Opaque Intervention

Anke Himmelreich & Fabian Heck*
Universität Leipzig

Abstract

In this paper, we illustrate that arguments in German and Czech differ in their capacity to function as antecedents for certain associates (floating quantifiers, parasitic gaps, and predicate nominals). While some of the differences can be explained in terms of surface intervention others cannot. We propose that this is accounted for if the association capacities are determined early in the derivation, namely at the edge of the vP-phase, where the arguments' base order is still preserved. While later operations may alter the relative order of the arguments, they come too late to have any effect on the arguments' licensing capacities, thus rendering intervention effects opaque.

1 Introduction and Overview

The purpose of this paper is to account for cases of intervention as they arise with binding of parasitic gaps (PGs) and association with floating quantifiers (FQs) in German as well as with case agreement on predicate nominals (PNs) in Czech. In what follows, we subsume FQs, PNs, and PGs under the term "associate"; the argument that establishes a relation with the associate is called its "antecedent." The central empirical observation is that an argument's capacity to function as the antecedent of an associate cannot always be read off of the argument's surface position but is often opaque. To begin with, one can observe that the relations under discussion (FQ-association, PG-binding, PN case agreement) are subject to an intervention restriction: an antecedent α cannot associate with β if there is another potential antecedent γ that intervenes on the surface between α and β. Sometimes, however, association between α and β is impossible although no γ intervenes. And sometimes, there is an intervening γ, and yet association between α and β is not disrupted. These cases, which are at variance with the surface intervention effect observed elsewhere, are, we claim, to be analyzed as instances of opacity (counter-feeding, counter-bleeding).[1]

---

[1]Opacity is a notion most familiar from generative phonology (Chomsky 1951, Kiparsky 1973, Kenstowicz and Kisseberth 1979), but it is not unheard of in the realm of syntax.

The idea that underlies the analysis is as follows. If association between α and β is impossible although there is no intervening γ on the surface, then, we claim, this is because there is an earlier derivational stage where γ does intervene between α and β (blocking association between them) but later moves away and thus ceases to intervene on the surface (counter-feeding). This is schematically illustrated in (1).

(1) $\dots \gamma \dots \alpha \dots t \dots \beta \dots$
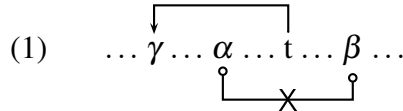
The reasoning presupposes, of course, that the association between γ and β in (1) is established as soon as the relevant configuration is reached (in particular before γ moves away).

If association between α and β is possible although some γ intervenes on the surface, then there must be a previous stage of the derivation where α occupies a position such that γ does not intervene between α and β (allowing association between the latter two). In a later step, α moves across γ, thereby giving the surface impression of intervention (counter-bleeding), see (2).

(2) $\dots \alpha \dots \gamma \dots t \dots \beta \dots$
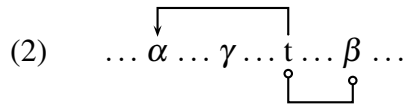
The relation between an antecedent and its associate is not always opaque. There are also well-behaved cases of association without intervention (feeding) and cases where association is blocked by surface intervention (bleeding). The question then is what determines whether an antecedent relates (or does not relate) to an associate in an opaque or in a transparent way. It turns out that there are asymmetries between arguments with respect to whether they can act as antecedent for an associate in the presence of a particular coargument (leading to feeding and counter-bleeding) or whether they cannot (resulting in bleeding and counter-feeding). The empirical generalization that emerges is that of those arguments that (ultimately) precede the associate, it is always the one that has been merged *earliest* that becomes its antecedent. We propose that this pattern emerges in all three types of association under investigation.

Simplifying somewhat, the pattern is derived as follows. The associate is merged in a fixed position to the left of its potential antecedents (namely in the innermost Specv). Association requires that the antecedent moves to the left of the associate (to c-command it). The relevant movement operations that we will be dealing with are scrambling and successive cyclic *wh*-movement, both targeting (outer) specifiers of vP. The surface true associations (involving feeding or bleeding) can then be traced back (a) to the order in which the arguments (the potential antecedents α, γ etc.) are merged in their base positions, (b) to the idea that their relative order is preserved when they move together across the associate, and (c) to the assumption that syntactic association (feature checking/valuation) must apply as soon as possible. As a consequence, (a), (b), and (c) interact to the effect that of those arguments that move across the associate β it is the most deeply embedded one that is first remerged to a position c-commanding the associate, thus becoming its antecedent (α in (3)). The intervention effect is thus accounted for derivationally (without reference to a representational constraint) by the relative order of elementary operations as they apply during the derivation.

(3) $\dots \gamma \dots \alpha \dots \beta \dots t \dots t \dots$
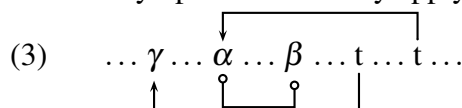
The nonsurface true associations (involving counter-feeding and counter-bleeding) are accounted for by further movement of the actual antecedent (α in (3)), which changes the relative order of the potential antecedents (α and γ in (3)), thereby rendering feeding and bleeding opaque. These are the movements indicated in (1) and (2).

The empirical evidence for opaque intervention that we present is of the same abstract type in all three cases: the associate β is located in the innermost Specv. The potential antecedents α and γ move across β into (outer) specifiers of vP. From there the actual antecedent α undergoes further movement. Since the intermediate movement step of α to Specv is necessary for creating an opaque context in the first place, the present analysis, in so far as it is successful, can be viewed as an argument for intermediate movement to the edge of vP.

The present study further suggests that scrambling (at least in German and Czech) should be analyzed as a movement transformation (as opposed to variable base generation) and that tucking-in does not fit too well into a derivational treatment of opaque intervention. We further discuss how the approach copes with observations that involve *wh* in situ and with different verb classes in German (pertaining to double object constructions and unaccusativity).

A desideratum of a derivational account of opacity is that the order of the rules involved is intrinsic, that is, it follows from independent properties of the system. It will turn out that the rule order employed in the present study is (almost completely) determined by independently motivated principles of the derivational architecture (such as strict cyclicity or the requirement that feature checking applies as early as possible).

We proceed as follows. In section 2, we illustrate the opacity effects that arise with FQ-association (2.1) and PG-binding in German (2.2) as well as with case agreement on PNs in Czech (2.3). We make explicit the theoretical background (section 3) and then show how the opacity effects observed in section 2 can be derived for each of the empirical domains (sections 4.1–4.2). Section 5.1 discusses some complications that arise with *wh*-phrases in situ. In section 5.2, it is argued that the feature triggering (a particular type of) scrambling in Czech and German has the same interpretational effect in both languages. In section 5.3, we explain why only some of the findings presented in the present study seem to support the diagnostics that have been argued to distinguish verb classes (in German) with respect to the underlying word order they project. Section 5.4 illustrates that opaque intervention provides an argument against the idea that scrambling is to be derived by base generation. Finally, we argue that the theory of tucking-in is not well-suited to account for opaque intervention effects in a strictly derivational framework (section 5.5). Section 6 provides a conclusion.

2   Observations

In this section, we present three different instances of opaque intervention effects, all of which exhibit an asymmetry such that the association of an argument with a category in need for an antecedent (the associate) is sometimes inhibited by a coargument even if the coargument does not intervene at the surface. The generalization that emerges from these observations is given in (4).

(4)   *Generalized Intervention Asymmetry:*
        An antecedent α can establish a relation with an associate β in the presence of a coargument γ that precedes β if and only if γ is higher on the hierarchy *nom* $\succ$ *dat* $\succ$ *acc* than α.

In what follows, we show in detail that this generalization holds for FQs and PGs in German, and – at least to a certain degree – for PNs in Czech.[2] The fact that there is a generalization

---

that captures all three cases under investigation suggests a unified account. Such an account is developed in sections 3 and 4.

2.1 Floating Quantifiers

German possesses a floating quantifier *alles* 'all', which obligatorily associates with a *wh*-phrase (Pafel 1991, Reis 1992).[3] This is illustrated in (5-a-c), where association is represented by coindexation. In (5-a), *alles* associates with a subject *wh*-phrase (marked by nominative case), in (5-b,c) the associates of *alles* are a direct and an indirect object (marked by accusative and dative case), respectively.

(5)   a.   Wer$_2$ hat euch alles$_2$ geholfen?
           who.NOM has you all   helped
           'Who all helped you?'
   b.   Wen$_2$ habt ihr   alles$_2$ kennengelernt?
           who.ACC have you all   met
           'Who all did you meet?'
   c.   Wem$_2$ habt ihr   alles$_2$ geholfen?
           who.DAT have you all   helped
           'Who all did you help?'

The grammatical function of the associate has no impact on the morphology of *alles*. Thus, *alles* is morphologically invariant. In this respect, it differs from its kin, the FQ *all(es)* 'all' (and also from the FQ *beide* 'both') in German. Syntactically and semantically, *alles* and *all(es)* must also be distinguished (see in particular Reis 1992). In what follows, we focus on invariant *alles*.[4]

If a subject *wh*-phrase associates with floating *alles*, then no indefinite object, be it indirect or direct, may intervene between the *wh*-phrase and the FQ, see (6-a,b). Also, an indirect object *wh*-phrase cannot be separated from *alles* associated with it by an indefinite direct object (6-c).

(6)   a.   *Wer$_1$ hat einem Professor   alles$_1$ gratuliert?
          who.NOM has a   professor.DAT all   congratulated
          'Who all congratulated a professor?'
   b.   *Wer$_1$ hat einen Professor   alles$_1$ vergöttert?
          who.NOM has a   professor.ACC all   idolized
          'Who all idolized a professor?'
   c.   *Wem$_1$ hat sie einen Professor   alles$_1$ vorgestellt?
          who.DAT has she a   professor.ACC all   introduced
          'Who all did she introduce a professor to?'

It thus seems as if an indefinite noun phrase that intervenes at the surface between a *wh*-phrase and a FQ associated with the latter disrupts the association between the two.

However, if the *wh*-phrase that associates with floating *alles* is a direct or an indirect object, then an indefinite subject *can* intervene between the *wh*-phrase and the FQ, see (7-a,b). Simi-

---

[3]The *alles* combining with *wh*-phrases must be distinguished from other uses of *alles* in German (Giusti 1991).

[4]Discussions of variant *all(es)* can be found in Link 1974, Reis and Vater 1980, Giusti 1990, Haider 1993:214-215, and Merchant 1996. Floating *beide* is addressed in Reis and Vater 1980. For an analysis of intervention effects with indefinites and invariant *alles* in German in terms of LF-movement, see Beck 1996:41-46.

larly, a direct object *wh*-phrase can be separated from a FQ associated with it by an indefinite indirect object (7-c).

(7) a. Wem₁   hat ein Professor   alles₁ geholfen?
         who.DAT has a professor.NOM all   helped
         'Who all did a professor help?'
     b. Wen₁   hat ein Professor   alles₁ beleidigt?
         who.ACC has a professor.NOM all   insulted
         'Who all did a professor insult?'
     c. Wen₁   hat sie einem Professor   alles₁ vorgestellt?
         who.ACC has she a   professor.DAT all introduced
         'Who all did she introduce to a professor?'

Against the background of the intervention facts in (6), this state of affairs can be interpreted as an instance of counter-bleeding: although the surface intervention of the indefinite is expected to bleed association of the *wh*-phrase with the FQ (as it does in (6)), no such intervention effect occurs in (7). Since in (7-a-c), in contrast to (6-a-c), the intervener is lower on the case hierarchy *nom* $\succ$ *dat* $\succ$ *acc* than the *wh*-phrase, FQ-association in German follows the generalization about intervention asymmetries in (4).

Finally, it can be observed that the intervention asymmetries vanish if the intervening argument is definite (and not indefinite): a definite argument can freely intervene between a *wh*-phrase and a FQ associated with it, no matter what the grammatical functions of the *wh*-phrase and the intervener are. Obviously, definite noun phrases are not the right type of element to bleed association between a *wh*-phrase and a FQ. This is illustrated in (8), which provides minimal pairs with respect to (6).

(8) a. Wer₁   hat dem Professor   alles₁ gratuliert?
         who.NOM has the professor.DAT all   congratulated
         'Who all congratulated the professor?'
     b. Wer₁   hat den Professor   alles₁ vergöttert?
         who.NOM has the professor.ACC all   idolized
         'Who all idolized the professor?'
     c. Wem   hat sie den Professor   alles vorgestellt?
         who.DAT has she the professor.ACC all introduced
         'Who all did she introduce the professor to?'

2.2 Parasitic Gaps

The second case that motivates generalization (4) involves binding of parasitic gaps in German.[5] To begin with, if an indirect object *wh*-phrase binds a PG, then no direct object must intervene between the PG and the *wh*-phrase (9-a). Thus, a direct object that intervenes at the surface between a PG and its binder disrupts the binding relation between the two. In contrast, if the PG is bound by a direct object *wh*-phrase, then an indirect object may intervene between the *wh*-phrase and the PG bound by it (9-b) without causing ungrammaticality.[6]

---

[5]Generally, PGs must be bound by an element in Ā position (Taraldsen 1981, Engdahl 1983, Chomsky 1982). On PGs bound by *wh*-moved categories in German, see Bayer 1984; 1988, Fanselow 1993, and Lutz 2001.

[6]Asymmetries with a subject binding a PG cannot be observed for independent reasons: due to the anti-c-command condition on PGs (Engdahl 1983, Chomsky 1982, or Safir 1987), which blocks PG-binding if the base

(9) 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
'Who did Fritz take the book from instead of helping him?'

b. Was$_2$ hat der Fritz der Maria [anstatt PG$_2$ wegzuwerfen] zu essen
what.ACC has the Fritz the Maria.DAT instead away to throw to eat
angeboten?
offered
'What did Fritz offer Maria to eat instead of throwing it away?'

Note that an indirect object can bind a PG if no direct object intervenes:

(10) Wem$_2$ hat der Fritz [anstatt PG$_2$ zu helfen] das Buch weggenommen?
who.DAT has the Fritz instead to help the book away taken

Speaking in terms of surface intervention and opacity, intervention of a direct object bleeds the binding relation between an indirect object *wh*-phrase and a PG. Intervention by an indirect object, however, does not bleed binding of a PG by a direct object *wh*-phrase: again, an instance of counter-bleeding.

As first argued by Felix (1983; 1985), scrambled elements in German can also bind PGs (see also Webelhuth 1992:175-176, Mahajan 1990, Grewendorf and Sabel 1999).[7] In (11), for instance, the direct object has scrambled across the adjunct clause, thereby binding a PG within the adjunct.

(11) Hans hat Maria$_2$ [ohne PG$_2$ anzuschauen] t$_2$ geküsst.
Hans has Maria.ACC without at to look kissed
'Hans kissed Maria without looking at her.'

As has been noted by various people (Mahajan 1990:60, Fanselow 1993:35, Müller 1995:232, 261-264), if a PG is bound by a scrambled indirect object, then the direct object must not intervene between the PG and its binder, see (12-a) (see also Dikken and Mulder 1991 for Dutch). What has gone unnoticed in the literature so far is the fact that binding of a PG by a scrambled indirect object is impossible even if the direct object has scrambled to a position where it does *not* intervene between the indirect object and the PG, see (12-b).

(12) a. *wenn jemand der Anette$_2$ das Buch [ohne PG$_2$ zu vertrauen]
if someone the Anette.DAT the book.ACC without to trust
ausleiht
lends
'if someone lends Anette the book without trusting her'

b. *wenn jemand das Buch der Anette$_2$ [ohne PG$_2$ zu vertrauen]
if someone the book.ACC the Anette.DAT without to trust
ausleiht
lends

___

position of the potential binder c-commands the PG, subjects can hardly act as binders for PGs.

[7]The same claim was made for Dutch (Bennis and Hoekstra 1984). The question as to whether scrambled categories can bind PGs is still under debate. Huybregts and van Riemsdijk (1985) argue against binding of PGs by scrambling in Dutch; see also Fanselow 1993; 2001, Haider 1997, Kathol 2001, and Haider and Rosengren 2003 on German.

In its surface position, the indirect object in (12-b) is expected to be able to bind the PG without the direct object interfering. But this is not the case. Thus, (12-b) instantiates counter-feeding.

Unsurprisingly, if a scrambled direct object binds a PG, then it is possible to scramble an indirect object to a position to the left of the direct object, where it does not intervene between the binder and the PG (13-a). (The same result obtains if the indirect object scrambles to a position to the left of the subject, example omitted.) More interestingly, the indirect object may be even scrambled to a position where it intervenes between the binder and the PG on the surface without disrupting the binding relation, see (13-b).[8] The same state of affairs holds if scrambling of a PG-binding object targets a position to the left of the subject (as already noted by Fanselow (1993)), see (13-c,d). Accordingly, (13-b-d) can be understood as instantiating the pattern of counter-bleeding.

(13)   a.   dass Hans der Maria   das Buch$_2$ [ohne   PG$_2$ durchzulesen]
            that Hans the Maria.DAT the book.ACC   without   through to read
            zurückgibt
            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]
            that Hans the book.ACC the Maria.DAT   without   through to read
            zurückgibt
            back gives
            'that Hans returns the book to Maria without reading it through'
       c.   dass das Buch$_2$ jemand   [ohne   PG$_2$ durchzulesen] weggeworfen
            that the book.ACC someone.NOM   without   through to read away thrown
            hat
            has
            'that someone threw the book away without reading it'
       d.   wenn der Anette$_2$ jemand   [anstatt PG$_2$ zu gratulieren] kondoliert
            if   the Anette.DAT someone.NOM   instead   to congratulate condoled
            hat
            has
            'if someone condoled with Anette (on s.th.) instead of congratulating her (on it)'

The examples in (9)–(13) illustrate that intervention effects with PG-binding in German follow the pattern of generalization (4), similar to the intervention asymmetries showing up with FQ-association (section 2.1).

There are environments where categories have been argued to not act as interveners for the binding relation between a scrambled coargument and a PG in German. First, as (9-b) already suggests and as noted by Fanselow (1993:35), subjects never act as interveners for PG-binding. This is also the case when the binder has undergone scrambling instead of *wh*-movement (13-c,d). Second, (as again noted by Fanselow (1993); see also Kathol 2001:329) if the intervening element binds a PG itself, then it does not interfere with the PG-binding relation

---

[8]The judgments involved in (12) and (13) are subtle. This may be the reason why there is some disagreement in the literature about what the facts are. For instance, while Lee and Santorini (1994:267) concur with our view on examples such as (13-b), Müller and Sternefeld (1994:375) and Müller (1995:263) judge them as ungrammatical. Moreover, (12-b) is given as grammatical in Müller 1995:261. Since in these works no judgments are given for examples like (13-a) and (12-a), we have to leave open how the divergence could possibly be accounted for within the proposal we are going to make in section 4.

of a coargument to its left (14).

(14) wenn jemand   der Anette$_2$ das Buch$_3$ [anstatt PG$_2$ PG$_3$ zu schenken]
      if   someone the Anette.DAT the book.ACC instead   to give.as.present
      ausleiht
      borrows
      'if someone borrows Anette the book instead of giving it to her as a present'

Third, Dikken and Mulder (1991) argue for Dutch that if two weak object pronouns precede an adjunct clause containing a PG, then both can bind the PG. In our view, this effect does not carry over to German: rather, (14-b), where the indirect object pronoun binds the PG, is on a par with instances of counter-feeding that arise in the context of full noun phrases (cf. (12-b)).

(15) a. wenn jemand es$_2$ ihr   [anstatt PG$_2$ zu schenken]   ausleiht
          if   someone it.ACC her.DAT instead   to give.as.present borrows
      b. *wenn jemand es   ihr$_2$ [anstatt PG$_2$ zu   helfen] wegnimmt
          if   someone it.ACC her.DAT instead   to help   away takes

But see Müller 1995:263 for different judgments.

2.3   Case Agreement

The last phenomenon that we argue instantiates generalization (4) involves case agreement with predicate nominals in Czech. In Czech, there are PNs that are formed by prefixing a noun phrase with one of the particles *jako* or *coby* (both meaning 'as'). A PN introduced by *jako* or *coby* shows case agreement with an argument that precedes it and that the PN predicates over.[9] Interestingly, there is an asymmetry in some cases as to which argument can trigger case agreement on (and thus enter into predication with) a PN if more than one argument precedes the PN.

   To illustrate, if an indirect object *wh*-phrase undergoes *wh*-fronting in Czech and ends up in a position to the left of a PN, then it can enter into predication with the PN, which is morphologically signaled by dative-case agreement on the PN (16).

(16) Komu   představil   poslanec   jako příteli   toho sponzora?
      who.DAT introduce.PART delegate.NOM as   friend.DAT this sponsor.ACC
      'To whom did the delegate introduce this sponsor as a friend?'

(16) shows that there is, in principle, nothing that prevents an indirect object from establishing case agreement (and thus enter into a predication relation) with the PN.

   Next consider multiple questions. Czech is a language that exhibits multiple *wh*-fronting. It is often assumed that the highest *wh*-phrase ends up in SpecC while lower *wh*-phrases are moved to the T-domain (Rudin 1988, Richards 2001, also Toman 1981:298; see Meyer 2003 for certain qualifications). Presumably connected to this is the fact that multiple *wh*-fronting usually does not obey superiority in Czech (cf. footnote 34). Consider now the pair in (17).

---

[9]As noted by an anonymous reviewer, there is a difference in meaning between PNs formed by *jako* or *coby*. It appears that *coby* presupposes the truth of the predication in question (while *jako* does not). One variant may thus be preferred over the other, depending on whether the presupposition is compatible with the context (e.g., the choice of the main predicate) or not.

(17)   a.   Koho   komu   generál   postoupil   jako otroka?
            who.ACC who.DAT general.NOM handed.over as   slave.ACC
            'Who as a slave did the general hand over to whom?'
       b.   Komu   koho   generál   postoupil   jako otroka?
            who.DAT who.ACC general.NOM handed.over as   slave.ACC

(17-a,b) only differ from each other in that in (17-a) the direct object *wh*-phrase *koho* is in SpecC while the indirect object *wh*-phrase *komu* occupies a (possibly outer) specifier of TP. In (17-b), the *wh*-arguments have exchanged their positions. In both (17-a,b), that is independent of the order in which the *wh*-arguments show up clause initially, it is the direct object *wh*-phrase which triggers accusative case agreement with the PN. Accordingly, both sentences are understood as involving predication by the PN over the direct object. In the same contexts, however, the indirect object argument cannot trigger case agreement with the PN. The PN therefore can hardly be understood as predicating over the indirect object *wh*-phrase, no matter whether this phrase shows up in SpecC or in SpecT (18-a,b).[10]

(18)   a.   *Koho   komu   generál   postoupil   coby nepříteli?
            who.ACC who.DAT general.NOM handed.over as   enemy.DAT
            'Who did the general hand over to whom as an enemy?'
       b.   *Komu   koho   generál   postoupil   coby nepříteli?
            who.DAT who.ACC general.NOM handed.over as   enemy.DAT

Descriptively speaking, if the direct object precedes the PN, it disrupts association of the latter with the indirect object, but not vice versa.

   In terms of surface intervention and opacity, one may say that (17-b) involves feeding because the direct object *wh*-phrase is closest to the PN (modulo the subject) while (18-b) involves bleeding: the direct object is closer to the PN than the indirect object and thus prevents the latter from establishing case agreement with the PN. Following this logic, (17-a) involves a case of opacity, namely counter-bleeding: although the indirect object *wh*-phrase is closer to the PN than the direct object *wh*-phrase (and is thus expected to bleed case agreement between PN and the direct object), the direct object can still trigger case agreement on the PN. Accordingly, (18-a) represents counter-feeding: although the indirect object is closer to the PN than the direct object, case agreement with the indirect object is still degraded.

   So far, we have seen that, when it comes to intervention with *wh*-objects, PN-agreement in Czech behaves similarly to FQ-association and PG-binding in German. Thus, PN-agreement in Czech can be subsumed under the generalization in (4). There are, however, the following exceptions that complicate the picture.

   First of all, no asymmetry in terms of intervention can be observed if one of the objects is a *wh*-phrase while the other is a non-*wh* argument appearing to the left of the PN (19).

(19)   a.   Koho   strana   parlamentu   předloží   jako svého   kandidáta?
            who.ACC party.NOM parlament.DAT suggest.3SG as   SELF.ACC candidate.ACC
            'Who is the party going to suggest as its candidate to the parlament?'
       b.   Komu   představil   poslanec   sponzora   jako příteli?
            who.DAT introduce.PART delegate.NOM sponsor.ACC as   friend.DAT
            'To whom did the delegate introduce the sponsor as a friend?'

---

[10]This effect was confirmed by a magnitude estimation study (successfully performed by 16 native speakers). See the appendix for details.

The same state of affairs holds if it is the non-*wh* argument that agrees with the PN:

(20)   a.   Komu   představil   primář   svého   kolegu   jako
              who.DAT introduce.PART chief physician.NOM SELF.ACC colleague.ACC as
              jednoho z nejlepších kardiologů?
              one.ACC of best.GEN   cardiologists.PL.GEN
              'To whom did the chief physician introduce his colleague as one of the best car-
              diologists?'
       b.   Koho   předal   primář   svému   kolegovi   jako jednomu
              who.ACC refer to.PART chief physician SELF.DAT colleague.DAT as   one.DAT
              z nejlepších kardiologů?
              of best.GEN   cardiologist.PL.GEN
              'Who did the chief physician refer to his colleague as one of the best cardiolo-
              gists?'

The second exception to generalization (4) concerns subjects: subjects never act as interveners for case agreement between an object *wh*-phrase and a PN (see (16)). This is also the case for *wh*-subjects, see (21).

(21)   a.   Koho   kdo   doporučil   jako experta   na literaturu?
              who.ACC who.NOM recommend.PART as   expert.ACC for literature
              'Who recommended whom as an expert for literature?'
       b.   Komu   kdo   pomohl   jako příteli?
              who.DAT who.NOM help.PART as   friend.DAT
              'Who helped whom as a good friend?'

Moreover, a *wh*-subject seems to be able to case-agree with a PN even if there is a *wh*-object intervening at the surface. This is illustrated in (22). (The same holds for intervening non-*wh* phrases, examples omitted.)

(22)   a.   Kdo   koho   obdivoval   jako malý   kluk?
              who.NOM who.ACC admire.PART as   little.NOM boy.NOM
              'Who as a little boy admired whom?'
       b.   Kdo   komu   uškodil   jako anonymní   člen   poroty?
              who.NOM who.DAT harm.PART as   anonymous member.NOM jury.GEN
              'Who as an anonymous member of the jury harmed whom?'

Depending on one's expectations with respect to intervention, one could either interpret the facts in (21)–(22) as instances of counter-bleeding (despite an intervening phrase, agreement is not bled in any of these cases) or, alternatively, one might simply say that subjects do not take part in intervention for independent reasons.

     Finally, it turns out that there is also no intervention among non-*wh* arguments with respect to PN-agreement. This is shown for two objects in (23-a,b). Similar facts hold for interactions involving subjects (examples omitted).

(23)   a.   Klinika   předala   jednoho pacienta   významnému   kardiologovi
              clinic.NOM refer to.PART a.ACC   patient.ACC important.DAT cardiologist.DAT
              jako beznadějný   případ.
              as   hopeless.ACC case.ACC
              'The clinic referred a patient to an important cardiologist as a basket case.'

b.   Premiér   nabídl   kamarádovi předsednictví   v dozorčí radě
premier.NOM offer.PART friend.DAT   presidency.ACC in supervisory board.LOC
právě coby odborníkovi.
just   as   expert.DAT
'The premier offered the presidency in the supervisory board to a friend just as an
expert.'

To briefly summarize, we have argued that certain intervention asymmetries arise with FQ-association and PG-binding in German as well as with PN-agreement in Czech. Sometimes, these asymmetries do not reflect the surface configuration of the elements involved. They are, however, captured by the descriptive generalization (4), which makes reference to the case hierarchy *nom ≻ dat ≻ acc*. In the following two sections we develop an analysis that derives generalization (4) from standard principles of derivational syntax, without reference to any representational auxiliary concepts such as a case hierarchy. Section 3 presents our background assumptions while section 4 provides the concrete analysis of the phenomena under discussion.

3   Theoretical Background

3.1   EFs and the Intermediate Step Corollary

The analysis to be presented in section 4 is couched in the probe-goal framework of Chomsky 2000; 2001; 2007. In this framework, the two central operations that form syntactic dependencies are Agree and Move. We adopt the view that Agree between two features, the probe ($[u\text{F}]$) and the goal ($[\text{F}]$), takes place under c-command. Move is assumed to be subject to the (strict version of the) Phase Impenetrability Condition (PIC, Chomsky 2000), see (24).

(24)   *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.

The edge domain of H comprises specifiers of H plus elements adjoined to HP.

Chomsky (2000; 2001) assumes that only CP and vP are phases. We follow this view here. In fact, the intermediate landing site that will turn out to be crucial for deriving the opacity effects under discussion here is the edge of vP.

Standardly, the probe-goal theory incorporates the idea that all movement is feature-driven. It must thus be ensured that there is a feature that drives movement to the phase edge, as is indirectly required by the PIC. To this end, Chomsky (2007; 2008) proposes that phase heads can have edge features (EFs) inserted on them (cf. also Chomsky 2001:34). An EF enables a head H to undergo internal merge with some category, creating a specifier of H. We adopt this proposal.

Following Müller (2010; 2011), we further assume that EF-insertion is constrained: an EF 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. Müller (2010; 2011) calls this the Edge Feature Condition (EFC) and argues that it leads to the Intermediate Step Corollary (ISC) in (25).

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

To see why (25) should hold, consider a derivation that begins with the construction of a VP containing a *wh*-phrase. Ultimately, the *wh*-phrase will end up in SpecC of an interrogative C-head. When the v-head is merged with VP the *wh*-phrase must move to Specv in order to remain PIC-accessible for operations outside vP. By assumption, such intermediate movement is triggered by an EF. An EF can only be inserted on v as long as v is active. If v bears a subcategorization feature that is to be discharged by an external argument, then v remains active as long as the external argument has not been merged. It follows that if an EF is to be inserted on v, this must happen before the external argument is introduced.[11]

Now, Müller (2010; 2011) assumes that the features on a head H that trigger Merge are organized on a stack, and that only the element on the top of the stack is accessible. Once the topmost element is discharged, it is removed, and the element below it becomes accessible. If EFs are always inserted on top of this stack, then they must be discharged before any other feature can be accessed (realizing the last-in-first-out property typical of stacks). Thus, the *wh*-phrase in the scenario above must discharge the inserted EF before the external argument can discharge v's subcategorization feature. Provided the Strict Cycle Condition (SCC, Chomsky 1973) in (26), this means that the *wh*-phrase targets an inner specifier of vP while the external argument is merged to the outer Specv.

(26)   *Strict Cycle Condition:*
         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.

To sum up, the interaction of the ISC and the SCC leads to a configuration where a phrase undergoes movement to a position that ultimately ends up as an inner specifier below a phrase that later undergoes external Merge to become the outer specifier of the same head.[12]

3.2   Scrambling and EFs

As the analysis in section 4 involves scrambling and/or successive cyclic *wh*-movement, we now introduce our assumptions pertaining to these.

If all movement is feature-driven, the question arises as to what kind of feature drives scrambling. Sometimes, the existence of an abstract feature [SCR] is assumed (see McGinnis 1998, Grewendorf and Sabel 1999, Sauerland 1999, among others). We would like to suggest that if EFs are needed anyway to account for successive-cyclic movement to Specv, then one may as well identify them as the trigger of scrambling to this position.[13] As will become clear, this is motivated by the observation that scrambling behaves like successive cyclic *wh*-movement in that it preserves the relative order of multiply moved items.[14]

---

[11]Usually, v is assumed to bear ϕ/case features. These could equally serve to keep v active, even after the external argument is merged. Thus, insertion of an EF could, in principle, apply after introduction of the external argument. Ultimately, however, this option fails: checking of v's ϕ/case features after the external argument was merged violates strict cyclicity (26) (see Müller 2010; 2011).

[12]The resulting structure is similar to what Richards (2001) calls "tucking-in," however, its derivation is not. We return to the issue of tucking-in in more detail in section 5.5.

[13]Similarly, Richards (2004:4) (building on Chomsky 2001:34) proposes that scrambling is EPP-driven movement to Specv. A question arises with respect to languages (like English) that do not exhibit scrambling. Assuming that the PIC equally holds for these, they must allow for EF-insertion on v, too. We must leave this an open issue. For some reason, languages without scrambling do not allow for elements that have moved to Specv to surface.

[14]Unfortunately, it is not possible to reduce all instances of scrambling to EFs. In later sections, we will address scrambling to Specv in Czech and to SpecT in German, suggesting that it is (partially) triggered by other features.

Chomsky (2007:11) suggests that the existence of multiple specifiers indicates that EFs do not delete when they have triggered Merge once but rather remain active (a possibility already alluded to in Chomsky 1995). We adopt this suggestion here, assuming that EFs that trigger scrambling behave just like EFs that trigger successive-cyclic movement (at the same time differing from other movement inducing features) in that they do not delete once they have triggered Merge. As a consequence, they can, in principle, attract an arbitrary number of categories that are within their search space. This is what happens in the case of multiple scrambling (e.g., in German). If EFs attract multiple categories, then the most restrictive assumption seems to be that a head receives at most one EF per derivation. This will be our working hypothesis.

It is often assumed that probing by a feature is subject to the Minimal Link Condition (MLC; Fanselow 1991, Ferguson 1993, Chomsky 1995), a version of which is given in (27).

(27)   *Minimal Link Condition:*
        If in a representation $\alpha \ldots [\ldots \beta \ldots [\ldots \gamma \ldots] \ldots]$ 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).

Since scrambling is triggered by a feature, one expects it to be subject to the MLC, too. This, however, does not seem to be the case in Czech and German: in these languages (as opposed to, e.g., Dutch), α can scramble across β even if β, too, could in principle undergo scrambling (see Fanselow 2001:407, Haider 2010:142 on German and Veselovská 1995:55, 159 and Biskup 2011:41-42 on Czech).

To tackle this problem, we suggest as a working hypothesis that a probe P can, in principle, skip some potential goal G, thereby targeting a lower goal G′. In other words, the MLC should be dispensed with (cf. Chomsky 2008:151, Fanselow and Lenertová 2011:184). This presupposes that standard minimality effects can be derived without recourse to the MLC. In section 4, we illustrate that the intervention effects observed in section 2 naturally follow from a strictly derivational approach without reference to the MLC. Moreover, in sections 3.3, 4.2, and 5.5 we provide further arguments against the MLC.[15]

Finally, we adopt the following (Pesetsky 1989, Chomsky 1995:233, Lasnik 1999, Řezáč 2003):

(28)   *Earliness Requirement for Feature Checking:*
        Probe features enter into Agree as early as possible.

(28) ensures that once the structural requirements for the application of an Agree operation are fulfilled, Agree has to apply immediately.

3.3   Order Preservation

It has been observed that movement of coarguments is often order preserving (see Müller 2001, Richards 2001, Sells 2002, and Williams 2003 for various cases of order preserving movement and different explanations thereof). Order preservation effects obtain if coarguments are attracted by one (type of) feature on the same head (Richards 2001, McGinnis 1998, Bruening

---

[15]Müller (2004; 2011) makes a related point and offers an account of superiority that does without the MLC. It should be noted, though, that there are facts attributed to the MLC in the literature that are not covered by either Müller 2004; 2011 or the present theory. The reader who is pessimistic that an MLC-free explanation can be provided for these, too, can stick to the MLC and instead adopt additional assumptions to provide a workaround for the problems that we identify for the MLC. In other words, the hypothesis that the MLC does not exist is not part and parcel of the analysis presented in section 4. We nevertheless stick to it as a working hypothesis.

2001, Anagnostopoulou 2003). To illustrate, consider multiple object shift (OS) in Danish (see Vikner 1989; 1995). (29-a,b) show that if two object pronouns in a double object construction undergo OS, then their relative order must be preserved.

(29)   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

In section 4, we argue that this the consequence of multiple EF-driven movement (subsuming EF-driven scrambling and EF-driven successive-cyclic movement). This plays a crucial role when it comes to explaining the asymmetries illustrated in section 2. Before we turn to the analysis proper let us present the mechanics that we assume to be responsible for such order preservation effects.

Assume that (29-a) comes about because v in Danish can be equipped with an EF that attracts weak pronouns from within VP into its specifier domain, forming multiple specifiers within vP.[16] If both the SCC (26) and the MLC (27) are respected, the resulting partial derivation is the one in (30), with the order of movement steps indicated by the number labels.

(30)   [$_{vP}$ den$_3$ hende$_2$ ... [$_{VP}$ ... t_2 t_3 ...]]
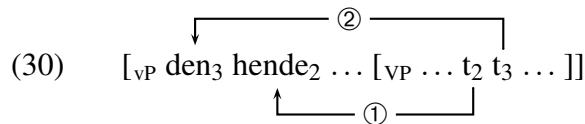
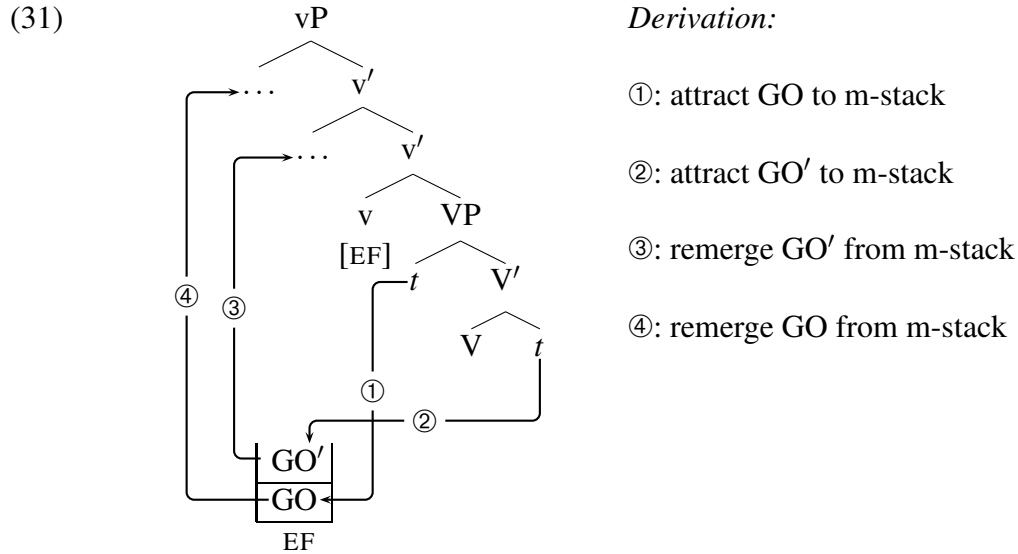Ultimately, however, (30) leads to the ungrammatical (29-b).

It thus looks as if one cannot maintain the SCC and the MLC simultaneously. In section 3.2 we already introduced the idea to dispense with the MLC. Note, however, that by simply giving up the MLC one does not get order preservation effects for free: without the MLC, EF can choose freely which pronoun it attracts first, resulting in one order or the other. In what follows, we make a proposal that maintains strict cyclicity (at the expense of the MLC) and, at the same time, derives order preservation effects.

Consider again multiple OS in Danish. The EF scans down the tree in search for a goal GO. Suppose that when a weak pronoun is encountered, it is taken from the tree and placed on a buffer in form of a memory stack that is associated with the EF. Note that this buffer exclusively hosts items selected for movement; it must not be confused with the feature stack mentioned in section 3.1. Henceforth, we refer to this stack as *m(ovement)-stack*. Parallel movement proceeds as follows: The EF proceeds scanning. When another goal GO′ is encountered, GO′ may be placed on the m-stack, too, on top of GO, etc. At one point, the EF will have exhausted its search space. At this point, the derivation starts to remerge the pronouns it has collected on the m-stack. At each point of remerge, only the pronoun on top of the m-stack is accessible. Once the topmost pronoun has been remerged, the one below it becomes accessible. As a result, the order in which the pronouns are remerged from the m-stack is the inverse of the one in which they have been collected. This re-establishes the original order GO ≻ GO′, ≻ etc.[17] The

---

[16]This raises the question as to why there is no OS with full noun phrases in Danish (and in Faroese and the Mainland Scandinavian languages, in general). Since the issue is orthogonal to our main concern here, we will not address it further.

[17]Stroik (2009) and Unger (2010) also derive order preservation effects by making use of (some kind of) a buffer. Richards (2001) puts forward a different approach to order preservation effects which sacrifices strict cyclicity in

relevant part of the derivation of (29-a) thus proceeds as illustrated in (31).

(31)

Derivation:

①: attract GO to m-stack

②: attract GO$'$ to m-stack

③: remerge GO$'$ from m-stack

④: remerge GO from m-stack

Note that there is nothing that forces the EF to attract a pronoun. Without the MLC, a higher pronoun could be skipped and a lower one be attracted instead (or nothing at all could be attracted). But this means that something else in the grammar must ensure that the derivation will crash if a pronoun fails to be attracted by the EF (see Richards 2004 for an account in terms of PF-conditions).

Finally, there is one additional assumption that has to be made: an EF cannot first attract a lower goal and then, in a later step, a higher goal. In other words, no backtracking is possible. We contend that this naturally follows from the top-down manner in which the EF probes into its search space.

As for scrambling and successive-cyclic movement to Specv, we assume that the same mechanism applies. Since there is no MLC, these movements can, in principle, skip other potential goals (cf. section 3.2).[18] If an EF attracts more than one category, then all attracted elements have to pass via the m-stack associated with the EF. We therefore expect multiple scrambling (and multiple successive-cyclic movement) to show order preservation effects. And this is exactly what the analysis in section 4 will exploit.

3.4   A note on probing

In this section, we lay out the properties that we assume for probe features.

Chomsky (2001) proposes that semantically uninterpretable features must be removed from a syntactic object O before O is handed over to the semantic interface. An uninterpretable feature can be removed if it finds a matching goal feature and enters into Agree with it. Consequently, uninterpretable features act as probes that look for matching goals. Since the syntax cannot inspect whether a feature is interpretable or not, Chomsky (2001) proposes that probes
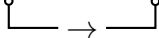
---

favor of the MLC. In section 5.5, we discuss why we favor the buffer approach.

[18]Alternatively, one could assume that the MLC only holds for Agree. Since attraction by EFs does not involve Agree, the former would not be subject to the MLC. Deriving order preservation effects without recourse to the MLC also provides a straightforward account for languages like Yiddish, where order preservation effects emerge in contexts of multiple *wh*-movement but not in multiple *wh*-questions where only one *wh*-phrase moves (i.e., lack of superiority effects, see Hoge 2000, Diesing 2003). If the MLC is to be maintained, one can assume instead that what is responsible for the lack of superiority is that a lower *wh*-phrase may independently scramble over a higher one (Grohmann 1997, Diesing 2003).

are characterized by being unvalued. This enables the syntax to recognize probes because it can inspect whether a feature bears a value or not. Pesetsky and Torrego (2007) take this idea a step further by arguing that probehood is not connected to interpretability but only relates to the lack of a value: a feature without value poses a problem for the interface and therefore triggers search for a matching goal that provides the value. Crucially, what both theories share is the idea that Agree can only apply if the probe c-commands the goal.
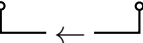
Suppose now the following empirical situation. α and β enter into Agree with each other. α is dependent on β in that it cannot appear without β. At the same time, β is not dependent on α. Assuming that probes are in need of a goal (but not the other way round), this suggests that α bears the probe while β bears the matching goal. But now assume Agree between α and β does not apply unless β c-commands α. Due to the c-command requirement on probing (see above), this suggests that β bears the probe. We are thus left with a contradition. The analysis that we will present in section 4 instantiates the above sketched situation and therefore runs the risk of facing this contradiction. There are (at least) two ways to avoid it.

First, one can assume that being dependent and bearing a probe is not the same: α may bear an unvalued feature [F:□] and yet lack the ability to actively search for a matching counterpart. In a similar vein, there may be features that are not dependent (because they are valued) but have the capability to act as probes. If β bears such a feature [uF:x], then it follows that Agree between α and β applies only if β c-commands α while, at the same time, α depends on β ($\rightarrow$ indicates downward probing):

(32) $\ldots \beta_{[u\text{F}:x]} \cdots \alpha_{[\text{F}:\square]} \cdots$
          $\underset{\rightarrow}{\rule{2cm}{0pt}}$

The drawback of this analysis is that it gives up the idea that probe-hood of a feature can be characterized by the feature's lack of a value. Instead, a feature must be marked such that the syntax can recognize it as a probe. In (32), we used the diacritic u on the feature to indicate this marking.[19]

An alternative way to avoid the contradiction consists in concluding that probing may proceed upwards (see Baker 2008, Zeijlstra 2012, Wurmbrand 2012, among others). Under this assumption, α bears a feature [F:□] which, by virtue of being unvalued, acts as a probe. This feature probes upwards and enters into Agree with a c-commanding valued goal [F:x] on β. The fact that α depends on β (but not the other way round) follows from there being a probe on α ($\leftarrow$ indicates upward probing):

(33) $\ldots \beta_{[\text{F}:x]} \cdots \alpha_{[\text{F}:\square]} \cdots$
          $\underset{\leftarrow}{\rule{2cm}{0pt}}$

The price for this analysis is that it forces one to sacrifice the assumption that a condition on Agree is that the probe c-commands the goal.

Although the question as to how the contradiction should be avoided is an interesting one, the appropriate answer is orthogonal to the central issue of this paper. Thus, while we adopt the solution in terms of downward Agree in what follows, this happens for expository reasons only. The analysis presented in section 4 could equally well be formulated in terms of upward Agree.

Finally note that the factors that determine the dependencies discussed in sections 2.1–2.3 are arguably syntactic. It is therefore unlikely that a purely semantic approach, which would

---

[19]Often, this notation is taken to signal a correlation of probe-hood and uninterpretability. We would like to stress that this is not our intention here. Rather, the diacritic is merely supposed to mark the capacity of a feature to act as a probe.

not face the above contradiction for independent reasons, is plausible.

4 Analysis

We are now ready to make a proposal as to how the observations from sections 2.1–2.3 can be derived. As most aspects of the mechanics that the analysis is based on have already been introduced, in particular the derivation of the ISC and the analysis of order preserving movement, we will often gloss over some of the details, simply speaking of EF-movement and order preservation instead. In what follows, we will provide independent motivation for the features that are assumed to underly each of the Agree relations involved in sections 4.1–4.3. Note, however, that the overall analysis of opaque intervention in terms of the ordering of elementary operations pursued here is actually not dependend on which features exactly are assumed to be involved.

4.1 Floating Quantifiers and Opacity

FQ-association is the most complicated of the three phenomena under discussion because, descriptively speaking, it involves "defective intervention": an indefinite is able to break association between *wh*-phrase and FQ, but at the same time the indefinite is defective in the sense of being unable to satisfy the needs of the FQ itself. In what follows, we present a analysis of defective intervention along the lines of Anagnostopoulou 2003 and Richards 2008.

A central assumption is that association of the FQ *alles* with a *wh*-phrase requires an Agree relation in the syntax. We start by motivating the featural make-up of the elements involved in this Agree relation. To begin with, indefinites come with a valued probe feature $[u\text{WH}:\pm]$. Naturally, *wh*-indefinites bear $[u\text{WH}:+]$ while non-*wh* indefinites bear $[u\text{WH}:-]$. As for definite noun phrases, we assume that they lack $[u\text{WH}:\pm]$ altogether. The assumption that *wh*-phrases and non-*wh* indefinites group together is widespread (see Haspelmath 1997:174-179 and references therein). Semantically, both are often assumed to contribute the denotation of an existential quantifier. Morphologically, many languages (German among them, see Postma 1994) employ identical forms to express tokens of both types of indefinites. Accordingly, the analysis below is based on the idea that *wh*-phrases and non-*wh* indefinites also form a natural class syntactically (to the exclusion of definites), without implying full featural identity, of course. We also assume that the FQ *alles* bears an unvalued matching goal $[\text{WH}:\square]$. As will become clear shortly, this is motivated by the analysis of defective intervention.

Next, we suggest that *wh*-phrases also bear a probe $[u\text{WH-IND}:i]$, whose value is an index $i \in \mathbb{N}$. Again, the FQ bears the matching goal for this probe, an unvalued $[\text{WH-IND}:\square]$. Motivation for this feature (and its value) comes from the observation that some clauses containing two *wh*-phrases and one FQ are ambiguous, depending on which *wh*-phrase the FQ associates with (cf. Zimmermann 2007; see also footnote 40):

(34)   Wen$_2$ hat wer$_1$ alles$_{1/2}$ gesehen?
         who.ACC has who.NOM all   seen
         'Who all saw who?'; 'Who saw who all?'

Since the reading where the object associates with the FQ in (34) is opaque, i.e., not reconstructable from the surface, an additional means is needed to encode it transparently at LF. This can be achieved by assuming that $[\text{WH-IND}:\square]$ on the FQ is valued by the $[u\text{WH-IND}:i]$ of a *wh*-phrase.

17

In a similar vein, Baker (1970) (see also Hankamer 1974 and Hirschbühler 1981) argues that the ambiguity of iterated multiple questions such as *Who wonders where we bought which book?* requires coindexation of the in situ *wh*-phrase with one of the interrogative C-heads. While this can also be achieved by a theory that involves *wh*-movement at LF (potentially dispensing with indices), there are various arguments against doing so (in particular Reinhart 1992; 1998). We therefore take it that the existence of [uWH-IND:i] can be justified. Crucially, we assume that non-*wh* indefinites lack [WH-IND].[20]

Empirically, the Agree relation between the FQ and the *wh*-phrase requires that the latter c-commands the former. This is why the probes [uWH-IND:i] and [uWH:+] were assumed to be located on the *wh*-phrase. Since every FQ bears unvalued variants of these features, it depends on the presence of a *wh*-phrase. However, given the standard assumption that probes (i.e. [uF] in our terms) need checking, the question arises as to why a *wh*-phrase does not depend on the presence of a FQ.

In order to answer this question, we adapt a proposal by Bošković (2009), who argues that valued uninterpretable features (as opposed to unvalued ones) do not require checking in the syntax but can be eliminated at the interface. Concretely, we propose that probes that bear a value need not undergo Agree in the syntax. If they do, they value a goal and lose their capacity to act as probes. If they do not, the derivation may nevertheless converge.

Turning to the analysis proper, we take it that *alles* is an adverbial that always occupies the innermost specifier of vP (cf. section 5.1 for some qualification).[21]

If an element bearing a probe [uWH:±] or [uWH-IND:i] moves to an outer Specv and encounters a corresponding unvalued goal feature [WH:□] or [WH-IND:□] on a FQ within its c-command domain, then probe and goal enter into Agree with each other, with the usual side effects of valuation. A valued probe on an indefinite that fails to encounter an appropriate goal (on a FQ) in the syntax is deleted at the interface.

There is one final ingredient we need in order to account for defective intervention. It goes back to Anagnostopoulou (2003:274) (see also Anagnostopoulou 2006) and is also invoked by Richards (2008):

(35)　　*Full Match Requirement:*
　　　　A probe on H does not value a goal on H′ unless there is a full match between H and H′.

"Full match" in (35) means that if H and H′ have a common feature F that is valued, then the values for F must coincide on H and H′ in order for there to be a full match between H and H′.

With these assumptions in place, let us turn to bleeding effects with floating *alles*, starting with the case of an indefinite object disrupting the association between a *wh*-subject and a FQ:

(36)　　*Wer₁　　hat einem Professor　　alles₁ gedankt?
　　　　who.NOM has a　　professor.DAT all　　thanked
　　　　'Who all thanked a professor?'

---

[20]This is justified because non-*wh* indefinites do not establish corresponding relations to floating *alles* or to an interrogative C.

[21]Before the introduction of vP-shells, it was often assumed that low adverbs adjoin to VP (see Bobaljik 1998 on FQs). But in a theory that assumes that the lexical verb moves to v, this view is not compatible with the observable order between verbs and adverbs in languages without V-to-T movement (Emonds 1976; Pollock 1989). The suggestion in the main text makes it possible to assume vP-shells and at the same time maintain standard assumptions about V-to-T movement (see also Collins 1997:17, 37 for relevant remarks).

We enter the derivation of (36) at the point where v has been merged with the VP containing the object. The object in (36) precedes the FQ, the latter occupying the innermost Specv. The object therefore must, at some point, move to an outer specifier of vP. This movement is triggered by an EF on v. Due to the EFC, EFs can only be inserted on a head as long as the head is active. The EF that is supposed to attract the object must be inserted prior to merging the subject.[22] An EF is thus inserted on top of the feature stack of v. Since only the topmost element of the stack is visible, the EF must be discharged before the subject can be introduced. This leads to movement of the object to Specv, see ① in (37).

(37) $[_{vP}$ einem Professor$_2$ $[_{v'}$ FQ$_2$ $[_{v'}$ ... t$_2$ ...]]]$
        (① above, ② below)
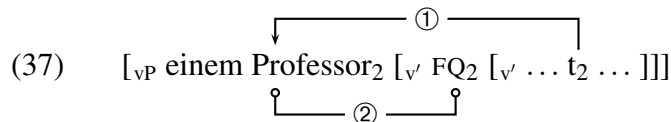
In line with the Earliness Requirement (28), $[u\text{WH}:-]$ on the indefinite object and $[\text{WH}:\square]$ on the FQ immediately enter into Agree (step ② in (37)).[23] When the *wh*-subject is merged in the next step, its $[u\text{WH}:+]$ does not match $[\text{WH}:-]$ on the FQ (due to the $\pm$ opposition). This is without consequences for $[u\text{WH}:+]$ itself, which, bearing a value, can be deleted at the interface. Importantly, however, since there is no full match, (35) prevents $[u\text{WH-IND}:i]$ on the *wh*-phrase from entering into Agree with $[\text{WH-IND}:\square]$ on the FQ. This is indicated by the crossed-out association line in (38).

(38) $[_{vP}$ wer$_1$ einem Professor$_2$ $[_{v'}$ FQ$_2$ $[_{v'}$ ... t$_2$ ...]]]$
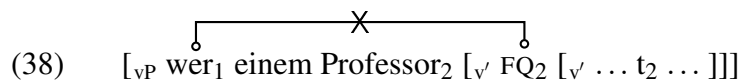
As a consequence, $[\text{WH-IND}:\square]$ on the FQ remains unvalued and the derivation crashes at the interface.

Bleeding that involves two objects, an indirect *wh*-object and an indefinite direct object (see (39)) is derived along similar lines. The only assumption we have to add (which is often made for German anyway, cf. section 5.3) is that the indirect object is merged above the direct object within VP.

(39)   *Wem$_1$ hat sie einen Professor   alles$_1$ vorgestellt?
        who.DAT has she a   professor.ACC all   introduced
        'Who all did she introduce to a professor?'

In the derivation of (39), both objects must reach a position to the left of the FQ. Thus, both objects undergo order preserving EF-movement to non-innermost Specvs (the subject is later introduced to the outermost Specv). Due to order preservation, the direct object is remerged first and immediately establishes Agree with the FQ (② and ③ in (40)), valuing its goal as $[\text{WH}:-]$.

(40) $[_{vP}$ einen Professor$_2$ $[_{v'}$ FQ$_2$ $[_{v'}$ wem t$'_2$ ...]]]$
        (③ above, ② below)

---
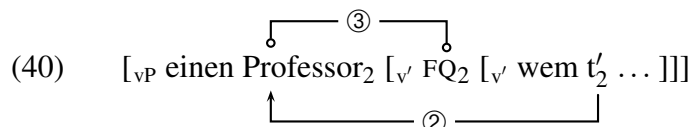
[22]We assume that adjuncts, as the FQ is one, do not render a head active because they are not subcategorized.
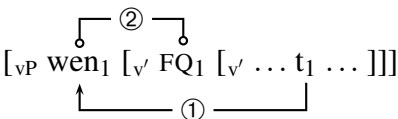
[23]Merge of the subject must be procrastinated if Agree between the object and the FQ is supposed to apply first. Since the Earliness Requirement in (28) exclusively makes reference to probes that trigger Agree, no problem arises. If Merge were also assumed to be subject to Earliness, then the indeterminacy with respect to the order of operations in the vP-domain could be resolved, at least in German and Czech, by a preference of Agree over Merge (see Heck and Müller 2007 for a related proposal).

When the indirect object *wh*-phrase is remerged to Specv, its probe [uWH:+] does not match the goal [WH:−] on the FQ (valued in step ③ above). Again, (35) prevents [uWH-IND:i] to value [WH-IND:□] on the FQ, which causes the derivation to crash. Bleeding is the result.
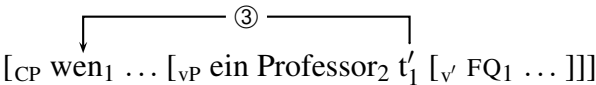
This being said, it is obvious what happens if an object *wh*-phrase is merged as the first argument to Specv but later moves to SpecC. In such a scenario, counter-bleeding arises. (41) illustrates:

(41)   Wen$_1$ hat ein Professor   alles$_1$ beleidigt?
          who.ACC has a   professor.NOM all   insulted
          'Who all did a professor insult?'

Suppose the derivation of (41) has already constructed vP. The direct *wh*-object has moved to some (intermediate) specifier of vP in order to remain PIC-accessible (see ① in (42)). This time [uWH:+] and [uWH-IND:i] are a full match to the goals on the FQ. Before the subject is merged the probes on the *wh*-phrase immediately enter into Agree with the goals (step ②) to satisfy Earliness. All goals receive a value and the derivation converges.

(42)   [$_{vP}$ wen$_1$ [$_{v'}$ FQ$_1$ [$_{v'}$ … t$_1$ …]]]

Later, the subject is merged and the object *wh*-phrase moves to SpecC (③ in (43)), thereby giving the surface impression of the indefinite subject intervening between the *wh*-phrase and the FQ. (For simplicity, we follow Grewendorf 1989 and Diesing 1992 in assuming that subject raising to SpecT is optional in German, but nothing hinges on this.)

(43)   [$_{CP}$ wen$_1$ … [$_{vP}$ ein Professor$_2$ t$'_1$ [$_{v'}$ FQ$_1$ …]]]

This derives counter-bleeding.[24]

Note that due to the PIC, the object cannot move in one fell swoop to SpecC, (fusing ① and ③ above into one), thereby skipping the intermediate landing in Specv, a crucial precondition for opacity to arise. In this way, opacity effects with FQs provide a novel argument for the idea that Specv serves as an intermediate landing site for successive cyclic movement.[25]

[24]Similar (if not identical) asymmetries with respect to FQ-association have been reported for Korean and Japanese (see Ko 2005; 2007 and references therein). Ko's work offers an analysis in terms of cyclic linearization (Fox and Pesetsky 2005). Space limitations do not permit a detailed comparison, but we suspect that this approach cannot account for all the facts involving PG-binding presented in section 2.2, at least not obviously so. (For reasons we cannot discuss here, things are more complicated when one considers the facts involving FQs and PNs, as discussed in sections 2.1 and 2.3). The problem, in a nutshell, is the following. In order to derive the ungrammaticality of the opaque example (12-b) in Ko's (2005, 2007) analysis, one would assume that the direct object has to be linearized in between the indirect object and the PG associated with the indirect object. The surface order in (12-b) then comes about by movement of the direct object across the indirect object, creating contradicting linearization statements with respect to these two arguments. This ensures ungrammaticality of (12-b), but it also implies that the direct object can *never* scramble across the indirect object in German (due to the very same linearization dilemma), even if PG-binding is not an issue, contrary to fact. On the other hand, it should be noted that Ko (2005; 2007) discusses various interactions between FQs and adverbs in Korean and Japanese. We must leave open here whether these can be dealt with under the present assumptions.

[25]There is recent experimental evidence contesting that vP is a phase (see Keine 2015). In contrast, the present analysis supports the phase hypothesis. Note in this context that if step ① in (42) were not an instance of cyclic

4.2 Parasitic Gaps and Opacity

Similar to what was proposed for FQs, we assume that semantic binding of a PG requires previous Agree in the syntax (see Assmann 2012). We follow Contreras (1984) and Chomsky (1986) in assuming that PGs involve movement of a null operator OP from the position of the PG to SpecC of the adjunct clause. Agree must be established between the associate and OP. Again, we will begin by motivating our assumptions with respect to the features that these elements bear.

To begin with, we propose that every DP argument bears a probe feature $[u\text{IND}:i]$, with a numerical index $i \in \mathbb{N}$ as a value. On semantic grounds, such an index is motivated insofar as it is needed for the purpose of binding. Also, Baker (2003:chap. 3) argues extensively for its existence on syntactic grounds. The probe $[u\text{IND}:i]$ enters into Agree with an unvalued goal $[\text{IND}:\square]$ on OP. In this way, Agree transfers the index from the antecedent via OP onto the PG.[26] Note that $[u\text{IND}:i]$ cannot be replaced by $[u\text{WH-IND}:i]$ (see section 4.1): non-*wh* elements can bind PGs in German but they cannot be assumed to bear $[u\text{WH-IND}:i]$ because they do not associate with the FQ *alles*.[27] Once $[\text{IND}:\square]$ has been valued, OP can no longer participate in Agree with another antecedent. If an antecedent does not enter into Agree with any OP, its probe $[u\text{IND}:i]$, being valued, does not cause any problem for the interface. Informally, we will often speak of agreement between an antecedent and a PG, although technically, what is meant is an Agree relation between an antecedent and the OP associated with a PG.

For theory internal reasons, we cannot assume that OP bears $[u\text{WH}:+]$, thereby providing a trigger for its movement within the adjunct clause. The reason is that non-*wh* indefinites can bind PGs in German (example omitted). Since non-*wh* indefinites bear $[\text{WH}:-]$, the requirement of full match (35) would prevent valuation of $[\text{IND}:\square]$ on OP if OP bore $[u\text{WH}:+]$. This suggests that the null operator that shows up in PG-constructions differs from a genuine interrogative *wh*-phrase. Interestingly, there is independent evidence that this is correct. As Lasnik and Stowell (1991) observe, the latter triggers weak crossover while former does not (44-a,b).[28]

---

movement but rather optional scrambling (triggered by [SCR], cf. section 3.2), then the analysis given here would not provide an argument for the hypothesis (although it would be compatible with it). The discussion in section 5.1, where we propose that *wh*-phrases that have undergone [SCR]-triggered movement cannot associate with *alles* in German, suggests that [SCR] is not involved in the derivation of (42). More importantly, the analyses of counterfeeding that will be presented in sections 4.2 and 4.3 (in contrast to the counter-bleeding case discussed above) involve cases where obligatory cyclic movement to Specv leads to ungrammaticality. For these, a reanalysis in terms of optional scrambling in not possible as it would allow for derivations without an intermediate stop in vP, deriving unattested grammaticality.

[26]This executes the idea to treat PGs by "chain composition" as proposed in Chomsky 1986:56. The two chains become one by identification of their indices, where identification is only possible if one element (namely OP) bears both indices and thus acts as a hinge between the chains. This is also hinted at in Baker (2003:137). See Stowell 1985 for a related idea.

[27]Likewise, it is not possible to replace $[u\text{WH-IND}:i]$ by $[u\text{IND}:i]$ because the null operator that shows up in PG-constructions does not license the FQ *alles*, as illustrated in (i-a). (i-b) shows that the problem in (i-a) is not that FQ and PG are part of the same chain.

(i)   a.   *Wen$_1$ hat er [OP$_1$ ohne   PG$_1$ alles$_1$ anzusehen] untersucht?
             who.ACC has he   without   all   to.look.at   examined
             'Who all did he examine without looking at?'
    b.   Wen$_1$ hat er [OP$_1$ ohne   PG$_1$ anzusehen] alles$_1$ untersucht?
             who.ACC has he   without   to.look.at   all   examined

[28]Further evidence comes from the fact that the null operator in parasitic gap constructions is not sensitive for wh-islands in German. See Assmann (2012) for details.

(44)   a.   *Who$_1$ does his$_1$ boss dislike t$_1$?
          b.   Which man$_1$ did you look at t$_1$ [OP$_1$ before his$_1$ wife had spoken to PG$_1$]?

For Lasnik and Stowell (1991), the reason behind this is that OP in (44-b) does not introduce a restriction of its own. Rather, the null operator in a PG-construction inherits its restriction from the matrix binder. We would therefore like to suggest that the feature [uWH:$\pm$] is a reflex of genuine quantificational expressions only, and therefore OP is not specified for [uWH:$\pm$].[29] This leaves the question as to what triggers operator movement to SpecC still unanswered. We propose that such movement is driven by a feature [OP:$+$] that shows up on both null operators and interrogative *wh*-phrases alike.

We now turn to the derivation of opacity effects with PGs. We assume here that adjunct clauses containing PGs occupy the same position as low adverbs, i.e., the innermost Specv (cf. Nissenbaum 2000:35-36). For the sake of brevity, the discussion that follows is confined to PGs bound by scrambled elements, leaving aside PG-binding by *wh*-phrases ((9-b), section 2). This happens without loss of generality because both cases share the same subderivations within vP.

Consider example (45), which illustrates that, in German, a scrambled direct object blocks a scrambled indirect object from binding a PG if it intervenes between the latter two.

(45)   *wenn jemand der Anette$_2$ das Buch   [anstatt PG$_2$ zu helfen] wegnimmt
          if   someone the Anette.DAT the book.ACC   instead   to help   away takes
          'if someone takes the book from Anette instead of helping her'

By assumption, the indirect object is merged higher within the VP than the direct object. Because the adjunct clause occupies the innermost Specv, both objects have to scramble to outer specifiers of vP in order to precede it. Scrambling is triggered by an EF on v, which attracts both objects in an order preserving way. The direct object is remerged first and, due to (28), immediately enters into Agree with the PG, see steps ① and ② in (46).

(46)   [$_{vP}$ das Buch$_3$ [$_{v'}$ [... PG$_3$ ...] [$_{v'}$ ... der Anette$_2$ t$_3$ ...]]]
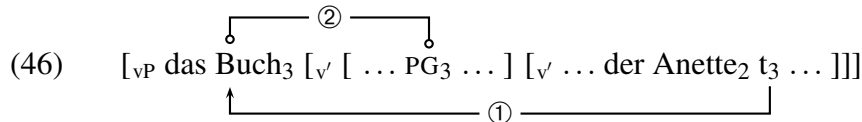
Agree values the goal [IND:□] on the PG. Being valued, the PG cannot receive another value from the probe on the indirect object when the latter is remerged in the next step (③ in (47)). The indirect object simply re-enters the structure too late. This derives bleeding.

(47)   [$_{vP}$ der Anette$_2$ das Buch$_3$ [$_{v'}$ [... PG$_3$ ...] [$_{v'}$ ... t$_2$ t$_3$ ...]]]
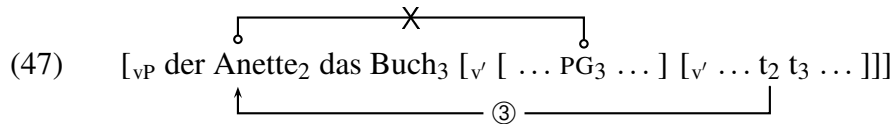
As a consequence, one would expect the PG in (45) to be semantically bound by the direct object. The corresponding reading, however, is blocked by independent requirements with respect to case and animacy imposed on the binder by the embedded verb (the direct object *das Buch* 'the book' is inanimate and bears accusative; in contrast, the embedded verb *helfen* 'to help' requires an animate object in the dative).

The interesting case is the one where the indirect object is not able to bind the PG even though scrambling of the direct object ends up in a position to the left of the indirect object (48).

(48) *wenn jemand das Buch   der Anette$_2$ [ohne   PG$_2$ zu vertrauen] ausleiht
      if   someone the book.ACC the Anette.DAT without   to trust   lends
      'if someone lends Anette the book without trusting her'

Both objects in (48) must minimally target a Specv-position to the left of the adjunct clause. Since v is assigned only one EF per derivation, this EF must attract both objects, preserving their relative order. There is no other way the direct object can reach Specv, and therefore the steps ①, ②, and ③ of the derivation of (48) are identical to those in (46) and (47) above. The direct object moves first (more precisely: is remerged first) and immediately enters into Agree with the PG. The indirect object moves next, which is too late: the goal feature on the PG has already been valued. Later, the direct object and the subject are scrambled to SpecT (④ and ⑤ in (49)), both steps are triggered by some feature on T (possibly [SCR]; see sections 4.3, 5.1, and 5.2 for further discussion):

(49)   [$_{TP}$ jemand$_4$ das Buch$_3$ [$_{vP}$ t$_4$ der Maria$_2$ t$'_3$ [… PG$_3$ …] …]]

Although, on the surface, the indirect object is closest to the PG binding fails because, derivationally, the direct object reaches the position relevant for binding first. This leads to counterfeeding. Note that movement of the direct object to SpecT in one fell swoop (fusing the movements ① and ④ involved in the derivation of (48) into one) is blocked by the PIC. The intermediate halt in Specv that leads to the local Agree relation between the direct object and the PG cannot be skipped. Binding of the PG by the direct object is thus forced and the ungrammaticality of (48) is explained. In this way, opacity in PG-binding provides a new argument for successive cyclic movement via Specv in German (similar to the one given in section 4.1, and identical to the one that will be given for Czech in section 4.3).

A direct object that has scrambled to the left of an adjunct clause containing a PG can always bind the PG. This is obvious for cases where the direct object appears closest to the PG on the surface (see (13-a), section 2.2). But even if an indirect object shows up in between the direct object and the adjunct clause is PG-binding by the direct object possible (50).
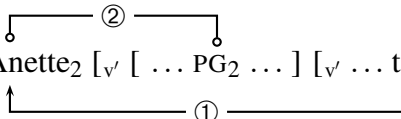
(50) dass Hans das Buch$_2$ der Maria   [ohne   PG$_2$ durchzulesen] zurückgibt
      that Hans the book.ACC the Maria.DAT without   through to read back gives
      'that Hans returns the book to Maria without reading it through'

In all relevant respects, the derivation of (50) is the same as the one of (48) above, but this time it results in counter-bleeding. The reason is that in (50) syntactic binding of the PG by the direct object also leads to semantic binding: there is no incompatibility between the requirements of the embedded verb and the direct object with respect to case and animacy (*durchlesen* 'to read through' requires an inanimate object in the accusative, exactly the specification of the direct object *das Buch* 'the book'). Later, the direct object scrambles to the left of the indirect object and thus renders binding opaque.

Recall that subjects never act as interveners for PG-binding by an object. (51) is a case in point.

(51) wenn der Anette₂   jemand   [anstatt PG₂ 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)'

It follows immediately why this should be so. Although the object in (51) precedes the subject on the surface, it must have occupied a position in between the subject and the adjunct clause at some earlier derivational stage, due to the by now familiar interaction of PIC and ISC: the PIC enforces object movement to the edge of vP (see ① in (52)); the ISC makes sure that this movement targets an inner Specv, below the ultimate merge site of the external argument. From there, the object values the goal [IND:□] associated with the PG (step ②).

(52) $[_{vP}$ der Anette₂ $[_{v'}$ [… PG₂ …] $[_{v'}$ … t₃ …]]]

When the subject is merged to the outermost specifier of vP, [IND:□] has already been valued. Later, the object scrambles to SpecT, which makes it look as if the subject were closest and should therefore block PG-binding by the object: counter-bleeding. From the derivational perspective, the subject simply cannot reach a position appropriate for binding early enough.

Finally, recall that a direct object does not interrupt PG-binding by an indirect object if the direct object itself binds another PG (53).

(53) wenn jemand   der Anette₂   das Buch₃   [anstatt PG₂ PG₃ zu schenken] nur
      if   someone the Anette.DAT the book.ACC instead   to give   only
      leiht
      borrows
      'if someone only borrows Anette the book instead of giving it to her as a present'

In section 3.2, we suggested that the MLC should be eliminated. From this, it now follows that the direct object can bind PG₃ across PG₂. When the indirect object is remerged in the next step, it establishes Agree with PG₂ across the direct object.[30]

As it stands, the theory predicts that the direct object in (53) cannot simultaneously enter into Agree with PG₂. PG₂ also bears a [IND:□], thus qualifies as an appropriate goal. However, once [uIND:i] on the direct object values the goal associated with PG₃, it loses its capacity to act as a probe. It follows that an antecedent can bind only one PG. This prediction seems to be borne out. For instance, Ross (1967:191) judges multiple PG-binding as "less than felicitous."[31] Thus, the direct object exclusively binds PG₃, leaving PG₂ unbound.

Presupposing that an antecedent cannot bind more than one PG, a theory that seeks to account for intervention effects in PG-binding in terms of the MLC (see Fanselow 1993) would also allow for an Agree relation to be established between a PG and its antecedent across another PG-binding antecedent, as is the case with the Agree relation between PG₂ and the indirect object *der Anette* attested in (53). However, an MLC-based theory still faces a problem when it comes to explaining why Agree between the direct object *das Buch* and PG₃ in (53) can skip

---

[30]Theoretically, the direct object could as well have entered into Agree with PG₂, leaving PG₃ to the indirect object. Such binding, however, is ultimately filtered out due to a mismatch with respect to animacy/case, see above.

[31]Similarly, Chomsky (1986:62-63) in passing mentions cases of multiple PG-binding noting: "[…] the facts are often quite obscure." For some speakers such cases may be acceptable though (Hudson (1984)). For those, one could assume that their grammar allows [uIND:i] on the antecedent to retain its probe-hood throughout the derivation.

the closer goal PG_2.[32]

Finally, recall that in section 2.2 we reported that Dikken and Mulder (1991) note that if two weak object pronouns in Dutch precede a PG, then either of them can bind it. Not all speakers of German seem to share this view (cf. examples (15)), but some do. We tentatively suggest that this might follow if in the grammar of the latter speakers the two object pronouns form a cluster before moving to Specv. As a consequence, the pronouns would be re-merged simultaneously in Specv, thereby enabling either of them to bind the PG.

## 4.3 Case Agreement and Opacity

We now turn to case agreement with PNs in Czech. A PN is, we assume, merged to the innermost specifier of vP, just as FQs or adjunct clauses containing PGs are. It bears a goal feature [CASE:□] that gets valued by a feature [uCASE:α] on some antecedent DP. It is often assumed that case on the antecedent is a lexically unvalued feature ([uCASE:□]) that gets its value α by some functional head in the syntax. Thus, in a first step [uCASE:□] on the antecedent becomes [uCASE:α]. This, however, does not affect its capacity to act as a probe. Thus, [uCASE:α] may value [CASE:□] on a PN in a subsequent step.[33]

We begin the discussion with cases where two objects undergo *wh*-movement, only one of which can enter into case agreement with the PN. (54) shows, again, that a direct object *wh*-phrase can case agree with the PN (involving predication of the PN over the direct object) if it is preceded by an indirect *wh*-object, both objects ending up clause initially.

(54)   Komu   koho   poslanec   představil   jako možného   sponzora?
          who.DAT who.ACC delegate.NOM introduce.PART as   possible.ACC sponsor.ACC
          'Who did the delegate introduce as a possible sponsor to whom?'

Suppose that in Czech, as was assumed for German, the indirect object is merged higher than the direct object (see Veselovská 1995, Kučerová 2007). Both *wh*-objects in (54) are supposed to move to the left periphery of the clause, one to SpecC, the other to SpecT. To keep things simple, we take it that there is no obligatory movement of the subject to SpecT in Czech. Since only one *wh*-phrase in Czech moves to SpecC, we assume that fronting of *wh*-phrases to SpecT is triggered by (possibly multiple instances of) a focus feature on T (cf. Bošković 2000).

Returning to (54), it is clear that both *wh*-arguments have to move at least as far as SpecT. Consequently, they must first reach Specv in order to remain PIC-accessible. By the EFC, an EF is inserted on v before the subject is merged. This EF attracts the *wh*-objects to Specv in an order preserving way, thus remerging the direct object first:
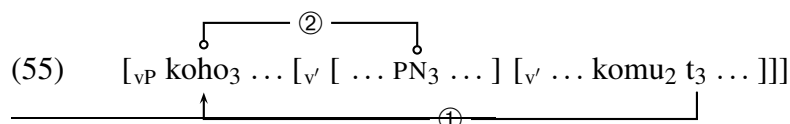
(55)   [$_{vP}$ koho$_3$ … [$_{v'}$ [… PN$_3$ …] [$_{v'}$ … komu$_2$ t$_3$ …]]]

[33]Here, we make the following background assumptions. First, for subjects we assume that they receive their nominative case value by default (McFadden and Sundaresan 2011). This is necessary since at the point where the subject is supposed to value [CASE:□] on the PN the functional head T, often assumed to be responsible for nominative assignment, is not even part of the structure yet. Second, as was the case with the probes involved in PG-binding and FQ-association, we assume that a probe [uCASE:α] on an argument that does not enter into Agree with a goal in the syntax does not cause problems at the interface because it is valued.

(55) is the earliest point where the case probe on PN can be valued by an antecedent. As probes have to be discharged as early as possible, case agreement applies immediately (see ②). The indirect object *wh*-phrase is remerged in the following step (③ in (56)). Obviously, this is too late for it to value case on the PN because the case goal on the PN has already been discharged by the direct object:

(56) $[_{vP}$ komu$_2$ koho$_3$ … $[_{v'}$ [… PN$_3$ …] $[_{v'}$ … t$_2$ t$_3$ …]]]
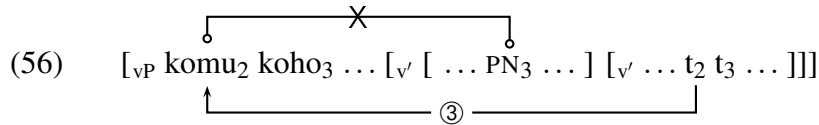
In the subsequent steps, the subject is merged in the outermost Specv-position and the objects are attracted to SpecT (by the focus probe on T). Finally, one of the *wh*-elements moves to SpecC in order to eliminate the interrogative probe on C. If in the last step the indirect object *wh*-phrase is attracted to SpecC, then (54) results. If, however, the direct object *wh*-phrase moves to SpecC, then the derivation reaches the configuration in (57).[34]

(57) $[_{CP}$ koho$_3$ … $[_{TP}$ komu$_2$ t$_3''$ … $[_{vP}$ Jirka t$_2'$ t$_3'$ … PN$_3$ …]]]
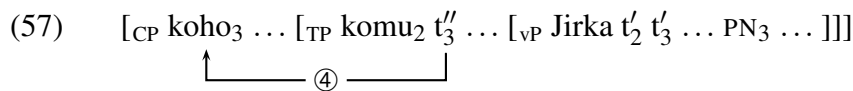
At the latest, step ④ results in opacity because, on the surface, the direct object occupies a position that is not appropriate for entering into case agreement with the PN (due to intervention of the indirect object): counter-bleeding.

It follows that an indirect *wh*-object cannot establish Agree with a PN if there is a direct *wh*-object that undergoes movement, too, no matter which of the two objects ends up in SpecC (see (18) in section 2.3). The reason is that since the object *wh*-phrases move successive-cyclically via Specv, in an order preserving fashion, the direct object always remerges first above the PN, leading to case agreement between the two. If the objects maintain their relative order, bleeding results (see (18-b)). Movement of the direct object to SpecC, inducing a change in relative order of the objects, applies too late to feed case agreement of the indirect object. This results in counter-feeding (18-a). Again, note how this analysis strongly suggests that *wh*-movement of the direct object involves an obligatory intermediate halt at the edge of vP. If the direct object were allowed to move to SpecC in one fell swoop, case agreement between the indirect object and the PN should be possible in (18-a) after all, contrary to fact. The intermediate halt in Specv is an automatic consequence of the PIC, thus providing evidence of vP being a phase.

Next, recall from section 2.3 that subjects do not take part in any intervention effects with respect to PN-agreement: they freely case agree in the presence of any scrambled coargument and they do not block case agreement of their coarguments. This contrasts with FQ-association in German, where subjects cannot establish any FQ-relation in the presence of a scrambled coargument. Since the overall mechanism proposed to derive intervention effects is the same for the two domains, the difference has to be accounted for by something else.

The explanation given in section 4.1 for why subjects in German are banned from associating with a FQ in the presence of coargument scrambled to the left of the FQ was that scrambling is triggered by insertion of an EF on v. The ISC ensures that scrambling must proceed before v becomes inactive, i.e., before the subject is introduced. Thus, the subject comes too late for binding the FQ. Our hypothesis is that subjects in Czech behave differently (with respect to

---

[34]Without the MLC, both *wh*-phrases are accessible for movement to SpecC. Again, under the concept of equidistance, the facts are derivable while maintaining the MLC. Yet another alternative would be to assume that there are multiple focus probes on T, allowing for variable ordering of the two objects in the specifier domain of TP.

PN-agreement) because v in Czech can remain active for EF-insertion even after Merge of the subject. As a consequence, EF-insertion can apply before or after introduction of the subject in Czech, enabling either the scrambled object or the subject to trigger case agreement with a PN. A potential source for the difference in activity of v between Czech and German could lie in the existence of optional v-to-T movement in Czech (Veselovská 1995, Kučerová 2007, Biskup 2011:56-71) and the lack thereof in German (Haider 1993; 2010:54-69). The idea is that a feature on v that is involved in v-to-T movement keeps v active even after the subject is merged. An indication that this might be on the right track is provided by the contrast in (58).[35]

(58) a. ??Koho   primář   léčí jako přítel,   a ne jako kapacita
          who.ACC chief physician.NOM treats as friend.NOM and not as expert.NOM
          ve svém oboru?
          in SELF field
          'Who does the chief physician treat as a friend, and not as an expert in his field?'
      b. Koho   léčí primář   jako přítel,   a ne jako kapacita
          who.ACC treats chief physician.NOM as friend.NOM and not as expert.NOM
          ve svém oboru?
          in SELF field
          'Who does the chief physician treat as a friend, and not as an expert in his field?'

Both (58-a,b) involve PN-agreement with the subject. This is fine with v-to-T movement in (58-b) but degraded if no such movement has taken place (58-a).[36]

Finally, we have to account for the observation that there is no interaction among objects in terms of PN-agreement if at least one of the objects is a non-*wh* phrase. This contrasts with what we could observe with respect to PG-binding in German, where there is interaction among and between *wh*-phrases and non-*wh* phrases alike. To this end, suppose that in Czech (as opposed to German) v can bear a feature that triggers scrambling, say [SCR], as a lexical property. As a consequence, objects can reach the specifier domain of vP in any order, one being attracted by [SCR] the other by EF, thus eschewing intervention effects with respect to each other. Since [SCR] can be ordered freely with respect to the feature that introduces the subject, objects affected by [SCR] will not exhibit any intervention effects with respect to subjects either. Crucially, [SCR] must not attract *wh*-phrases because this would undermine the above analysis of interaction among *wh*-objects. The question arises as to how this can be ensured. We postpone a detailed answer to this question until section 5.2. Until then, we offer the following as a preliminary explanation. Typically, *wh*-phrases express new information (i.e., information not "given" in the discourse). If scrambling in Czech induced an interpretation of the moved category as given (cf. Kučerová 2007; 2012), then it would follow that [SCR]-driven movement of a *wh*-phrase would lead to contradictory requirements as to the givenness-status of the *wh*-phrase, and such derivations would arguably be filtered out in the semantics. This in turn would

---

[35]Independent evidence for the idea that the capacity for verb movement may keep v active comes from Belfast English, which exhibits optional Object Shift (OS) of weak pronominals to a surface position above the subject in contexts that involve movement of the main verb (such as imperatives, Henry 1995:57-58, 73). Assuming that OS targets the vP-domain, this suggests that the object moves to an outer Specv (while the subject remains in an inner Specv). Similar facts seem to hold for Breton (Schafer 1994; see also McCloskey 1997:223) and for West Ulster English (McCloskey 1997:214).

[36]The background assumption here is that in both (58-a,b) the subject remains in Specv. If this can be forced, for instance by assuming that movement of the subject to SpecT and v-to-T movement must not apply in tandem in this case (cf. Alexiadou and Anagnostopoulou 1998), then the degraded status of (58-a) follows under the idea that v-to-T movement enables early merge of the subject.

make it possible to maintain the analysis of (opaque) intervention among *wh*-objects developed in this section.

5 Further Issues

5.1 *Wh*-Phrases In Situ

In section 2.1, we presented a case of counter-bleeding involving FQ-association. In fact, the analysis suggested there also predicts the existence of counter-feeding within the realm of FQs. The relevant scenario involves surface adjacency between a *wh*-phrase and a FQ that comes about by scrambling an indefinite away from in between the former two. The point is that before the indefinite scrambles away, it associates with the FQ and thus prevents the *wh*-phrase from doing so. This scenario becomes obvious if the *wh*-phrase does not undergo *wh*-movement in a later step, as is the case with *wh*-phrases in situ in multiple questions. As we will see shortly, the prediction that counter-feeding as described above exists is *not* borne out. A similar observation holds for counter-bleeding and *wh*-phrases in situ. In what follows, we will offer explanations to both observations.

To begin with, (59) illustrates that in situ *wh*-phrases can, in principle, associate with a FQ. (This also holds if the *wh*-phrase bears a grammatical function other than direct object.)[37]

(59)   Wann hat sie einem Professor   wen$_2$ alles$_2$ vorgestellt?
         when has she a   professor.DAT who.ACC all   introduced
         'When did she introduce who all to a professor?'

We begin by discussing potential counter-feeding and *wh* in situ. Suppose that a *wh*-object is merged higher than its indefinite non-*wh* coargument. If both arguments scramble to the left of *alles*, then the indefinite is remerged first and, due to (28), immediately values [WH:☐] on the FQ as [WH:−]. Suppose that, at a later step, the indefinite scrambles to the left of the *wh*-phrase. Then, the surface looks as if it would feed Agree between the *wh*-phrase and the FQ. But since [uWH:+] on the *wh*-phrase and [WH:−] on the FQ do not match, (35) should prevent [uWH-IND:i] from entering into Agree with [WH-IND:☐] on FQ. The derivation is predicted to crash. Now, the facts are given in (60).

(60)   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 reported
             'Who all reported a professor to the police and when?'

The prediction is not borne out. (60-a-c) are on a par with (59). The theory, as it stands, under-generates.

---

[37]Note that *wann* cannot associate with *alles* for independent reasons. This makes intervention in (59) a non-issue (cf. footnote 40).

Turning to counter-bleeding and *wh* in situ, first note that FQ-association with an in situ *wh*-phrase can be blocked by an intervening indefinite (61). (Again, examples where the *wh*-phrase bears a grammatical function other than indirect object are omitted for the sake of brevity.)

(61)   *Wann hat sie wem$_1$ einen Professor   alles$_1$ vorgestellt?
          when has she who.DAT a   professor.ACC all   introduced
          'When did she introduce a professor to who all?'

Assume now that the intervening indefinite is merged higher than the *wh*-phrase. When both arguments scramble to the left of *alles*, preserving their order, the *wh*-phrase is remerged first and associates with the FQ. Later, the *wh*-phrase scrambles across the indefinite. This instantiates counter-bleeding. From the theoretical point of view, the result should be well-formed because the *wh*-phrase could associate with the FQ. Relevant examples are given in (62).

(62)   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?'

The grammaticality of (62-a-c) is degraded. The theory, in its present form, thus also over-generates.

   In what follows, we will suggest (a) that one has to take another factor into account that explains the ungrammaticality of the examples in (62), and (b) that it is possible to minimally modify the theory such that it derives the grammaticality of those in (60) without giving up the gist of the analysis.

   We begin with (62). That the ungrammaticality of (62-a-c) indeed owes to some independent factor becomes clear when one considers minimal pairs of (62-a-c) that involve an intervening definite instead of an indefinite (our thanks to a reviewer for pointing out to us the relevance of examples like these). The examples in (63) are on a par with those in (62).

(63)   a. ?*Wann hat sie wen$_1$ dem Professor   t$_1$ alles$_1$ vorstellt?
              when has she who.ACC the professor.DAT   all   introduced
              'When did she introduce who all to the professor?'
          b. ?*Wann hat wem$_1$ der Professor   t$_1$ alles$_1$ geholfen?
              when has who.DAT the professor.NOM   all   helped
              'When did the professor help who all?'
          c. ?*Wann hat wen$_1$ der Professor   t$_1$ alles$_1$ erkannt?
              when has who.ACC the professor.NOM   all   recognized
              'When did the professor recognize who all?'

Since definites do not trigger intervention with floating *alles* in *wh* ex situ contexts, something else must be going on in (63) (and hence in (62)). What distinguishes the examples in (62)/(63) from the well-formed instances of counter-bleeding in (7) (section 2.1) is that in (62)/(63) the *wh*-phrase does not end up in a position associated with an EF: assuming that movement within

one and the same Specv-domain is not possible, the scrambled *wh*-phrases in (62)/(63) must target SpecT, and T, as a non-phase head, is not accessible for EF-insertion. We therefore assume that in this case scrambling is triggered by [SCR].[38]

It has been argued (see Wiltschko 1997, Sauerland 1999) that *wh*-phrases that end up in scrambling positions in German are interpreted as D(iscourse)-linked in the sense of Pesetsky (1987). Our interpretation in the present context is that scrambling that is triggered by [SCR] induces D-linking while scrambling triggered by EF does not. On the assumption that *which*-phrases in English are inherently D-linked, Pesetsky (1987:107-108) describes this concept as follows: "When a speaker asks a question like 'Which book did you read?', the range of felicitous answers is limited by a set of books both speaker and hearer have in mind." Reis (1992) observes that the FQ *alles* 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." Naturally, these two requirements lead to a semantic incompatibility in (62)/(63): on the one hand, *alles* must associate with an antecedent whose denotation is not tied to a situationally constrained set, on the other hand scrambling of the *wh*-phrase (inducing D-linking) creates precisely such an interpretation for the *wh*-phrase. We therefore suggest that although the examples in (62)/(63) are syntactically well-formed, they lead to a clash when it comes to interpretation.[39]

Turning to the examples in (60), we saw that they potentially receive an analysis in terms of counter-feeding that, counter-factually, predicts them to be ungrammatical. Now, if there were an alternative analysis such that the *wh*-phrase could associate with the FQ, the grammaticality of (60) would follow. Crucially, this alternative must not be available for examples such as (61) and for those in (6) (section 2.1), for which an counter-feeding analysis makes the correct prediction. A way to achieve this is to assume that *alles* can acutally appear in two positions: it can be merged in the innermost Specv (as assumed so far); or it can be merged directly with a *wh*-phrase (similar to the original proposal in Reis 1992).[40] That the second option is needed anyway is suggested by the fact that *alles* can undergo pied-piping together with the *wh*-phrase to the specifier of a V2-clause (64). Note that it is generally assumed that in German V2-clauses only one constituent can precede the finite verb. Thus, *wen alles* in (64) must form a

---

[38]Thus, while v in Czech can bear [SCR] (see section 4.3), we assume that v in German cannot, but German T can. Consequently, Czech does not exhibit order preservation effects in the vP-domain (with non-*wh* phrases) but German does. The [SCR]-feature on T in German enters the structure too late to affect the order within vP. Possibly, [SCR] on T can be identified with the "aboutness"-feature proposed in Frey 2004 for German (cf. section 5.2, where the semantic impact of [SCR]-driven movement is discussed).

[39]One might expect that (62)/(63) improve if the in situ *wh*-phrase is aggressively non-D-linked in Pesetsky's (1987) sense. This is not the case (examples omitted). The explanation for this may be that in situ *wh*-phrases, for some reason, tend to not allow aggressive non-D-linking (see Pesetsky 1987:124-125, footnote 20; see also Wiltschko 1997:118 on German).

[40]This makes two correct predictions: first, (i-a) has an opaque and a transparent reading while (i-b) lacks the former. Second, the transparent reading of (i-a) breaks down if there is material between *wer* and the FQ (see (i-c)).

(i) a. Wen$_2$ hat wer$_3$ alles$_{2/3}$ gesehen?
         who.ACC has who.NOM all   seen
     b. Wer$_3$ hat wen$_2$ alles$_{2/*3}$ gesehen?
         who.NOM has who.ACC all   seen
     c. *Wen$_2$ hat wer$_3$ gestern   alles$_3$ gesehen?
         who.ACC has who.NOM yesterday all   seen

The opaque reading of (i-a) becomes more easily accessible by placing a small intonational break between *wer* and *alles* (the position of the intermediate trace of *wen*). Nothing of the like makes the opaque reading in (i-b) possible.

constituent.[41]

(64)   [Wen alles]$_2$ hat sie t$_2$ beleidigt?
           who all   has she   insulted
         'Who all did she insult?'

We propose that the second option is what underlies an alternative derivation of the examples in (60). If the *wh*-phrase and FQ form a constituent, then Agree can apply between them (which involves valuation of [WH-IND:□] on the FQ). In the next step, the constituent consisting of *wh+alles* is merged to an argument position above the indefinite. Finally, the indefinite undergoes scrambling across *wh+alles*. (In other words, the traces left by scrambling in (60) should not be right-adjacent to the *wh*-phrase but rather right-adjacent to the FQ.) Such a derivation does not involve counter-feeding and is therefore not predicted to result in ungrammaticality.

What remains to be explained is why a derivation based on merging the *wh*-phrase directly with the FQ is not available for (61) and the examples in (6). To this end, we assume that a *wh*-phrase cannot strand a FQ it has been merged with. Independent motivation for this proposal comes from the hypothesis that pied-piping is a last resort strategy (see Heck 2009 and references therein). To put it in a nutshell, the last resort analysis of pied-piping is based on the idea that the existence of a structure such as (64) owes to the non-existence of an alternative derivation that involves stranding of *alles*. Since (64) is grammatical, the hypothesis implies that there is a ban against stranding *alles*.

5.2   D-Linking, Givenness, and Scrambling

The purpose of this section is to offer a unified analysis of the interpretational effects (discussed in sections 4.3 and 5.1) of the scrambling feature [SCR] in Czech and German.

Section 4.3 was concerned with the question as to why *wh*-objects in Czech show intervention with respect to PN-agreement but non-*wh* objects do not. The preliminary idea was that non-*wh* objects can undergo movement triggered by [SCR]. This allows them to obviate obligatory order preservation with respect to their coarguments. As a consequence, intervention with respect to PN-agreement does not arise. At the same time, we presupposed that movement triggered by [SCR] induces givenness in Czech. Assuming that *wh*-phrases count as non-given, it followed that they cannot undergo scrambling and thus obligatorily exhibit intervention effects. Section 5.1 investigated why a *wh*-phrase in German that associates with a FQ cannot undergo [SCR]-driven movement. Here, the idea was that [SCR]-driven movement of *wh*-phrases triggers D-linking, which in turn is incompatible with FQ-association.

In both cases, [SCR] is involved. In one case it triggers givenness, in the other case D-linking. In what follows, we are going to suggest that D-linking can be identified with (a certain type of) givenness, which makes it possible to posit a uniform interpretational effect associated with [SCR] (of *wh*-phrases) in Czech and German. The idea, in a nutshell, will be the following. For an utterance to be given, it has to be entailed by a salient antecedent (Schwarzschild 1999) and it has to give rise to an existential presupposition (Kučerová 2007:123-127). While entailment may be fulfilled by non-D-linked categories (in Pesetsky's (1987) sense), the requirement to carry an existential presupposition may only be satisfied by *wh*-phrases that are inherently

---

[41] Assuming two base positions for invariant *alles* is not without precedent: in their analysis of the FQ *beide* 'both' in German, Reis and Vater (1980) distinguish two positions for floating *beide*, one forming a constituent with the associated argument, the other appearing in isolation. Link (1974:124, footnote 7) argues that there are two positions for variant *all(es)*. See also Fitzpatrick 2006 for a cross-linguistic study of FQs that assumes a similar dichotomy.

D-linked (Rullmann and Beck 1998*a*;*b*). Therefore, if and only if a category is D-linked (and thus carries an existential presupposition) does it count as given.

To begin with, Schwarzschild (1999) defines an utterance U as given iff U has a salient antecedent A and A entails U (Schwarzschild 1999:148,151). Since entailment holds between propositions, Schwarzschild (1999:147) postulates a semantic transformation called $\exists$-type-shifting, which turns various different semantic types into propositions. By means of this, givenness can also be determined for expressions whose meaning is underlyingly not propositional. Kučerová (2007:123-127) extends Schwarzschild's (1999) notion of givenness, arguing that a scrambled category in Czech must not only be entailed by a salient antecedent but that it must also "give rise to an existential presupposition" (Kučerová 2007:127; cf. Šimík and Wierzba 2015 for critical discussion). In what follows, we suggest that if one accepts certain assumptions about the meaning of *which*-phrases (which are inherently D-linked) made in Rullmann and Beck 1998*a*;*b*, then D-linking turns out to be equivalent to Kučerová's (2007) extended sense of givenness.[42]

We begin by illustrating that D-Linking implies extended givenness. To this end, recall first that Pesetsky's (1987) description of D-linking consisted of speaker and hearer having the range of possible answers in mind that can be given to a question formed with a D-linked *wh*-phrase. Assume now that the persons *Homer*, *Marge*, and *Lisa* have been previously mentioned in the discourse. Suppose that a proper name (optionally) denotes the property of being identical to the entity bearing that name (Rullmann and Beck 1998*b*:247). Suppose further that the mention of the above entities adds the following set S of properties as salient to the discourse context: S = $\{\lambda x.\textbf{person}(x) \wedge x$=Homer, $\lambda x.\textbf{person}(x) \wedge x$=Marge, $\lambda x.\textbf{person}(x) \wedge x$=Lisa$\}$. Given this background, let there now be an utterance U consisting of the D-linked phrase *which person*. According to Rullmann and Beck (1998*b*:247-248), the denotation of *which person* results from (pointwise) predicate modification of the meaning of *person* ($\lambda x.\textbf{person}(x)$) with the meaning of the (abstract) *wh*-morpheme. The denotation of the *wh*-morpheme, according to Rullmann and Beck (1998*b*), is a set of the meanings of the contextually salient entities that the *wh*-phrase ranges over. In the present context, this would be the set $\{\lambda x.x$=Homer, $\lambda x.x$=Marge, $\lambda x.x$=Lisa$\}$. Pointwise predicate modification of $\lambda x.\textbf{person}(x)$ with this set results in a set S$'$ that is identical to S. Applying Schwarzschild's (1999) operation of $\exists$-type-shifting to S and S$'$ yields (in both cases) a set of propositions of the form $\{\exists x.\textbf{person}(x) \wedge x$=Homer, $\exists x.\textbf{person}(x) \wedge x$=Marge, $\exists x.\textbf{person}(x) \wedge x$=Lisa$\}$. Since S = S$'$, it trivially follows that every element in the $\exists$-type-shifted version of S$'$ has an antecedent in the $\exists$-type-shifted version of S such that the latter entails the former. Crucially, Rullmann and Beck (1998*a*;*b*) also assume that a *which*-phrase carries a set of presuppositions of existential uniqueness. In the case of *which person* in the present context, this would be the set $\{\exists!x.\textbf{person}(x) \wedge x$=Homer, $\exists!x.\textbf{person}(x) \wedge x$=Marge, $\exists!x.\textbf{person}(x) \wedge x$=Lisa$\}$. Thus, every element of the meaning of *which person* (the set S$'$) gives rise to an appropriate existential presupposition (namely $\lambda x.\textbf{person}(x) \wedge x$=Homer gives rise to $\exists!x.\textbf{person}(x) \wedge x$=Homer, $\lambda x.\textbf{person}(x) \wedge x$=Marge gives rise to $\exists!x.\textbf{person}(x) \wedge x$=Marge, etc.). It follows that D-linking also satisfies givenness in Kučerová's (2007) extended sense.

Let us now see why extended givenness implies D-linking. Suppose that U consists of a *wh*-pronoun *who*, which is usually not compatible with D-linking contexts (see Pesetsky 1987:107). Again, we follow Rullmann and Beck (1998*b*:245-246), where it is assumed that the denotation of *who* results from combining $\lambda x.\textbf{person}(x)$ via pointwise predicate modification with

a contextually restricted set of entities. Suppose that the domain of *who* is restricted to some set of persons, say *Homer*, *Marge*, and *Lisa*. By a reasoning analog to the one that was employed in the case of *which person* above, this means that the denotation of *who* is entailed by a salient antecedent. However, *who* does not carry an existential presupposition, in contrast to *which*-phrases (Rullmann and Beck 1998*b*). Consequently, it will not satisfy givenness in the extended sense. Therefore, not being D-linked implies not being given. This is the contraposition of the implication we wanted to show. The equivalence of D-linking and Kučerová's (2007) notion of givenness follows.

To conclude, thinking of D-linking in terms of (extended) givenness explains why *wh*-pronouns like *who*, *what* etc. usually do not qualify for D-linking contexts: they do not satisfy the necessary existential presupposition (in contrast, *which*-phrases carry an even stronger presupposition with them, which implies the presupposition required for D-linking).

Against the background of the discussion above, we can now give a more precise answer to the question why *wh*-pronouns in Czech cannot undergo [SCR]-driven movement: the feature [SCR] requires the *wh*-phrase to give rise to an existential presupposition but the lexical choice of the *wh*-element (as a *wh*-pronoun) does not support such a requirement. Therefore, the derivation of the examples (18) in section 2.3 that involves [SCR]-driven movement of the dative *wh*-phrase (resulting in PN-agreement) followed by EF-driven movement of the accusative *wh*-phrase come out as ungrammatical. In contrast to Czech, we speculate that *wh*-pronouns in German (such as *wer* 'who', *was* 'what', etc.) are not restricted in the same way: they may undergo [SCR]-driven movement and thus count as D-linked (Wiltschko 1997, Sauerland 1999) because they support an existential presupposition.

The above reasoning predicts that intervention effects between two *wh*-objects in Czech disappear if at least one of them is a *který*-phrase (i.e. a phrase that, as a lexical property, is compatible with a D-linking context, as *which*-phrases in English are). This appears to be correct:

(65) a. Kterému   specialistovi by kterého   pacienta   primář
          which.DAT specialist.DAT AUX which.ACC patient.ACC chief physician.NOM
          předal   jako kapacitě   ve svém oboru?
          refer to.PART as   expert.DAT in SELF field
          'To which specialist as an expert did the chief physician refer which patient in his field?'
      b. Komu   by kterého   pacienta   předal   primář   jako
          who.DAT AUX which.ACC patient.ACC refer to.PART chief physician.NOM as
          kapacitě   ve svém oboru?
          expert.DAT in SELF field
          'To whom as an expert in his field did the chief physician refer which patient?'

The examples in (65) (in contrast to those in (18)) allow for a derivation where a *který*-phrase undergoes movement to Specv triggered by [SCR] while the other *wh*-phrase undergoes EF-driven movement to Specv. Since both movements are triggered by different features, the relative order of the objects need not be preserved. The indirect object can move first and thus enter into case agreement with the PN.

5.3 Verb Classes

It is often assumed that the underlying order of object arguments in German is indirect object ≻ direct object (see Lenerz 1977, Thiersch 1982, Webelhuth 1992:194-199, among others). So

far, we have followed this view here. A more fine grained distinction is argued for by Haider (1993; 2010), who claims that different verb classes project different relative orders of objects in German. Thus, while verbs such as *geben* 'give' or *vorstellen* 'introduce' project the order indirect object $\succ$ direct object, verbs such as *aussetzen* 'to expose' or *unterziehen* 'to subject' are claimed in this work to belong to a minor class of verbs in German that project the order direct object $\succ$ indirect object.

There are independent arguments in the literature that support this claim. One argument is based on the observation (due to Höhle (1982)) that maximal focus projection from an argument immediately preceding the verb on the surface is possible in German only if this argument is the underlying sister of the verb. Crucially, with verbs that belong to the minor class maximal focus projection is possible from the indirect object but not from the direct object. Another argument, going back to Frey (1993), relies on the generalization that in German a quantifier Q_1 that is c-commanded by another quantifier Q_2 on the surface can scope over Q_2 if it c-commands a trace of Q_2. It turns out that a direct object quantifier can scope over an indirect object quantifier under the surface order indirect object $\succ$ direct object only if they are coarguments of a verb belonging to the minor class.

Since we argued that in German the underlying order of arguments is preserved by multiple movement to Specv (scrambling and successive cyclic movement) and can therefore be detected by the processes of FQ-association and PG-binding, the same diagnostics can now be put to use to see whether different verbs impose different relative orders on their objects. If verbs such as *aussetzen*, *unterziehen*, etc. indeed project the order direct object $\succ$ indirect object, then this, combined with the present theory, predicts that with these verbs it is always the indirect object which is able to associate with a FQ or to bind a PG, and not the direct object (provided both objects are in a position to associate or bind to begin with).

Let us begin with examples that involve association with the FQ *alles*. Although judgments are subtle, it seems as if the examples in (66-a,b) show an inverted asymmetry with *unterziehen*, as one would expect under the hypothesis that the base order of arguments with these predicates is direct object $\succ$ indirect object (similar judgments hold for other verbs in the minor class).[43]

(66) a. *Welche Instrumente$_2$ sollte man einer genauen Prüfung alles$_2$ unterziehen?
          which instruments.ACC should one a   careful test.DAT all   subject.to
          'Which instruments all should one subject to a careful test?'
      b. Welchen Prüfungen$_2$ sollte man ein neues Instrument   alles$_2$ unterziehen?
          which   tests.DAT   should one a   new instrument.ACC all   subject.to
          'To which tests all should one subject a new instrument?'

Turning to PGs, however, we think that the asymmetry favors binding by the direct object over binding by the indirect object:

(67) a. Wen$_2$ musste   sie welcher Behandlung$_3$ [ohne   PG$_2$ zu informieren]
          who.ACC must.PAST she which   treatment.DAT   without   to inform

---

[43]The dative marked indirect object of *unterziehen* is typically inanimate. But the simplex inanimate *wh*-phrase *was* 'what' in German cannot serve as an argument that is dative marked by a verb (see Pittner 1996). For this reason, *welch*-phrases ("which"-phrases) were chosen as indirect objects in the examples in (66) and (67). If German *welch*-phrases were inherently D-linked (as is often assumed for *which*-phrases in English), then they would be semantically incompatible with invariant *alles* (see section 5.1). However, Reis (1992) argues that, despite common believe, *welch*-phrases in German are not inherently D-linked (as is illustrated by the grammaticality of (66-b)). Hence, there must be another explanation for the ungrammaticality of (66-a).

unterziehen?
subject

'Who was she obliged to subject to a treatment without informing?'

b. *Welcher Behandlung$_3$ musste sie wen$_2$ [ohne PG$_3$ beizuwohnen]
which treatment.DAT must.PAST she who.ACC without be.present.at
unterziehen?
subject

'Which treatment was she obliged to subject who to without approving of?'

Thus, the diagnostics from PG-binding and FQ-association provide conflicting evidence. While FQ-association supports the hypothesis that verbs such as *unterziehen* in German belong to a special class of verbs that project the underlying order direct object ≻ indirect object, PG-binding appears to indicate that even with these verbs the underlying order of objects is indirect object ≻ direct object. The latter finding is at variance with the hypothesis put forward by Haider (1993; 2010). Taking the arguments that support this hypothesis seriously, the question then arises as to how it can be reconciled with the findings in (67).

To this end, we would like to invoke a proposal put forward in Meinunger 2000; 2006, where it is argued that the indirect objects of verbs belonging to the minor class in German are actually PPs headed by an empty preposition (see also Collins and Thráinsson 1996:420 on Icelandic). Such PPs are merged lower than their direct object coarguments, namely as the sister of the verb. In this position, the indirect object can project its focus on the whole clause (in line with Höhle's (1982) generalization); and when it moves away, it leaves behind a trace that can be c-commanded by a direct object quantifier, thus leading to scope inversion (in agreement with Frey's (1993) generalization). However, if the indirect object is actually a PP, it will not be able to bind a PG given that, generally, PPs cannot act as antecedents for PGs (see Cinque 1990:102 and references therein).[44] Therefore, with verbs belonging to the minor class it will always be the direct object that binds a PG, even if the underlying order projected by these verbs is direct object ≻ indirect object. In contrast, nothing prevents FQ-association with an indirect object that is a PP.[45] In this way, the present analysis can be fruitfully combined with Haider's hypothesis.

Finally note that a related prediction arises with unaccusative verbs in German that take a nominative and a dative argument. Following Grewendorf (1989), the nominative argument is an underlying direct object in these contexts (see also Wegener 1991, Fanselow 1992). Therefore, with such verbs it should only be the nominative argument (not the dative) that can associate with a FQ or bind a PG. Similar considerations to psych-verbs in German like *gefallen*

---

[44]This restriction follows under present assumptions if PPs cannot bear [uIND:i]. A reviewer notes the prediction that a PG should then never be bound by an indirect object of the minor verb class, irrespective of whether the direct object precedes the PG or not. Contrary to this expectation, a variant of (67-b) that leaves the direct object in situ, to the right of the adjunct clause, clearly improves vis-à-vis (67-b) (example omitted). An explanation for this could be that the empty preposition deletes at LF (cf. Epstein et al. 1998:70), thereby feeding Agree (and PG-binding) at LF, provided the direct object remains in situ. LF-feeding will not apply if the PG has already entered into Agree with the direct object in the overt syntax, as in (67-b), thus leading to counter-feeding.

[45]Witness the well-formed example (i), which involves FQ-association with a PP headed by an overt preposition. For this to be possible under the present proposal, PPs must be able to bear [uWH-IND:i].

(i)   Mit wem$_2$ hat sie alles$_2$ gesprochen?
       with who.DAT has she all spoken
       'Who all did she talk to?'

'please', which take a nominative and a dative argument. This seems to be correct:[46]

(68)   a.   Was für Experimente$_2$ sind einem Professor   alles$_2$ gelungen?
           what for experiments.NOM are a   professor.DAT all   succeeded
           'What kind of experiments were successfully performed by a professor?'
       b.   *Was für Professoren$_2$ ist ein Experiment alles$_2$ gelungen?
           what for professors.DAT is a experiment.NOM all succeeded
           'What kind of professors all successfully performed an experiment?'

(69)   a.   Was für Berufswechsel$_2$ könnten einem Professor   alles$_2$ gefallen?
           what for career changes.NOM could   a   professor.DAT all   please
           'What kind of career changes could possibly please a professor?'
       b. *?Was für Professoren$_2$ könnte ein Berufswechsel   alles$_2$ gefallen?
           what for professors.DAT could a   career change.NOM all   please
           'What kind of professors could a career change possibly please?'

We conclude that the present findings are at least compatible or even supported by independent studies on special verb classes in German and the order in which the verbs belonging to these classes project their arguments in the syntax.

5.4   Scrambling as a Transformation

In the preceding discussion, we presupposed that scrambling comes about by a movement transformation. This is not a new idea. It goes back at least as far as Bierwisch 1963:100-101 and Ross 1967:74-78[47], and it has often been argued for since then (see Fanselow 1990, Giusti 1990, Webelhuth 1992:164-178, Müller and Sternefeld 1994, Grewendorf and Sabel 1999 on German; see Kučerová 2007:140-141 on Czech). However, there are also approaches, for a variety of languages, that analyze scrambling in terms of base generation (see Haider 1988, Fanselow 1993; 2001; 2003, Bayer and Kornfilt 1994, Kiss 1994, Neeleman 1994, Bošković and Takahashi 1998). The debate of whether scrambling involves movement or not is still not settled (see for instance Fanselow 1993; 2001 on German; compare also Bailyn 2001 and Bošković 2004 for relevant discussion on Russian and Japanese).

In what follows, we will illustrate that, all other things equal, an approach to scrambling in terms of base generation faces a problem when confronted with (some of) the opacity effects discussed in the present study. Thus, the present analysis, in as far as it is successful, can serve as an argument against scrambling in terms of base generation.

First consider the case of simple bleeding with a FQ in German given in (70-a).

(70)   a.   *Wem$_1$ hat sie einen Professor   alles$_1$ vorgestellt?
           who.DAT has she a   professor.ACC all   introduced

---

[46]We confine ourselves to FQ-association. Note that there seems to be disagreement with respect to psych verbs in German take a nominative and an accusative argument, such as *überraschen* 'surprise'. For these, it is sometimes assumed that the nominative argument is merged higher than the accusative argument (Grewendorf 1989, Fanselow 1992). Thus, the present proposal would predict that with *überraschen* a nominative marked *wh*-phrase cannot associate with a FQ across an accusative indefinite. A first look suggests, however, that at least for some speakers the relevant sentences are no less acceptable than the opposite association pattern. This may suggest that for those speakers the nominative argument can be merged low after all.

[47]Although Ross (1967) assumed scrambling to be a transformation, he did not consider it a movement transformation in narrow syntax but proposed that it better be placed outside syntax in what he called the "stylistic component."

'Who all did she introduce a professor to?'

b. Wem₁ hat sie alles₁ einen Professor vorgestellt?
who.DAT has she all a professor.ACC introduced

Assuming that the *wh*-phrase in (70-a) is merged to the left of the indefinite (which in turn is merged to the left of the FQ), a proponent of the base-generation approach to scrambling could (in order to account for the ungrammaticality of (70-a)) assume as a first hypothesis that indefinites that are base generated in between a *wh*-phrase and a FQ interrupt the association between the latter two. Given the assumption that there is no scrambling transformation, the *wh*-phrase and the FQ in (70-b) must then be base generated adjacent to each other (to the left of the indefinite) before *wh*-movement applies. Since the indirect and the direct object can appear in any order, it must also be possible to base generate the indefinite to the left of the *wh*-object and the *wh*-object to the left of a FQ. If *wh*-movement applies to such a configuration, then the result is again (70-a). To block this derivation of (70-a), the base generator could formulate a second hypothesis to the effect that the movement path of a *wh*-phrase associated with a FQ must not cross an indefinite. But now consider the case of counter-bleeding in (71):

(71) Wen₁ hat ein Professor alles₁ beleidigt?
who.ACC has a professor.NOM all insulted
'Who all did a professor insult?'

In (71), the *wh*-phrase successfully associates with the FQ. On the one hand, it could have been generated left-adjacent to the FQ, in line with the base-generator's first hypothesis. This, however, is at variance with the second hypothesis because the *wh*-phrase must then move across the indefinite. If, on the other hand, the *wh*-phrase is generated to the left of the indefinite (in agreement with the second hypothesis), with the indefinite in between FQ and *wh*-phrase, then this is in conflict with the first hypothesis. To conclude, there is no way the base generator can account for both (70-a,b) and (71), at least not obviously so.

5.5 Tucking-In

In section 4, we presented an analysis of order preservation with multiple specifiers which distinguishes two cases. First, there are multiple specifiers that come about by applying two operations: as a rule, inner specifiers are created by Move, the outermost specifier is created by Merge. Second, there are multiple specifiers created by pure movement. Multiple specifiers of the mixed type were assumed to be the result of the ISC (based on the theory of EF-insertion in Müller 2010; 2011). Instances of the pure type were argued to follow from the way the derivation handles multiple attraction by a single EF: first, the attracted categories are collected on a buffer; then, they are remerged in the inverse order.

Richards (2001) provides an alternative mechanism to derive order preservation in multiple specifiers of the pure type, which he dubs the theory of tucking-in. The idea is that there are two constraints on movement: Shortest Move and Shortest Attract. In (72), both are conflated into one constraint:

(72) *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.

Suppose that γ and β are attracted by the same probe α. If γ asymmetrically c-commands β, then the transderivational constraint Shortest requires that α first attracts γ and then β: the path (the above mentioned set of nodes) involving γ is shorter than the path involving β. Therefore, the derivation where γ moves first blocks the derivation where β moves first. This is the Shortest Attract part. In a second step, then, β undergoes movement and "tucks in" to the innermost specifier position below γ. Tucking-in is forced by Shortest because the path involving the innermost specifier is shorter than the path involving an outer specifier (above γ). This is the Shortest Move part.[48]

Ordering effects with multiple specifiers of the mixed type are only briefly touched upon by Richards (2001:75), but tucking-in is also applicable to those. The reason is that the question as to whether movement targets an inner or an outer specifier relative to an already existing specifier γ in the same domain does not depend on whether γ has been created by Move or by Merge. All that counts is that the path involving a position below γ is shorter than the path involving a position above it. There is only one additional assumption that needs to be added to the theory of tucking-in in order to derive the ordering effect with mixed specifiers: Merge must apply before Move, see Chomsky 1995.

Now, it seems natural to derive the internal ordering of pure and of mixed specifiers by the same mechanism, viz. the tucking-in theory. In contrast, the theory of EF-insertion that underlies the ISC has nothing to say about multiple specifiers of the pure type. Thus, presupposing that Merge over Move is independently motivated, Richards' (2001) tucking-in theory covers a broader empirical domain as compared to the one covered by the ISC or the idea that EF-related movement runs via a buffer, respectively. This looks like an attractive trait of the theory of tucking-in. Despite this, we have opted against tucking-in for the following reasons.

First, there are arguments in the literature against Merge over Move (e.g., Shima 2000, Chomsky 2013). Thus, it might ultimately turn out that tucking-in actually must resort to an additional auxiliary assumption to cover multiple specifiers of the mixed type after all.

Second, tucking-in is incompatible with strict cyclicity: it involves movement to a position that forms a proper part of the current phrase marker, thus violating the SCC ((26) in section 3). Technically speaking, this violation of the SCC is not effective for Richards 2001 because this work presupposes a weaker notion of cyclicity, which is not violated by tucking-in. However, on purely conceptual grounds, strict cyclicity is to be preferred over weak cyclicity. As both the derivation of the ISC in (25) as well as the buffer theory of order preserving movement obey strict cyclicity, this is a conceptual argument against tucking-in and in favor of the theory proposed here.

Third, and most importantly, tucking-in does not fit well into the strictly derivational account of intervention effects presented in section 4. Or, to put it differently: the intervention effects as analyzed in sections 4.1–4.3 above suggest that it is not the outermost specifier that is merged first (as hypothesized by tucking-in) but rather the innermost specifier. To see why, reconsider a case of PG-binding in the context of multiple scrambling from German (FQ-association or PN-agreement could equally serve to make the point), repeated in (73).

(73)   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'

Given the background of the present analysis, a derivation of (73) based on tucking-in would involve an intermediate state of the derivation where the indirect object has scrambled across

---

the adjunct while the direct object still occupies its base position, waiting to tuck-in below the indirect object at a later step, see (74).

(74)   [$_{vP}$ Hans der Maria$_3$ [… PG$_3$ …] t$_3$ das Buch$_2$ …]
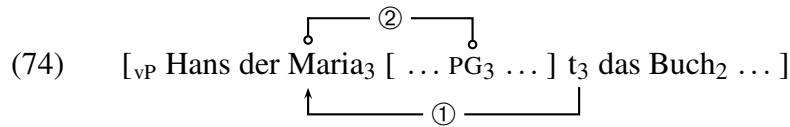
In this configuration, Earliness requires Agree to apply between the indirect object and the PG (see ② above). Consequently, binding of the PG by the direct object should be blocked: when the direct object undergoes tucking-in below the indirect object, the goal feature of the PG is already valued. Empirically, the opposite holds in (73). Maintaining the tucking-in hypothesis thus requires the assumption to the effect that Agree does not apply until all specifiers of the current phrase (vP in (74)) have been merged, which procrastinates Agree until the direct object has undergone tucking-in. Once tucking-in has applied, one may argue, Agree between the PG and the indirect object is blocked by a minimality requirement because the direct object intervenes.

Although this solution works technically, it is empirically and conceptually problematic. Empirically, tucking-in (together with Merge over Move) predicts that the specifier created by movement is always below the specifier created by Merge.[49] This is incompatible with the observations from Czech presented in section 2.3, which suggested that the externally merged (nominative marked) argument also has the option of entering into case agreement with the PN, even if there is object scrambling, which by hypothesis involves tucking-in. In contrast, the theory based on the ISC leaves the possibility that movement may target an outer specifier of a head H after all if H remains active after the inner specifier of H has been merged. In section 4.3, we suggested that this may be the case in Czech. Thus, the theory based on the ISC is flexible enough to handle these cases as well as the more rigid ordering effects encountered in PG-binding and FQ-association in German.[50]

Conceptually, the solution also encounters problems. First, procrastinating Agree is at variance with the Earliness Requirement (28). Note that such a requirement is also adopted in Richards 2001:38-42, where it motivates the weaker version of strict cyclicity, needed to derive tucking-in.[51] Second, the minimality requirement that must be invoked by the tucking-in theory in order to block Agree between the indirect object across the direct object in (74) cannot be the MLC as given in (27) (cf. also Chomsky 1995:311) because the direct object does not bear a potential goal for the probe on the indirect object. Thus, another type of minimality requirement is needed (cf. Fanselow 1991:76). Actually, the formulation of Shortest in (72) is general enough to cover this type of minimality. Namely, if the two probes in (73) represent A and C in (72), respectively, while the goal in (73) instantiates B, then (73) can be understood

---

[49]This is a simplification. Due to the transderivational nature of (72) an outer specifier could be created by Move after all if creation of an inner specifier by Move lead to a non-convergent derivation. However, first this presupposes a transderivational formulation of Shortest, as in (72) (see below); and second reference to the notion of convergence is potentially problematic as, in some cases, global information (in the sense of Lakoff 1970) seems to be required to determine whether a derivation converges or not. Conceptually, transderivational and global constraints should be avoided in favor of local constraints, if possible.

[50]Giving up Merge over Move under tucking-in would explain the pattern for subjects in Czech but it results in the wrong predictions with respect to PG-binding and FQ-association with subjects in German. A possible solution could consist in making the assumption that preference principles are parametrized: Merge over Move would be active in German but not in Czech.

[51]A possible way out here could consist in assuming that Merge is also subject to Earliness and invoke a preference for Merge over Agree, cf. footnote 23.

as an instance of the configuration described in (72). However, assuming such a constraint in a derivational theory seems to be the wrong way to go. Here is why: As Epstein et al. (1998) and Brody (2001; 2002) argue, the representational residue of derivational theories should be minimized. In the derivational account of opacity that we proposed, intervention effects as such do not exist; rather, they are simply a side effect of the way the derivation unfolds. For instance, binding of the PG by the indirect object in (73) is impossible simply because the direct object reaches a position from where it c-commands the PG and is thus able to value its goal feature *before* the indirect object does. No reference to any particular representational relation between the two objects (such as intervention) is necessary to achieve this. In contrast, the account based on tucking-in invokes a minimality requirement that makes reference to a particular representation in which the direct object intervenes between the indirect object and the PG. Thus, the present theory arguably reduces its representational residue relative to a comparable theory based on tucking-in. From this perspective, a theory without tucking-in seems more appropriate to account for specifier ordering and intervention within a derivational framework.

6 Conclusion

We argued that the syntactic relation between an associate and its antecedent can be opaque. The evidence came from association with floating quantifiers and binding of parasitic gaps in German as well as from case agreement with predicate nominals in Czech. We illustrated that these instances of syntactic opacity and the asymmetries they exhibit can be given a derivational account within the probe-goal framework if (a) vP is a phase, (b) both the associate and its potential antecedents are merged in fixed positions, (c) multiple attraction of the potential antecedents by the same probe preserves their relative order, (d) Agree relations are established as early as possible. To achieve this, we proposed that movement to Specv may be triggered by EFs (subject to the ISC), and that order preservation is the result of collecting multiply attracted elements on a buffer. As a further result, we illustrated that the intervention effects discussed here, which usually would receive a treatment in terms of some minimality requirement, follow automatically from the derivational nature of the approach. We discussed the present approach with respect to *wh* in situ and against the claim that there is a minor class of verbs in German that project their objects in a non-standard order. A reduction of D-linking to the notion of givenness was suggested, thereby unifying interpretational effects of scrambling in Czech and German. It was argued that the analysis provides a novel argument to the effect that scrambling is to be analyzed as a transformation, and we finally suggested that tucking-in is not well-suited to account for specifier ordering and intervention effects within a derivational framework.

Appendix: An Experiment on Case Agreement in Czech Predicate Nominals

An anonymous reviewer challenged our generalization about agreement in Czech PNs and said that the examples are pragmatically odd and that he could not reproduce the difference in judgments between PNs showing dative agreement and those which show accusative agreement. In order to prove the difference in grammaticality between the critical examples, we conducted an experiment with native speakers of Czech. The following will summarize our results and convincingly show that the contrast we described does exist.

Method: The experiment was designed as a magnitude estimation study with 20 test sentences and 46 filler sentences. Since the test sentences are difficult to parse due to their complexity, each sentence was put in a context. Participants were recruited via e-mail to fill out an online survey. Overall, 18 participants completed the survey. Two of them had to be excluded since they misunderstood the task. The participants were all students from the University of Brno with an average age of 20.8 years. All of them were native speakers of Czech and all of them were naïve to the purpose of the study. Every participant completed a tutorial that explained the way judgments are made in a magnitude estimation study and that familiarized the participant with the presentation of the contexts and the sentences. After judging a few mock sentences, the experiment started. For each item, the participants first saw a context consisting of one to three sentences. They had to click in order to continue. After that, the context and the critical sentence were shown together and the sentence had to be judged in order to continue with the experiment. Additionally, two pairs of reference sentences were shown at all times in order to give the participants reference points for their judgments.

Items: The 20 test sentences instantiated the 4 conditions resulting from the 2-by-2 factorial design used for this experiment. The first factor was the order of wh-phrases at the beginning of the sentence: it could either be *koho komu* or *komu koho*. The second factor was the case in the PN: accusative (agreement with *koho*) or dative (agreement with *komu*). Each of the four conditions was instantiated by five sentences.

The 40 filler sentences came from a wide variety of Czech sentences, some being as simple as intransitive sentences, some involving complex relative clause constructions. They also differed in their grammaticality, some being completely ungrammatical, some being fully grammatical and others being marked or slightly ungrammatical. Overall, we made out the five grammaticality categories *1* to *5*, 1 being completely ungrammatical, 5 being perfectly fine. Each category was equally represented by 8 sentences. Half of the filler sentences were questions, the other half were declarative sentences. Importantly, some of the filler sentences also contained PNs, however, with conditions different from the filler sentences. Two test sentences were separated by at least one filler sentence. The experiment started with 6 additional filler sentences in order to let the participants get used to rating the sentences.

Each sentence came with a context of one to three sentences. All sentences were made up by the investigators and translated into Czech with the help of a trained translator, who also assisted in construing the examples. She also helped in construing the ungrammatical and marked versions.

Thermometer judgments: Instead of doing a standard magnitude estimation study, we used a method going back to Featherston (2009) called thermometer judgments. The main idea is

that judgments can be chosen freely on an infinite scale, which has two reference points (similar to a thermometer), each represented by two sentences.[52] These reference sentences instantiate a default scale, helping the participants to develop their own personal scales of judgments. Thermometer judgments have the advantage that speakers get to express their sprachgefühl on an open-ended, continuous scale that feels very natural since they can freely deviate from the default scale.

Results: The ratings from all participants were standardized in order to make the personal scales compatible. An ANOVA revealed no interaction between the order of wh-phrases and the case agreement (F = 0.015). This means that we are indeed not dealing with a linear intervention effect. The ANOVA also showed that the factor *order* is not important (F = 0.416). This means that Czech has no preferable order of fronted wh-objects, or put differently, there are no superiority effects for wh-objects. The only highly significant factor for judgments was agreement (F = 37.087, p < 0.001). As the interaction plot in Figure 1 shows, accusative agreement was judged as grammatical, while dative agreement was evaluated as ungrammatical. Note that in standarized ratings a value of 0 roughly marks the border between grammaticality (> 0) and ungrammaticality (< 0). Thus, Figure 1 also shows that accusative agreement is grammatical, while dative agreement is not.

Reliability of the results: The results so far could also suggest that PNs with dative agreement are not preferred in general. However, looking at the mean ratings of filler sentences that contain PNs and exhibit dative agreement suggests that the deviant judgment of dative agreement in the test sentences is indeed due to an intervention effect. The mean rating for the respective filler sentences without intervention is 0.5784707, which is significantly higher than the mean rating for the cases with dative agreement and intervention (-0.383874). We admit, however, that these results should be considered with some care since we did not conduct a separate experiment to prove these results and since the number of filler sentences with PNs and dative agreement was only 2. Still, considering the mean ratings and the statements of native speakers that dative agreement in PNs is possible in general, we think it is justified to attribute the difference in grammaticality to intervention.

Finally, the performance of the participants could be a reason that the data are not reliable. However, it seems that all sentences were judged as expected. The filler sentences were constructed in a way that they show a wide spectrum of grammaticality. Concretely, our translator translated the filler sentences into Czech as completely grammatical sentences and together we construed more or less deviant versions of each filler. Categorizing them according to their grammaticality, we came up with categories 1 to 5, 1 being completely ungrammatical and 5 being perfectly grammatical. In fact, looking at the mean ratings for each category, we see that the 5 grammaticality categories for the filler sentences that we made out when we designed the experiment were confirmed by the judgments of the participants. This is shown in figure 2. Consequently, the judgments seem to be highly reliable.

---

[52]Since our items included declarative as well as interrogative sentences, we chose to provide two pairs of sentences as reference points, each consisting of a declarative and an interrogative sentence.
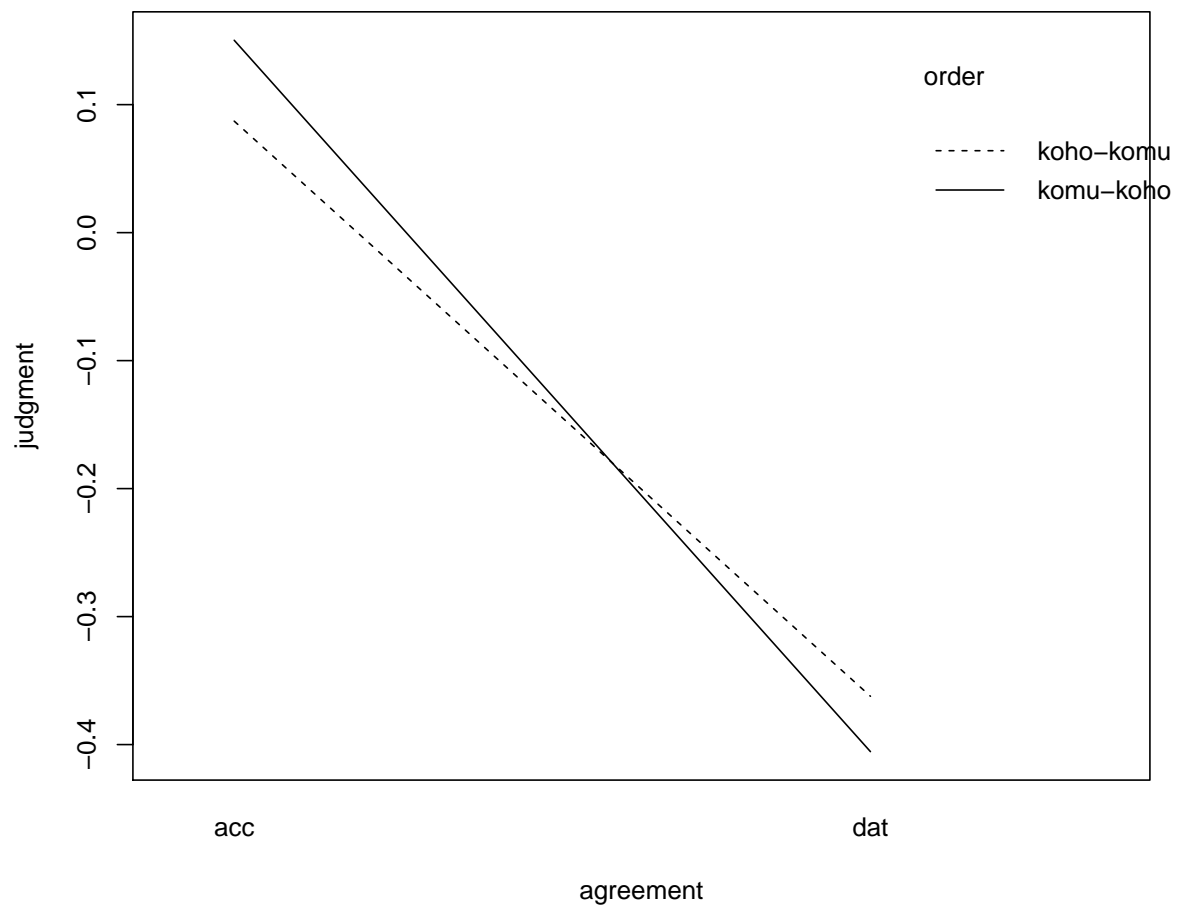
Figure 1: No significant interaction between order and agreement

References

Alexiadou, Artemis and Elena Anagnostopoulou (1998): 'Parametrizing AGR: Word Order, Verb Movement, and EPP Checking', *Natural Language and Linguistic Theory* **16**, 491–539.

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

Anagnostopoulou, Elena (2006): Strong and weak person restrictions: A feature checking analysis. *In:* L. Heggie and F. Ordóñez, eds, *Clitics and Affixation*. John Benjamins, Amsterdam, pp. 199–235.

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.

Bailyn, John (2001): 'On Scrambling: A Reply to Bošković and Takahashi', *Linguistic Inquiry* **32**, 635–658.

Baker, Carl L. (1970): 'Notes on the Description of English Questions: the Role of an Abstract Question Morpheme', *Foundations of Language* **6**, 197–219.
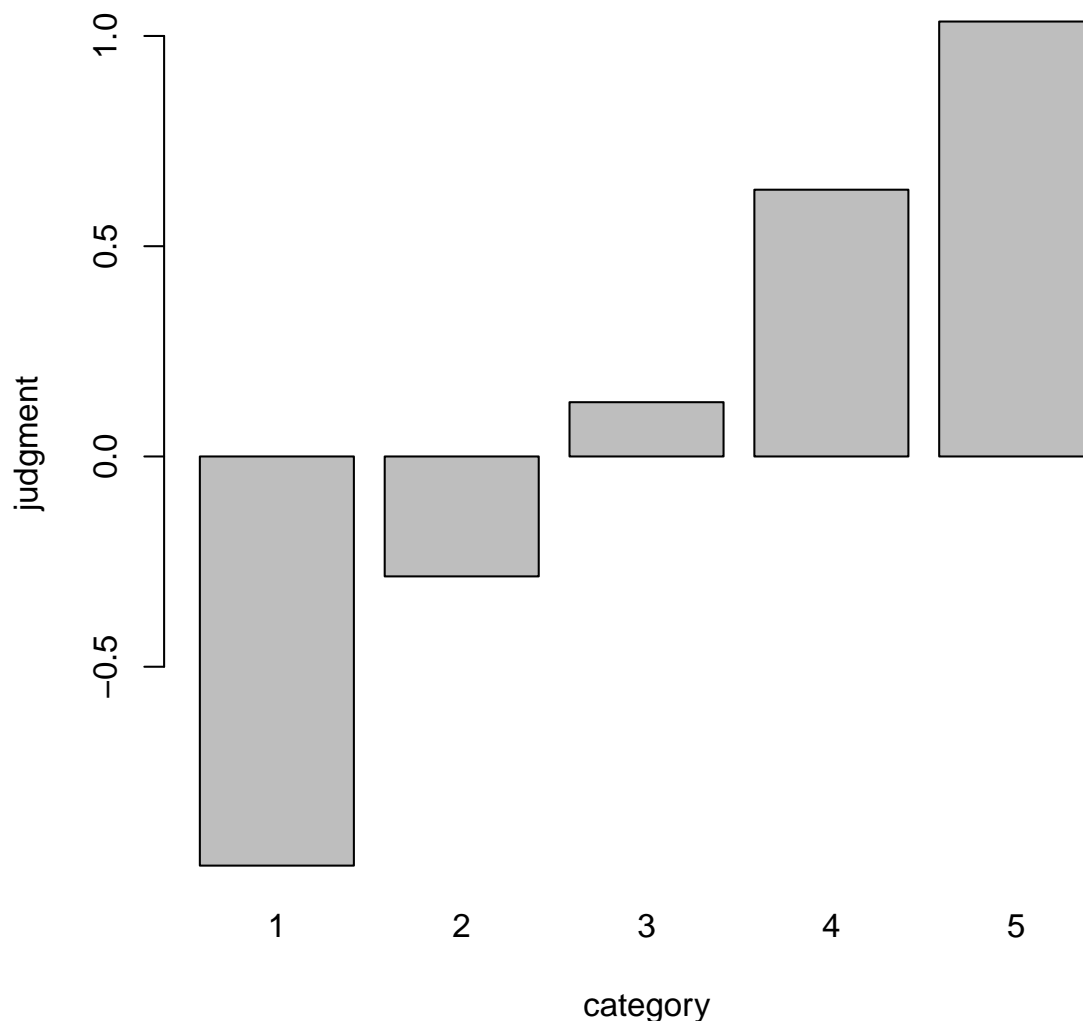
Figure 2: Mean ratings of fillers

Baker, Mark (2003): *Lexical Categories: Verbs, Nouns, and Adjectives*. Cambridge University Press, Cambridge.

Baker, Mark (2008): *The Syntax of Agreement and Concord*. Cambridge University Press, Cambridge.

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

Bayer, Josef (1988): 'Fortschritte der Syntaxtheorie', *Linguistische Berichte* **117**, 410–426.

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.

Bennis, Hans and Teun Hoekstra (1984): 'Gaps and Parasitic Gaps', *The Linguistic Review* **4**, 29–87.

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

Biskup, Petr (2011): *Adverbials and the Phase Model*. John Benjamins, Amsterdam.

Bobaljik, Jonathan (1998): 'Floating Quantifiers: Handle With Care', *Glot International* **3**, 3–10.

Bošković, Željko (2000): What is Special about Multiple Wh-Fronting?. *In:* M. Hirotani, A. Coetzee, N. Hall and J.-Y. Kim, eds, *Proceedings of NELS 30*. GLSA, Amherst, Massachusetts, pp. 83–107.

Bošković, Željko (2004): 'Topicalization, Focalization, Lexical Insertion, and Scrambling', *Linguistic Inquiry* **35**, 613–638.

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

Bošković, Željko and Daiko Takahashi (1998): 'Scrambling and Last Resort', *Linguistic Inquiry* **29**, 347–366.

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

Brody, Michael (2002): On the Status of Representations and Derivations. *In:* S. D. Epstein and T. D. Seely, eds, *Derivation and Explanation in the Minimalist Program*. Blackwell, Oxford, pp. 326–342.

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

Chomsky, Noam (1951): Morphophonemics of Modern Hebrew. Master's thesis, University of Pennsylvania, Philadelphia, Pennsylvania.

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.

Chomsky, Noam (2013): 'Problems of Projection', *Lingua* **130**, 33–49.

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

Collins, Chris (1997): *Local Economy*. MIT Press, Cambridge, Mass.

Collins, Chris and Höskuldur Thráinsson (1996): 'VP-Internal Structure and Object Shift in Icelandic', *Linguistic Inquiry* **27**, 391–444.

Contreras, Heles (1984): 'A Note on Parasitic Gaps', *Linguistic Inquiry* **15**, 698–701.

Diesing, Molly (1992): *Indefinites*. MIT Press, Cambridge, Massachusetts.

Diesing, Molly (2003): On the Nature of Multiple Fronting in Yiddish. *In:* C. Boeckx and K. K. Grohmann, eds, *Multiple* Wh-*Fronting*. John Benjamins, Amsterdam, pp. 51–97.

Dikken, Marcel den and René Mulder (1991): 'Double Object Scrambling', *MIT Working Papers in Linguistics* **14**, 67–82.

Emonds, Joseph (1976): *A Transformational Approach to English Syntax*. Academic Press, New York.

Enç, Mürvet (1991): 'The Semantics of Specificity', *Linguistic Inquiry* **22**, 1–25.

Engdahl, Elisabet (1983): 'Parasitic Gaps', *Linguistics & Philosophy* **6**, 5–34.

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 (1992): "Ergative" Verben und die Struktur des deutschen Mittelfeldes. *In:* L. Hoffmann, ed., *Deutsche Syntax – Ansichten und Aussichten*. Walter de Gruyter, Berlin, pp. 276–303.

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.

Fanselow, Gisbert and Denisa Lenertová (2011): 'Left Peripheral Focus: Mismatches between Syntax and Information Structure', *Natural Language and Linguistic Theory* **29**, 169–209.

Featherston, Sam (2009): A scale for measuring well-formedness: Why syntax needs boiling and freezing points. *In:* S. Winkler and S. Featherston, eds, *The fruits of empirical linguistics, Volume 1: Process*. Mouton de Gruyter, Berlin, pp. 47–74.

Felix, Sascha W. (1983): 'Parasitic Gaps in German', *Groninger Arbeiten zur Germanistischen Linguistik* **22**, 1–46.

Felix, Sascha W. (1985): Parasitic Gaps in German. *In:* W. Abraham, ed., *Erklärende Syntax des Deutschen*. Narr, Tübingen, pp. 173–201.

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

Fitzpatrick, Justin (2006): The Syntactic and Semantic Roots of Floating Quantification. PhD thesis, MIT.

Fox, Danny and David Pesetsky (2005): 'Cyclic Linearization of Syntactic Structure', *Theoretical Linguistics* **31**, 1–46.

Frey, Werner (1993): *Syntaktische Bedingungen für die semantische Interpretation*. Akademieverlag, Berlin.

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

Giusti, Giuliana (1990): 'Floating Quantifiers, Scrambling, and Configurationality', *Linguistic Inquiry* **21**, 633–641.

Giusti, Giuliana (1991): The syntax of floating *alles* in German. *In:* W. Abraham, W. Kosmeijer and E. Reuland, eds, *Issues in Germanic Syntax*. Mouton de Gruyter, Berlin, pp. 327–350.

Grewendorf, Günther (1989): *Ergativity in German*. Foris, Dordrecht.

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

Grohmann, Kleanthes (1997): 'German Superiority', *Groninger Arbeiten zur Germanistischen Linguistik* **40**, 97–107.

Grohmann, Kleanthes (1998): 'Syntactic Inquiries into Discourse Restrictions on Multiple Interrogatives', *Groninger Arbeiten Zur Germanistischen Linguistik* **42**, 1–60.

Haider, Hubert (1988): Θ-Tracking Systems – Evidence from German. *In:* L. Maràcz and P. Muysken, eds, *Configurationality*. Foris, Dordrecht, pp. 185–206.

Haider, Hubert (1993): *Deutsche Syntax – Generativ*. Narr, Tübingen.

Haider, Hubert (1997): Scrambling - Locality, Economy, and Directionality. *In:* S. Tonoike, ed., *Scrambling*. Kurosio Publishers, Tokio, pp. 61–91.

Haider, Hubert (2010): *The Syntax of German*. Cambridge University Press, Cambridge.

Haider, Hubert and Inger Rosengren (2003): 'Scrambling: Nontriggered Chain Formation in OV Languages', *Journal of Germanic Linguistics* **15**, 203–267.

Hankamer, Jorge (1974): On Wh-Indexing. *In:* E. Kaisse and J. Hankamer, eds, *Proceedings of NELS 5*. GLSA, Amherst, Massachusetts, pp. 61–76.

Haspelmath, Martin (1997): *Indefinite Pronouns*. Oxford University Press, Oxford.

Heck, Fabian (2009): 'On Certain Properties of Pied-Piping', *Linguistic Inquiry* **40**, 75–111.

Heck, Fabian and Gereon Müller (2007): Extremely Local Optimization. *In:* E. Bainbridge and B. Agbayani, eds, *Proccedings of WECOL 34*. University of Fresno, Fresno, CA, pp. 170–182.

Henry, Allison (1995): *Belfast English and Standard English*. Oxford University Press, Oxford.

Hirschbühler, Paul (1981): 'The Ambiguity of Iterated Multiple Questions', *Linguistic Inquiry* **12**, 135–146.

Hoge, Kerstin (2000): Superiority. PhD thesis, Oxford University.

Höhle, Tilman (1982): Explikationen für 'normale Betonung' und 'normale Wortstellung'. *In:* W. Abraham, ed., *Satzglieder im Deutschen*. Narr, Tübingen, pp. 75–153.

Hudson, Richard (1984): Multiple (Alias "Parasitic") Gaps. Ms. UCL.

Huybregts, Riny and Henk van Riemsdijk (1985): Parasitic Gaps and ATB. In: *Proceedings of NELS 15*. GLSA, Amherst, pp. 168–87.

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.

Keine, Stefan (2015): Locality domains in syntax: Evidence from sentence processing. Ms., University of Massachusetts Amherst.

Kenstowicz, Michael and Charles Kisseberth (1979): *Generative Phonology*. Academic Press, New York.

Kiparsky, Paul (1973): Abstractness, Opacity, and Global Rules. *In:* O. Fujimura, ed., *Three Dimensions of Linguistic Theory*. TEC, Tokyo, pp. 57–68.

Kiss, Katalin É. (1993): 'Wh-Movement and Specificity', *Natural Language and Linguistic Theory* **11**, 85–120.

Kiss, Katalin É. (1994): Scrambling as the Base-Generation of Random Complement Order. *In:* N. Corver and H. Riemsdijk, eds, *Studies on Scrambling*. Mouton/de Gruyter, Berlin, pp. 221–256.

Ko, Heejeong (2005): Syntactic Edges and Linearization. PhD thesis, MIT, Cambridge, Massachusetts.

Ko, Heejeong (2007): 'Asymmetries in Scrambling and Cyclic Linearization', *Linguistic Inquiry* **38**, 49–83.

Kučerová, Ivona (2007): The Syntax of Givenness. PhD thesis, MIT, Cambridge, Massachusetts.

Kučerová, Ivona (2012): 'Grammatical Marking of Givenness', *Natural Language Semantics* **20**, 1–30.

Lakoff, George (1970): 'Global rules', *Language* **46**, 627–639.

Lasnik, Howard (1999): 'On Feature Strength: Three Minimalist Approaches to Overt Movement', *Linguistic Inquiry* **30**, 197–217.

Lasnik, Howard and Tim Stowell (1991): 'Weakest Crossover', *Linguistic Inquiry* **22**, 687–720.

Lee, Young-Suk and Beatrice Santorini (1994): Towards Resolving Webelhuth's Paradox: Evidence from German and Korean. *In:* N. Corver and H. Riemsdijk, eds, *Studies on Scrambling*. Mouton de Gruyter, Berlin, pp. 257–300.

Lenerz, Jürgen (1977): *Zur Abfolge nominaler Satzglieder im Deutschen*. Narr, Tübingen.

Link, Godehard (1974): Quantoren-Floating im Deutschen. *In:* F. Kiefer and D. Perlmutter, eds, *Syntax und Generative Grammatik*. Athenaion, Frankfurt, pp. 105–127.

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.

McCloskey, James (1997): Subjecthood and Subject Positions. *In:* L. Haegeman, ed., *Elements of Grammar*. Kluwer, Dordrecht, pp. 197–235.

McFadden, Thomas and Sandhya Sundaresan (2011): Nominative Case is Independent of Finiteness and Agreement. Ms., Universitet i Tromsø.

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.

Merchant, Jason (1996): Object Scrambling and Quantifier-Float in German. *In:* K. Kusumoto, ed., *Proceedings of NELS 26*. GLSA, Amherst, Massachusetts, pp. 179–193.

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.

Mulders, Iris (1997): Mirrored Specifiers. *In:* J. A. Coerts and H. de Hoop, eds, *Linguistics in the Netherlands 1997*. John Benjamins, Amsterdam, pp. 135–146.

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 (2004): Phrase Impenetrability and Wh-Intervention. *In:* A. Stepanov, G. Fanselow and R. Vogel, eds, *Minimality Effects in Syntax*. Mouton de Gruyter, Berlin, pp. 289–325.

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.

Nissenbaum, Jon (2000): Investigations of Covert Phrase Movement. PhD thesis, MIT, Cambridge, Massachusetts.

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.

Pesetsky, David and Esther Torrego (2007): The syntax of valuation and the interpretability of features. *In:* S. Karimi, V. Samiian and W. K. Wilkins, eds, *Phrasal and clausal architecture: Syntactic derivation and interpretation*. Benjamins, Amsterdam, pp. 262–294.

Pittner, Karin (1996): 'Zur morphologischen DefektivitÃd't des Pronomens *wer*', *Deutsch als Fremdsprache* **33**, 73–77.

Pollock, Jean-Yves (1989): 'Verb Movement, Universal Grammar, and the Structure of IP', *Linguistic Inquiry* **20**, 365–424.

Postma, Gertjan (1994): The indefinite reading of WH. *In:* R. Bok-Bennema and C. Cremers, eds, *Linguistics in the Netherlands 1994*. John Benjamins, Amsterdam, pp. 187–198.

Reinhart, Tanya (1992): Wh-in-Situ: An Apparent Paradox. *In:* P. Dekker and M. Stokhof, eds, *Proceedings of the Eighth Amsterdam Colloquium*. ILLC, Universiteit van Amsterdam.

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.

Reis, Marga and Heinz Vater (1980): Beide. *In:* G. Brettschneider and C. Lehmann, eds, *Wege zur Universalienforschung*. Narr, Tübingen, pp. 365–391.

Řezáč, Milan (2003): 'The Fine Structure of Cyclic Agree', *Syntax* **6**, 156–182.

Richards, Marc (2004): Object Shift and Scrambling in North and West Germanic: A Case Study in Symmetrical Syntax. PhD thesis, University of Cambridge.

Richards, Marc (2008): Quirky Expletives. *In:* R. d'Alessandro, G. H. Hrafnbjargarson and S. Fischer, eds, *Agreement Restrictions*. Mouton de Gruyter, Berlin, pp. 181–213.

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

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*a*): Presupposition Projection and the Interpretation of *which*-Questions. *In:* D. Strolovitch and A. Lawson, eds, *Proceedings of SALT VIII*. Cornell University, Ithaca, New York, pp. 215–232,.

Rullmann, Hotze and Sigrid Beck (1998*b*): 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.

Schafer, Robin (1994): Nonfinite Predicate Initial Constructions in Breton. PhD thesis, University of California, Santa Cruz.

Schwarzschild, Roger (1999): 'GIVENness, AvoidF, and Other Constraints on the Placement of Accent', *Natural Language Semantics* **7**, 141–177.

Sells, Peter (2002): *Structure, Alignment, and Optimality in Swedish*. CSLI Publications, Stanford.

Shima, Etsuro (2000): 'A Preference for Move over Merge', *Linguistic Inquiry* **31**, 375–385.

Stowell, Tim (1985): Licensing Conditions on Null Operators. *In:* J. Goldberg, S. MacKaye and M. Wescoat, eds, *Proceedings of WCCFL 4*. CSLI, pp. 314–326.

Stroik, Thomas (2009): *Locality in Minimalist Syntax*. MIT Press, Cambridge, Massachusetts.

Taraldsen, Tarald (1981): The Theoretical Interpretation of a Class of Marked Extractions. *In:* A. Belletti, L. Brandi and L. Rizzi, eds, *The Theory of Markedness in Generative Grammar*. Scuola Normale Superiore, Pisa, pp. 475–516.

Thiersch, Craig (1982): 'A Note on "Scrambling" and the Existence of VP', *Wiener Linguistische Gazette* **27/28**, 83–95.

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.

Unger, Christina (2010): A computational approach to the syntax of displacement and the semantics of scope. PhD thesis, Universiteit Utrecht.

Veselovská, Ludmila (1995): Phrasal Movement and X-Morphology: Word Order Parallels in Czech and English Nominal and Verbal Projections. PhD thesis, Palacký University, Olomouc.

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.

Šimík, Radek and Marta Wierzba (2015): 'The role of givenness, presupposition, and prosody in Czech word order: An experimental study', *Semantics and Pragmatics* **8**, 1–103.

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

Wegener, Heide (1991): Der Dativ – ein struktureller Kasus?. *In:* G. Fanselow and S. Felix, eds, *Merkmale und Strukturen syntaktischer Kategorien*. Gunter Narr, Tübingen, pp. 70–103.

Williams, Edwin (2003): *Representation Theory*. MIT Press, Cambridge, Massachusetts.

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

Wurmbrand, Susi (2012): Agree(ment): Looking Up or Looking Down?. Ms.,University of Connecticut.

Zeijlstra, Hedde (2012): 'There is only one way to agree', *The Linguistic Review* **29**, 491–539.

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.