**

- Remove(X'\([\text{\textbullet\ Y}_0 \text{\textbullet} \text{\textbullet}],Y):**

3) Short life cycle effects:

1. Some other operation \(\Gamma\) can be interspersed between Merge(X,YP) and Remove(X,Y(P)).

2. However, due to the Strict Cycle Condition, a YP removed by \([-F-]\) is predicted to have a short life cycle (unless it undergoes movement; see 6. below): It is only accessible for other operations for a small part of the derivation.

3. Given incremental, bottom-up derivations, this implies that YP is accessible from below (downward accessibility) and inaccessible from above (upward inaccessibility): Remove counter-bleeds \(\Gamma\) but bleeds subsequent operations (see Chomsky (1951), Kiparsky (1973)).

4. There is empirical evidence for short life cycle effects of this type (Müller (2016b)).

5. Alternative accounts can only derive these kinds of effects on a case-by-case basis, as conspiracies because they cannot acknowledge, and model, a systematic pattern.

6. The system predicts one exception (Müller (2016c), Murphy (2016)): If an item is moved to a higher domain, it can be targeted there by a head with a \([-F_{0/2}]-\) feature, in accordance with the Strict Cycle Condition in (1).

4) **Phenomena addressed in terms of Remove so far:**

- Removal of phrases: passive (Müller (2016b), Murphy (2016)), applicative (Müller (2015b)), antipassive (Müller (2015a)), ellipsis (Murphy (2015), Murphy & Müller (2016))
Removal of heads: complex prefields (Müller (2016a;c))

Goal:
Building on the rough sketch in Müller (2015b), I develop an approach to restructuring and non-restructuring infinitives with control verbs in German that is based on uniform CP embedding and subsequent removal of functional shells.

2. Restructuring

Generalization:

- Non-restructuring control infinitives in German behave in all relevant respects like finite embedded clauses and thus uniformly demand a biclausal analysis in terms of CP embedding.
- Restructuring control infinitives in German exhibit both evidence for monoclausality (i.e., for the absence of at least a CP shell, possibly also of a TP or vP shell) and evidence for biclausality.

Side remark (Fanselow (1989; 1991)): There is some variation among speakers as to which (control) verbs count as (non-) restructuring predicates in German. Tendency: The younger the speaker, the more verbs (s)he accepts as a restructuring predicate. This does not affect the generalization as such.

2.1. Arguments for Monoclausality


2.1.1. Extraposition

M-I. Ban on extraposition:

a. Sie hatte [ nicht gestört zu werden ] gewünscht she had not disturbed to be wished
b. Sie hatte gewünscht [ nicht gestört zu werden ] she had wished not disturbed to be
c. Sie hatte [ nicht gestört werden ] wollen she had not disturbed be wanted
d. *Sie hatte wollen/gewollt [ nicht gestört werden ] she had want/wanted not disturbed be

Note:
Some verbs (auxiliaries, modals, causative and perception verbs, raising verbs) obligatorily trigger restructuring; regular control verbs (like versuchen (‘try’)) do so optionally. Wurmbrand (2001; 2004): Functional restructuring vs. lexical restructuring: the ban on extraposition only holds for the former class (see below).

2.1.2. Verb (Projection) Raising

M-II. Verb (projection) raising (incl. Ersatzinfinitiv):

a. dass wir Ede hatten singen hören that we Ede had sing hear
b. weil Beate Ede wird anrufen wollen that Beate nom, Ede acc will call want
c. weil er das Land nicht wird haben verlassen dürfen that he the land not will have left may

2.1.3. Negation

M-III. Wide scope of negation:

a. dass sie ihn nicht zu sehen versucht that she nom, him acc not to see tries
b. dass sie ihn nicht zu sehen bedauert that she nom, him acc not to see regrets

(13) Two readings for (13-a), one for (13-b):

a. It is not the case that she tries to see him.
b. She tries not to see him.
c. *It is not the case that she regrets seeing him.
d. She regrets not seeing him.

2.1.4. Intonation

M-IV. Intonation (‘Grenzpause’):

a. dass sie ihn zu küssen versuchte that she him to kiss tried
b. dass sie versuchte [ ihn zu küssen ] that she tried him to kiss

c. dass sie [ ihn zu küssen ] gar nicht erst versucht that she [ him to kiss ] PRT not  PRT tried has

2.1.5. Status Government

M-V. Status government (‘verbal case assignment’):

a. als wir Ede singen hören when we Ede sing heard
b. weil Beate Ede anrufen will because Beate nom, Ede acc call wants
c. weil Beate Ede angerufen haben wird because Beate nom, Ede acc called have will
d. weil das Wetter gut zu werden scheint because the weather good to become seems
(16) Status (‘verbal cases’):
   a. first status: aufessen (bare infinitive)
   b. second status: aufzuessen (zu-infinitive)
   c. third status: aufgegessen (past participle)

Assumption:
Status assignment (Bech (1955/1957)) (or ‘verbal case assignment’ (Fabb (1984))) is a form of government (Stechow (1984; 1990), Adger (2003)); like all kinds of government, it is clause-bound.

2.1.6. Absence of Pied Piping of Infinitives
(17) M-VI. Pied piping of infinitives:
   a. die Ratten, die zu fangen Hubert sich vorgenommen hatte the rats which to capture Hubert planned had
   b. *die Ratten, die Hubert fangen Günther ließ the rats which Hubert capture Günther let
   c. *die Ratten, die zu fangen Günther scheint the rats which to capture Günther seems

2.1.7. Extraction
(18) M-VII. Scrambling (& unstressed pronoun movement) across matrix material:
   a. dass den Fritz te keiner [ t₁ zu küssen ] versuchte that the Fritz te no-one to kiss tried
   b. dass die Maria es i ihn gestern [ t₁ zu lesen ] empfohlen hat that the Maria es i him yesterday to read recommended has
   c. *dass den Fritz te keiner die Maria [ t₁ zu küssen ] aufforderte that the Fritz te no-one the Maria to kiss requested
   d. *dass die Maria es i gestern [ t₁ zu kennen ] geleugnet hat that the Maria es i yesterday to know denied has

Note (Ross (1967)):
Scrambling in German is strictly clause-bound.
(19) Ban on long-distance scrambling in German:
   a. *dass den Fritz te keiner gesagt hat [CP dass wir t₁ einladen sollen ] that the Fritz te no-one said that we should invite should
   b. *dass die Maria es i meinte [CP solle man t₁ lesen ] that the Maria es i said should one read

2.1.8. Remnant Movement
(20) M-VIII. Remnant movement:
   a. [ t₁ Zu lesen versucht ] hat es₁ keiner to read tried has it is no-one

2.1.9. Compactness
Observation (Haider (2010)):
Items participating in restructuring are compact in the sense that other material cannot linearly intervene.
(21) M-IX. Compactness
   a. * dass er gearbeitet gestern hat that he nom worked yesterday has
   b. * dass es₁ keiner [ t₁ zu lesen ] gestern versucht hat that it no-one to read yesterday tried has

Note:
Haider accounts for compactness by postulating a complex base-generated head analysis for restructuring. However, it seems that most of the relevant data can be accounted for independently (Wurmbrand (2007), Müller (2014, ch. 3)). In addition, the compactness requirement can be circumvented by various kinds of movement operations (verb-second, topicalization), and it does not hold in the third construction (see below) (Wurmbrand (2007)).

2.2. Arguments for Biclausality
2.2.1. Uniformity of Embedding
Observation (Stechow & Sternefeld (1988)):
Every control verb that permits restructuring can optionally also show up in a non-restructuring context. Deriving this implicational generalization requires additional assumptions if restructuring predicates can simply optionally involve TP-embedding, vP-embedding or VP-embedding; but the generalization follows directly if the only way to end up with such a smaller complement size is via an initial CP embedding that is then subject to some reanalysis operation.
(22) B-I. Uniformity of embedding with verbs that optionally trigger restructuring:
   a. dass der Oberförster versuchte [CP dem Peter einen Film zu empfehlen ] that the head forester tried the Peter dat a film to recommend
   b. dass sie [CP dem Peter einen Film zu empfehlen ] versuchte that she the Peter dat a film to recommend tried
   c. dass ihn₁ der Oberförster [ dem Peter zu empfehlen ] versuchte that him the head forester the Peter dat to recommend tried

2.2.2. Distribution of PRO
Observation (Stechow & Sternefeld (1988)):
The distribution of the empty pronominal subject of control infinitives (PRO) requires the presence of a CP projection.
(23) **B-II. PRO**

a. dass der Oberförster versuchte [CP PRO ein Buch zu lesen] that the head forester tried a book to read
b. dass der Oberförster [CP PRO ein Buch zu lesen] versuchte that the head forester a book to read tried
c. *dass der Oberförster [VP PRO ein Buch zu lesen] versuchte
d. *dass der Oberförster [VP ein Buch zu lesen] versuchte

**Note:**
This presupposes that *lesen* must discharge both its *θ*-roles in the syntax, that the external *θ*-role is represented by PRO, and that PRO must not be governed (‘PRO theorem’), Chomsky (1981). The PRO theorem is not widely accepted anymore; however, somehow it needs to be ensured that PRO shows up in these contexts, and simple accounts would seem to crucially rely on the presence of a CP projection. Adger (2003): Control predicates embedding infinitival clauses select a special type of complementizer which in turn assigns a case-like feature [null] to the embedded subject that requires a non-overt realization not just of the ending, but of the whole argument DP (as PRO). Conclusion: If there is no CP projection, the difference between ECM/raising and control may be blurred.

(24) **Illicit long-distance passive with embedded subject promotion** (Stechow & Sternefeld (1988), Sternefeld (1990)):

a. *dass Fritz1 [VP t1 zu arbeiten] gewünscht wurde that Fritznom to work wished was
b. dass t2 gewünscht wurde [CP2 dass Fritz arbeitet] that wished was that Fritznom works

2.2.3. **Absence of New Binding Domains**

**Observation:**
Restructuring does not create new binding domains. An accusative object reflexive in a subject control infinitive can never pick a dative object of the matrix verb as an antecedent, in the way that an object reflexive can pick a dative object of the same verb as an antecedent for many speakers (Sternefeld & Featherston (2003), Featherston & Sternefeld (2003)).

(25) **B-IIIa. Absence of new binding domains:**

a. Der Oberförster1 hat ihm2 (PRO1) sich1 zu waschen versprochen the head forester has himdat REFL to wash promised
b. *Der Oberförster1 hat ihm2 (PRO1) sich2 zu waschen versprochen the head forester has himdat REFL to wash promised
c. Der Oberförster1 hat ihm2 sich1/2 im Spiegel gezeigt the head forester has himdat REFL in the mirror shown

**Note:**
As it stands, this problem arises only with monoclausal approaches where the embedded infinitive is always either part of a complex verb (as in Haider (2010)) or is a bare VP (Sternefeld (2006)), not with approaches where it can in principle be a VP or TP containing PRO (Wurmbrand (2001)). The reason is that a PRO subject can act as a minimal intervener establishing a binding domain for the reflexive.

**However:**
An intervening subject DP can be skipped with PP-internal reflexives in an ECM construction headed by *lassen* (‘let’) or *sehen* (‘see’) (Reis (1976), Grewendorf (1983), Fanselow (1987), Gunkel (2003), Barnickel (2014)). This is never possible across a finite clause boundary. Crucially, it is also never possible with control infinitives, even when restructuring takes place.

(26) **B-IIIb. Absence of new binding domains:**

a. dass Maria1 [TP Paul2 [pp bei sich1/2 schlafen] lässt that Marianon Paulacc with REFL sleep lets
b. dass Maria1 sagt [CP dass Paul2 bei sich1/2 schlafen kann] that Marianon says that Paulnom with REFL sleep can

c. dass Maria1 Paul2 [CP PRO1 [pp bei sich1/2] zu schlafen] verspricht that Marianon Pauldat with REFL to sleep promises

d. dass Maria1 es3 Paul2 [CP PRO1 t1 [pp bei sich1/2] zu organisieren] that Marianon lacc Pauldat with REFL to organize promises

**Conclusion:**
Whatever accounts for the fact that PP-internal reflexives (in contrast to arguments of the embedded V) can skip over the subject of the infinitive, it is clear that such long-distance reflexivization is blocked by a CP phase boundary. The data then show that a CP is always present with control verbs (restructuring and non-restructuring), and not present with ECM predicates.

2.2.4. **Unstressed Pronoun Fronting**

**Generalization:**
Unstressed pronouns must undergo fronting to a position that can only be preceded by a subject DP, which then has undergone optional EPP-driven movement to SpecT (Müller (2001), Fanselow (2004)). Assumption: Unstressed pronouns end up in a (higher) Spec v position (more specifically, at the left edge of vP), where they precede DP and PP arguments (including scrambled ones), adverbials, and the base position of subjects.

(27) **Unstressed pronoun fronting:**

a. dass es1 die Maria dem Fritz t1 gegeben hat that lacc the Marianon the Fritzdat given has
b. dass die Maria es1 dem Fritz t1 gegeben hat that the Marianon lacc the Fritzdat given has
B-IV. Unstressed pronouns in restructuring contexts:

a. dass sie mir1 schon letzte Woche [t1 es2 gegeben ] hat
   that shehnom me1dat already last week itace given has
b. dass sie mir schon letzte Woche [ es2 zu lesen ] schien
   that shehnom me1dat already last week itace to read seemed
c. dass sie mich schon letzte Woche [ es1 lesen ] ließ
   that shehnom me1ace already last week itace read let
d. dass sie mir1 schon letzte Woche [ t1 es2 zu geben ] versucht hat
   that shehnom me1dat already last week itace to give tried has
e. dass sie mir1 schon letzte Woche versucht hat [ t1 es2 zu geben ]
   that shehnom me1dat already last week tried has itace to give

Conclusion:
This indicates that there is more structure in control infinitives; assuming raising and ECM environments to involve embedded TPs (Fanselow (1991)), the evidence suggests that a CP is required for all cases of unstressed pronoun fronting in German, and that such a CP is therefore present in restructuring contexts with control predicates. (Why should this be the case, given that the actual landing site is at the left edge of vP? There are various possibilities, incl. feature inheritance from C, as in Chomsky (2008), Richards (2007); ultimately, it seems that these movements to Wackernagel positions are regulated by C.)

2.2.5. The Third Construction

Generalization:
CP can undergo extraposition in German, vP, VP, TP cannot do so. (Crucially, this only holds for Standard German; see Haegeman & Riemsdijk (1986), Bader & Schmid (2009), Salzmann (2011; 2013a;b) for variation in other varieties of German.)

(29) CP extraposition:
   a. dass er gesagt hat [cp dass es regnet ]
      that shenom said has that itnom rains
   b. dass sie versucht hat [cp PRO zu schlafen ]
      that shenom tried has to sleep
   c. dass die Maria dem Fritz es1 gegeben hat
      that the Maria nom the Fritz dot itace given has
d. dass die Maria wahrscheinlich es1 dem Fritz t1 gegeben hat
   that the Maria nom probably itace the Fritz dot given has

Observation:
Obligatory restructuring environments do not have sufficient space for unstressed pronoun fronting. However, there is a vast improvement with control constructions: Here, restructuring contexts seem to provide sufficient space for unstressed pronoun fronting.

(28) B-IV. Unstressed pronouns in restructuring contexts:

a. dass sie mir1 schon letzte Woche [t1 es2 gegeben ] hat
   that shehnom me1dat already last week itace given has
b. dass sie mir schon letzte Woche [ es2 zu lesen ] schien
   that shehnom me1dat already last week itace to read seemed
c. dass sie mich schon letzte Woche [ es1 lesen ] ließ
   that shehnom me1ace already last week itace read let
d. dass sie mir1 schon letzte Woche [ t1 es2 zu geben ] versucht hat
   that shehnom me1dat already last week itace to give tried has
e. dass sie mir1 schon letzte Woche versucht hat [ t1 es2 zu geben ]
   that shehnom me1dat already last week tried has itace to give

Observation:
Extraposition is possible in the third construction (Besten & Rutten (1989)), i.e., with scrambling from restructuring infinitives. This strongly suggests that the extraposed item is a CP. If the third construction involves extraposition of a VP (Wöllstein-Leisten (2001), Haider (2010)), it is unclear how VP extraposition can be excluded in all the other contexts.

(30) TP extraposition:
   a. dass ich gesehen habe [tp dem Mann das Buch lesen ]
      that shehnom seen have the man nom the book ace read
   b. dass sie ließ [tp ihn schlafen ]
      that shenom let him ace sleep

(31) vP/VP extraposition:
   a. dass sie t1 hat [vP gearbeitet ]
      that shenom has worked
   b. dass er t1 hat [vP das Buch gelesen ]
      that shenom has the book ace read
c. dass er t1 wird [vP das Buch lesen ]
   that shenom will the book ace read
d. dass sie hatte [ t1 wollen/gewollt [vP das Buch lesen ]]
   that shenom had want/wanted the book ace read

Observation:
Extraposition is possible in the third construction (Besten & Rutten (1989)), i.e., with scrambling from restructuring infinitives. This strongly suggests that the extraposed item is a CP. If the third construction involves extraposition of a VP (Wöllstein-Leisten (2001), Haider (2010)), it is unclear how VP extraposition can be excluded in all the other contexts.

(32) B-V. The third construction:

a. dass sie ihm2 t1 versucht [cp, PRO t2 zu küssen ]
   that shenom him2 dot tries to kiss
b. dass sie das Buch2 t1 versucht hat [cp, PRO t2 dem Mann zu geben ]
   that shenom the book dot tried has the man dot to give
c. dass es2 Maria t1 verspricht [cp, PRO t1 zu lesen ]
   that itace Maria promises to read
d. dass es2 Fritz ihr t1 empfohlen hat [cp, PRO t1 zu lesen ]
   that itace Fritz nom her dot recommended has to read

Consequence:
M-I (ban on extraposition, (10)) only holds for predicates that optionally undergo restructuring, not for control verbs, which optionally undergo restructuring. As before, this suggests a truly biclausal (i.e., CP) analysis only for the latter environments.

Problem:
VP extraposition is possible after all (in fact, obligatory) in the Ersatzinfinitiv construction, in apparent violation of the generalization that only CPs (and PPs, plus to some extent DPs) can undergo extraposition in Standard German, not VPs.
(33) **Ersatzinfinitiv:**

a. *dass sie das Buch lesen gewollt hatte*  
   that she nom the book acc read wanted had

b. *dass sie das Buch lesen wollen hatte*  
   that she nom the book acc read want had

c. *dass sie das Buch hatte lesen gewollt*  
   that she nom the book acc had read wanted

d. *dass sie das Buch hatte lesen wollen*  
   that she nom the book acc had read want

**Solution:**

This is the exception that proves the rule. In Ersatzinfinitiv constructions, existing constraints are violated in optimal forms so as to satisfy higher-ranked requirements (Schmid (2005)). Note that extraposition in the third construction, unlike what is the case with the Ersatzinfinitiv construction, is strictly optional, and not a repair operation.

2.3. **Interim Conclusion**

**Situation so far:**

There is evidence both for a truly biclausal (CP) analysis and for a monoclausal analysis of restructuring constructions with control verbs in German.

**State of the art:**

- **Monoclausal approaches** (Haider (1993; 2010), Kiss (1995), Wurmbrand (2001; 2007; 2015b), Sternefeld (2006)), many others:
  
  Evidence for biclausality poses problems that typically require construction-specific assumptions complicating the overall analysis.

  
  Evidence for monoclausality poses problems that typically require extremely abstract interactions of movement operations lacking independent motivation (plus additional stipulations).

  
  Both types of evidence can be accomodated because monoclausal and biclausal structures can exist simultaneously. These approaches are typically quite unconstrained, and often not fully worked out (especially where restructuring is directly addressed); and it is sometimes not clear why one process would target one kind of structure rather than the other one.


A structure that is initially biclausal is reduced to a monoclausal one, via some form of structure removal. The main problem with all these approaches is that they rely on transformations that are (a) ad hoc, (b) not constrained in interesting ways, and (c) not embedded into a general system of elementary, primitive operations manipulating syntactic structure.

**Claim:**

An analysis based on Remove makes it possible to pursue a simple, principled renalysis approach to restructuring. (Pace Haider (2010, 309): “Radical clause union […] cannot be achieved derivationally since derivations to not destroy or eliminate structures” – They do.)

3. **Analysis**

3.1. **Structure Removal in Infinitival Complements**

**Assumptions:**

- All control verbs take CP complements.

- Restructuring control verbs can subsequently remove CP and TP layers, yielding derived vP complements.

- Other restructuring verbs (functional restructuring predicates) take smaller complements from the start.

**Note:**

In principle, it is possible to introduce yet more subtle distinctions, with different degrees of removal eventually yielding different final output structures for the infinitival complements; see fanselow (1991), Wurmbrand (2001; 2015b).

**Proposal:**

- Evidence for biclausality involves a CP structure before removal. The relevant operations are counter-bleed and counter-fed by Remove.

- Evidence for monoclausality involves a vP structure after removal. The relevant operations are bled and fed by Remove.
Control infinitives:

a. Merge (C\(\text{\textbullet}T\)\(\text{\textbullet}\)\(\text{\textbullet}\)\text{case:[null]}\(\ast\)), TP):

\[
\text{CP} \quad \text{vP} \quad \text{T}
\]

\[
\text{PRO}_\text{\text{\textbullet\text{case:[null]}}} \quad \text{vP} \quad \text{v}
\]

\[
\text{DP} \quad \text{V}
\]

\[
\text{ihnh zu küssen}
\]

(i) Agree (C\(\text{\textbullet}T\)\(\text{\textbullet}\)\(\text{\textbullet}\)\text{case:[null]}\(\ast\)), PRO\(\text{\textbullet case:[null]}\)):

\[
\text{CP} \quad \text{vP} \quad \text{T}
\]

\[
\text{PRO}_\text{\text{\textbullet\text{case:[null]}}} \quad \text{vP} \quad \text{v}
\]

\[
\text{DP} \quad \text{V}
\]

\[
\text{ihnh zu küssen}
\]

Note:
Since there is no obligatory EPP feature for German T, there is no reason to assume that PRO must undergo movement to SpecT; it is licensed by C in its in situ (Specv) position.

Restructuring:

a. Merge (V\(\text{\textbullet\text{\textbullet}C\text{\textbullet}}\text{\text{\textbullet}0}\text{\textbullet}0\text{\textbullet}0\text{\textbullet}T\)), CP):

\[
\text{CP} \quad \text{vP} \quad \text{T}
\]

\[
\text{PRO}_\text{\text{\textbullet case:[null]}} \quad \text{vP} \quad \text{v}
\]

\[
\text{DP} \quad \text{V}
\]

\[
\text{ihnh zu küssen}
\]

b. Remove (V\(\text{\textbullet\text{\textbullet}C\text{\textbullet}}\text{\text{\textbullet}0}\text{\textbullet}0\text{\textbullet}0\text{\textbullet}T\)), CP):

\[
\text{CP} \quad \text{vP} \quad \text{T}
\]

\[
\text{PRO}_\text{\text{\textbullet case:[null]}} \quad \text{vP} \quad \text{v}
\]

\[
\text{DP} \quad \text{V}
\]

\[
\text{ihnh zu küssen}
\]

c. Remove (V\(\text{\textbullet\text{\textbullet}T}\)), TP):

\[
\text{vP} \quad \text{v}
\]

\[
\text{PRO}_\text{\text{\textbullet case:[null]}} \quad \text{vP} \quad \text{v}
\]

\[
\text{DP} \quad \text{V}
\]

\[
\text{ihnh zu küssen}
\]
Side remark:
No restrictions are needed on the possible combinations and orders of Remove features on restructuring verbs:

- $V_{[\mathbf{c}\mathbf{c}][\mathbf{c}\mathbf{t}][\mathbf{v}_0]} \rightarrow$ successful cyclic removal of CP, TP, and restructuring to vP
- $V_{[\mathbf{c}\mathbf{c}][\mathbf{t}_0][\mathbf{v}_0]} \rightarrow$ no removal of TP because of the Strict Cycle Condition, no removal of CP because the feature is not yet visible
- $V_{[\mathbf{c}\mathbf{c}][\mathbf{t}_0]} \rightarrow$ no removal of TP because of the Strict Cycle Condition

3.2. Deriving Evidence for Biclausality

Note:
The operations that presuppose the presence of CP are counter-bleed and counter-fed by subsequent structure removal.

B-I: Uniformity of embedding:
The implicational generalization that all control verbs that permit restructuring are also compatible with non-restructuring complements is derived straightforwardly: The only way to reach vP is via an initial CP: Remove counter-bleeds feature-driven external Merge.

B-II: Distribution of PRO:
PRO is licensed via Agree with an infinitival C that assigns null case to it. Once null case is assigned, it cannot be taken away again. Thus, it does not matter that the context in which PRO can be licensed (CP) is ultimately destroyed by removal: Remove counter-bleeds PRO licensing.

B-III: Absence of new binding domains:
Assuming that reflexives are licensed by Agree operations which are (in most cases) blocked by a CP boundary (Reuland (2001; 2011), Fischer (2004), Hicks (2009)), a reflexive will have its index fixed once the minimal CP is reached. Subsequent structure removal can neither lead to new binding options by adding a binding index on a reflexive if new potential antecedents are around (also note that unlike English, German does not allow for movement producing new binding options, cf. Barss (1986) vs. Frey (1993), Büring (2005)); nor can it undo existing binding indices on a reflexive: Remove counter-feeds new binding of reflexives and counter-bleeds old binding of reflexives.

B-IV: Unstressed pronoun fronting:
An unstressed pronoun moves to the left edge of vP, and must ultimately be licensed in this position by C (as an instance of Agree). Subsequent removal of CP and TP comes too late to block the licensing: Remove counter-bleeds unstressed pronoun fronting.

B-V: The third construction:
CP extraposition takes place before structure removal (recall that only CP can undergo extraposition in German, TP/vP/VP cannot do so). Assumption: Rightward movement is triggered by an optional $[\mathbf{c}\mathbf{x}_0]$ feature (with $X \in \{C, P, D\}$ in German).

(36) The third construction:

a. Merge ($V_{[\mathbf{c}\mathbf{c}][\mathbf{c}\mathbf{t}_0][\mathbf{v}_0]} \rightarrow \mathbf{v}_0 \rightarrow \mathbf{v}$, CP):

b. Remerge/right ($V_{[\mathbf{c}\mathbf{c}][\mathbf{c}\mathbf{t}_0][\mathbf{v}_0]} \rightarrow \mathbf{v}_0 \rightarrow \mathbf{v}$, CP):
c. Remove \((V_{[-C_0\rightarrow[-T_0\rightarrow]}}, CP)\):

\[
\begin{array}{c}
\text{VP} \\
\text{-- } \\
\text{TP}
\end{array}
\]

\[
\begin{array}{c}
\text{VERSUCHT} \\
\text{PRO_{[case:[null]}}} \\
\text{-- } \\
\text{DP} \\
\text{-- } \\
\text{vP}
\end{array}
\]

\[
\begin{array}{c}
\text{V'} \\
\text{-- } \\
\text{V_{[-T_0\rightarrow]}} \\
\text{-- } \\
\text{PRO_{[case:[null]}}} \\
\text{-- } \\
\text{DP} \\
\text{-- } \\
\text{ihm} \\
\text{-- } \\
\text{zu küssen}
\end{array}
\]

Note:
There is no problem with Remove affecting specifiers (or adjuncts) rather than complements; recall (4), (7), (8) from section 1.

(37) Restructuring with subject clauses (unergative, unaccusative):

a. dass es_{1} sich nicht [ PRO_{t1} zu beanstanden ] gehört hat that it_{1} REF to object to respectable is
b. dass sich_{1} ihm [ PRO_{t1} zu befreien ] gelungen ist that REF him_{lat} to free successful was

A first question:
What about periphrastic verb forms (perhaps more generally functional restructuring)?

Answers:
(i) Head movement of non-finite lexical \(V\), followed by discharge of the extraposition feature in the derived position, plus minimal modification of the SCC incorporating the effect of (this type of) head movement.
(ii) The two \(V\)s form a single complex head (and verb-second is exorporation).

A second question:
The final representation is monoclusal, as required for scrambling or unstressed pronoun fronting to a \(vP\) specifier of the matrix \(V\). However, it is not quite clear why a \(vP\) in a derived specifier (or adjoined) position does not block extraction via the Condition on Extrac tion Domain (CED, Huang (1982), Chomsky (1986), Cinque (1990); the problem persists under the approach to CED effects in Müller (2010) based on the Phrase Impenetrability Condition (PIC, Chomsky (2001))). See below. (A non-solution: Perhaps movement in general does not leave a trace/copy, so that extraposition would actually produce a new complement here. This would not account for cases where there is an additional matrix object in the third construction, as in (32-d); and it would be incompatible with the approach to periphrastic verb forms just sketched.)

With that proviso:
Remove counter-bleeds extraposition.

3.3. Deriving Evidence for Monoclusalilty

3.3.1. Feeding and Bleeding

M-I: Extrapolation & M-II: Verb (Projection) Raising:
The properties do not hold for control verbs and are accounted for without invoking structure removal.

M-III: Negation:
Scope of negation is an output-oriented phenomenon, determined at LF. Wide scope presupposes the absence of a CP boundary: Remove feeds scope of negation.

M-IV: Intonation:
Intonational phases are output-oriented objects, determined at PF, and sensitive to CP boundaries: Remove bleeds the generation of smaller intonational phrases.

M-V: Status government:
One possibility would be that status government is determined late, after structure removal (Remove feeds status government). However, this is at variance with Agree operations applying as soon as possible, giving rise to default realization (realization by the maximally unspecific form) if they cannot be carried out within a certain local domain (Preminger (2014)): Removal of CP and TP comes too late to feed status government (Benz (2016)). Solution: Only first and third status of \(V_{2}\) are determined via Agree with a c-commanding \(V_{1}\); second status is the default status (not specified by status features). (All verbs that optionally give rise to restructuring take complements where the verb has the second status.)

M-VI: Pied piping:
The standard assumption is that pied piping by a relative pronoun requires the presence of CP. Furthermore, movement to SpecC of the matrix clause is a very late operation that must follow removal triggered by matrix \(V\): Remove bleeds clausal pied piping.
3.3.2. Extraction from Clauses

**M-VII: Extraction & M-VIII: Remnant Movement:**
An obvious account might rely on the assumption that extraction from the infinitival complement can take place after removal of CP and TP shells, i.e., that Remove feeds extraction. (Remnant movement is straightforwardly accounted for, given that is merely involves an additional operation of VP topocalization that requires extraction to have taken place earlier, and can therefore be disregarded in what follows.) However, there are problems with such a naive view.

**Why Remove does not feed extraction:**
- Successive cyclicity: An item that needs to undergo extraction from a constituent needs to undergo intermediate movement steps to phases edges, because of the PIC. An item within an infinitival CP does not know that eventually, there will be no CP; thus, without look-ahead, it will have to undergo movement to SpecC, via Specv.
- Third construction: Recall that a vP in a right-peripheral SpecV position should block extraction because of the CED.

**More general question:**
Why does a CP block scrambling and unstressed pronoun fronting (cf. (19-a)) but not wh-movement, topicalization or relativazation in the first place? (Wurmbrand (2015b): Every CP contains an abstract ΣP that blocks the former movement types but not the latter movement types, essentially by fiat.)

(38) a. *dass den Fritz_C vC keinem gesagt hat [CP dass wir t₁ einladen sollen ] that the Fritznom no-one nom said has that we nom invite should
   b. wen_C vC sie gesagt hat [CP dass wir t₁ einladen sollen ] whom nom said has that we invite should

**Assumption:**
1. **Improper movement:**
   Extraction from CP must proceed via SpecC (because of the PIC), and the Williams Cycle (Williams (1974; 2003)) ensures that once an XP domain has been targetted by intermediate movement, the final landing site must be at least of the same height as the XP in the clausal spine.

2. **Local implementation** (Müller (2014, ch. 2)): Category information about intermediate landing sites is recorded on a buffer that is associated with a moved item (a list that acts as the value of a movement-related feature); a category symbol is deleted once the same kind of category symbol is added; in criterial positions, the category list on a moved item is required to conform to the functional sequence of heads: vC is legitimate (as with wh-movement in (38-b)), but Cv is illegitimate (as with scrambling in (38-a)).

(39) **Extraction and restructuring revisited:**
   a. dass den Fritz_C vC keinem [ PRO t₁ zu küssen ] versuchte that the Fritznom no-one nom to kiss tried
   b. dass sie den Fritz_C versuchte [ PRO t₁ zu küssen ] that she nom the Fritznom tried to kiss

(40) **Movement in the embedded CP:**

(41) **Extraction and Restructuring:**
   a. **Structure before removal:**
b. Remove ($V[-T_n]$), CP, reassociation of DP:

```
  VP
    /   \
  den Fritz TP V
     \  /  \
    vP T versuchte
  PRO_{case:[null]} v'
```

Third construction:
Exactly the same kind of derivation takes place with extraction in the third construction: DP in SpecC becomes reassociated with VP as a consequence of CP removal in the extraposed position.

Note:
On this view, a DP that has reached SpecC of a restructuring infinitive ends up in the matrix VP domain without having undergone movement to that position.

Two possibilities:
- DP can undergo further movement in the matrix clause; since it only has [V] on its buffer, it can undergo movement of any kind (e.g., wh-movement, scrambling).
- DP stays in SpecV; since it has not moved there, the position is virtually indistinguishable from a base-merged position at this point. This provides a principled approach to pseudo-scrambling phenomena.

Observation (Geilfuß (1991)):
Items in immediately preverbal positions in the third construction do not exhibit the characteristic properties of scrambling in German; they instantiate pseudo-scrambling. Evidence comes from focus projection, wh-scrambling, scope, non-specific indefinites, directional PPs, extraction, idioms, and quantifier floating.

(42) Focus projection (out of the blue contexts):

a. #Fritz hat das Märchen₁ einem Kind $t₁$ vorgelesen
   Fritz nom has the fairy taleacc a child_dat read to
b. Fritz hat einem Kind das Märchen₁ [VP versucht [ $t₁$ vorzulesen ]]
   Fritz nom has a child_dat the fairy taleacc tried to read to

(43) Scope:

a. Er hat mindestens ein Geschenk₁ fast jedem Gast $t₁$ überreicht
   he nom has at least one present_acc almost every guest_dat given
   Readings: $∃ > ∀, ∀ > ∃$

b. Er hat mindestens ein Geschenk₁ versucht [ fast jedem Gast $t₁$ zu
   he nom has at least one present_acc tried almost every guest to
   überreichen ]
   give
   Readings: $∃ > ∀, ∀ > ∃$

Note:
The same predictions are made for locally string-vacuous scrambling from non-extraposed restructuring infinitives in remnant movement contexts (Müller (2014, ch. 3)).

4. Long-Distance Passive

Observation (Höhle (1978), Stechow (1992), Bayer & Kornfilt (1994), Sabel (1996), Wöllstein-Leisten (2001), Wurmbrand (2001; 2015a,b), Sternefeld (2006), Haider (2010), Keine & Bhatt (2016): In the long-distance passive construction, an object of the embedded verb is assigned matrix clause nominative and agrees with the matrix verb; passive morphology only shows up on the matrix verb.

(44) Long-distance passive:

a. dass der Traktor₁ [ $t₁$ zu reparieren ] versuchte wurde
   that the tractor nom to repair tried was
b. dass die Traktoren₁ versuchten [ $t₁$ zu reparieren ]
   that the tractorsnom tried were to repair

Generalizations:
- Long-distance passive in German presupposes restructuring, but not every restructuring predicate permits long-distance passive (Höhle (1978), Wöllstein-Leisten (2001),
Sternefeld (2006), Haider (2010): versuchen (‘try’), vergessen (‘forget’) vs. beabsichtigen (‘intend’), wünschen (‘wish’).

- Cross-linguistically, long-distance passive and restructuring seem to be independent phenomena, but as a tendency the former presupposes the latter (Wurmbrand (2015a;b)).

**Sketch of an analysis:**

(i) Restructuring verbs that also permit long-distance passivization in German have an additional [–v0–] feature that removes the vP shell of the infinitival complement. As a consequence of vP removal, PRO becomes reassociated with the matrix VP. It shows up in SpecV without having undergone movement to this position.

(ii) Close proximity of the matrix subject (DP_{ext} in SpecV) and the embedded subject (PRO in SpecV) makes it possible that both are removed by a single argument reduction operation initiated by passive v in the matrix (Müller (2016b)). This presupposes that the two subjects share an index (via Agree-based control): There can be no long-distance passive with object control verbs; cf. *dass ihr der Traktor zu reparieren empfohlen wurde* (‘that her the tractor to repair recommended was’).

(iii) To suppress accusative case assignment in the embedded clause, v must be absent in long-distance passives (Wurmbrand (2001)). In the present approach, this implies that counter-bleeding of accusative case assignment by removal of the vP shell must be prevented, perhaps by some visibility condition for overt (as opposed to null) case assigners.

**Appendix: Remove vs. Exfoliation**

**Differences between Remove and Pesetsky’s (2016) concept of Exfoliation:**

1. Remove can apply to phrases or heads; Exfoliation is confined to phrases.

2. Remove is local: An operation that is triggered by the head of a projection α and that applies to some item δ (merging or removing it) does indeed “exclusively target” δ (in the sense of (1)) in the domain (in the sense of (2)) of which δ is a member. In contrast, Exfoliation is inherently non-local; it can (in fact, must) apply across phase boundaries, and can be reconciled with the Strict Cycle Condition only if it is assumed that the root domain that induces the operation is also directly affected by it.

3. Remove is feature-driven. Exfoliation is not feature-driven; rather, it is a repair operation that can resolve a dilemma created by the need of an embedded subject DP to undergo movement to the matrix clause across a phase (viz., an embedded CP) without violating either a phase-based concept of antilocality (by movement to the specifier of the phase) or phase impenetrability (by skipping over the specifier of the phase): Exfoliation can delete the CP phase (plus, possibly, a TP below it) and thereby make subject movement to the matrix clause possible.

4. Remove can apply recursively; Exfoliation cannot apply recursively.

5. Exfoliation does not act as a direct counterpart of Merge.

6. Remove can affect a specifier; Exfoliation, by assumption, can never be upwards.

**References**


