Opaque Intervention

Anke Assmann & Fabian Heck
anke.assmann@uni-leipzig.de heck@uni-leipzig.de

Claims:

- Arguments differ in their capacities to function as antecedents for certain associates (floating quantifier, parasitic gaps, predicate nominals). These differences cannot always be read off of the argument's surface position but are sometimes opaque.
- Intervention effects can be traced back to a stage of the derivation where the arguments appear in their base order. An argument can become an antecedent if no other argument intervenes. Later stages of the derivation may alter the relative order of arguments but not their licensing capacities.

1 Observations

Three empirical phenomena (FQ association, PN case agreement, PG binding), all of which instantiate the following structural condition:

(1) *Intervention Condition for Arguments*
An associate α which needs to relate to a potential antecedent β, can only do so, if
a. β c-commands α and
b. there is no argument γ which also c-commands α and which is lower on the argument hierarchy $nom > dat > acc$ than β.

1. γ c-commands β , β is lower on the argument hierarchy than γ
Feeding: $\gamma > \beta$ feeds association of β and α

(2) $\gamma \ldots \beta \ldots \alpha$

2. β c-commands γ, β is higher on the argument hierarchy than γ
Bleeding: $\beta > \gamma$ bleeds association of β and α

(3) $\beta \ldots \gamma \ldots \alpha$

3. γ c-commands β, β is higher on the argument hierarchy than γ
Counter-Feeding: $\gamma > \beta$ does not feed association of β and α

(4) $\gamma \ldots \beta \ldots \alpha$

4. β c-commands γ, β is lower on the argument hierarchy than γ
   Counter-Bleeding: $\beta > \gamma$ does not bleed association of β and α

(5) $\beta \ldots \gamma \ldots \alpha$

Conclusion:
Intervention effects of this kind are not subject to surface c-command (reflected by linear order) but only to the hierarchy $nom > dat > acc$.

1.1 Floating Quantifier *alles* ("all")

- The floating quantifier (FQ) *alles* in German obligatorily associates with a *wh*-phrase, independent of its grammatical function (6), (8)-(9) (Pafel 1991; Reis 1992).
- Intervention effects occur when an indefinite non-*wh*-argument that is lower on the argument hierarchy than the *wh*-antecedent intervenes between *wh*-phrase and *alles* (7) vs. (8).
- Definite arguments never cause intervention effects (6), (9).

(6) Wer_1 hat euch alles_1 geholfen?
who$_{nom}$ has you all helped
"Who all helped you?"

(7) a.*Wer_1 hat einem Professor alles_1 gedankt?
who$_{nom}$ has a professor$_{dat}$ all thanked
"Who all thanked a professor?"
b.*Wer_1 hat einen Professor alles_1 kennen gelernt?
who$_{nom}$ has a professor$_{acc}$ all met
"Who all met a professor?"
c.*Wem_1 hat sie einen Professor alles_1 vorgestellt?
who$_{dat}$ has she a professor$_{acc}$ all introduced
"To whom all did she introduce a professor?"

(8) a. Wem_1 hat ein Professor alles_1 geholfen?
who$_{dat}$ has a professor$_{nom}$ all helped
"Who all did a professor help?"
b. Wen_1 hat ein Professor alles_1 beleidigt?
who$_{acc}$ has a professor$_{nom}$ all insulted
"Who all did a professor insult?"

c. Wen$_1$ hat sie einem Professor alles$_1$ vorgestellt?
who$_{acc}$ has she a professor$_{dat}$ all introduced
"Who all did she introduce to a professor?"

(9) Wer$_1$ hat dem Professor alles$_1$ gratuliert?
who$_{nom}$ has the professor$_{dat}$ all congratulated
"Who all congratulated the professor?"

1.2 Case agreement

- In Czech, predicate nominals (PN) can be formed by prefixing a noun phrase by the particle *jako* or *coby* ("as"). Such a PN case-agrees with the argument it predicates over (10)-(14).
- Intervention effects occur when two object *wh*-phrases precede the PN due to multiple *wh*-fronting. Note that there is no superiority effect in Czech; any *wh*-phrase can appear clause-initially. Only the *wh*-phrase which is lowest on the argument hierarchy may associate with the PN (11) vs. (12).
- *Exceptions:* Subjects can always associate with the PN (13). Also, the asymmetry with objects cannot be observed in cases where one of the arguments is not a *wh*-phrase (14).

(10) Komu Jirka představil jako dobrému příteli toho inženýra?
who$_{dat}$ Jirka introduced as good friend$_{dat}$ the engineer$_{acc}$
"To whom did Jirka introduce the engineer as a good friend?"

(11) a. Koho komu Jirka představil jako dobrého přítele?
who$_{acc}$ who$_{dat}$ Jirka introduced as good friend$_{acc}$
"Who did Jirka introduce to whom as a good friend?"
b. Komu koho Jirka představil jako dobrého přítele?
who$_{dat}$ who$_{acc}$ Jirka introduced as good friend$_{acc}$

(12) a.*Koho komu Jirka představil jako dobrému příteli?
who$_{acc}$ who$_{dat}$ Jirka introduced as good friend$_{dat}$
"Who did Jirka introduce to whom as a good friend?"
b.*Komu koho Jirka představil jako dobrému příteli?
who$_{dat}$ who$_{acc}$ Jirka introduced as good friend$_{dat}$

(13) a. Koho kdo představil jako dobrého přítele Jirkovi?
who$_{acc}$ who$_{nom}$ introduced as good friend$_{acc}$ Jirka$_{dat}$
"Who introduced whom as a good friend to Jirka?"
b. Kdo koho$_2$ představil coby jeho$_2$ dobrý přítel Jirkovi?
who$_{nom}$ who$_{acc}$ introduced as his good friend$_{nom}$ Jirka$_{dat}$
"Who as his good friend introduced whom to Jirka?"

c. Koho$_2$ kdo představil coby jeho$_2$ dobrý přítel Jirkovi?
who$_{acc}$ who$_{nom}$ introduced as his good friend$_{nom}$ Jirka$_{dat}$

(14) a. Koho Jirka představil tomu inženýrovi jako dobrého přítele?
who$_{acc}$ Jirka introduced the engineer$_{dat}$ as good friend$_{acc}$
"Who did Jirka introduce as a good friend to the engineer?"
b. Komu Jirka představil toho inženýra jako dobrému příteli?
who$_{dat}$ Jirka introduced the engineer$_{acc}$ as good friend$_{dat}$
"Who did Jirka introduce the engineer to as a good friend?"

1.3 Parasitic gaps

- Parasitic gaps (PG) in German can be bound by objects which undergo *wh*-movement or scrambling (see Bayer 1984; Fanselow 1993; Lutz 2001 for *wh*-movement; Mahajan 1990; Webelhuth 1992; Grewendorf and Sabel 1999 for scrambling).
- If both the indirect (dat) object and the direct (acc) object precede the PG adjunct clause, only the direct object can bind the PG (15-a) vs. (15-b); (16) vs. (17). (Subjects can never bind PGs for independent reasons; cf. Mahajan 1990; Fanselow 1993; Müller 1995).
- Subjects never intervene (18) (Fanselow 1993). This is due to the anti-c-command condition (Chomsky 1982, Safir 1987) that prevents a subject from binding a PG.
- The indirect object may only bind the PG if the direct object binds another PG (19) (Fanselow 1993; Kathol 2001).

(15) a.*Wem$_2$ hat der Fritz das Buch [anstatt PG$_2$ zu helfen] weggenommen?
who$_{dat}$ has the Fritz the book$_{acc}$ instead to help away taken
"From whom did Fritz take the book instead of helping him?"
b. Was$_2$ hat der Fritz der Maria [anstatt PG$_2$ wegzuwerfen] zu essen angeboten?
what$_{acc}$ has the Fritz the Maria$_{dat}$ instead away to throw to eat offered
"What did Fritz offer Maria to eat instead of throwing it away?"

(16) a.*wenn jemand der Maria$_2$ das Buch [anstatt PG$_2$ zu helfen] wegnimmt
if someone the Maria$_{dat}$ the book$_{acc}$ instead to help away takes
"if someone takes the book from Maria instead of helping her"
b.*dass Hans das Buch der Maria$_2$ [ohne PG$_2$ zu vertrauen] geliehen hat
that Hans the book$_{acc}$ the Maria$_{dat}$ without to trust lent has
"that Hans has lent Maria the book without trusting her"
c. wenn jemand der Maria$_2$ [anstatt PG$_2$ zu helfen] das Buch wegnimmt
if someone the Maria$_{dat}$ instead to help the book$_{acc}$ away takes
"if someone takes the book from Maria instead of helping her"

(17) a. dass Hans der Maria das Buch$_2$ [ohne PG$_2$ durchzulesen] zurückgibt
that Hans the Maria$_{dat}$ the book$_{acc}$ without through to read back gives
"that Hans returns the book to Maria without reading it through"
b. dass Hans das Buch$_2$ der Maria [ohne PG$_2$ durchzulesen] zurückgibt
that Hans the book$_{acc}$ the Maria$_{dat}$ without through to read back gives
"that Hans returns the book to Maria without reading it through"

(18) wenn der Anette$_2$ jemand [anstatt PG$_2$ zu gratulieren] kondoliert hat
if the Anette$_{dat}$ someone$_{nom}$ instead to congratulate condoled has
"if someone condoled with Anette (on s.th.) instead of congratulating her (on it)"

(19) wenn jemand der Anette$_2$ das Buch$_3$ [anstatt PG$_2$ PG$_3$ zu schenken] leiht
if someone the Anette$_{dat}$ the book$_{acc}$ instead to give borrows
"if one borrows Anette the book instead of giving it to her as a present"

2 Theoretical background and assumptions

Background:
Probe-goal framework (Chomsky 2000, 2001, 2007); two operations: *Move* and *Agree* take place when a probe c-commands a goal; Move is subject to the PIC in (20). Phases are vP and CP.

(20) *Phase Impenetrability Condition:*
The domain of a head H of a phase HP is not accessible to operations outside of HP. Only H and its edge domain are accessible.

(21) *Edge Domain:*
α is in the edge domain of β iff α is not a complement of β.

(22) *Strict Cycle Condition (SCC, Chomsky 1973):*
If Σ is the root of the current phrase marker, then no operation can take place exclusively within Ω, where Ω is dominated by Σ.

(23) *Earliness Principle (Pesetsky 1989; Chomsky 1995; Lasnik 1999):*
A syntactic operation must apply as soon as its configurational requirements are fulfilled.

2.1 Edge features

- All operations are feature-driven. Successive-cyclic movement is driven by *edge features* (EF, Chomsky 2007, 2008).
- *Edge Feature Condition (EFC)*: EFs can be inserted on a head H only if H is still active, that is, if H bears at least one other feature that needs to be discharged (by

Merge or Agree), see Müller (2010, 2011).

- The features of a head are ordered on stacks; EF insertion targets the top of the stack. Since only the top of the stack is accessible, an EF must be discharged before other structure building operations can be triggered. Thus, the EFC (together with the SCC) leads to the *Intermediate Step Corollary* (ISC; Müller 2010, 2011)

(24) *Intermediate Step Corollary:*
Intermediate movement steps to specifiers of X (triggered by EFs) must take place before the final specifier is merged in XP.

(25) *Successive-cyclic wh-movement to Spec,vP:*

	Step	*Configuration*	*Feature Stack of v*
a.		$[_{v'}$ v $[_{VP} \ldots wh \ldots]]$	uD …
b.	EF *insertion*:	$[_{v'}$ v $[_{VP} \ldots wh \ldots]]$	EF uD …
c.	*Move wh*:	$[_{v'}$ *wh* v $[_{VP} \ldots t_{wh} \ldots]]$	EF uD …
d.	EF *deletion*:	$[_{v'}$ *wh* v $[_{VP} \ldots t_{wh} \ldots]]$	uD …
e.	*Merge subject*:	$[_{vP}$ DP *wh* v $[_{VP} \ldots t_{wh} \ldots]]$	uD …
f.	uD *deletion*:	$[_{vP}$ DP *wh* v $[_{VP} \ldots t_{wh} \ldots]]$	…

2.2 Scrambling

- Scrambling (to Specv) is triggered by EFs (cf. Chomsky 2001, Richards 2004).
- EFs can only be inserted on phase heads. In German (and probably also in Czech), T may optionally bear (multiple) features triggering argument movement to the left of the subject (Frey 2004).
- In Czech, unlike German, EFs are relativized to certain properties (cf. Abels 2012). Czech distinguishes EF_{+spec} for attracting DPs that receive a specific interpretation and EF_{+wh} for attracting *wh*-phrases (see Biskup 2006 for the claim that scrambled DPs in Czech are always interpreted as specific; cf. also Kučerová 2007).

2.3 Parallel movement and MLC

- Multiple attraction by the same head is often order preserving, i.e., movement applies "in parallel" (McGinnis 1998, Müller 2001, Richards 2001, Bruening 2001, Anagnostopoulou 2003).
- Example: Object shift in Danish (Vikner 1989, 1995)—weak pronouns in the VP are moved to Spec,vP.

(26) a. Peter viste hende$_2$ den$_3$ jo t_2 t_3.
Peter showed her it indeed
"Peter indeed showed it to her."
b.*Peter viste den$_3$ hende$_2$ jo t_2 t_3.
Peter showed it her indeed

- Adopting both the *Minimal Link Condition* (MLC) (Fanselow 1991; Ferguson 1993; Chomsky 1995) in (27) and the SCC in (22) leads to a derivation like in (28).

(27) *Minimal Link Condition:*
If in a structure $\alpha \ldots [\ldots \beta \ldots [\ldots \gamma \ldots] \ldots]$ both β and γ are of the right type to establish a relation R with α, then α can establish R only with β (but not with γ).

(28) *[$_{vP}$ den$_3$ hende$_2$ … [$_{VP}$ … t_2 t_3 …]]
② ①

Conclusion:
It looks as if one cannot maintain the SCC and the MLC simultaneously. Here we suggest that the MLC should be dispensed with (see also Hunter and Malhotra 2009).

Assumptions:

- A head can receive at most one EF per derivation. One EF can attract several goals. (This captures the idea that EFs may trigger multiple applications of Merge; see Chomsky 2007, 11.)
- An EF scans down the tree for a goal G. Once a goal G_1 is found, it may be placed on top of a stack S. If another goal G_2 is found, it may be placed on top of G_1, etc. The search continues until the EF has exhausted its search space.
- An EF can skip a potential goal G′ (there is no MLC) and continue its search. However, it may not return to G′ after having attracted a lower G. There is no backtracking. The search algorithm proceeds strictly top-down.
- After the EF has finished its search, the elements on S are remerged in a last-in-first-out fashion as specifiers of the head bearing the EF.

Object shift in Danish:
A relativized EF (EF_{pron}) on v attracts weak pronouns from VP. A feature [uPRON] on the weak pronouns, which is checked if EF_{pron} attracts the pronoun, ensures that object shift is obligatory.

(29)

	Step	*Configuration*	*S*
a.		$[_{v'}$ v $[_{VP} \ldots$ hende$_2$ den$_3 \ldots]]$	
b.	*put* hende$_2$ *on S*:	$[_{v'}$ v $[_{VP} \ldots t_2$ den$_3 \ldots]]$	hende$_2$
c.	*put* den$_3$ *on S*:	$[_{v'}$ v $[_{VP} \ldots t_2\ t_3 \ldots]]$	den$_3$ hende$_2$
d.	*remerge* den$_3$:	$[_{v'}$ den$_3$ v $[_{VP} \ldots t_2\ t_3 \ldots]]$	hende$_2$
e.	*remerge* hende$_2$:	$[_{v'}$ hende$_2$ den$_3$ v $[_{VP} \ldots t_2\ t_3 \ldots]]$	

Remark:
In principle, one could maintain the MLC within our account of parallel movement. However, since the MLC still causes problems in other domains (multiple parasitic gaps, scrambling triggered by generalized EFs), and since our theory *derives* certain MLC-effects, we stick to the suggestion to abandon the MLC.

3 Analysis

Main Idea in a Nutshell:

- The associate α (FQ, PN, PG) is adjoined to VP and bears some unvalued goal feature [(u)F:□] that needs to be checked and valued by an antecedent with a matching probe feature [uF:α]. In order for Agree to apply, the antecedent has to move to a position c-commanding the associate.
- *Note:* The potential antecedents always bear the respective uninterpretable, but valued feature [uF:α]. If this feature cannot be checked in the syntax, it is deleted at the interface (Bošković 2009). This kind of last resort deletion can never apply to the unvalued feature of the associate.
- The ISC ensures that if an object move(s) to Spec,vP, it must be merged before the subject is merged ($nom > acc$, $nom > dat$).
- Parallel movement ensures that if both objects move (successive-cyclically) to Spec,vP, the indirect object is remerged later than the direct object ($dat > acc$)

- *Consequence*: Due to the Earliness Principle (23), only the argument which is (re)merged first to the left of α enters into Agree with α.

3.1 Case I: Interaction of object and subject

- Due to the ISC, EF movement of the object must precede Merge of the subject.
- If the object is a suitable antecedent for α, the object must associate with α as soon as it is remerged in Spec,vP (due to the Earliness Principle (23)).
- Since the subject is merged after the goal feature on α has been valued by its antecedent, it cannot associate with α.

(30)

	Step	*Configuration*
a.		$[_{v'}$ v $[_{VP}$ α[F:□] $[_{VP}$ … $\beta[u\text{F}{:}x]$ …]]]
b.	EF *movement*:	$[_{v'}$ $\beta[u\text{F}{:}x]$ $[_{v'}$ v $[_{VP}$ α[F:□] $[_{VP}$ … t_β …]]]]
c.	*Agree*:	$[_{v'}$ $\beta[\sout{u\text{F}{:}x}]$ v $[_{VP}$ $\alpha[\sout{\text{F}{:}x}]$ $[_{VP}$ … t_β …]]]
d.	*Merge subject*:	$[_{vP}$ $\gamma[u\text{F}{:}y]$ $\beta[\sout{u\text{F}{:}x}]$ v $[_{VP}$ $\alpha[\sout{\text{F}{:}x}]$ … t_β …]]
e.	*no Agree*:	$[_{vP}$ $\gamma[u\text{F}{:}y]$ $\beta[\sout{u\text{F}{:}x}]$ v $[_{VP}$ $\alpha[\sout{\text{F}{:}x}]$ … t_β …]]

3.2 Case II: Interaction of direct object and indirect object

- In the VP, the indirect object is merged later than the direct object.
- Due to parallel movement, the relative order of the objects is preserved in the vP, i.e., the direct object is remerged in Spec,vP before the indirect object.
- Due to Earliness (23), the direct object must enter into Agree with the associate α as soon as it is merged in Spec,vP.
- Since the indirect object is merged after α has found its antecedent, it cannot associate with α.

(31)

	Step	*Configuration*	*S*
a.		$[_{v'}$ v $[_{VP}$ α[F:□] $[_{VP}$ $\beta[u\text{F}{:}x]$ $\gamma[u\text{F}{:}y]$]]]	
b.	*put* β *on* S:	$[_{v'}$ v $[_{VP}$ α[F:□] $[_{VP}$ t_β $\gamma[u\text{F}{:}y]$]]]	β

(31)

	Step	*Configuration*	*S*
c.	*put γ on S*:	$[_{v'}$ v $[_{VP}$ α[F:□] $[_{VP}$ t_β t_γ]]]	γ / β
d.	*remerge γ*:	$[_{v'}$ γ[*u*F:*y*] v $[_{VP}$ α[F:□] $[_{VP}$ t_β t_γ]]]	β
e.	*Agree*:	$[_{v'}$ γ[~~*u*F:*y*~~] v $[_{VP}$ α[~~F:*y*~~] $[_{VP}$ t_β t_γ]]]	β
f.	*remerge β*:	$[_{v'}$ β[*u*F:*x*] γ[~~*u*F:*y*~~] v $[_{VP}$ α[~~F:*y*~~] $[_{VP}$ t_β t_γ]]]	∅
g.	*no Agree*:	$[_{v'}$ β[*u*F:*x*] γ[~~*u*F:*x*~~] v $[_{VP}$ α[~~F:*y*~~] $[_{VP}$ t_β t_γ]]]	∅

3.3 Floating quantifiers

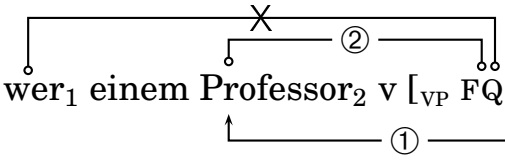
- Semantically, *alles* must combine with a *wh*-phrase (Zimmermann 2007, but cf. Beck 1996). If the *wh*-phrase and the FQ are merged separately in the syntax, they must combine via QR at LF. Non-*wh*-phrases cannot associate with *alles* as they are not of the right semantic type (see appendix).
- Semantic association requires previous syntactic Agree with respect to [WH:□] (on the FQ) and [*u*WH:±] on an indefinite *wh*- or non-*wh*-phrase. Agree in the syntax between the FQ and the indefinite may be understood as providing the FQ with an address for QR.
- Since [WH:□] on the FQ is interpretable, it cannot probe for a value in its c-command domain. Therefore it depends on movement of a potential antecendent in a higher position.
- Definite DPs are underspecified with respect to [WH:±]. Hence, definite DPs cannot value alles. *Direct Consequence*: Only indefinite arguments may associate with *alles* and, therefore, only indefinite arguments intervene for Agree.

3.3.1 Case I

(32) *Bleeding*

*Wer$_1$ hat einem Professor alles$_1$ gedankt?
who$_{nom}$ has a professor$_{dat}$ all thanked

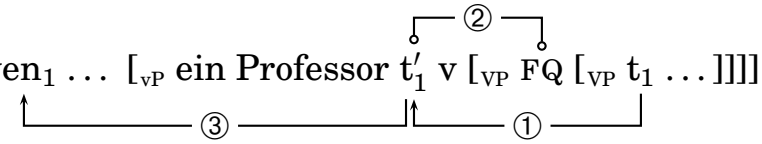
"Who all thanked a professor?"

(33) 

(34) *Counter-Bleeding*

Wen$_1$ hat ein Professor alles$_1$ beleidigt?
who$_{acc}$ has a professor$_{nom}$ all insulted

"Who all did a professor insult?"

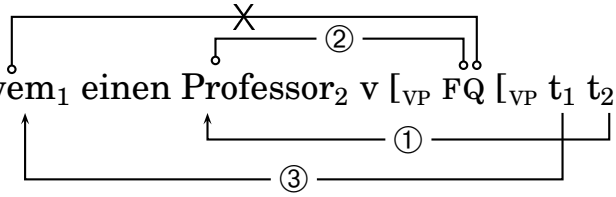
(35) 

3.3.2 Case II

(36) *Bleeding*

*Wem$_1$ hat sie einen Professor alles$_1$ vorgestellt?
who$_{dat}$ has she a professor$_{acc}$ all introduced

"To whom all did she introduce a professor?"

(37) 

3.4 Case agreement

- PNs have an unvalued case feature [*u*CASE:□] which must be probed and valued by a DP with a matching feature [*u*CASE:nom/acc/dat].
- In multiple *wh*-fronting in Czech, only one *wh*-phrase moves to Spec,CP; all other *wh*-phrases move just as far as TP, due to a focus feature (Rudin 1988; Richards 2001; also Toman 1981, 298; see Meyer 2003 for certain qualifications).
- Since there is no MLC, there are two options for *wh*-movement from Spec,TP to Spec,CP: movement of the indirect object leads to bleeding and feeding; movement of the direct object leads to counter-bleeding and counter-feeding.
- In Czech, unlike German, v is still active after the subject has been merged (maybe related to the existence of V-to-T in Czech and the lack thereof in German). Thus, movement due to EF$_{+spec}$ and EF$_{+wh}$ can target a position higher than the subject.

Direct Consequences:

- Since v in Czech is still active after the subject is merged, EF-insertion can be procrastinated and objects may move above the subject. Consequently, there is always a derivation where the subject is the closest argument to the PN and values the case feature on the PN.
- Furthermore, since EF_{+wh} distinguishes between *wh*- and non-*wh*-phrases, parallel movement is not obligatory in cases with mixed movement types.
- Multiple movement of specific (d-linked) *wh*-phrases in Czech is also predicted to not obligatorily apply in parallel (case agreement is free).

(38) Jaký román od Urbana jsi které ženě$_2$ doporučil jako příčinlivé
which novel$_{acc}$ from Urban AUX which woman$_{dat}$ recommended as industrious
žačce$_2$?
student$_{dat}$
"To which woman did you recommend which novel of Urban because she is an industrious student?"

3.4.1 Case II

(39) a. *Feeding*

Komu$_2$ koho$_1$ Jirka představil jako dobrého přítele?
who$_{dat}$ who$_{acc}$ Jirka introduced as good friend$_{acc}$
"To whom did Jirka introduce who as a good friend?"

b. *Counter-Bleeding*

Koho$_1$ komu$_2$ Jirka představil jako dobrého přítele?
who$_{acc}$ who$_{dat}$ Jirka introduced as good friend$_{acc}$

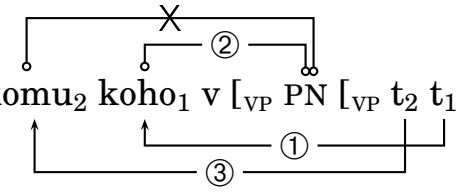
c. *Counter-Feeding*

*Koho$_1$ komu$_2$ Jirka představil jako dobrému příteli?
who$_{acc}$ who$_{dat}$ Jirka introduced as good friend$_{dat}$
"Who did Jirka introduce to whom as a good friend?"

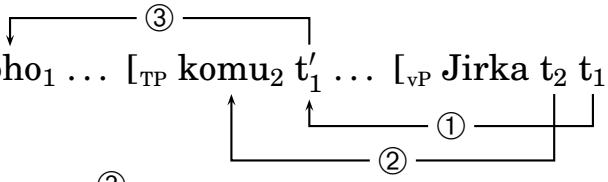
d. *Bleeding*

*Komu$_2$ koho$_1$ Jirka představil jako dobrému příteli?
who$_{dat}$ who$_{acc}$ Jirka introduced as good friend$_{dat}$

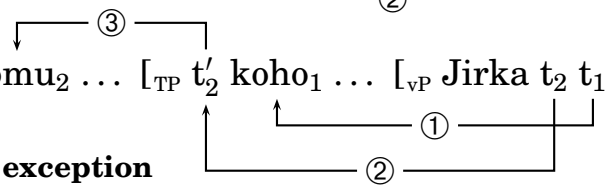
(40) $[_{\text{vP}}$ Jirka komu$_2$ koho$_1$ v $[_{\text{VP}}$ PN $[_{\text{VP}}$ t$_2$ t$_1$ . . .]]]



(41) a. [$_{CP}$ koho$_1$ … [$_{TP}$ komu$_2$ t$'_1$ … [$_{vP}$ Jirka t$_2$ t$_1$ … PN …]]]



b. [$_{CP}$ komu$_2$ … [$_{TP}$ t$'_2$ koho$_1$ … [$_{vP}$ Jirka t$_2$ t$_1$ … PN …]]]

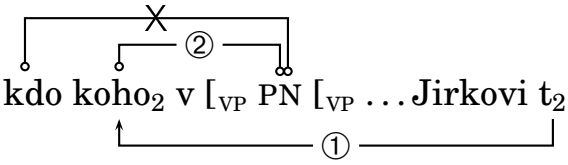


3.4.2 Subject exception

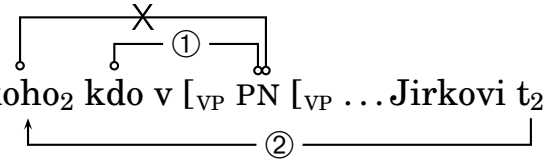
(42) a. Kdo$_1$ koho$_2$ představil coby jeho$_2$ dobrý přítel Jirkovi?
who$_{nom}$ who$_{acc}$ introduced as his good friend$_{nom}$ Jirka$_{dat}$
"Who as his good friend introduced whom to Jirka?"

b. Koho$_2$ kdo$_1$ představil jako dobrého přítele Jirkovi?
who$_{acc}$ who$_{nom}$ introduced as good friend$_{acc}$ Jirka$_{dat}$

(43) [$_{vP}$ kdo koho$_2$ v [$_{VP}$ PN [$_{VP}$ … Jirkovi t$_2$ …]]]



(44) [$_{vP}$ koho$_2$ kdo v [$_{VP}$ PN [$_{VP}$ … Jirkovi t$_2$ …]]]

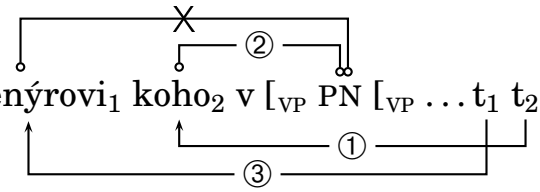


3.4.3 Scrambling exception

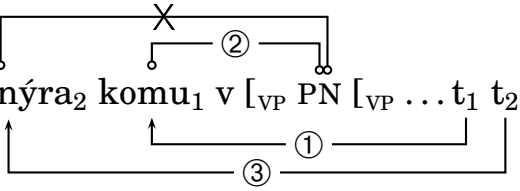
(45) a. Koho Jirka představil tomu inženýrovi jako dobrého přítele?
who$_{acc}$ Jirka introduced the engineer$_{dat}$ as good friend$_{acc}$
"Who did Jirka introduce as a good friend to the engineer?"

b. Komu Jirka představil toho inženýra jako dobrému příteli?
who$_{dat}$ Jirka introduced the engineer$_{acc}$ as good friend$_{dat}$
"Who did Jirka introduce the engineer to as a good friend?"

(46) [$_{vP}$ Jirka tomu inženýrovi$_1$ koho$_2$ v [$_{VP}$ PN [$_{VP}$ … t$_1$ t$_2$ …]]]



(47) [$_{vP}$ Jirka toho inženýra$_2$ komu$_1$ v [$_{VP}$ PN [$_{VP}$ … t$_1$ t$_2$ …]]]



3.5 Parasitic gaps

- PGs and their antecedents must enter into an Agree relation (Assmann 2012).
- A PG bears an unvalued feature [INDEX:□] while a potential antecedent bears a probing feature [*u*INDEX:*i*] with $i \in \mathbb{N}$ (cf. Heim and Kratzer 1998:263 for a proposal that the index on the antecedent is in fact uninterpretable).
- *Consequence*: One antecedent can bind only one PG (for corroborating comments, see Ross 1967, Chomsky 1986; but see also Hudson 1984 who claims that such sentences are possible).
- Similarly to FQs, PGs cannot be valued by an argument in their c-command domain, since they do not bear a probing feature.
- A PG and its antecedent coincide with respect to case and animacy. *Direct Consequence*: A dative indirect object cannot bind an accusative PG and vice versa.

3.5.1 Case II

(48) a. *Feeding:*

dass Hans der Maria$_2$ das Buch$_1$ [ohne PG$_1$ durchzulesen] zurückgibt
that Hans the Maria$_{dat}$ the book$_{acc}$ without through to read back gives
"that Hans returns the book to Maria without reading it through"

b. *Counter-Bleeding:*

dass Hans das Buch$_1$ der Maria$_2$ [ohne PG$_1$ durchzulesen] zurückgibt
that Hans the book$_{acc}$ the Maria$_{dat}$ without through to read back gives
"that Hans returns the book to Maria without reading it through"

c. *Bleeding*

*wenn jemand der Maria$_2$ das Buch$_1$ [anstatt PG$_2$ zu helfen] wegnimmt
if someone the Maria$_{dat}$ the book$_{acc}$ instead to help away takes
"if someone takes the book from Maria instead of helping her"

d. *Counter-Feeding*

*dass Hans das Buch$_1$ der Maria$_2$ [ohne PG$_2$ zu vertrauen] geliehen hat
that Hans the book$_{acc}$ the Maria$_{dat}$ without to trust lent has
"that Hans has lent Maria the book without trusting her"

(49) [$_{vP}$ jemand der Maria$_2$ das Buch$_1$ v [$_{VP}$ [… PG …] [$_{VP}$ … t$_2$ t$_1$ …]]]

(50) [$_{TP}$ jemand$_3$ das Buch$_1$ … [$_{vP}$ t$_3$ der Maria$_2$ t$'_1$ … PG …]]

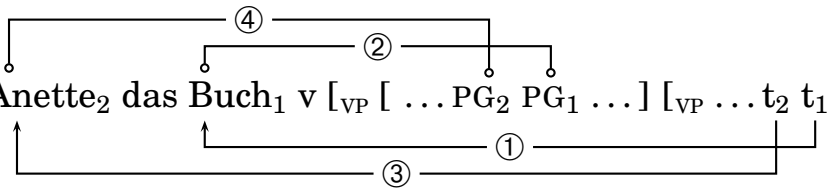
3.5.2 Multiple PGs

(51) *Counter-Bleeding*

wenn jemand der Anette$_2$ das Buch$_3$ [anstatt PG$_2$ PG$_3$ zu schenken] leiht
if someone the Anette$_{dat}$ the book$_{acc}$ instead to give borrows

"if one borrows Anette the book instead of giving it to her as a present"

(52) [$_{vP}$ jemand der Anette$_2$ das Buch$_1$ v [$_{VP}$ [… PG$_2$ PG$_1$ …] [$_{VP}$ … t$_2$ t$_1$ …]]]



4 Further issues

4.1 Wh-in situ

- *Potential counter-bleeding with* wh-*in situ*:
  In cases where a *wh*-phrase is merged lower than an indefinite co-argument, association of the *wh*-phrase should not be blocked even when the *wh*-phrase scrambles higher than the indefinite. The prediction appears to be wrong (53).
- *Solution*: Scrambled *wh*-phrases are interpreted as D(iscourse)-linked in the sense of Pesetsky (1987) (Wiltschko 1997, Sauerland 1999) and can therefore not combine semantically with the FQ, which requires its antecedent to denote an "open set" in the sense that "there is no anaphoric or deictic/situational link to an independently established antecedent set" (Reis 1992).
- *Potential counter-feeding*:
  In cases where a *wh*-phrase is merged higher than an indefinite co-argument, association of the *wh*-phrase should be blocked even when the indefinite scrambles higher than the *wh*-phrase. However, the prediction is not borne out (54).
- *Solution*: Instead of adjoining to the VP, *alles* can be merged directly with the *wh*-phrase. Then, Agree between the FQ and its antecedent can apply immediately. This must not undermine the analysis of the bleeding cases in (7) though. This is ensured if a *wh*-phrase that has merged with *alles* cannot strand *alles*. (Indirect evidence: the existence of pied-piping *alles* implies that stranding the FQ is indeed impossible, see Heck 2009 and references therein.)

(53) a.?*Wann hat sie wen$_1$ einem Professor t$_1$ alles$_1$ vorstellt?
when has she who$_{acc}$ a professor$_{dat}$ all introduced
"When did she introduce who all to a professor?"

b.?*Wann hat wem$_1$ ein Professor t$_1$ alles$_1$ geholfen?
when has who$_{dat}$ a professor$_{nom}$ all helped
"When did a professor help who all?"

c. ?*Wann hat wen$_1$ ein Professor t_1 alles$_1$ erkannt?
when has who$_{acc}$ a professor$_{nom}$ all recognized
"When did a professor recognize who all?"

(54) a. Wann hat sie einen Professor$_1$ wem$_2$ t_1 alles$_2$ vorgestellt?
when has she a professor$_{acc}$ who$_{dat}$ all introduced
"When did she introduce a professor to who all"

b. Wann hat einem Professor$_1$ wer$_2$ t_1 alles$_2$ geholfen?
when has a professor$_{dat}$ who$_{nom}$ all helped
"Who all helped a professor and when?"

c. Wann hat einen Professor$_1$ wer$_2$ t_1 alles$_2$ angezeigt?
when has a professor$_{acc}$ who$_{nom}$ all to the police indicated
"Who all indicated a professor to the police and when?"

4.2 Verb classes

- Haider (1992, 1993, 2010) claims that different verb classes in German project different argument orders. Class 1: indirect object > direct object (e.g. *geben*, *vorstellen*). Class 2: direct object > indirect object (e.g. *aussetzen*, *entziehen*).
- If this was true, one would expect that with Class 2 verbs it is the indirect object that relates to the associate (instead of the direct object).
- The diagnostics appear to reach contradictory results: examples with FQs (56) suggest, that this prediction is borne out. On the other hand, testing PGs (55) suggests that the underlying order of all verbs should be indirect object > direct object.
- *Solution*: Indirect objects of Class 2 verbs are actually PPs headed by empty prepositions (Meinunger 2000, 2006). Such PPs are merged lower than their direct object co-arguments, namely as the sister of the verb. PGs can only be bound by nominal arguments but not by e.g. prepositional phrases (Cinque 1990:102) because, by stipulation, the feature [*u*INDEX] is not accessible from outside PP (unlike the *wh*-feature of indefinites). This explains why they are unable to bind PGs and, at the same time, can associate with FQs.

(55) a. *Welche Instrumente$_2$ hat sie einer Prüfung alles$_2$ unterzogen?
which instruments$_{acc}$ has she a test$_{dat}$ all subjected.to
"Which instruments all did he subject to a test?"

b. Welchen Prüfungen$_2$ hat sie ein Instrument alles$_2$ unterzogen?
which tests$_{dat}$ has she an instrument$_{acc}$ all subjected.to
"To which tests all did she subject an instrument?"

(56) a. Wen_2 muss sie welcher Behandlung$_3$ [ohne PG_2 zu informieren]
who$_{acc}$ must she which treatment$_{dat}$ without to inform
unterziehen?
subject
"Who is she obliged to subject to a treatment without informing?"

b. *Welcher Behandlung$_3$ muss sie wen_2 [ohne PG_3 zuzustimmen]
which treatment$_{dat}$ must she who$_{acc}$ without approve.of
unterziehen?
subject
"Which treatment is she obliged to subject who to without approving of?"

4.3 Scrambling as a transformation

Two competing hypotheses:

- Scrambling is a transformation: Bierwisch (1963), Ross (1967), Fanselow (1990), Webelhuth (1992) , Müller and Sternefeld (1994), among others.
- Scrambling is base generation against base generation: Haider (1988), Fanselow (1993, 2001, 2003), Bayer and Kornfilt (1994), Neeleman (1994), among others.

A new argument:

- In order to derive cases of bleeding (57-a), one could assume that *wh*-phrases are base-merged adjacent to the FQ and may not move across an indefinite; cf. (58).
- But then, cases of counter-bleeding (57-b) are incorrectly ruled out as well; cf. (59).
- To rule in cases of counter-bleeding, the base generator could allow the *wh*-phrase to be base-generated to the left of the indefinite, under the assumption that there are no intervention effects.
- Without intervention, however, cases of bleeding are again ruled in.

(57) a. *Bleeding*

*Wem_1 hat sie einen Professor alles$_1$ vorgestellt?
who$_{dat}$ has she a professor$_{acc}$ all introduced
"To whom all did she introduce a professor?"

b. *Counter-Bleeding*

Wen_1 hat sie einem Professor alles$_1$ vorgestellt?
who$_{acc}$ has she a professor$_{dat}$ all introduced
"Who all did she introduce to a professor?"

(58) $[_{\text{CP}}$ wem_1 … $[_{\text{vP}}$ sie einen Professor t_1 ① FQ vorgestellt]]

(59) * [$_{CP}$ wen$_1$ … [$_{vP}$ sie einem Professor t$_1$ FQ vorgestellt]]

4.4 Tucking-in

- Another way to account for parallel movement is the tucking-in approach (Richards 1997, 2001).
- If two categories α and β are attracted by the same head H and α asymmetrically c-commands β, the transderivational constraint *Shortest* (Richards 2001) ensures (i) that attraction proceeds in the order $\alpha > \beta$ and (ii) that β tucks in below α.

(60) *Shortest*:
A pair P of elements [A,B] obeys Shortest iff there is no well-formed pair P′ which can be created by substituting C for either A or B, and the set of nodes c-commanded by one element of P′ and dominating the other is smaller than the set of nodes c-commanded by one element of P and dominating the other.

(61) [$_{HP}$ α_2 β_1 H …[… t$_2$ t$_1$]]

4.4.1 Conceptual problems

1. Tucking-in is not compatible with the SCC.
2. Tucking-in relies on a transderivational constraint. Since transderivational constraints are more complex than local constraints, a theory which only builds on local constraints is to be preferred.
3. Tucking-in is not compatible with the strictly derivational account of intervention proposed above.

Ad 3.:

- Consider (62). Given tucking-in and Earliness, the indirect object is expected to bind the PG, thereby blocking PG binding by the direct object, contrary to fact.
- To avoid this, a theory that incorporates tucking-in must procrastinate Agree until the phrase is complete. The MLC blocks illicit PG binding.
- This abandons the Earliness Principle (23) and extends the representational residue, which is against the tenet that derivational theories should minimize their representational residue (see Brody 2001; cf. also Epstein et al. 1998).

(62) [$_{vP}$ Hans der Maria$_3$ das Buch$_2$ [… PG$_3$ …] t$_3$ t$_2$ …]

4.4.2 An empirical problem

- Empirically, it predicts that of two specifiers of the mixed type, it is always the innermost that will establish Agree with a goal feature in its c-command, never the outermost. This appears to be incompatible with the observations from Czech, which suggested that the subject in the outermost Spec,vP also has the option of entering into case agreement with the PN.
- This prediction stems from assuming a general preference of Merge over Move (Chomsky 1995). Giving up this preference principle would result in wrong predictions with respect to PG-binding and FQ-association in German.
- Letting the principle be subject to linguistic variation, i.e. assuming Czech has Move over Merge instead, would predict that *only* the objects can case agree with the PN in Czech, which is empirically false, too.
- Consequently, one would have to assume that Merge over Move holds for German but is inactive in Czech.

5 Conclusion

Main Claim:

- Intervention effects with association of arguments with FQs and PGs in German and with PNs in Czech are often opaque and do not make reference to the surface order of arguments.
- Opaque intervention can be derived by consulting previous stages of the derivation where the opacity has not arisen yet.

Analysis:

- Arguments are merged in a fixed order. Due to parallel movement, the hierarchy that is established with base generation obtains after movement.
- Subsequent movement of arguments may alter the structural hierarchy, but comes to late for altering the association capacities as well.
- Intervention effects can be derived derivationally without reference to constraints such as the MLC. These MLC-effects result simply from the EFC, the SCC, the Earliness Principle and the stack theory of multiple EF-movement.

A Appendix: Semantics for *alles*

Aim of this appendix: Illustrate why only *wh*-indefinites, but not non-*wh*-indefinites can combine semantically with the FQ *alles*.

A.1 Assumptions

Indefinites:

- Reinhart (1998): Indefinites are of type $\langle e,t\rangle$. Their Spec,DP-position contains a variable over choice functions (CF) of type $\langle\langle e,t\rangle,e\rangle$, mapping the type of indefinites $\langle e,t\rangle$ to type e (see, in particular, Reinhart 1998, 379). By default, the CF-variable becomes existentially bound higher up in the clause.
- *wh*-phrases do not contain a CF-variable in their Spec,DP. Thus, they remain of type $\langle e,t\rangle$ throughout (see Hamblin 1973, Hagstrom 1998, Rullmann and Beck 1998, Sternefeld 2001, Beck 2006, Cable 2010).
- As a consequence, the denotations of *wh*-phrases and non-*wh* indefinites bear different semantic types. The main point now is that the denotation of the floating quantifier *alles* given below only combines with the former. This explains why a non-*wh* indefinite cannot combine semantically with the FQ *alles*.

(63) *Denotation of indefinites:*
   a. $[\![\text{who}]\!] = \{x|\textbf{person}(x)\}$
   b. $[\![\text{what}]\!] = \{x|\textbf{thing}(x)\}$
   c. $[\![\text{a dog}]\!] = f(\{x|\textbf{dog}(x)\})$

(64) *Denotation of predicates:*
   a. $[\![sleep]\!] = \lambda x.\lambda w.\textbf{sleep}(x)(w)$
   b. $[\![like]\!] = \lambda y.\lambda x.\lambda w.\textbf{like}(y)(x)(w)$

Interrogative semantics:

- Hamblin (1973) and Karttunen (1977): The meaning of a question is the set of possible answers (a set of propositions).
- Since *wh*-phrases do not have the denotation of a generalized quantifier ($\langle\langle e,t\rangle,t\rangle$) or an individual ($e$) but denote sets of individuals ($\langle e,t\rangle$) they cannot be interpreted compositionally by standard functional application. They need "flexible" ("pointwise") functional application ((65), see Rooth 1985; also Hagstrom 1998, Rullmann and Beck 1998, Sternefeld 2001, Cable 2010).
- As a consequence, one also needs to extend the standard rule of predicate abstraction (e.g., Heim and Kratzer 1998) to a rule of flexible predicate abstraction ((66), cf. Cable 2010).
- There is a Force-head that takes CP as its complement ((67), Cable 2010).

(65) *Flexible (pointwise) functional application:*
Let $\alpha = [\beta\gamma]$. Then $[\![\alpha]\!]$ follows from (65-a-d), whichever is defined:
a. If $[\![\gamma]\!] \in D_{\xi}$ and $[\![\beta]\!] \in D_{\langle\xi,\zeta\rangle}$, then $[\![\beta\gamma]\!] = [\![\beta]\!]([\![\gamma]\!]) \in D_{\zeta}$.
b. If $[\![\gamma]\!] \in D_{\langle\xi,t\rangle}$ and $[\![\beta]\!] \in D_{\langle\xi,\zeta\rangle}$, then $[\![\beta\gamma]\!] = \{b | \exists a \in [\![\gamma]\!] \wedge b = [\![\beta]\!](a)\} \in D_{\langle\zeta,t\rangle}$.
c. If $[\![\gamma]\!] \in D_{\xi}$ and $[\![\beta]\!] \in D_{\langle\langle\xi,\zeta\rangle,t\rangle}$, then $[\![\beta\gamma]\!] = \{b | \exists f \in [\![\beta]\!] \wedge b = f([\![\gamma]\!])\} \in D_{\langle\zeta,t\rangle}$.
d. If $[\![\gamma]\!] \in D_{\langle\xi,t\rangle}$ and $[\![\beta]\!] \in D_{\langle\langle\xi,\zeta\rangle,t\rangle}$, then $[\![\beta\gamma]\!] = \{b | \exists a \in [\![\gamma]\!], \exists f \in [\![\beta]\!] \wedge b = f(a)\} \in D_{\langle\zeta,t\rangle}$.

(66) *Flexible (pointwise) predicate abstraction:*
Let $\alpha = [\beta\gamma]$, β a numerical index. Then $[\![\alpha]\!]$ follows from (66-a,b), whichever is defined.
a. If $[\![\gamma]\!] \in D_{\langle\tau\rangle}$, then for any arbitrary assignment g: $[\![\alpha]\!]^g = \lambda x.[\![\gamma]\!]^{[x/i]} \in D_{\langle e,\tau\rangle}$.
b. If $[\![\gamma]\!] \in D_{\langle\tau,t\rangle}$, where τ is a complex type, then for any arbitrary assignment g: $[\![\alpha]\!]^g = \lambda x.[\![\gamma]\!]^{[x/i]} \in D_{\langle\langle e,\tau\rangle,t\rangle}$.

(67) *Denotation von Force$_Q$:*
$[\![\text{Force}_\text{Q}]\!] = \lambda P.\lambda p.\exists f : CF(f) \wedge p = f(P)$

Assumptions about alles*:*

- *alles* triggers the presuppositions a) that the set denoted by the *wh*-phrase the FQ combines with consists of plural individuals (DIV(x) in (69-b)), and b) that the answer to a *wh*+*alles* question is exhaustive ($\neg\exists z[\ldots]$ in (69-b), Zimmermann 2007). The presuppositions are introduced by defining the denotation of *alles* as a partial function (see Heim and Kratzer 1998).
- *alles* does not have a normal semantic value but only a focus semantic value (computed by $[\![.]\!]^F$, given in (68)) in the sense of Rooth (1985).
- *alles* semantically first combines with the denotation of a *wh*-phrase. If, on the surface, the FQ appears separated from the *wh*-phrase it combines with, then according to our syntactic assumptions, such a representation comes into existence by merging the *wh*-phrase and the FQ separately. To yield a *wh*+FQ complex, the FQ undergoes QR at LF, adjoining to the *wh*-phrase in SpecC. The *wh*+FQ complex then combines with the proposition.

(68) *Focus-semantic interpretation function $[\![.]\!]^F$:*
a. The focus semantic value of an unfocused head K is the singleton set containing the normal semantic value of K: $[\![K]\!]^F = \{[\![K]\!]\}$.
b. The focus semantic value of a focused constituent K is the alternative set of its normal semantic value: $[\![K_F]\!]^F = \{x \in D_{\tau} | [\![K]\!] \in D_{\tau}\}$.

(69) *Denotation und presuppositions of* alles*:*

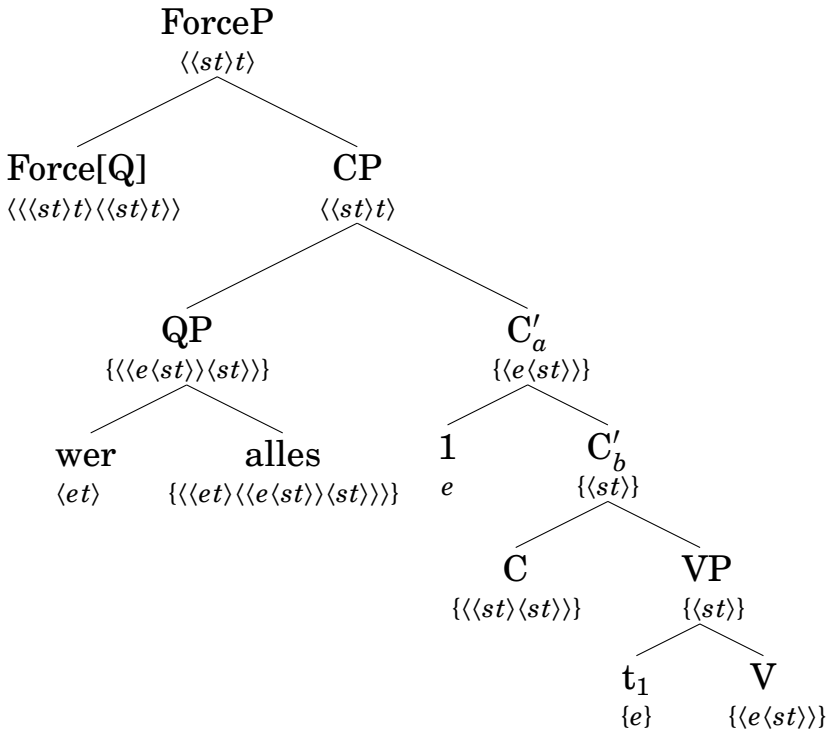
a. $[\![alles]\!]^F = \{\lambda Q_{\langle e,t\rangle}.\lambda P_{\langle e,\langle s,t\rangle\rangle}.P(Q)\}$

b. $[\![alles]\!]^F(Q)(P)$ is defined if and only if $\forall x \in Q : \text{DIV}(x) \wedge \neg\exists z[z > x \wedge z \in Q \wedge z \in P]$

A.2 Sample derivations

(70) a. Wer schläft alles?
who$_{nom}$ sleeps all

b. LF:



(71) a. Wer schläft alles?

b. $\lambda p.\exists x(\textbf{person}(x)) \wedge p = \lambda w.\textbf{sleep}(x)(w)$ (target meaning)

(72) a. $[\![\text{CP}]\!]^{F,g}$ = (65-a)

b. $[\![\text{QP}]\!]^{F,g}([\![\text{C}'_a]\!]^{F,g})$ = (65-a)

c. $[\![\text{alles}]\!]^{F,g}([\![\text{wer}]\!]^{F,g})([\![\text{C}'_a]\!]^{g})$ = (63-a), (69-a)

d. $\{\lambda Q.\lambda P.P(Q)\}(\{x|\textbf{person}(x)\})([\![\text{C}'_a]\!]^{F,g})$ = (65-c)

e. $\{\lambda P.P(\{x|\textbf{person}(x)\})\}([\![\text{C}'_a]\!]^{F,g})$ = (66-b)

f. $\{\lambda P.P(\{x|\textbf{person}(x)\})\}(\{\lambda x.[\![\text{VP}]\!]^{F,g[x/1]}\})$ = (64-a)

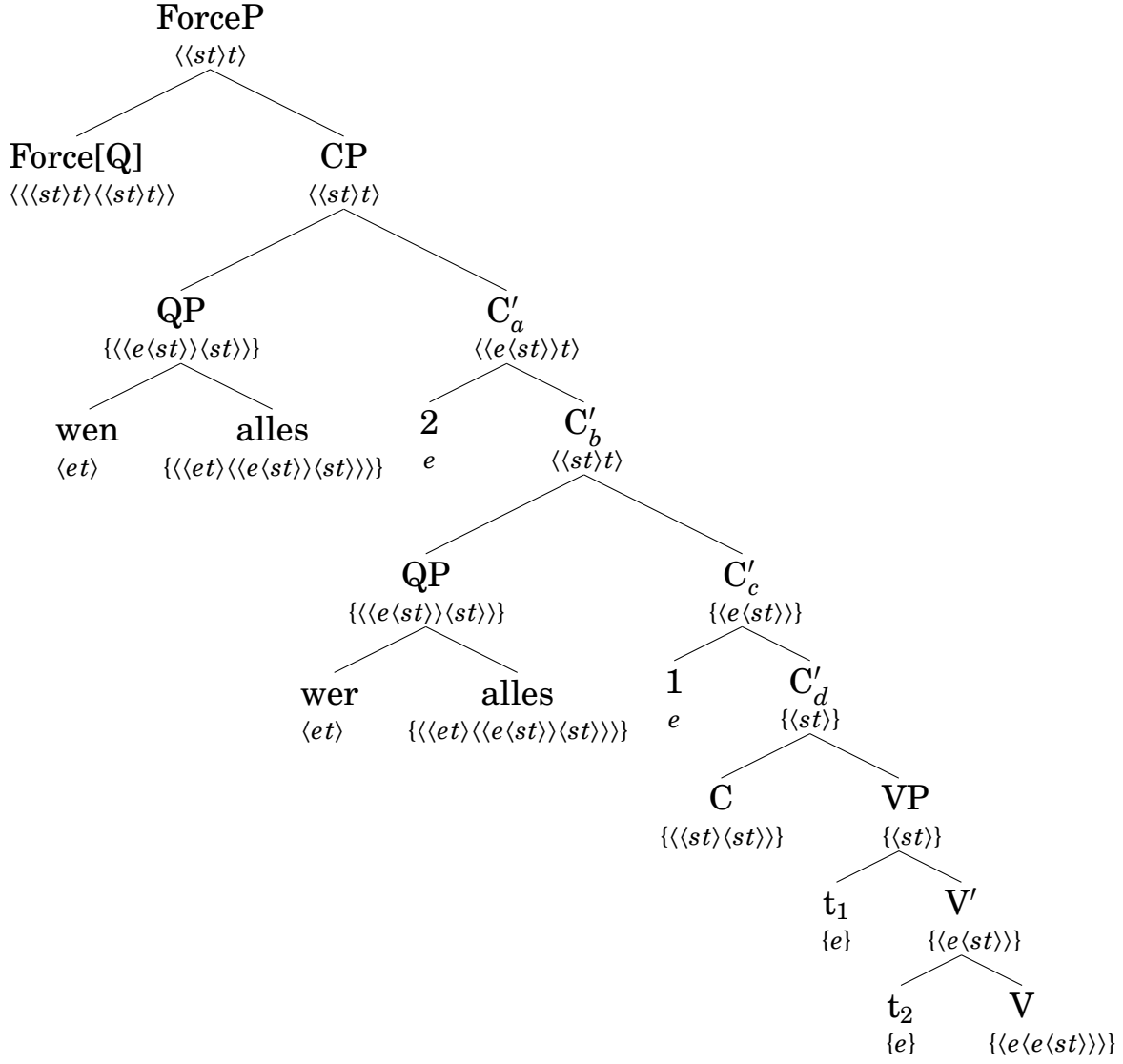
g. $\{\lambda P.P(\{x|\textbf{person}(x)\})\}(\{\lambda x.\lambda w.\textbf{sleep}(x)(w)\})$ = (65-d)

h. $\{\lambda x.\lambda w.\textbf{sleep}(x)(w)(\{x|\textbf{person}(x)\})\}$ = (65-b)

i. $\{p|\exists a \in \{x|\textbf{person}(x)\} \wedge p = \lambda w.\textbf{sleep}(a)(w)\}$

(73) a. $[\![\text{ForceP}]\!]^g$ = (65-a)
b. $[\![\text{Force}_\text{Q}]\!]^g([\![\text{CP}]\!]^F)$ = (72-i)
c. $[\![\text{Force}_\text{Q}]\!]^g(\{p|\exists a \in \{x|\textbf{person}(x)\} \wedge p = \lambda w.\textbf{sleep}(a)(w)\})$ = (67)
d. $\lambda P.\lambda p.\exists f : CF(f) \wedge p = f(P)(\{p|\exists a \in \{x|\textbf{person}(x)\} \wedge p = \lambda w.\textbf{sleep}(a)(w)\})$ = (65-a)
e. $\lambda p.\exists f : CF(f) \wedge p = f(\{p|\exists a \in \{x|\textbf{person}(x)\} \wedge p = \lambda w.\textbf{sleep}(a)(w)\})$ (≡ (71-b))

(74) a. Wer_i mag alles wen_j alles$_j$?
who$_{nom}$ likes all who$_{acc}$ all
b. LF:



(75) a. Wer mag alles wen alles?
b. $\lambda p.\exists x(\textbf{person}(x)), \exists y(\textbf{person}(y)) \wedge p = \lambda w.\textbf{like}(y)(x)(w)$ (target meaning)

(76) a. $[\![\text{CP}]\!]^{F,g}$ = (65-a)
b. $[\![\text{QP}]\!]^{F,g}([\![\text{C}'_a]\!]^{F,g})$ = (65-a)
c. $[\![\text{alles}]\!]^{F,g}([\![\text{wen}]\!]^{F,g})([\![\text{C}'_a]\!]^{F,g})$ = (63-a), (69-a)
d. $\{\lambda Q.\lambda P.P(Q)\}(\{x|\textbf{person}(x)\})([\![\text{C}'_a]\!]^{F,g})$ = (65-c)

e. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\llbracket \mathrm{C}'_a \rrbracket^{F,g})$ = (66-b)
f. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\llbracket \mathrm{C}'_b \rrbracket^{F,g[x/2]}\})$ = (65-a)
g. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.(\llbracket \mathrm{QP} \rrbracket^{F,g[x/2]}(\llbracket \mathrm{C}'_c \rrbracket^{F,g[x/2]}))\})$ = (65-a)
h. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.(\llbracket \mathrm{alles} \rrbracket^{F,g[x/2]}(\llbracket \mathrm{wer} \rrbracket^{F,g[x/2]})(\llbracket \mathrm{C}'_c \rrbracket^{F,g[x/2]}))\})$
= (63-a), (69-a)
i. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{\lambda Q'.\lambda P'.P'(Q')\}(\{y|\mathbf{person}(y)\})(\llbracket \mathrm{C}'_c \rrbracket^{F,g[x/2]})\})$
= (65-c)
j. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{\lambda P'.P'(\{y|\mathbf{person}(y)\})\}(\llbracket \mathrm{C}'_c \rrbracket^{F,g[x/2]})\})$ = (66-a)
k. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{\lambda P'.P'(\{y|\mathbf{person}(y)\})\}(\{\lambda y.\llbracket \mathrm{VP} \rrbracket^{F,g[x/2],[y/1]}\})\})$
= (64-b)
l. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{\lambda P'.P'(\{y|\mathbf{person}(y)\})\}(\{\lambda y.\lambda w.\mathbf{like}(y)(x)(w)\})\})$
= (65-d)
m. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{\lambda y.\lambda w.\mathbf{like}(y)(x)(w)(\{y|\mathbf{person}(y)\})\}\})$ = (65-b)
n. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{\lambda x.\{p|\exists a \in \{y|\mathbf{person}(y)\} \wedge p = \lambda w.\mathbf{like}(a)(x)(w)\}\})$
≡
o. $\{\lambda P.P(\{x|\mathbf{person}(x)\})\}(\{f|\exists a \in \{y|\mathbf{person}(y)\} \wedge f = \lambda x.\lambda w.\mathbf{like}(a)(x)(w)\})$
= (65-a)
p. $\{f|\exists a \in \{y|\mathbf{person}(y)\} \wedge f = \lambda x.\lambda w.\mathbf{like}(a)(x)(w)\}(\{x|\mathbf{person}(x)\})$ = (65-d)
q. $\{p|\exists b \in \{x|\mathbf{person}(x)\}, \exists g \in \{f|\exists a \in \{y|\mathbf{person}(y)\} \wedge f = \lambda x.\lambda w.\mathbf{like}(a)(x)(w)\}$
$\wedge p = g(b)\}$ ≡
r. $\{p|\exists b \in \{x|\mathbf{person}(x)\}, \exists a \in \{y|\mathbf{person}(y)\} \wedge p = \lambda w.\mathbf{like}(a)(b)(w)\}$

(77) a. $\llbracket \mathrm{ForceP} \rrbracket^{g}$ = (65-a)
b. $\llbracket \mathrm{Force_Q} \rrbracket^{g}(\llbracket \mathrm{CP} \rrbracket^{F})$ = (76-r)
c. $\llbracket \mathrm{Force_Q} \rrbracket^{g}(\{p|\exists b \in \{x|\mathbf{person}(x)\}, \exists a \in \{y|\mathbf{person}(y)\} \wedge p = \lambda w.\mathbf{like}(a)(b)(w)\})$
= (67)
d. $\lambda P.\lambda p.\exists f : CF(f) \wedge p = f(P)(\{p|\exists b \in \{x|\mathbf{person}(x)\}, \exists a \in \{y|\mathbf{person}(y)\}$
$\wedge p = \lambda w.\mathbf{like}(a)(b)(w)\})$ = (65-a)
e. $\lambda p.\exists f : CF(f) \wedge p = f(\{p|\exists b \in \{x|\mathbf{person}(x)\}, \exists a \in \{y|\mathbf{person}(y)\}$
$\wedge p = \lambda w.\mathbf{like}(a)(b)(w)\})$ (≡ (75-b))

A.3 Focused indefinites

- The normal semantic value of focused indefinites is type-shifted from e to $\langle e,t\rangle$ by $\llbracket . \rrbracket^{F}$. Thus, they should be of the right type to combine with *alles*. This, however, is not the case.
- According to the theory of focus proposed by Rooth (1985) every declarative clause that contains a focus exponent has a normal semantic value and a focus semantic value. The focus semantic value is projected by the focus exponent and is interpreted by the operator ~, which is adjoined at some node in the representation.

- If a DP containing a focus exponent combines with *alles*, resulting in a QP, then QP must (due to the semantics of the FQ) scope over the whole proposition (sometimes achieved by QR). And since ~ must scope over the focus exponent, it follows that ~ must either adjoin to (78-a) or to the DP that is contained in QP (78-b).
- The reasoning is based on the way that ~ works (see (79)) and on the principle in (80), proposed by Beck (2006:16).

(78) a. $[_{\text{QP}} \sim [_{\text{QP}} \text{Indef}_F \text{ FQ }]]$
b. $[_{\text{QP}} [_{\text{DP}} \sim [_{\text{DP}} \text{Indef}_F]] \text{ FQ }]$

(79) a. $[_{\phi} \sim [_{\psi} \ldots]]$
b. $[\![\phi]\!]^o = [\![\psi]\!]^o$
c. $[\![\phi]\!]^F = \{[\![\psi]\!]^o\}$

(80) *Principle of Interpretability:*
An LF must have a normal semantic value.

- *Why (78-a) fails:*
The operator ~ needs a normal semantic value in order for (79-b) to be defined and for (80) to be fulfilled accordingly.
- *Why (78-b) fails:*
The focus semantic value of the DP the FQ combines with is a singleton set due to (79-c). By assumption, *alles* bears an *anti singleton constraint* (Alonso-Ovalle and Menéndez-Benito 2010) as another presupposition and can, therefore not combine with the DP in (78-b).

(81) *Denotation und presuppositions of* alles*:*
a. $[\![alles]\!]^F = \{\lambda Q_{\langle e,t\rangle}.\lambda P_{\langle e,\langle s,t\rangle\rangle}.P(Q)\}$
b. $[\![alles]\!]^F(Q)(P)$ is defined if and only if $|Q| > 1 \wedge \forall x \in Q : \text{DIV}(x) \wedge \neg\exists z[z > x \wedge z \in Q \wedge z \in P]$

References

Abels, Klaus (2012): *Phases: An Essay on Cyclicity in Syntax*. Mouton de Gruyter, Berlin.

Alonso-Ovalle, Luis and Paula Menéndez-Benito (2010): 'Modal Indefinites', *Natural Language Semantics* **18**, 1–31.

Anagnostopoulou, Elena (2003): *The Syntax of Ditransitives: Evidence from Clitics*. Studies in Generative Grammar, Mouton De Gruyter, Berlin.

Assmann, Anke (2012): Deriving Parasitic Gaps by Fission und Fusion. *In:* E. Boone, K. Linke and M. Schulpen, eds, *Proceedings of ConSOLE XIX*. Leiden, pp. 49–75.

Bayer, Josef (1984): 'COMP in Bavarian Syntax', *The Linguistic Review* **3**, 209–275.

Bayer, Josef and Jaklin Kornfilt (1994): Against Scrambling as an Instance of Move-α. *In:* N. Corver and H. Riemsdijk, eds, *Studies on Scrambling. Movement and Non-Movement Approaches to Free Word-Order Phenomena*. Mouton de Gruyter, Berlin, pp. 17–60.

Beck, Sigrid (1996): Wh-Constructions and Transparent Logical Form. PhD thesis, Universität Tübingen.

Beck, Sigrid (2006): 'Intervention Effects Follow from Focus Interpretation', *Natural Language Semantics* **14**, 1–56.

Bierwisch, Manfred (1963): *Grammatik des Deutschen Verbs*. Studia Grammatica, Akademieverlag, Berlin.

Biskup, Petr (2006): Scrambling in Czech: Syntax, Semantics, and Information Structure. *In:* S. K. Chin and A. Fujimori, eds, *Proceedings of NWLC 21*. University of British Columbia, Vancouver, pp. 1–15.

Bošković, Željko (2009): 'Unifying first and last conjunct agreement', *Natural Language and Linguistic Theory* **27**, 455–496.

Brody, Michael (2001): Some Aspects of Elegant Syntax. Ms., University College London.

Bruening, Benjamin (2001): 'QR obeys Superiority', *Linguistic Inquiry* **32**, 233–273.

Cable, Seth (2010): *The Grammar of Q: Q-particles and the Nature of Wh-Fronting*. Oxford University Press, Oxford.

Chomsky, Noam (1973): Conditions on Transformations. *In:* S. Anderson and P. Kiparsky, eds, *A Festschrift for Morris Halle*. Holt, Reinhart and Winston, New York, pp. 232–286.

Chomsky, Noam (1982): *Some Concepts and Consequences of the Theory of Government and Binding*. MIT Press, Cambridge, Massachusetts.

Chomsky, Noam (1986): *Barriers*. MIT Press, Cambridge, Mass.

Chomsky, Noam (1995): *The Minimalist Program*. MIT Press, Cambridge, Massachusetts.

Chomsky, Noam (2000): Minimalist Inquiries: The Framework. *In:* R. Martin, D. Michaels and J. Uriagereka, eds, *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. MIT Press, Cambridge, Massachusetts, pp. 89–155.

Chomsky, Noam (2001): Derivation by Phase. *In:* M. Kenstowicz, ed., *Ken Hale. A Life in Language*. MIT Press, Cambridge, Massachusetts, pp. 1–52.

Chomsky, Noam (2007): Approaching UG from Below. *In:* U. Sauerland and H.-M. Gärtner, eds, *Interfaces + Recursion = Language? Chomsky's Minimalism and the View from Syntax-Semantics*. Mouton de Gruyter, Berlin, pp. 1–30.

Chomsky, Noam (2008): On Phases. *In:* R. Freidin, C. P. Otero and M. L. Zubizarreta, eds, *Foundational Issues in Linguistic Theory. Essays in Honor of Jean-Roger Vergnaud*. MIT Press, Cambridge, Massachusetts, pp. 133–166.

Cinque, Guglielmo (1990): *Types of A′-Dependencies*. MIT Press, Cambridge, Mass.

Epstein, Samuel, Erich M. Groat, Ruriko Kawashima and Hisatsugu Kitahara (1998): *A Derivational Approach to Syntactic Relations*. Oxford University Press, Oxford.

Fanselow, Gisbert (1990): Scrambling as NP-Movement. *In:* G. Grewendorf and W. Sternefeld, eds, *Scrambling and Barriers*. Benjamins, Amsterdam, pp. 113–140.

Fanselow, Gisbert (1991): 'Minimale Syntax', *Groninger Arbeiten zur Germanistischen Linguistik* **32**.

Fanselow, Gisbert (1993): 'Die Rückkehr der Basisgenerierer', *Groninger Arbeiten zur Germanistischen Linguistik* **36**, 1–74.

Fanselow, Gisbert (2001): 'Features, θ-Roles, and Free Constituent Order', *Linguistic Inquiry* **32**, 405–437.

Fanselow, Gisbert (2003): 'Free Constituent Order, A Minimalist Interface Account', *Folia Linguistica* **37**, 191–231.

Ferguson, K. Scott (1993): 'Notes on the Shortest Move Metric and Object Checking', *Harvard Working Papers in Linguistics* **3**, 65–80.

Frey, Werner (2004): 'A medial topic position for German', *Linguistische Berichte* **198**, 153–190.

Grewendorf, Günther and Joachim Sabel (1999): 'Adjunction vs. Multiple Specifiers. On Scrambling in German and Japanese', *Natural Language and Linguistic Theory* **17**, 1–65.

Hagstrom, Paul (1998): Decomposing Questions. PhD thesis, MIT, Cambridge, Massachusetts.
Haider, Hubert (1988): Θ-Tracking Systems – Evidence from German. *In:* L. Maràcz and P. Muysken, eds, *Configurationality*. Foris, Dordrecht, pp. 185–206.
Haider, Hubert (1992): Branching and Discharge. Arbeitspapiere des Sonderforschungsbereichs 340, Nr. 23, Universität Stuttgart.
Haider, Hubert (1993): *Deutsche Syntax – Generativ*. Narr, Tübingen.
Haider, Hubert (2010): *The Syntax of German*. Cambridge University Press, Cambridge.
Hamblin, Charles L. (1973): 'Questions in Montague English', *Foundations of Language* **10**, 41–53.
Heck, Fabian (2009): 'On Certain Properties of Pied-Piping', *Linguistic Inquiry* **40**, 75–111.
Heim, Irene and Angelika Kratzer (1998): *Semantics in Generative Grammar*. Blackwell, Oxford.
Hudson, Richard (1984): Multiple (Alias "Parasitic") Gaps. Ms. UCL.
Hunter, Tim and Shiti Malhotra (2009): Reassessing the Argument for Tucking-In. Ms., University of Maryland.
Karttunen, Lauri (1977): 'Syntax and Semantics of Questions', *Linguistics & Philosophy* **1**, 3–44.
Kathol, Andreas (2001): On the Nonexistence of True Parasitic Gaps in Standard German. *In:* P. W. Culicover and P. M. Postal, eds, *Parasitic Gaps*. MIT Press, Cambridge, Massachusetts, pp. 315–338.
Kučerová, Ivona (2007): The Syntax of Givenness. PhD thesis, MIT, Cambridge, Massachusetts.
Lasnik, Howard (1999): 'On Feature Strength: Three Minimalist Approaches to Overt Movement', *Linguistic Inquiry* **30**, 197–217.
Lutz, Uli (2001): Studien zu Extraktion und Projektion im Deutschen. PhD thesis, Universität Tübingen.
Mahajan, Anoop (1990): The A/A-bar Distinction and Movement Theory. PhD thesis, MIT, Cambridge, Massachusetts.
McGinnis, Martha (1998): Locality in A-Movement. PhD thesis, MIT, Cambridge, Massachusetts.
Meinunger, André (2000): *Syntactic Aspects of Topic and Comment*. John Benjamins, Amsterdam.
Meinunger, André (2006): Remarks on the Projection of Dative Arguments in German. *In:* W. Abraham, D. Hole and A. Meinunger, eds, *Datives and Other Cases*. John Benjamins, Amsterdam, pp. 79–101.
Meyer, Roland (2003): On Multiple Wh-Fronting and Wh-Clustering in Czech. *In:* W. Browne, J.-Y. Kim, B. H. Partee and R. A. Rothstein, eds, *Formal Approaches to Slavic Linguistics 11. The Amherst Meeting 2002*. Michigan Slavic Publications, Ann Arbor, pp. 393–412.
Müller, Gereon (1995): *A-bar Syntax: A Study in Movement Types*. Mouton de Gruyter, Berlin.
Müller, Gereon (2001): Order Preservation, Parallel Movement, and the Emergence of the Unmarked. *In:* G. Legendre, J. Grimshaw and S. Vikner, eds, *Optimality-Theoretic Syntax*. MIT Press, Cambridge, Massachusetts, pp. 279–314.
Müller, Gereon (2010): 'On Deriving CED Effects from the PIC', *Linguistic Inquiry* **41**, 35–82.
Müller, Gereon (2011): *Constraints on Displacement*. Benjamins, Amsterdam.
Müller, Gereon and Wolfgang Sternefeld (1994): Scrambling as A-bar Movement. *In:* N. Corver and H. v. Riemsdijk, eds, *Studies on Scrambling. Movement and Non-Movement Approaches to Free Word-Order Phenomena*. Mouton de Gruyter, Berlin, pp. 331–386.
Neeleman, Ad (1994): Scrambling as a D-structure Phenomenon. *In:* N. Corver and H. v. Riemsdijk, eds, *Studies on Scrambling. Movement and Non-Movement Approaches to Free Word-Order Phenomena*. Mouton de Gruyter, Berlin, pp. 387–430.
Pafel, Jürgen (1991): Zum relativen Quantorenskopus im Deutschen. Arbeitspapiere des Sonderforschungsbereichs 340, Nr. 5, Universität Tübingen.
Pesetsky, David (1987): Wh-in-Situ: Movement and Unselective Binding. *In:* E. Reuland and A. ter Meulen, eds, *The Representation of (In)definiteness*. MIT Press, Cambridge, Massachusetts, pp. 98–129.
Pesetsky, David (1989): Language Particular Processes and the Earliness Principle. Ms., MIT.
Reinhart, Tanya (1998): 'Wh-in-situ in the Framework of the Minimalist Program', *Natural language semantics* **6**, 29–56.
Reis, Marga (1992): The Category of Invariant *alles* in Wh-Clauses: On Syntactic Quantifiers vs. Quantifying Particles in German. *In:* R. Tracy, ed., *Who Climbs the Grammar Tree?*. Niemeyer, Tübingen, pp. 465–492.
Richards, Marc (2004): Object Shift and Scrambling in North and West Germanic: A Case Study in Symmetrical Syntax. PhD thesis, University of Cambridge.
Richards, Norvin (1997): What moves where when in which language. PhD thesis, MIT, Cambridge, Massachusetts.

Richards, Norvin (2001): *Movement in Language*. Oxford University Press, Oxford.

Rooth, Mats (1985): Association with Focus. PhD thesis, University of Massachusetts, Amherst.

Ross, John Robert (1967): Constraints on Variables in Syntax. PhD thesis, MIT, Cambridge, Massachusetts.

Rudin, Catherine (1988): 'On Multiple Questions and Multiple Fronting', *Natural Language and Linguistic Theory* **6**, 445–501.

Rullmann, Hotze and Sigrid Beck (1998): Reconstruction and the Interpretation of Which-Phrases. *In:* G. Katz, S.-S. Kim and H. Winhart, eds, *Reconstruction: Proceedings of the 1997 Tübingen Workshop*. Universität Tübingen, pp. 223–256. Arbeitspapiere des Sonderforschungsbereichs 340, Nr. 127.

Safir, Ken (1987): 'The Anti-C-Command Condition on Parasitic Gaps', *Linguistic Inquiry* **18**, 678–683.

Sauerland, Uli (1999): 'Erasability and Interpretation', *Syntax* **3**, 161–188.

Sternefeld, Wolfgang (2001): Partial Movement Constructions, Pied Piping, and Higher Order Choice Functions. *In:* C. Féry and W. Sternefeld, eds, *Audiatur Vox Sapientiae – A Festschrift for Arnim von Stechow*. Akademie Verlag, pp. 473–486.

Toman, Jindřich (1981): Aspects of multiple wh-movement in Polish and Czech. *In:* R. May and J. Koster, eds, *Levels of Syntactic Representation*. Foris, Dordrecht, pp. 293–302.

Vikner, Sten (1989): 'Object Shift and Double Objects in Danish', *Comparative Germanic Syntax* **44**, 119–141.

Vikner, Sten (1995): *Verb Movement and Expletive Subjects in the Germanic Languages*. Oxford University Press, Oxford.

Webelhuth, Gert (1992): *Principles and Parameters of Syntactic Saturation*. Oxford University Press, Oxford.

Wiltschko, Martina (1997): 'D-Linking, Scrambling, and Superiority in German', *Groninger Arbeiten zur Germanistischen Linguistik* **41**, 107–142.

Zimmermann, Malte (2007): Quantifying Question Particles in German: Syntactic Effects on Interpretation. *In:* E. Puig-Waldmüller, ed., *Proceedings of Sinn und Bedeutung 11*. Universitat Pompeu Fabra, Barcelona, pp. 627–641.