1. **Background: Rule Interaction**

1.1 *Counter-Feeding and Counter-Bleeding*

(1) **Two types of transparent rule interaction**

a. **Feeding:**
   i. Rule A creates the context in which rule B can apply.
   ii. If A applies before B, there is feeding of B by A; A feeds B.
   iii. If A does not apply, either B cannot apply; or it can apply because its context is present independently of A.

b. **Bleeding:**
   i. Rule A destroys the context in which rule B can apply.
   ii. If A applies before B, there is bleeding of B by A; A bleeds B.
   iii. If A does not apply, either B cannot apply because its context is not present independently of A, or B can apply because its context is present independently of A.

(2) **Two types of opaque rule interaction**

a. **Counter-Feeding** (underapplication):
   i. Rule A creates the context in which rule B can apply.
   ii. If A applies before B, there is feeding of B by A.
   iii. However, the evidence shows that B has not applied even though A has applied.
   iv. Therefore, A must have applied after B.

b. **Counter-Bleeding** (overapplication):
   i. Rule A destroys the context in which rule B can apply.
   ii. If A applies before B, there is bleeding of B by A.
   iii. However, the evidence shows that B has applied even though A has also applied.
   iv. Therefore, A must have applied after B.

**Opacity:**

Rule interaction in counter-feeding and counter-bleeding environments is opaque because it cannot be determined by simply looking at the respective output representations why rule B has not applied even though its context of application would seem to be present (*counter-feeding*), and why rule B has applied even though its context of application would not seem to be present (*counter-bleeding*).

(3) **Questions raised by output representations:**

A rule B that applies *early* will, as a tendency, be fed less often (therefore: counter-feeding), and will also, as a tendency, be bled less often (therefore: counter-bleeding).

**Rule of the thumb:**

A rule B that applies *early* will, as a tendency, be fed less often (therefore: counter-feeding), and will also, as a tendency, be bled less often (therefore: counter-bleeding).

1.2 *Counter-Bleeding in Syntax: Remnant Movement in German*

**Observation:**

Remnant movement constructions instantiate counter-bleeding and thus provide an argument for a derivational approach syntax (cf. Müller (1998)).

(4) **Traces within moved categories:** *anti-freezing with remnant movement vs. freezing effects*:

a. \[ VP_t \] hat das Buch \[ t_1 \] \[ t_2 \] read has the book no-one
b. *Was du [VP_t gelesen] hat keiner [t_2]*
   what you read has no-one
   \[ t_1 \] keiner no-one

(From (5-b) it follows that a [topic]-marked XP must show up in Spec\(Y\), where \(Y\) requires \(X\) (= \(Y_{[\cdot X \cdot]}\)).

**Observations:**

- In (4-a), VP topicalization should bleed scrambling via the CED, but it doesn’t because it applies too late – scrambling applies earlier, when VP is still in situ and the CED can be respected by extraction: counter-bleeding.
- In (4-bc), VP movement (topicalization or scrambling) blocks scrambling via the CED because it applies earlier – scrambling applies later, when VP has already undergone movement, which violates the CED: bleeding.

**Question:**

What determines the order of operations presupposed here?
Answer:
The order here is determined by the most basic principle of a derivational grammar, the Strict Cycle Condition, more on which later.

(6) **Strict Cycle Condition** (Chomsky (1973), Perlmutter & Soames (1979)):
Within the current cyclinic node \(\alpha\), a syntactic operation may not target a position that is included within another cyclic node \(\beta\) that is dominated by \(\alpha\).
(Assumption: Cyclic nodes are XPs.)

1.3 **Another Case of Counter-Bleeding in Syntax: Reconstruction for Principle A**

**Observation:**
Reflexive pronouns can undergo movement, or they can occur in phrases that undergo movement. After the movement operation, they should not be able to satisfy Principle A of the binding theory.

(7) **Reconstruction**

a. dass \([\text{DP}]_\text{nom}\) sich \(\text{1}\) der Fritz \(\text{1}\) gestern im Spiegel gesehen hat that REF\(\text{1}\) the Fritz yesterday in the mirror seen has
b. \([\text{DP}]_\text{top}\) Himself \(\text{1}\), John \(\text{1}\) does not really like [X]

c. \([\text{DP}]_\text{top}\) Sich selbst \(\text{1}\) gibt Maria \(\text{1}\) immer als letzte den Kaffee REF\(\text{1}\) self gives Maria always as the last one the coffee

(8) a. **Principle A:**
An anaphor is bound within its minimal clause.
b. **X-Criterion:**
An [X]-marked XP must show up in SpecY, where Y requires [X] (= Y\(_{\alpha \wedge \beta}\)).

**Analysis:**
Movement would bleed satisfaction of Principle A, but it does not if Principle A can apply earlier (e.g., because it may be an ‘anywhere principle’; see Belletti & Rizzi (1988)).

1.4 **Representational Approaches**

**Basic strategy:**
Some opaque interactions in syntax can be captured in declarative approaches by enriching representations of linguistic expressions with abstract material that encodes (what would otherwise qualify as) earlier derivational steps (e.g., by assuming traces/copies, and various type of empty pronouns, like pro and PRO), and by then postulating (more complex) constraints that refer to the enriched structure.

1.4.1 **Reconstruction**

(9) **Principle A (revised):**
At S-structure, an anaphor is chain-bound in its binding domain.

(10) **Chain-Binding** (Barss (1984)): \(\alpha\) chain-binds \(\beta\) iff (a), (b), and (c) hold:

a. \(\alpha\) and \(\beta\) are co-indexed.
b. \(\alpha\) occupies an A-position.
c. (i) \(\alpha\) c-commands \(\beta\), or (ii) \(\alpha\) c-commands a trace of \(\gamma\), where \(\gamma = \beta\) or \(\gamma\) dominates \(\beta\).

**Note:**
The concept of chain accessibility sequences Barss (1986)) which extends the chain binding proposal is even more complex.

1.4.2 **Remnant Movement**

**Problem:**
In output representations, a trace may or may not be included in a moved item (with its antecedent outside), depending on whether the trace is bound or unbound. This will have to be reflected in the representational constraint.

(11) **Freezing and anti-freezing:**
At S-structure, a bound trace \(t\) may not be included in a moved XP if the antecedent of \(t\) is excluded by XP; an unbound trace may be included in a moved XP even though the antecedent of \(t\) is excluded by XP.

**Conclusion:**
- First, empty categories are dubious from a minimalist perspective if they are conceived of as items that specific constraints refer to (see Chomsky’s (1981) Empty Category Principle (ECP), or the licensing conditions for pro in Rizzi (1986) (vs. Holmberg (2005))).
- Second, constraints that explicitly model effects of the interaction with other constraints are even more dubious.

2. **The Phenomenon**

Basic references:

(12) a. \([\_\_\_\_\_\_]_\text{nom}\), hat \([\_\_\_\_\_\_]_\text{acc}\) das Buch keiner t\(_1\) [X] read has the book none
b. \([\_\_\_\_\_\_]_\text{nom}\), hat \([\_\_\_\_\_\_]_\text{acc}\) keiner das Buch t\(_1\) [X] read has no-one the book
3. The Remnant Movement Approach

3.1 A Conceptual Argument for Remnant Movement

(26) *John has [NP the dog]1 never kicked t2
(27) [VP Criticized t2 by his boss]1 John2 has never been t1
(28) *[How likely t1 to be a riot]1 is there1?
(29) There1 is likely [t1 to be a riot]
(30) [VP Kysst t1]1 har [jag henne]1 inte t2 (bara hållit henne i handen) kissed have I her not (just held her by the hand)

(Swedish)

(31) Lennets1 en deus t1 Tom al levr read have2, Sing/Masc Tom the book
Tom has read the book.

(Breton)

(32) *[VP Al levr lennet]1 en deus Tom t1 the book read have2, Sing/Masc Tom

(Serbo-Croatian)

3.3 Remnant NPs

3.3.1 The Phenomenon

(34) a. [NP Ein Buch t1]1 hat Antje [PP über die Liebe]1 t2 gelesen
   a bookacc given has ART Antjemonom ART Peterdat
   a bookacc given has ART Claudia nom
b. [VP Ein Buch t1]1 hat [PP über die Liebe]1 niemand t2 gelesen

(35) [VP [NP Ein Buch t1]1 t2 gelesen]1 hat [PP darüber]1 keiner t3
   a bookacc read has about that no-one nom

(36) a. Worüber t1 hat keiner [NP ein Buch t1] gelesen?
   about what has no-one nom a bookacc read
b. dass darüber1 keiner je [NP ein Buch t1] gelesen hat
   that about that no-one nom ever a bookacc read has

(37) *Worüber t1 hat keiner [NP ein Buch t1] geklaut?
   about what has no-one nom a bookacc stolen
(38) *Worüber t1 hat [NP ein Buch t1] Antje beeindruckt?
   about what has a booknom Antjemonom impressed
(39) *[PP Worüber t1], hat man [NP einem Buch t1] einen Preis gegeben?
   about what has one nom a bookdat an award acc given

3.3.2 Extraction from NP

(23) [VP Kicked the dog]1 John never has t2
(24) a. *[VP t2 Kicked]1, John [NP the dog]2 never has t1
b. *[VP t2 Kicked]1, John never has [NP the dog]2, t1
(25) a. [VP t2 Gelesen]1, hat [TP NP das Buch]2 keiner t1]
   read has the book acc no-one nom
b. [VP t2 Gelesen]1, hat [TP keiner [NP das Buch]2 t1]
   read has no-one nom the book acc
(39) [ np Worüber ] 1 hat man Antje  [ np ein Buch t₁ ] gegeben? about what has one nom Antje dat a book acc given
(40) ?[ np Worüber ] 1 hat Antje  [ np das Buch t₁ ] gelesen? about what has Antje nom the book acc read
(41) ?[ np Worüber ] 1 hat Antje  [ np Karl's Buch t₁ ] gelesen? about what has Antje nom Karl's en book acc read
(42) a. *[ np Worüber ] 1 hat [ np ein Buch t₁ ] keiner t₂ gelesen? about what has a book acc no-one nom read
b. *[ np Worüber ] 1 hat keiner  [ np ein Buch t₁ ] gelesen? about what has no-one nom a book acc read
(43) a. dass Fritz (es)  [ pp über die Liebe ] gelesen hat that Fritz it about the love read has
b. *dass Fritz (es)  [ pp über die Liebe ] geklaut hat that Fritz it about the love stolen has
(44) *dass man (es) Antje  [ pp über die Liebe ] gegeben hat that one nom it acc Antje dat about the love given has

3.3.3 Remnant NPs
(45) a. [ np Ein Buch t₁ ] 1 hat Antje  [ pp über die Liebe ] t₂ gelesen a book acc has Antje nom about the love read
b. [ np Ein Buch t₁ ] 1 hat [ pp über die Liebe ] niemand t₂ gelesen a book acc has about the love no-one nom read
c. [ vp np Ein Buch t₁ ] 1 gelesen ] 1 hat [ pp darüber ] 1 keiner t₃ a book acc read has about that no-one nom
(46) *[ np Ein Buch t₁ ] 1 hat Antje  [ pp über die Liebe ] t₂ geklaut a book acc has Antje nom about the love stolen
(47) a. *[ np Ein Buch t₁ ] 1 hat t₂ Antje  [ pp über die Liebe ] beeindruckt a book nom has Antje acc about the love impressed
b. *[ np Ein Buch t₁ ] 1 hat t₂ [ pp über die Liebe ] Antje beeindruckt a book nom has about the love Antje acc impressed
(48) a. *[ np Einem Buch t₁ ] 1 hat man darüber t₂ einen Preis gegeben a book dat has one nom about that an award acc given
b. [* np Ein Buch t₁ ] 1 hat man Antje  [ pp über die Liebe ] t₂ gegeben a book acc has one nom Antje dat about the love given
(49) ?[ np Das Buch t₁ ] 1 hat Antje  [ pp über die Liebe ] t₂ gelesen the book acc has Antje nom about that read
(50) *[ np Karl's Buch t₁ ] 1 hat Antje  [ pp über die Liebe ] t₂ gelesen Karl's en book acc has Antje nom about the love read

3.4 Remnant PPs
(51) a. Wo 1 hat keiner  [ pp t₁ mit ] gerechnet? where has no-one nom with counted
b. *[ np Dieser Sache ] 1 hat keiner  [ pp mit t₁ ] gerechnet this thing dat has no-one nom with counted
(52) a. ?[ vp pp t₁ Mit ] 1 gerechnet t₂ hat da₁ keiner t₂ with counted has there no-one nom
b. *[ vp pp t₁ Mit ] 1 gerechnet t₂ hat [ np dieser Sache ] 1, keiner t₂ with counted has this thing dat no-one nom
(53) a. ?[ vp pp für t₁ ] 1 gekonnt ] 1 hat er da₁ wirklich nichts t₂ for could part has he there really nothing
He really was not responsible for that.
b. *[ vp pp für t₁ ] 1 gekonnt ] 1 hat er [ np diese Entwicklung ] 1 wirklich nichts t₂ for could part has he this development really nothing
He really was not responsible for this development.'
(54) *[ pp t₁ Mit ] 1 hat da₁ keiner t₂ gerechnet with has there no-one nom counted
(55) a. *[ pp Mit ] 1, hat gestern keiner t₁ gespielt with has yesterday no-one nom played
b. Gestern spielte keiner  [ pp mit ] yesterday played no-one with
(56) [ pp Addosso t₁ ] 1, non gli 1 è caduta t₂ on not him dat (she) is fallen
(italian)

3.5 Coherent Infinitives
(57) a. dass [ np das Buch ] 1, keiner  [ _, t₁ zu lesen ] versucht hat that the book acc no-one nom to read tried has
b. ?dass [ np das Buch ] 1, keiner  [ _, t₁ zu lesen ] abgelehnt hat that the book acc no-one nom to read refused has
(58) a. [ _, t₁ Zu lesen ] 1, hat [ np das Buch ] 1, keiner t₂ versucht to read has the book no-one tried
b. *[ _, t₁ Zu lesen ] 1, hat [ np das Buch ] 1, keiner t₂ abgelehnt to read has the book no-one refused
(59) a. [ _, t₁ Zu lesen ] 1, hat keiner  [ np das Buch ] 1, t₂ versucht to read has no-one the book tried
b. *[ _, t₁ Zu lesen ] 1, hat keiner  [ np das Buch ] 1, t₂ abgelehnt to read has no-one the book refused
4. Peculiar Properties

4.1 Proper Binding

(64) The Proper Binding Condition (PBC): Traces must be bound.

(65) *John asked t1 [CP who1 Mary saw Bill ]

(66) *dass Fritz t1 sagte [CP dem Peter1 habe [TP keiner die Claudia that Fritz said ART Peter1 dat has_subj no-one nom ART Claudia has_subj no-one nom gesehen ]] seen

(67) a. dass Fritz dem Peter1 sagte [CP die Claudia2 habe [TP keiner die t2 that Fritz ART Peter1 dat said ART Claudia has_subj no-one nom gesehen ]] seen

b. dass Fritz dem Peter1 sagte [CP es habe [TP keiner die that Fritz ART Peter1 dat said EXPL has_subj no-one nom ART Claudia has_subj no-one nom gesehen ]] Claudia seen

(68) [VP t2 Gelesen ], hat [TP [NP das Buch ]1 [TP keiner t1 ]] read has the book aoe no-one nom

4.2 Freezing

In general, extraction of one XP α from another XP β is possible only if β occurs in situ, as is depicted schematically in (69-a), and has not undergone movement itself, as shown in (69-b).

(69) a. ... αt1 ... [β ... t1 ... ]2

b. *... αt1 ... [β ... t1 ... ]2 ... t2

(70) Freezing:

At S-structure, a trace t may not be included in a moved XP (i.e., an XP that binds a trace) if the antecedent of t is excluded by XP.

(71) a. *[PP Worüber1 ], hat [NP ein Buch t1 ] keiner t2 gelesen ? about what has a book aoe no-one nom read

b. [PP Worüber1 ], hat keiner [NP ein Buch t1 ] gelesen ? about what has no-one nom a book aoe read

(72) a. Ich denke [CP [VP das Buch gelesen ]2 hat keiner t2 ] I think the book read has no-one

b. [NP Was 1 ]1, denkst du [CP t1', hat keiner [VP t1 gelesen ]2 ] ? what think you has no-one read

(73) a. [VP t2 Gelesen ], hat [TP [NP das Buch ]1 [TP keiner t1 ]] read has the book aoe no-one nom

b. [NP Ein Buch t1 ]1, hat Antje [PP über die Liebe1 t2 gelesen a book aoe has Antje nom about the love read

4.3 Movement Type Asymmetries

(74) [α t1 Zu lesen ], hat [NP das Buch ], keiner t3 versucht to read has the book aoe no-one tried

(75) *dass [α t1 zu lesen ], [NP das Buch ], keiner t3 versucht that to read has the book aoe no-one tried

(76) a. Das Buch zu lesen ], hat keiner t3 versucht the book aoe to read has no-one tried

b. dass das Buch zu lesen ], keiner t3 versucht that the book aoe to read has no-one tried

(77) a. [NP Was für ein Buch ]1, hast du [PP über die Liebe ]2 gelesen what for a book aoe have you about the love read

b. [NP Was für ein Buch über die Liebe ]1, hast du t2 gelesen what for a book aoe about the love have you read

(78) a. *[VP t1 Gelesen ]1, das hat das Buch; keiner t read that has the book no-one
4.4 Unbound Intermediate Traces

(79) (Ich weiß nicht) wen1 sie gesagt hat [CP t1 dass Fritz t1 liebt ]
    I know not who acc she nom said has that Fritz nom loves

(80) ??[CP Dass Fritz Caroline liebt ]2 weiß ich nicht [CP ob er t2
    that Fritz nom Caroline acc loves know I nom not whether he nom
    zugeben würde ]
    admit would

(81) *[CP t1 dass Fritz t1 liebt ]1, weiß ich nicht [CP wen1 er t2 gesagt hat ]
    that Fritz nom loves know I nom not who acc he nom said has

(82) a. ??[VP Auf den Mund geküsst ]2 weiß ich nicht [CP wen1 sie t2 hat
    on the mouth kissed know I nom not who acc she nom has
    on the mouth kissed know I nom not whether she nom has

b. ??[VP Den Fritz auf den Mund geküsst ]2 weiß ich nicht [CP ob
    ART Fritz acc on the mouth kissed know I nom not whether
    sie t2 hat
    she nom has

5. Conclusion

Good:
1. The postulation of remnant movement seems inevitable according to well-established
   restrictions on movement and projection.
2. The remnant movement hypothesis offers a straightforward account of cross-linguistic
   variation.
3. Constructions involving fronting of incomplete NPs (and VPs containing incomplete
   NPs) mirror the properties of constructions involving extraction from NP.
4. Constructions involving fronting of VPs containing incomplete PPs mirror the properties
   of constructions involving extraction from PP.

Bad:
1. Why can remnant movement violate the Proper Binding Condition?
2. Why is remnant movement an exception to the Freezing generalization?
3. Why does remnant movement show movement type asymmetries?
4. Why can remnant movement not create unbound intermediate traces?
Bibliography


Thiersch, Craig (1985): VP and Scrambling in the German Mittelfeld. Ms., University of Tilburg.