Movement from Verb-Second Clauses Revisited

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1. Introduction

Extraction from declarative complement clauses in German reveals a curious pattern: Whereas verb-final complement clauses headed by *dass* ('that') permit movement both into a higher verb-second and a higher verb-final clause, complement clauses in which verb-second has applied only permit movement into a higher verb-second clause again, but not movement into a higher verb-final clause. This systematic pattern has been addressed in a number of approaches of various kinds in the last decades, with varying degrees of success, but it seems fair to conclude that a conceptually simple analysis on the basis of minimalist program (see Chomsky (2001; 2008)) is still outstanding. The goal of the present paper is to show that such an analysis is readily available if certain insights of Staudacher's (1990) approach in terms of barriers are incorporated into the phase-based approach to Condition on Extraction Domain (CED) phenomena developed in Müller (2010), and if verb-second clauses are derived by reprojection movement. In a nutshell, the restriction on movement from verb-second clauses will be shown to follow from Chomsky's (2001) Phase Impenetrability Condition (PIC) because an edge feature that is needed to trigger movement from the verb-second complement to the next phase edge cannot be inserted on the matrix verb.

I will proceed as follows. Secion 2 introduces the relevant data and gives a very concise, and certainly incomplete, overview over the existing literature on the phenomenon. Section 3 sketches Staudacher's (1990) approach. Section 4 lays out the main assumptions of the phase-based analysis of CED effects developed in Müller (2010). Section 5 introduces an approach to verb-second movement that is based on the concept of reprojection; the approach combines features of the analyses in Fanselow (2008) and Georgi & Müller (2010). Section 6 then shows that the ban on movement from verb-second clauses into verb-final clauses can be derived given the assumptions laid out in sections 4 and 5, in a way that integrates some of Staudacher's original insights. Finally, section 7 addresses some further issues.

2. The Problem

2.1 Data

Two types of finite declarative clauses can be embedded under certain kinds of verbs (often bridge verbs, though the correlation is far from perfect) in German: (i) clauses headed by a complementizer *dass* ('that'); (ii) verb-second clauses with finite V in the C position and some XP in SpecC. Both types of complements as such appear to be transparent for *wh*-movement to SpecC. *Wh*-movement from a *dass* clause may go to

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a *dass* clause or to a verb-second clause; see (1-ab).[1] In contrast, as shown in (1-cd), *wh*-movement from a verb-second clause may only end up in a verb-second clause again (see Tappe (1981), Haider (1984), Reis (1985)).[2]

(1) a. (Ich weiß nicht) $[_{\text{CP}_1}$ wen$_i$ (dass) du meinst $[_{\text{CP}_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
I know not whom that you think that she met has

b. $[_{\text{CP}_1}$ Wen$_i$ meinst du $[_{\text{CP}_2}$ t$'_i$ dass sie t$_i$ getroffen hat]] ?
whom think you that she met has

c. $[_{\text{CP}_1}$ Wen$_i$ meinst du $[_{\text{CP}_2}$ t$'_i$ hat sie t$_i$ getroffen]] ?
whom think you has she met

d. *(Ich weiß nicht) $[_{\text{CP}_1}$ wen$_i$ (dass) du meinst $[_{\text{CP}_2}$ t$'_i$ hat sie t$_i$ getroffen]]
I know not whom that you think has she met

The same restriction as in (1-d) holds when movement from SpecV2 to Spec*dass* is followed by further *wh*-movement, as in (2).

(2) *$[_{\text{CP}_0}$ Wen$_i$ glaubt er $[_{\text{CP}_1}$ t$''_i$ dass du meinst $[_{\text{CP}_2}$ t$'_i$ hat sie getroffen]]] ?
whom believes he that you think has she met

Furthermore, the restriction is also active when the moved item is a topic or relative pronoun, as in (3-ab) and (4-ab), respectively.[3]

(3) a. $[_{\text{CP}_0}$ Den Fritz$_i$ glaubt er $[_{\text{CP}_1}$ t$''_i$ dass du meinst $[_{\text{CP}_2}$ t$'_i$ dass sie getroffen hat]]]
the Fritz believes he that you think that she met has

b. *$[_{\text{CP}_0}$ Den Fritz$_i$ glaubt er $[_{\text{CP}_1}$ t$''_i$ dass du meinst $[_{\text{CP}_2}$ t$'_i$ hat sie getroffen]]]
the Fritz believes he that you think has she met

(4) a. die Frau $[_{\text{CP}_1}$ die$_i$ (wo) du meinst $[_{\text{CP}_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
the woman whom REL you think that she met has

b. *die Frau $[_{\text{CP}_1}$ die$_i$ (wo) du meinst $[_{\text{CP}_2}$ t$'_i$ hat sie t$_i$ getroffen]]
the woman whom REL you think has she met

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[1] A complementizer of CP_1 in sentences like (1-a) must then be deleted in Standard German, but not in dialects and colloquial varieties. Following Pesetsky (1998), I assume that complementizer deletion is a PF phenomenon in languages like German and English, with a *that/dass* complementizer present in syntax proper.

[2] The representations in (1) presuppose that long-distance movement proceeds successive-cyclically, via intermediate SpecC positions, and leaves traces (*t*) in the positions it targets on its way to the ultimate landing site. At this point, these assumptions are mainly for convenience; they are shared by Staudacher's approach sketched below, though.

[3] (3-a), (4-a) and, perhaps to a lesser extent, (1-b) are marked, or even not possible at all, in some varieties of German. In what follows, I will only be concerned with varieties that permit extraction from *dass* clauses across the board.

2.2 Analyses

The data have proven remarkably robust over the years, and many attempts have been made to account for the asymmetry involved. First, it has been suggested that illicit instances of movement from a verb-second clause into a verb-final *dass* clause reveal a *locality* effect. On this view, the verb-second clause acts as a barrier in (1-d) (as well as in (3-b) and (4-b)). This then may or may not require some extra assumption about (1-c), where barrier status of the verb-second clause seems to be voided. Proposals of this type include Staudacher (1990), Sternefeld (1989) on the one hand, and Reis (1996), Müller (2004), and Heck (2010) on the other. The former type of locality approach assigns verb-second clauses barrier status if they are embedded by a verb-final clause (as in (1-d)) but not if verb-second movement takes place in the higher clause (as in (1-c)). The latter type of locality approach treats verb-second clauses as barriers throughout (i.e, in (1-d) *and* (1-c)), and attributes the well-formedness of the string in (1-c) to an alternative option for analysis: (1-c) is assumed to involve a special kind of ("integrated") parenthesis (*meinst du* in (1-c); also cf. Kiziak (2007)). This option is assumed to be non-existent in (1-d).

Second, it has been proposed that the asymmetry in (4) follows from *directionality* constraints on movement of the kind postulated in Kayne (1984) (via 'g-projections') and Koster (1987) (via 'global harmony'); see Müller (1989, ch. 6) and Haider (1993b)). The basic idea here is that the apparent clash in directionality of government (or selection) by an embedded V in a verb-second position and a matrix V in a verb-final position blocks movement.

Third, the data have been approached in terms of constraints against *improper movement*; see Haider (1984), Stechow & Sternefeld (1988, ch. 11.7), Sternefeld (1992), Müller & Sternefeld (1993), Williams (2003). These approaches all differ substantially from one another (except perhaps for Sternefeld (1992) and Williams (2003), which both rely on the version of the cycle proposed in Williams (1974)), but they share a common core: SpecV2 and SpecC positions are viewed as sufficiently different to be able to block movement from one to the other as improper. Furthermore, an asymmetry must be built into the theory of improper movement so as to make a mixing of landing sites possible in (1-b) (movement may take place from SpecC to SpecV2) but not in (1-d) (movement may not proceed from SpecV2 to SpecC).

Fourth, I have tentatively pursued an approach that relies on *shape conservation* (in the sense of Williams (2003)) in Müller (2003). The idea here is that there is a general but violable constraint that requires left edges of CP to have an identical shape. This constraint is satisfied in (1-a) and (1-c) but not in (1-b) and (1-d). Again, an asymmetry needs to be imposed, and this is achieved by local, cyclic, bottom-up optimization of CPs. In this approach, it turns out that the shape conservation constraint can be violated with verb-second movement in CP_1 in (1-b) because, given that CP_2 has already been optimized, other options that would be shape-preserving (specifically, failing to carry out verb-second) violate higher-ranked constraints. In contrast, shape conservation cannot be violated in (1-d) because, given that CP_2 (with verb-second movment) is already in place, verb-second movement can and must apply in CP_1 because this will give rise only to a violation of a lower-ranked constraint (the one that precludes movement which is not feature-driven).

Finally, there is a strategy that solves the problem in a very simple way, and that could be referred to as *data denial*: Ćavar (1996) and Fanselow & Mahajan (1996) claim that extraction from verb-second clauses into *dass* clauses as in (1-d) is possible after all.[4] This last view is at variance with the clear robustness that the effect has exhibited over the last thirty years or so. For this reason I will disregard this option in what follows.

I cannot possibly make an attempt here to discuss all of these approaches in detail and highlight their merits as well as their shortcomings. I do believe, however, that virtually all of them rely on assumptions that are not really independently motivated, and that very often turn out to be construction-specific upon closer inspection. Furthermore, it can be noted that none of them is compatible with basic tenets of the minimalist program, where, e.g., there can be no designated locality constraints employing notions like barrier, no constraints that mention directionality, and no special constraints blocking improper movement; and where shape conservation effects must be treated as an epiphenomenon. Thus, if one adopts a minimalist perspective, as I will do here, it seems fair to conclude that the problem in (1) has not yet received a satisfying solution.

That said, I think that many of the basic insights of Staudacher (1990) (and, to some extent, also of Sternefeld (1989)) can be integrated into a new phase-based approach to the ban on extraction from verb-second clauses into verb-final clauses in German that does without construction-specific assumptions and meets basic minimalist demands; and I will try to show this below. To this end, I first summarize the proposal in Staudacher (1990) in the next section.

3. Staudacher's (1990) Approach

Staudacher (1990) presents two analyses, which share a number of properties (in particular, they are both based on the hypothesis that there is a barrier present in (1-d) that blocks movement, and that verb-second in the matrix clause as in (1-c) opens up this barrier via transitivity of indexing) but differ in others (the first analysis, pp. 330-334, assumes the matrix VP to be a minimality barrier, whereas the second analysis, pp. 334-338, assumes the embedded verb-second clause to be a barrier because of non-selection). In what follows, I will focus on the second version of the approach since it is this version that the analysis to be developed below will resemble most.

The first thing to note is that embedded verb-second clauses that are embedded by a verb-final *dass* clause (as in (1-d)) are *strong* islands, in the sense that they uniformly block all kinds of extraction and do not distinguish between arguments and adjuncts; compare the cases of licit and illicit adjunct movement in (5-ab), which are fully parallel to the argument movement cases in (1-c), (1-d).

(5) a. Ich weiß nicht [$_{\mathrm{CP}_1}$ wie$_i$ du meinst [$_{\mathrm{CP}_2}$ t$'_i$ dass das t$_i$ gehen soll]]
I know not how you think that that work should
b. *Ich weiß nicht [$_{\mathrm{CP}_1}$ wie$_i$ du meinst [$_{\mathrm{CP}_2}$ t$'_i$ soll das t$_i$ gehen]]
I know not how you think should that work

[4] In a similar vein, Shin (1988, 253) claims that potential problems with the construction in (1-d) are not syntactic but pragmatic in nature.

The Condition on Extraction Domain in (6) (CED; see Huang (1982), Chomsky (1986)) blocks both argument and adjunct movement from non-complements (where complements are sisters of lexical items).

(6) *Condition on Extraction Domain* (CED):
  a. Movement must not cross a barrier.
  b. An XP is a barrier iff it is not a complement.

Assuming the CED to be responsible for the illformedness of (1-d), (5-b) and similar examples, we are led to looking for a barrier in these contexts.[5] A straightforward application of the CED in (6) to the data in (1) and (6) faces two basic problems. First, embedded verb-second clauses as in (1-c), (6-b) look like genuine complements of V – a verb like *meinen* ('think') subcategorizes for a complement and assigns a θ-role to it, and in the absence of an obvious alternative candidate, there is no good reason to assume that CP_2 is not the complement that the matrix verb is looking for, irrespectively of whether verb-second movement has or has not applied in CP_2. And second, given the notion of barrier in (6), it is completely unclear how verb-second movement in the matrix clause could remove the barrier status of the embedded verb-second CP.

To solve the first problem, Staudacher proposes that the concept of barrier is to be refined in such a way that complement status alone does not suffice for an XP to avoid barrier status: Being a complement is viewed as a necessary but not yet sufficient condition for non-barriers. His revised notion of barrier is given in (7).

(7) *Condition on Extraction Domain* (CED, based on Staudacher (1990)):
  a. Movement must not cross a barrier.
  b. An XP is a barrier iff it is not *head-marked*.

Head-marking is a somewhat stricter notion than being a complement because it requires that, in addition to being a complement of a lexical item, *selection* of (or *co-indexing* with) the head of XP must take place:[6]

(8) *Head-marking* (Staudacher (1990, 336)):
  α head-marks β iff
  a. α is a lexical item, and
  b. α is a sister of β that selects or is co-indexed with the head of β.

The basic idea is that CPs with a complementizer *dass* are always head-marked by the matrix verb (because the verb selects the head of the *dass* clause), whereas embedded verb-second clauses are not. Although embedded verb-second clauses are selected complements, their verb-second head, by assumption, is not selected by the matrix verb, and

[5] This version of the CED combines aspects of the proposals in Huang (1982), Chomsky (1986), Cinque (1990), and Manzini (1992). Staudacher (1990) does not actually invoke the CED; rather he embraces the more complex system incorporating the CED that Chomsky (1986) develops on the basis of Lasnik & Saito (1984). Where it does not affect the main points to be made, I tacitly simplify Staudacher's analysis in various respects, and also adjust it to more current terminology.

[6] (8) is a simplified version of Staudacher's definition of head-marking, but it suffices for present purposes – the complications Staudacher introduces in the "proper" definition in Staudacher (1990, 336) (and also already in Staudacher (1987, 13)) do not bear on the issue of extraction from V/2 clauses.

thus turns CP into a barrier. The assumption that heads of verb-second CPs are not selected receives independent justification – so Staudacher argues – from the observation that these heads are not filled by lexical material before verb-second movement applies. More generally, if *dass* complements are head-marked by V (via head-selection) and verb-second complements are not head-marked by V (via head-selection), this captures the insight that *dass* complements have a closer relationship with the matrix verb than verb-second complements, and it also captures the observation that embedded verb-second clauses, while having complement status as such, also exhibit several root properties, which also partially accounts for the conditions under which they are licensed in the first place.[7]

Thus, a CP with a verb-second head is a barrier due to a lack of head-marking, in contrast to a CP with a lexical complementizer. This accounts for the contrast between examples like (1-a), (1-b) on the one hand (i.e., movement from *dass* clauses into *dass* clauses or into verb-second clauess), and examples like (1-d) on the other (i.e., movement from verb-second clauses into *dass* clauses).

What remains to be explained is why verb-second movement in the matrix clause removes the barrierhood of an embedded CP with a verb-second head, as in (1-c). At this point, the option of bringing about head-marking by co-indexing (as an alternative to head selection) envisaged by (8) becomes relevant. After verb-second movement in the matrix clause, the following co-indexing relations obtain. First, since movement, by assumption, implies chain formation, and members of the same chain share an index, the verb-second head *meinst* and its trace in the V position are co-indexed. Second, for the same reason, the *wh*-phrase *wen* is co-indexed both with its original trace in the object position of the embedded clause and with the intermediate trace in the embedded SpecC position. Third, and this is the crucial step in the argument, Staudacher assumes that there is a process of abstract agreement between specifier and head, and that this agreement relation is also indicated by co-indexing. Given that verb-second movement is movement to C, from this it follows that the indices of the moved *wh*-phrase in the matrix SpecC position and the moved verb in the verb-second position in the matrix clause are also identical. Fourth, by the same reasoning, the indices of the intermediate *wh*-trace in the embedded SpecC position and the embedded verb-second head are also identical as a consequence of abstract specifier/head agreement. And finally, by transitivity, this implies that the indices of the V trace of the matrix verb and the verb-second C head of the embedded clause are also identical in cases like (1-c). Consequently, joint verb-second movement and *wh*-movement in the matrix clause leads to head-marking of the embedded verb-second clause, and hence to a removal of barrier status there. This explains why (1-c) can respect the CED. Note that this way out is not available in (1-d) as long as it is assumed that co-indexing cannot arise accidentally: In (1-d), verb-second does not take place in the matrix clause, so the *wh*-item in the matrix SpecC position and the matrix verb are not co-indexed, and the transitivity chain is broken; as a result, matrix V cannot head-mark the embedded verb-second clause.

Summarizing, the gist of Staudacher's proposal is that embedded verb-second clauses are barriers due to a lack of head-marking by head selection, but the barrier status can

[7] On root properties of embedded verb-second clauses and similar constructions, see Hooper & Thompson (1973), Meinunger (2004), and Bentzen (2009), among others.

be removed by combined verb-second and *wh*-movement in the matrix clause because this results in head-marking by head co-indexing.

I take this approach to be elegant and intuitively appealing, but it seems clear that it cannot be maintained as such under more recent minimalist assumptions as they are laid out in Chomsky (2001; 2008) and much related work. For one thing, on this view all constraints must either qualify as principles of efficient computation, or they must be motivated by properties of the interface, and the CED does not meet either requirement. To the extent that it makes the right predictions, the CED should therefore be derived as a theorem from more basic assumptions. This means that a different, arguably less stipulative reason must be sought that predicts barrier status of verb-second complement clauses in (1-d). For another thing, Staudacher's account of the removal of barrier status of verb-second complement clauses by verb-second movement in the matrix clause is not available under minimalist assumptions for a number of reasons. First, this account relies on indices and transitivity of co-indexing, but, following Chomsky's arguments, co-indexing is not a technical device that is legitimate under minimalist assumptions (let alone inhomogeneous co-indexing of the type that is needed in Staudacher's approach). Second, there is no room for a concept like specifer/head agreement if all Agree relations have their source on a lexical item (more precisely, a probe feature) and imply c-command by this item. And third, as it stands, Staudacher's account presupposes either a representational syntax or a derivational syntax that has look-ahead capacity (because the question of whether extraction from the lower clause is possible can only be answered once the edge domain of the matrix clause is reached); but phase-based minimalist analyses are characterized by the property of being (a) strictly derivational and (b) without look-ahead capacity. It is not clear whether the approach could be transferred into a derivational system without look-ahead (or back-tracking).

In view of this state of affairs, Staudacher's approach must either be abandoned or modified appropriately. In what follows, I will show that a new analysis that maintains main insights of Staudacher's approach suggests itself on the basis of the approach to CED phenomena in Müller (2010) (section 4) and a version of the approaches to reprojection movement in Fanselow (2008) and Georgi & Müller (2010) (section 5). More specifically, following Staudacher (1990), I will develop an analysis in section 6 that rests on the idea that embedded verb-second clauses are barriers because they are not as strictly selected as *dass* clauses, and that the barrier status can be removed by verb-second movement in the matrix clause because such movement in effect produces (more or less, as in the head selection/co-indexing disjunction in (8-b)) the same configuration as it is present with *dass* clauses from the start.

4. CED Effects: A Phase-Based Approach

4.1 Background and Assumptions

In Müller (2010), I argue that a version of the CED (which can be shown to be an empirically viable alternative to the one in (6)) follows from the Phase Impenetrability Condition (PIC) proposed in Chomsky (2000; 2001; 2008); in what follows I sketch the outlines of this approach. The PIC can be defined as in (9).

(9) *Phase Impenetrability Condition* (PIC):
The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations (where the edge of X includes specifier(s) of X and X).

Chomsky takes the PIC to contribute to efficient computation by reducing search space in derivations. Apart from that, one of the PIC's main effects is that it forces successive-cyclic movement via phase edges; such movement is possible because edge features that drive it can be inserted on phase heads. It turns out that CED effects follow as PIC phenomena if the following four assumptions are made: First, all syntactic operations are driven by features of lexical items. Second, these features are ordered on lexical items. Third, all phrases are phases. And finally (and most importantly), edge features that trigger intermediate movement steps can be added (in minimal violation of Chomsky's (2001) Inclusiveness Condition) only as long as the phase head is still active. The version of the CED that can be derived from the PIC under these assumptions is (10).

(10) *Condition on Extraction Domain* (to be derived from the PIC):
a. Movement must not cross a barrier.
b. α is a barrier if the operation that has merged α in a phase Γ is the final operation in Γ.

Let me briefly explicate (but not try to justify or provide background information for) the four assumptions that must be made. First, all syntactic operations are feature-driven. More specifically, there are two types of features that drive operations, viz., *structure-building* features (edge features, subcategorization features) that trigger (external or internal) Merge operations and are accompanied by bullets ([•F•]), and *probe* features that trigger Agree operations and are accompanied by asterisks ([∗F∗]).[8]

Second, features on lexical items are ordered. For instance, if a head X subcategorizes for three items A, B and C, where C is to become X's complement, B is to become X's inner specifier, and A is to become X's outer specifier, X will inherently be equipped with a feature list [•C•] $\succ$ [•B•] $\succ$ [•A•]. Thus, structure-building features are located on a stack belonging to a lexical item. This does not only hold for subcategorization features that trigger external Merge; it is also the case with movement-inducing features that trigger internal Merge. For instance, if the lexical item X contains a fourth structure-building feature Z in addition which triggers movement of some designated item, this will show up most deeply embedded on the feature list: [•C•] $\succ$ [•B•] $\succ$ [•A•] $\succ$ [•Z•]. In addition to the stack for structure-building features, a lexical item has a second stack for probe features. A Last Resort condition ensures that a syntactic (Merge or Agree) operation can only take place if it discharges (and thereby removes) a structure-building or probe feature; and only those features are accessible at any given step of the derivation that are on the top of a stack; see (11).

[8] The notation follows Heck & Müller (2007), which in turn combines various other notation systems that can be found in the literature. Note that whereas structure-building features for external Merge (i.e., basic-generation) are categorial, structure-building features for internal Merge (i.e., movement) need not be, and often are not – thus, *wh*-movement is effected by [•wh•], topicalization by ([•top•], and so on.

(11) *Last Resort* (LR):

a. Every syntactic operation must discharge (and delete) either [•F•] or [∗F∗].
b. Only features on the top of a feature list are accessible.

The third assumption is that all phrases are phases. As a consequence, *wh*-movement must proceed via every XP edge domain on its way to its ultimate target position (the $C_{[\bullet wh \bullet]}$ node that attracts it), given the PIC; and similarly for all other movement dependencies. This assumption is necessary to derive (10) in full; if one were to assume that only CP and vP are phases, only (last-merged) specifiers of CP and VP would be predicted to be barriers.

Finally, a restriction needs to be imposed concerning the insertion of edge features that drive intermediate movement steps in Chomsky (2000; 2001). The first thing to note is that edge feature insertion cannot be free (or that having edge features freely available is an intrinsic property of phase heads; see Chomsky (2007; 2008)). Chomsky (2000; 2001) suggests that edge features do not come for free, and that edge features can only be inserted on a phase head *after* the phase is otherwise complete, i.e., after the phase head has become inert (by having triggered all the operations that it can trigger as a consequence of its inherent properties). Crucially, suppose that the opposite is correct: Edge features can only be inserted *before* the phase is otherwise complete, i.e., before the phase head has become inert (by having discharged all its structure-building and probe features). This can be formulated as the Edge Feature Condition (EFC) in (12-a). Given reasonably standard assumptions about strict cyclicity, edge feature insertion can only go to the top of the existing stack of structure-building features, as in (12-b). This ensures a last-in/first-out property of feature stacks.

(12) *Edge Feature Condition* (EFC):
An edge feature [•X•] can be assigned to the head γ of a phase only if (a) and (b) hold:

a. γ has not yet discharged all its structure-building or probe features.
b. [•X•] ends up on top of γ's list of structure-building features.

4.2 Analysis

With these assumptions in place, it remains to be shown that the CED in (10) now follows as a theorem from the PIC. Ignoring probe features for Agree for the moment, the reason why last-merged specifiers act as barriers is, essentially, this: Suppose that some item α has made it to the edge domain of some phase β, and β is now merged as the last operation induced by a phase head γ's structure-building features; suppose further that α eventually needs to undergo movement beyond γ because the phase head that bears the feature [•Z•] which requires successive-cyclic movement of α is not yet part of the tree created so far. The dilemma that arises at this point is that, when β (including α in its edge domain) is merged, γ's stack of structure-building features is empty – the phase head has become inert, and the EFC accordingly precludes edge feature insertion. This means that α cannot move from a β specifier to the next higher γ specifier. Assuming a non-recursive definition of phase edges (such that the specifier of a specifier of γ is not part of the edge of γ), subsequent extraction of α across the phase headed by γ will invariably violate the PIC – α is too deeply embedded in the phase γ (it is still part of an intervening phase β).

The only conceivable way out of this dilemma would be for edge feature insertion on γ to precede Merge of β (including α), so that γ is still active (because it has not yet discharged its final structure-building feature for β). However, this also does not help: Either the newly inserted edge feature lands on top of γ's stack of structure-building features; then, given LR, it is discharged again (attracting something from within the γ phase established so far) *before* β is merged. Alternatively, the edge feature is inserted below the final inherent structure-building feature; however, this violates requirement (12-b) of the EFC. The three failed attempts of establishing an edge feature ([•X•]) on γ to extract α out of a last-merged specifier β are illustrated in (13).

(13) *Last-merged specifiers as barriers*:

a. Edge feature insertion follows specifier feature discharge:

	γ:	[•β•]			
→	γ:	Ø			⇝ violates (12-a)
→	γ:	[•X•]			

b. Edge feature insertion precedes specifier feature discharge, version 1:

	γ:	[•β•]			
→	γ:	[•β•]	$\succ$	[•X•]	⇝ violates (12-b)
→	γ:	[•X•]			

c. Edge feature insertion precedes specifier feature discharge, version 2:

	γ:	[•β•]			
→	γ:	[•X•]	$\succ$	[•β•]	⇝ does not help because of (11-b)
→	γ:	[•β•]			

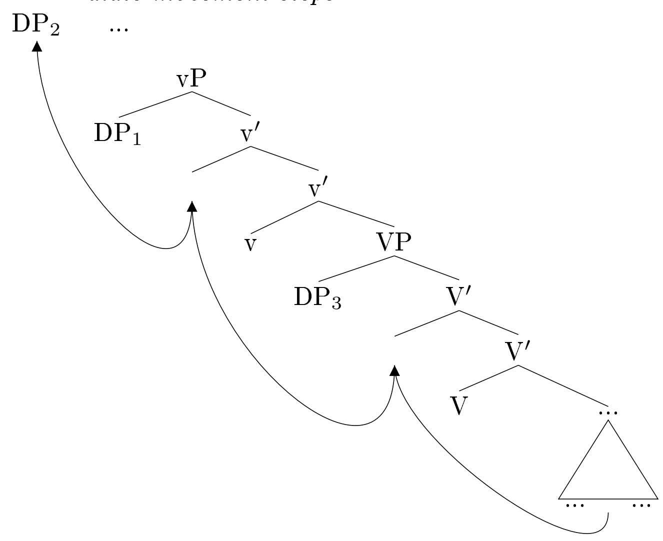
In contrast, complements do not have to be barriers. Suppose that the list of structure-building features is not yet empty when a subcategorization feature for a complement δ (including some item α in its edge domain that needs to undergo further movement) is discharged and δ enters the structure, i.e., the phase head γ still has a structure-building feature for a specifier β left at this point. In this case, an edge feature can be inserted on γ without violating the EFC, and the edge feature can attract α out of δ, to a specifier position in the edge domain of γ. As a result, the PIC will be respected on the next cycle. This is shown schematically in (14).

(14) *Non-last-merged complements as non-barriers*:
Edge feature insertion follows complement feature discharge and precedes specifier feature discharge:

	γ:	[•δ•]	$\succ$	[•β•]	
→	γ:	[•β•]			
→	γ:	[•X•]	$\succ$	[•β•]	⇝ violates nothing
→	γ:	[•β•]			
→	γ:	Ø			

Note that because of the last-in/first-out property of the EFC/LR-based approach, intermediate movement steps to phase edges must take place *before* a (final) specifier is merged. This results in structures that look like (inherently acyclic) *tucking in* (Richards (2001)) has applied; but it has not: All movement steps extend the tree. This systematic effect (which I call the *Intermediate Step Corollary*) is illustrated for successive-cyclic movement of some DP_2 across a VP phase and a vP phase (both of which have DP specifiers) in (15).

(15) *Intermediate movement steps*:



As argued in Müller (2010), this PIC-based approach to CED phenomena predicts that (last-merged) subjects are barriers both in Specv and in SpecC; that adjuncts are barriers (assuming that they are last-merged specifiers of special functional projections); and that indirect objects bearing dative are barriers (assuming that they are last-merged in SpecV or as the specifier of some projection between vP and VP). Furthermore, the approach predicts what I call a *melting* effect: Subjects, indirect objects and other categories that are normally barriers because they are last-merged in their respective phases should cease to be a barrier if the phase head has an additional structure-building feature [•Z•] triggering movement to an outer specifier. The reason is that in this situation, an edge feature should be insertable on the phase head *after* a specifier is merged, given that the phase head is still active because it has some feature [•Z•] left that will subsequently trigger internal Merge. I argue that melting effects do indeed occur with local scrambling to Specv and SpecV in German and Czech, and ensure transparency of otherwise opaque subjects and indirect objects. A German example that illustrates the transparency of an in-situ subject for *wh*-movement (here giving rise to *was für* split) after local scrambling of the object to an outer Specv position is (16-b); in contrast, (16-a) shows that the subject is opaque in its in situ position (and there is evidence that the subject must, or at least may, stay in situ, in vP, in this context).

(16) a. *Was$_i$ haben [$_{DP_k}$ t$_i$ für Bücher] [$_{DP_j}$ den Fritz] beeindruckt ?
what have for books$_{nom}$ the Fritz$_{acc}$ impressed

b. Was$_i$ haben [$_{\text{DP}_j}$ den Fritz] [$_{\text{DP}_k}$ t$_i$ für Bücher] t$_j$ beeindruckt ?
what have the Fritz$_{acc}$ for books$_{nom}$ impressed

Still, the system developed so far raises an obvious question: How can complements (i.e., first-merged items) that are also last-merged in their phases evade barrier status? It is at this point that probe features of phase heads become relevant: Probe features can keep a head active, and accessible for edge feature insertion, in the same way that structure-building features do. Thus, suppose that a phase head γ, after having discharged its sole structure-building feature and thereby merged with a complement β, still has a probe feature [$*$F$*$] left that needs to be checked with a matching [F] feature that is either on β, or in some category included in β (evidently, this feature [$*$F$*$] could not be checked before β has entered the structure). In this case, an edge feature can be inserted after γ has merged with β, and before [$*$F$*$] triggers an Agree operation with a matching feature in the complement β; and this means that some α can be extracted out of β even though β is not just first-merged, but also last-merged in γ.[9] (17) illustrates why last-merged complements do not have to be barriers. They are barriers if there is an empty stack of probe features on γ (see (17-a)), but they are not barriers if some probe feature is present (see (17-b)).

(17) *Last-merged complements as non-barriers*:

a. Edge feature insertion follows complement feature discharge, no probe feature:

	γ:	[$\bullet\beta\bullet$]	
$\rightarrow$	γ:	Ø	$\rightsquigarrow$ violates (12-a)
$\rightarrow$	γ:	[$\bullet$X$\bullet$]	

b. Edge feature insertion follows complement feature discharge, with probe feature:

	γ:	[$\bullet\beta\bullet$]	
		[$*$F$*$]	
$\rightarrow$	γ:	[$*$F$*$]	$\rightsquigarrow$ violates nothing
$\rightarrow$	γ:	[$\bullet$X$\bullet$]	
		[$*$F$*$]	

At this point the question arises of which operation is carried out next with the phase head γ in (17-b): Is it discharge of the probe feature or is it discharge of the structure-building feature? Note that what might at first sight perhaps look as the most obvious strategy – viz., to immediately get rid of the edge feature that has just been inserted by carrying out an intermediate movement step of α out of β – is problematic because it incurs a violation of an elementary principle of derivational structure-building: the Strict Cycle Condition (SCC) (cf. Chomsky (1973)). A simple version of the SCC is

[9] Depending on whether Agree with a probe feature on γ may also affect some other category included in β, or only (the head of) β, the PIC may or may not have to be relaxed for Agree operations (as proposed by Bošković (2007)). Alternatively Agree might then be viewed as taking place successive-cyclically; see Legate (2005). Something to this effect would seem to be required independently for constructions like agreement of T with nominative objects in Icelandic and the analysis of long-distance agreement in languages like Hindi (but cf. Chomsky (2001) and Bhatt (2005), respectively, for alternatives that take these constructions to argue for a less restrictive notion of phase in general).

given in (18).

(18) *Strict Cycle Condition* (SCC):
Within the current domain ζ, a syntactic operation may not exclusively apply to positions that are included within another domain π that is dominated by ζ.

If the phase head γ is merged with α that has undergone movement out of β, with α therefore becoming γ's specifier, subsequent discharge of the probe feature [$*$F$*$] on γ with some item in β will have to violate the SCC because this latter operation exclusively applies to positions that are included in γ' (= π in (18)), which is dominated by the current domain γP including α (= ζ in (18)). An a priori possible way out might be to carry out Agree between [$*$F$*$] on γ and α in the specifier position (or with some category included in α); however, this would violate the c-command requirement on Agree operations (see Chomsky (2001; 2008)). We can therefore conclude that the next operation carried out with the phase head in (17-b) is discharge of [$*$F$*$] by Agree with some item in β, and this is then followed by movement of α from the edge of β to the edge of γ, which discharges [•X•].[10]

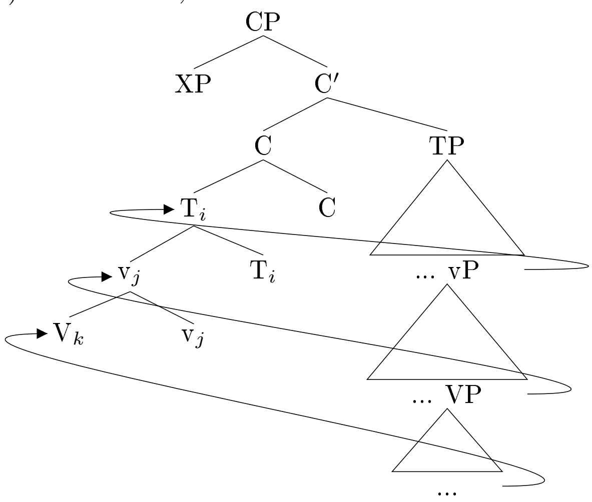
Of course, it must now be ensured that the option for phase heads with empty stacks of structure-building features of being kept active by probe features is not available for last-merged specifiers. This follows without further ado from the interaction of the c-command requirement on Agree and the Strict Cycle Condition. Probe features on a phase head can never remove barrier status from a last-merged specifier because (a) a probe feature cannot carry out Agree with (some item in) its specifier due to a lack of c-command, and (b) a probe feature cannot carry out Agree with (some item in) its complement after a specifier has been merged because of the SCC. To sum up, last-merged specifiers continue to be barriers; non-last-merged specifiers and complements are not barriers; and last-merged complements are not barriers if the phase head has one or more additional probe feature(s) for Agree with/into the complement. Given the vast number of (various kinds of) Agree relations that can (or, in fact, must) be postulated (involving features like person, gender, number, case, tense and other grammatical categories), complements, as a rule, will be transparent for extraction. Only when (a) a complement is last-merged and (b) there is no Agree operation with the head that it is a complement of can a complement become a barrier. In section 6, I will argue that such an exceptional situation arises in the case of verb-second complements embedded by a verb-final clause. However, before that, something needs to be said about verb-second movement.

5. Verb-Second by Reprojection

Verb-second movement in German is often conceived of as adjunction to C that proceeds by intermediate adjunction to T and v, as in (19).

[10] Note that the discontinuous sequence of edge feature insertion and edge feature discharge thus required is unproblematic, given that structure-building features and probe features are on different stacks.

(19) *Verb-Second, a standard view*:



There are three potential problems with this view. The first problem is that there do not seem to strong empirical arguments for assuming verb-second movement to proceed from V to v, then from v to T, and finally from T to C (see Haider (1993a) and Roberts (2009; 2010), *pace* Sabel (1996)). And assuming that it does so nevertheless gives rise to various technical problems: Strictly speaking, C attracts T (not V), T attracts v (not V), and only v attracts V, so the existence of full verb-second movement of V to C emerges as a fortunate coincidence going back to a conspiracy of three separate movement rules. If the view embodied in (19) is correct, we might expect phenomena (in minimally differing varieties of German, e.g., earlier stages of the language, or regional variants) like bare T-to-C movement or V-to-v-to-T movement stopping there, for which there is no convincing evidence (see the above references for discussion). These considerations lead me to conclude that verb-second movement does not proceed via successive adjunction to higher heads.

The second problem is that one never finds cases in German where there is a realization of C as *dass* together with an adjacent verb-second head, as in (20-a). Given that there are varieties of German that do not respect the Double Comp Filter (i.e., that allow a simultaneous realization of *dass* and some other item in the CP edge domain), this is unexpected. Furthermore, it seems that there *are* substandard instances of a simultaneous realization of *dass* and verb-second in Modern German after all (and, depending on the analysis, perhaps also in Old High German), but these look exactly like their Scandinavian counterparts, with a sequence C+topic+V2, as in (20-b) (see Lenerz (1984), Müller & Sternefeld (1993); and Axel (2007) and Freywald (2009) for recent discussion concerning Old High German and Modern German substandard varieties, respectively).

(20) a. *(Ich glaube,) [$_{CP}$ sie hat$_i$-dass [$_{TP}$ ihn getroffen t$_i$]]
I believe she has-that him met

b. */#(Ich glaube,) [$_{CP}$ dass [den Fritz hat [$_{TP}$ sie getoffen t_i]]
I believe that the Fritz has she met

The third problem concerns the nature of head movement as adjunction to another head in general. As is well known, this view of head movement creates several problems with respect to highly general (and independently motivated) constraints on movement, e.g., the c-command requirement for traces (which is a subcase of the SCC; cf. (18)); see Brody (2001), Mahajan (2001), Abels (2003), Müller (2004), and Matushansky (2006) (among others) for discussion. This problem can be solved by assuming that head movement is not adjunction but reprojection, in the sense that a head moves out of a phrase and remerges with it, projecting its label in the derived position. Reprojection movement of a finite verb is explicitly assumed for German verb-second clauses in Stechow & Sternefeld (1988), based to some extent on Reis (1985) who had argued that *dass* clauses and verb-second clauses should be treated as categorially different (essentially CP vs. VP). Both Stechow & Sternefeld (1988) and Sternefeld (1989) assume that treating verb-second as reprojection movement is a precondition for deriving the asymmetry between *dass* clauses (which are assumed to be CPs) and verb-second clauses (VPs) with respect to extraction into *dass* clauses. Subsequent approaches that analyse instances of verb movement (including, in some cases, verb-second movement) by reprojection include Holmberg (1991), Ackema, Neeleman & Weerman (1993), Koeneman (2000), Haider (2000), Hornstein & Uriagereka (2002), and Fanselow (2003; 2008).[11]

In what follows, I adopt a reprojection analysis of verb-second clauses in German that combines aspects of the approaches to reprojection in Fanselow (2008), Georgi & Müller (2010) and other work just mentioned (but that nevertheless differs from all these approaches in certain minor respects).[12]

The basic idea is that a head γ may be equipped with a certain probe feature [$*$F$*$] that it cannot possibly check in situ, for the simple reason that there is no goal feature around that it might check it with. There are two possibilities: Either there is no matching goal feature in the c-command domain of γ at all (recall that Agree requires c-command), or there is a matching goal feature that has already been checked with some other probe earlier in the derivation, so it is not available anymore for γ. In this case, γ may, as a last resort operation (a concept which is not to be confused with the Last Resort condition introduced in section 3 above), undergo reprojection movement in order to find a matching goal and discharge its probe feature [$*$F$*$] under c-command.

[11] As noted by Fanselow (2008), reprojection analyses of verb-second in German to some degree resemble the classic approaches developed in Bierwisch (1963) and Thiersch (1978), which had been superseded by the standard analysis in (19) going back to den Besten (1977).

[12] As a side remark, and anticipating the analysis of the data in (1) given in the next section, let me point out that, unlike Stechow & Sternefeld (1988) and Sternefeld (1989), I will not so much exploit reprojection movement and the categorial difference (CP vs. VP) between *dass* clauses and verb-second clauses that goes along with it to account for the difference in grammaticality between (1-a) and (1-d); i.e., the basic status of verb-second clauses as barriers will not necessarily be tied to their being VPs rather than CPs (although this will turn out to be one of several possibilities). Rather, reprojection movement will be required to explain the difference between (1-c) and (1-d); i.e., it will offer a simple account of the fact that verb-second movement in the matrix clause destroys barrierhood and turns an embedded verb-second clause into a transparent domain.

[∗F∗] thus in effect acts as a *Münchhausen* feature.[13]

The cases of reprojection movement investigated in Georgi & Müller (2010) are typically highly local; in particular, in that paper we are concerned with word order variation in NPs that is derived by extremely local reprojection movement of N.[14] In contrast, verb-second movement by reprojection cannot be such an extremely local movement operation if verb-second clauses in German have a full TP-vP-VP structure, and if verb-second movement targets a position outside of TP. Indeed, there seems to be evidence in abundance for assuming that verb-second clauses in German have a full TP-vP-VP structure. For instance, in *dass* clauses as in non-subject initial verb-second clauses, only subjects can precede weak pronouns (except for items in the *Vorfeld*), which follows if there is a designated TP category whose specifier acts as a target for optional subject raising (as argued in Grewendorf (1989)), and scrambling cannot go beyond the vP/VP domain. Moreover, asymmetries between (in-situ) subjects and other arguments with respect to subcategorization by V, verb phrase topicalization, extraction, binding, and so on, are the same in *dass* clauses and verb-second clauses, and to the extent that these differences motivate a vP/VP distinction, they do so in both contexts. Similarly, it is clear that, since verb-second movement may end up in a position preceding a subject that in turn precedes a weak object pronoun (which in turn may precede a non-pronominal object), it must target a position outside of TP. The question then is: How does V get there?

Here is a suggestion. Suppose that the Münchhausen probe feature on a V that is to undergo verb-second movement by reprojection is [∗T∗] (see Fanselow (2008, sect. 3.3)); such a feature is optionally instantiated on V in the numeration, and it indicates a special relation that certain kinds of V (viz., verb-second Vs) have to enter with a TP projection. Suppose further that, if V takes an object with clausal structure inside, [∗T∗] can never be discharged with a lower TP that it c-commands. This is obvious if the embedded clause is a verb-second clause itself (because in this case, the embedded verb-second head will have undergone Agree with TP already, and TP is not accessible for Agree anymore since it does not have an active goal). We may assume that it also holds in cases where a proper C (like *dass*) subcategorizes TP, perhaps because C also has a probe feature [∗T∗] in addition to the subcategorization feature [•T•] that triggers merge of C and TP; note that since a last-merged complement TP of C is transparent for extraction, the approach to CED effects sketched in section 4 presupposes that there is *some* probe feature on C that keeps C active for edge feature insertion in order to

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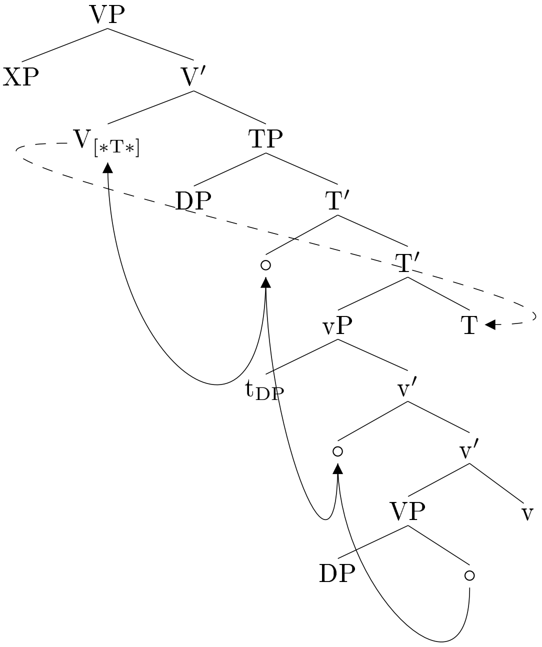
13 The name is self-explanatory: Baron Münchhausen escapes from a swamp (where he is trapped on the back of his horse) by pulling himself up by his hair. The use of the name 'Münchhausen' in syntactic theory arguably goes back to Sternefeld's (1991) characterization of an operation employed in Chomsky's (1986) theory of barriers: Here, VP is a barrier, but a V moved to I can belatedly justify its own (originally impossible) movement across the VP barrier by L-marking VP and removing barrierhood – clearly a case of pulling oneself up by one's own hair. (Incidentally, Staudacher's (1990) analysis in terms of transitivity of co-indexing is not too dissimilar in this respect.) Fanselow (2003) applies the concept to reprojection movement ('Münchhausen-style head movement').

14 This in turn solves a number of problems that arise under the classic view that nominal projections are NPs, with DP as a specifier of N, rather than DPs, with NP as a complement of D. However, this issue is orthogonal to my present concerns, so I will continue to assume that nominal projections are DPs.

move something out of TP's edge domain.[15] Thus, irrespectively of whether there is an embedded T in the c-command domain or not, the only way to discharge a [∗T∗] feature of V is to carry out reprojection movement. Consequently, $V_{[*T*]}$ undergoes movement to the next phase edge, and from there to the next phase edge, until it finally reaches a position from which it can reproject a VP and discharge its Münchhausen feature [∗T∗] under c-command of T – i.e., the movement operation as a whole is non-local, but like all other movement operations, long-distance reprojection movement is composed of a series of smaller steps, as required by the PIC. This derivation is shown in (21) (with ∘ marking the intermediate positions successively occupied by V on its way to its reprojection position, and the dashed arrow from V to T indicating the Agree relation that provides the trigger for verb-second movement).

(21) *Verb-Second by reprojection*:



The assumption that verb-second in German looks as in (21) gives rise to various questions.[16] An obvious one concerns the Head Movement Constraint (HMC): This analysis

[15] If it is assumed that some other feature than [∗T∗] is involved in C-T Agree, this would make the same prediction as long as it is ensured that this Agree operation makes T an inactive goal for Agree with a higher V.

[16] It also makes some further interesting predictions. Consider, for instance, the well-known fact that some morphologically complex verbs can occur in finite form in a verb-final position, but fail to participate in V/2 fronting (see Haider (1992) and Koopman (1995), among many others):

(i) a. dass sie die Oper hier ur-auf-führen
    that they the opera here perform first
  b. *Sie führen die Oper hier ur-auf
  c. *Sie auf-führen die Oper hier ur

of verb-second in terms of reprojection movement of V to the TP domain takes place via local steps (viz., via all intermediate edge domains); however, it clearly violates the HMC because the intervening heads v and T are skipped by the operation. Arguably, though, this is not a problem since the HMC can be shown to be too strict anyway; see in particular Roberts (2009; 2010), who argues that various kinds of head movement operations must be able to freely cross intervening head positions (among them long verb movement in Breton, V movement in predicate cleft constructions in Spanish and Hebrew, clitic-climbing in Italian and, incidentaly, also verb-second movement in German).

Second, we may ask whether the intermediate movement steps of $V_{[*T*]}$ are triggered by edge features, like all other cases of successive-cyclic movement. Indeed, there is every reason to assume that they are (note particularly that all extraction takes place from complements, so edge features can be inserted in line with the EFC in (12)).

Third, why does V reproject, rather than just ending up as a further specifier of TP? A simple (and standard) answer here could be that if two items are combined, only one of them can have the feature that induces this operation, and the item that does will always be the one that projects.[17]

Fourth, it is so far not clear how the specifier XP of the verb-second head V comes into existence that closes off the VP in (21). In the general type of approach adopted here, there must be a structure-building feature that triggers placement of some XP in the first position. There are various possibilities as to how this can be implemented in the present system. For concreteness, suppose that a V category that is equipped with the feature [∗T∗] inducing verb-second must (or may, depending on the analysis of apparant verb-first structdures) also bear a structure-building feature creating a specifier in the reprojection position. Such a feature may trigger *wh*-movement ([•wh•]), as in the cases in (1), or topicalization ([•top•]), as in an example like (3), but typically not relativization ([•rel•]), since relative clauses in German standardly do not involve verb-second – cf. (4), but also Gärtner (2000) for some exceptions. In order to avoid a discharge of this structure-building feature while V is still in situ, it can be assumed that a feature like [•wh•] or [•top•] on $V_{[*T*]}$ comes with a diacritic that makes its discharge dependent on a prior discharge of the probe feature [∗T∗] driving verb-second. This is shown in (22) for *wh*-movement and topicalization respectively, on the basis of the entry

d. *Sie ur-auf-führen die Oper hier

This is a priori difficult to account for if verb-second movement can uniformly be traced back to some attracting feature on an invariant C; in the present approach, one can simply assume a redundancy rule for certain complex verbs that systematically blocks the presence of [∗T∗] on such a verb.

[17] Upon closer scrutiny, a bit more must be said, though. Why can't V stay in the specifier position of T, discharging its probe feature [∗T∗] and projecting there? If it does, the structure-building feature for T's DP specifier (the EPP property) can never be satisfied. So T must be able to remain in a position for a while from which checking would in principle be possible, and then move again to a further position outside of TP to actually carry out the checking (otherwise the SCC would be violated). Note that since this last operation technically goes to a position *beyond* the TP phase, the earlier intermediate step to a SpecT position is required. – That said, nothing in what follows would inherently be incompatible with an analysis of verb-second as movement to a specifier of TP, with V′ in (21) reinterpreted as T′ or TP; to reach this result, one would have to give up the assumption that the label of a complex category is determined by the daughter that has contributed the operation-inducing feature that is responsible for creating that complex category.

for V in (21).[18]

(22) a. V: [•DP•] ≻ [•wh•]$^{([*T*])}$, [∗T∗]
b. V: [•DP•] ≻ [•top•]$^{([*T*])}$, [∗T∗]

In the course of the derivation, a V as in (22-ab) first discharges [•DP•] by merging with a DP that becomes its complement; then it undergoes successive-cyclic movement steps via intermediate edge domains (forced by the PIC, and permitted by the EFC) until it can discharge its Münchausen feature (the categorial probe feature [∗T∗] by reprojection, taking TP as its complement; and finally, this opens up the possibility of discharging the movement-inducing feature ([•wh•] or [•top•]) by creating a specifier; in a sense, [∗T∗] on V locks an operator movement feature, and the discharge of [∗T∗] unlocks it.[19]

Fifth, the question arises why C cannot embed a verb-second VP (abstracting away from marked configurations like the one in (20-b)). Standardly, the complementary distribution is derived by assuming categorial identity, which the present approach does not.[20] In the present approach, a simple analysis suggests itself: C is equipped with a structure-building feature [•T•], but reprojection movement of V in verb-second clauses has created a VP, which C cannot subcategorize. Consequently, we are led to the conclusion that C only shows up optionally in a numeration (or subarray) – if it does in the presence of verb-second movement, the derivation will crash.[21]

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[18] I abstract away here from other possible probe features on V that it may check with its argument DP or some item included in it.

[19] As noted, alternative approaches are possible. One could, for instance, assume that structure-building features and probe features do not show up on two separate stacks, but are actually ordered with respect to one another on a single stack. In the case at hand, an initial order [•DP•] ≻ [∗T∗] ≻ [•wh•] would make it possible to do without the diacritic on the movement-inducing feature, but such a theory is arguably more stipulative than the approach envisaged here because an order like [•DP•] ≻ [∗T∗] (or a generalized variant thereof) follows from the general make-up of the theory (a probe feature can only be discharged if there is some category present that provides a goal) and thus does not have to be stated as such.
Furthermore, it might be that the present approach to filling the first position in verb-second clauses in German is not yet fine-grained enough. Frey (2004) and Fanselow (2003; 2008) argue that one should formally distinguish between unmarked realizations and marked realizations of the first position in verb-second clauses, with the former case involving, apparently, just items at the left periphery of the verb-second clause that would normally also show up at the edge of the TP or vP domain, and the latter case involving information-structurally marked items, as, e.g., in *wh*-clauses and long-distance topicalizations. If this is right, one might want to address it by permitting an underspecified edge feature [•X•] as a third option for an intrinsic feature on a verb-second V: [•X•] discharge would then imply moving whatever happens to be the closest TP- or vP-internal item to the specifier of the reprojecting verb (given a constraint like the Minimal Link Condition; see Fanselow (1991), Chomsky (2001)), whereas [•wh•] (or [•top•]) discharge would imply moving the closest *wh*-item (or [top]-marked item).

[20] However, note that categorial identity in the strict sense is not available under the standard approach either, given structures like (20-a); and also note the problem raised by (20-a) in this context. Furthermore, Stechow & Sternefeld (1988, 402-405) show that the idea of a complementary distribution of verb-second and *dass* is problematic to begin with.

[21] A further derivation that must be ruled out has C merging with TP before reprojection movement of V. This follows if last resort operations like reprojection movement obey an earliness requirement, as assumed in Georgi & Müller (2010): The Münchhausen feature is discharged as soon as possible.

Much more would ultimately have to be said about a reprojection approach to German verb-second clauses. However, I will refrain from doing so since the only thing that is of fundamental importance for the PIC-based approach to the data in (1) to be developed in the next section is really just the assumption (adopted from Fanselow (2008)) that a V that undergoes verb-second movement in the derivation has an additional operation-inducing feature that is absent when V stays in situ, in a *dass* clause.

6. A PIC-Based Approach

Now the system is basically in place that makes it possible to derive the the pattern in (1) from the PIC, in a way that incorporates Staudacher's (1990) hypothesis that verb-second clauses are barriers because they are not as strictly selected as *dass* clauses, and that the barrierhood is lifted by verb-second movement because this gives rise to a configuration that resembles the one found with *dass* clauses. There is just one more assumption that is needed: In the examples in (1), the most deeply embedded clause is both first-merged (i.e., a complement) and last-merged. This implies that the embedded clause can only be transparent for extraction if V is equipped with another operation-inducing feature that keeps it active (for edge feature insertion to be possible) after the clause is merged. As I will show momentarily, this state of affairs lies at the core of the 3-out-of-4 pattern in (1). However, the grammaticality status does not vary noticably when an additional argument is added, as in (23-ab), which can be compared with (1-a) and (1-d), respectively (the added argument is in italics).[22]

(23) a. ?(Ich weiß nicht) [wen$_i$ (dass) du *ihm* gesagt hast [t$'_i$ dass sie t$_i$
I know not whom that you him told have that she
getroffen hat]]
met has

b. *(Ich weiß nicht) [wen$_i$ (dass) du *ihm* gesagt hast [t$'_i$ hat sie t$_i$
I know not whom that you him told have has she
getroffen]]
met

Against the background of the theory developed so far, the conclusion to be drawn from this is that clausal complements are always the only items merged in a VP; a further non-subject argument will then be merged in some separate projection between vP and VP. Therefore, a structure-building feature for an indirect object can never make extraction

[22] At least, there is no systematic improvement of the verb-final/verb-second combination; quite on the contrary, as a tendency the results get somewhat worse throughout. Incidentally, (23-b) is not quite fully well formed even if there is no movement from the embedded verb-second clause; cf. (i-a) vs. (i-b).

(i) a. (Ich weiß) [dass du gesagt hast [sie hat ihn getroffen]]
I know that you said have she has him met

b. ??(Ich weiß) [dass du *ihm* gesagt hast [sie hat ihn getroffen]]
I know that you him said have she has him met

If this effect could be shown to be systematic, no additional assumption would be required for the cases in (23). However, there still seems to be a contrast between (i-b) and (23-b), and this implies (23-b) cannot solely be due to general non-licensing of embedded verb-second in the presence of a second argument in VP.

from a CP possible by keeping the V head active. Possibly, this assumption should be generalized, such that indirect objects and direct objects are always merged in different projections, even when the direct object is non-clausal. On this view, extraction from a complement of V always depends on the availability of some additional probe feature on V.

Here, then, is the analyis of the pattern in (1): Both *dass* complements and verb-second complements enter the structure via a subcategorization feature on V ([•C•] and [•V•], respectively). However, the former clause type receives a special identification in the form of a probe feature on V that agrees with it; such a feature is absent from V if it embeds a verb-second clause. For present purposes, it does not really matter what exactly this additional probe feature on V that discriminates between *dass* clauses and verb-second clauses looks like. One might speculate that it is a case feature (assuming C to be nominal, CPs might need case, which verbal categories do not); but this question is discussed controversially in the literature. An alternative would be to postulate abstract ϕ features on a *dass* clause (but not on a verb-second clause). For now, I will simply assume that the probe feature in question is a *categorial* probe feature of just the type encountered in the previous section, the only difference being that it does not trigger reprojection movement because it can be checked by V under c-command. Thus, in the case of a *dass* clause, matrix V may bear a probe feature [∗C∗]; but there is no comparable categorial probe feature on matrix V for a verb-second clause. I take this to be a relatively straightforward and faithful transfer of Staudacher's (1990) distinction in terms of head-marking via head-selection (*dass* clauses are head-selected, verb-second clauses are not).[23]

Given the approach to CED effects in section 4, this accounts for the transparency of *dass* clauses: At the point of the derivation where an edge feature needs to be inserted on the matrix V to make movement from the edge of CP to the edge of VP possible, V is active because it still bears [∗C∗]. The reason why *dass* complements of V are transparent for extraction (see (1-a), (1-b)) thus follows in exactly the way outlined in (17-b) above for last-merged complements in general. Consider first movement from a *dass* clause into a *dass* clause, as in (1-a). (1-a) is repeated here as (24).[24]

(24) (Ich weiß nicht) [$_{\mathrm{CP}_1}$ wen$_i$ (dass) du [$_{\mathrm{VP}}$ t$_i''$ meinst [$_{\mathrm{CP}_2}$ t$_i'$ dass sie t$_i$
I know not whom that you think that she
getroffen hat]]]
met has

The changes in feature-composition on the matrix V *meinst* in (24) are illustrated in (25).

[23] Why can a V with a feature [•V•] not merge with a (finite or non-finite) bare VP with an in situ V head that is not equipped with [∗T∗]? Perhaps the most straightforward answer might be that it can, but that the resulting structure is uninterpretable since the lower "clause" does not have a subject (in addition, an object in the lower VP could not have its case feature checked).

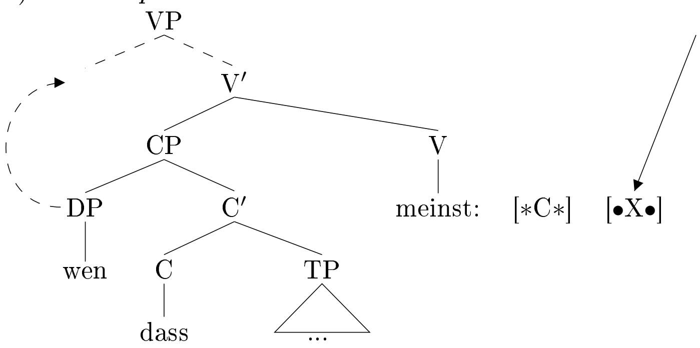
[24] Although there are many more intermediate movement steps, given the assumption of section 4 that all phrases are phases, I add here only the trace in the matrix VP position that signals that the movement step from the CP$_2$ edge to the matrix VP edge is legitimate. – Note incidentally that I insert traces here only for convenience; copy theory, multidominance or radically traceless approaches to movement are also compatible with the present analysis.

(25) *CP complements as non-barriers, matrix V in situ*:

	V:	[•C•] [∗C∗]	
→	V:	[∗C∗]	⇝ violates nothing
→	V:	[•X•] [∗C∗]	

After the edge feature [•X•] is inserted, [∗C∗] is discharged, triggering Agree, and finally, [•X•] is discharged, triggering extraction from the CP complement. The relevant part of the derivation of (24) is shown in (26).[25]

(26) *CP complements as non-barriers*:



Note that this account of *dass* clause transparency is completely independent of the issue of verb movement in the higher clause. Therefore, sentences like (1-b), with movement from a *dass* clause into a verb-second clause, receive essentially the same treatment; (1-b) is repeated here as (27) (with CP_1 replaced with VP_1, in line with new analysis of verb-second developed in section 5).

(27) $[_{VP_1}$ Wen$_i$ meinst du $[_{VP}$ t$''_i$ $[_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]] ?
whom think you that she met has

The only relevant difference to (24) is that matrix V has an additional probe feature, viz., the [∗T∗] feature that triggers reprojection movement. Given that probe features are ordered on their stack in the same way that structure-building features are on theirs, it must be assumed that the order is [∗C∗] (to be discharged with the CP complement by V in situ) ≻ [∗T∗] (to be discharged with the matrix TP after reprojection raising of V).[26] Thus, edge feature insertion can respect the EFC on matrix V, as indicated in (28).

[25] Dashed lines indicate that the operation has not yet been carried out at this stage of the derivation, and that the structure has not yet been created; the arrow ↙ signals edge feature insertion.
[26] Then again, no aspect of the present analysis really forces the view that probe features are ordered, too. In the present context, this assumption is mainly (and weakly) justified by considerations pertaining to homogeneity and uniformity of feature stacks.

(28) *CP complements as non-barriers, matrix V undergoes V2*:

	V:	[•C•]	
		[∗C∗] ≻ [∗T∗]	
→	V:	[∗C∗] ≻ [∗T∗]	⇝ violates nothing
→	V:	[•X•]	
		[∗C∗] ≻ [∗T∗]	

Except for the additional [∗T∗] feature, the relevant part of the derivation of (27) is identical to what is shown in (26).

Things are different with embedded verb-second clauses. Let us turn to movement from a verb-second clause into a verb-second clause first; the example in (1-c) is given again in (29) (with CP replaced by VP, and an intermediate trace in the edge domain of the matrix VP added).

(29) [$_{\text{VP}_1}$ Wen$_i$ meinst du [$_{\text{VP}}$ t$''_i$ [$_{\text{VP}_2}$ t$'_i$ hat sie t$_i$ getroffen]]] ?
whom think you has she met

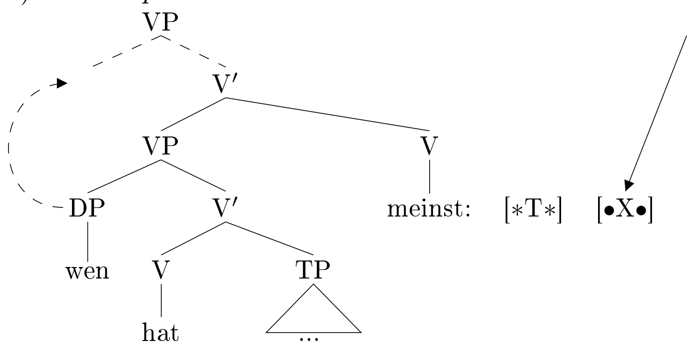
(29) is well formed, which implies that an edge feature can be inserted on matrix V for an item in the edge domain of its sole verb-second complement even though verb-second complements, by assumption, are not identified by a categorial probe feature (that would keep the V head active), like *dass* clauses are. It is at this point that the assumption made in section 5 becomes relevant according to which verb-second movement is brought about by a Münchhausen feature on V that triggers reprojection movement (viz., [∗T∗]). Crucially, this feature is present on matrix V in its in situ position in (29), and this is the reason why V is still active (after it has merged with the verb-second clause), and therefore accessible for edge feature insertion. The changing feature structure on matrix V in the relevant part of the derivation is shown in (30).

(30) *VP complements as non-barriers, matrix V undergoes V2*:

	V:	[•V•]	
		[∗T∗]	
→	V:	[∗T∗]	⇝ violates nothing
→	V:	[•X•]	
		[∗T∗]	

The decisive stage of the derivation itself is illustrated in (31).

(31) *VP complements as non-barriers*:



In the three cases discussed so far, there is at least one probe feature on matrix V that keeps the head active and thereby permits edge feature insertion for movement out of the clausal complement: In (24), there is [∗C∗]; in (29), there is [∗T∗], and in (27), there is both [∗C∗] and [∗T∗]. However, in the case of movement from a verb-second clause into a *dass* clause as in (1-d), repeated here as (32) (with slightly modified labelling), there is no [∗C∗] on the matrix V (because the verb-second complement is not strictly selected, or "head-selected", in Staudacher's (1990) terminology), and there is no [∗T∗] on the matrix V either (because the matrix clause is not a verb-second clause).

(32) *(Ich weiß nicht) [$_{\text{CP}_1}$ wen$_i$ (dass) du meinst [$_{\text{VP}_2}$ t$'_i$ hat sie t$_i$ getroffen]]
I know not whom that you think has she met

Consequently, the matrix V head becomes inert after it has discharged its subcategorization feature and merged with the verb-second complement: Edge feature insertion cannot apply, and a PIC violation therefore cannot be avoided once the derivation has proceeded beyond the matrix VP phase. This accounts for the illformedness of (32). The impoverished feature structure of matrix V in this derivation is shown in (33).

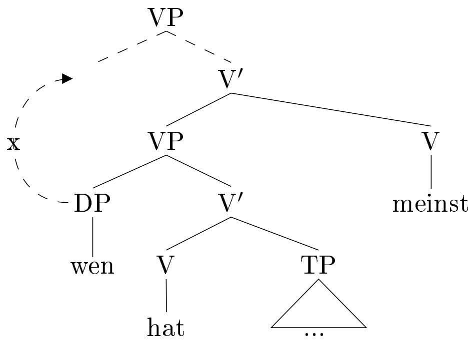
(33) *VP complements as barriers, matrix V stays in situ*:

V:	[•V•]
→ V:	—

⇝ [•X•] insertion impossible

The problematic step of the derivation itself is illustrated in (34).

(34) *VP complements as barriers*:



This concludes the account of the pattern in (1) that is the subject of the present article: The restriction on movement from verb-second clauses to verb-final clauses can be derived if Staudacher's (1990) main assumptions are transferred into the PIC-based account of CED effects in Müller (2010) and enriched by a reprojection approach to verb-second movement that locates the operation-inducing feature on V, as in Fanselow (2008). The one thing that has been lost from Staudacher's original analysis in the course of doing so is transitivity of indexing as a means to remove barrier status from an embedded verb-second clause; since this device is either representational or demanding look-ahead capacity, and since its work can straightforwardly be done by the reprojection-inducing probe feature on matrix V against the background of the theory in Müller (2010), I take this loss to be unproblematic.

7. Some Further Issues

Of course, the approach just sketched raises a number of further issues. I will confine myself to addressing three of them here.

First, the question arises of what happens with periphrastic verb forms where, say, an auxiliary undergoes verb-second movement in the matrix clause and the main verb stays in situ. As shown in (35-ab), the pattern remains the same as in (1-c), (1-d) (= (29), (32)):

(35) a. [$_{\text{VP}_1}$ Wen$_i$ hast du [$_{\text{VP}}$ t$_i''$ gemeint [$_{\text{VP}_2}$ t$_i'$ hat sie t$_i$ getroffen]]] ?
whom have you thought has she met

b. *(Ich weiß nicht) [$_{\text{CP}_1}$ wen$_i$ (dass) du gemeint hast [$_{\text{VP}_2}$ t$_i'$ hat sie t$_i$ getroffen]]
I know not whom that you thought have has she met

The challenge here is to account for the fact that raising of the higher auxiliary can lift barrierhood of the verb-second clause even though the main verb stays in situ in the matrix clause. There are several ways to solve this problem.[27] A first strategy

[27] Closer inspection reveals that this problem shows up in a number of analyses of the pattern in (1), among them the one pursued by Staudacher (1990). In his system, one would have to assume that the

might be to assume that in fact not all phrases are phases after all: In extended (verbal) projections, only the highest projection counts as a phase. This would derive the pattern in (35), but it would require further assumptions for extraction from *dass* clauses into *dass* clauses in contexts where there is an auxiliary in situ in the matrix clause, as in (36) (compare (1-a) = (24)). The reason is that it would be unclear why a probe feature on the lower V head (i.e., the main verb) could render an otherwise inactive higher V head (i.e., the auxiliary) active.

(36) (Ich weiß nicht) [$_{\text{CP}_1}$ wen$_i$ (dass) du [$_{\text{VP}}$ t$''_i$ gemeint hast [$_{\text{CP}_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]]
I know not whom that you thought have that she met has

I will therefore pursue a slightly different approach here and postulate that an auxiliary (or modal) verb and its associate main verb are base-generated as a single complex head, and reprojection movement of the finite part of the complex head proceeds via excorporation, much as with particle stranding under verb-second.

Second, throughout this article I have presupposed that complement clauses are merged in the canonical (left-peripheral) object position in German. However, finite complement clauses typically undergo extraposition; in fact, extraposition is obligatory in the case of verb-second complements (see Stechow & Sternefeld (1988), Heck (2010)), and also if extraction from a clause has applied (arguably a syntactic reflex of successive cyclicity in German; see Müller (1999), Lahne (2009)). On the view adopted here, obligatory extraposition is independent from the barrier status of a clausal complement; and one might argue that the transparency of *dass* clauses as in (1-a), (1-b) supports this view.[28]

Third, it can be observed that the present proposal is incompatible with one small piece of the analysis of CED effects I give in Müller (2010): There I suggest that the bridge verb/non-bridge verb distinction, as well as lexical variation with extraction from DP, can be tied to the presence or absence of an additional probe feature that may keep V active, and accessible for edge feature insertion; cf. (37) (lexically determined extraction from CP) and (38) (lexically determined extraction from DP).

(37) a. (Ich weiß nicht) [$_{\text{CP}_1}$ wen$_i$ (dass) du [$_{\text{VP}}$ t$''_i$ meinst/glaubst [$_{\text{CP}_2}$ t$'_i$ dass du t$_i$ getroffen hast]]]
I know not whom that you think that you met have

b. ?*(Ich weiß nicht) [$_{\text{CP}_1}$ wen$_i$ (dass) du [$_{\text{VP}}$ t$''_i$ bereust/weißt [$_{\text{CP}_2}$ t$'_i$ dass du t$_i$ getroffen hast]]]
I know not whom that you regret/know that you met have

auxiliary and the main verb are always co-indexed.

[28] Heck (2010) assumes that verb-second clauses are barriers because they are obligatorily extraposed; but this then requires a heterogeneous approach to verb-second clause and *dass* clause extraposition (i.e., two extraposition rules with different properties) so as to ensure that extraposed *dass* clauses can still be transparent.

(38) a. (Ich weiß nicht) [$_{PP_i}$ worüber] der Fritz [$_{VP}$ t_i' [$_{DP}$ ein Buch t_i] liest]
I know not about what the Fritz$_{nom}$ a book$_{acc}$ reads

b. ?*(Ich weiß nicht) [$_{PP_i}$ worüber] der Fritz [$_{VP}$ t_i' [$_{DP}$ ein Buch t_i] klaut]
I know not about what the Fritz$_{nom}$ a book$_{acc}$ steals

According to the approach in Müller (2010), V may not have the special probe feature that is needed to keep the head active and permit edge feature insertion for extraction from the (CP or DP) complement in (37-b) and (38-b); i.e., on this view, t_i'' in (37-b) and t_i' in (38-b) cannot be present, which gives rise to a PIC vioalation once the derivation moves on. This analysis cannot be maintained under present assumptions. The reason is that we would then expect verb-second movement to improve the examples in the same way that verb-second movement in the matrix makes extraction from an embedded verb-second clause possible. This would clearly not be a correct prediction; see (39-ab).

(39) a. ?*[$_{CP_1}$ Wen$_i$ bereust/weißt du [$_{VP}$ t_i'' [$_{CP_2}$ t_i' dass du t_i getroffen hast]]] ?
whom regret/know you that you met have

b. ?*[$_{PP_i}$ Worüber] klaut der Fritz [$_{VP}$ t_i' [$_{DP}$ ein Buch t_i]] ?
about what steals the Fritz$_{nom}$ a book$_{acc}$

I conclude from this that the sentences in (37-b), (38-b) and (39) do not involve PIC violations; a categorial probe feature identifying the complement can be inserted on V in all cases. The deviance must then have a different source.[29]

[29] This view might be supported by the fact that the grammaticality status of these examples is much more variable than that of examples like (1-d), and subject to idiolectal variation and habitualization effects. An alternative account that would be compatible with the present analysis would be to treat phenomena like the distinction between bridge verbs and non-bridge verbs by postulating an empty operator in the latter case that gives rise to a minimality violation; see Manzini (1992, 115), and also Roberts & Roussou (2002).

Bibliography

Abels, Klaus (2003): Successive Cyclicity, Anti-Locality, and Adposition Stranding. PhD thesis, University of Connecticut, Storrs, Connecticut.

Ackema, Peter, Ad Neeleman & Fred Weerman (1993): Deriving Functional Projections. In: *Proceedings of NELS*. Vol. 23, Amherst: GSLA, pp. 17–31.

Axel, Katrin (2007): *Studies on Old High German Syntax: Left Sentence Periphery, Verb Placement and Verb-Second*. Benjamins, Amsterdam.

Bentzen, Kristine (2009): Embedded Root Phenomena, Assertion, Presupposition, and Main Point of Utterance. Ms., University of Tromsø.

Bhatt, Rajesh (2005): Long Distance Agreement in Hindi-Urdu, *Natural Language and Linguistic Theory* 23, 757–807.

Bierwisch, Manfred (1963): *Grammatik des deutschen Verbs*. Studia Grammatica II, Akademie Verlag, Berlin.

Bošković, Željko (2007): Agree, Phases, and Intervention Effects, *Linguistic Analysis* 33, 54–96.

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

Ćavar, Damir (1996): Untitled. Ms., Universität Potsdam.

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

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

Chomsky, Noam (2000): Minimalist Inquiries: The Framework. In: R. Martin, D. Michaels & J. Uriagereka, eds., *Step by Step*. MIT Press, Cambridge, Mass., pp. 89–155.

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

Chomsky, Noam (2007): Approaching UG from Below. In: U. Sauerland & H.-M. Gärtner, eds., *Interfaces + Recursion = Language?*. Mouton de Gruyter, Berlin, pp. 1–31.

Chomsky, Noam (2008): On Phases. In: R. Freidin, C. Otero & M. L. Zubizarreta, eds., *Foundational Issues in Linguistic Theory*. MIT Press, Cambridge, Mass., pp. 133–166.

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

den Besten, Hans (1977): On the Interaction of Root Transformations and Lexical Deletive Rules. Ms., University of Amsterdam.

Fanselow, Gisbert (1991): Minimale Syntax. Habilitation thesis, Universität Passau.

Fanselow, Gisbert (2003): Münchhausen-Style Head Movement and the Analysis of Verb-Second. In: A. Mahajan, ed., *Head Movement and Syntactic Theory*. Vol. 3 of *Syntax at Sunset*, UCLA & Universität Potsdam Working Papers in Linguistics, Los Angeles & Potsdam, pp. 40–76.

Fanselow, Gisbert (2008): Bootstrapping Verb Movement and the Clausal Architecture of German (and Other Languages). Ms., Universität Potsdam. To appear in *Proceedings of the Comparative Germanic Syntax Workshop 2007*.

Fanselow, Gisbert & Anoop Mahajan (1996): Partial Movement and Successive Cyclicity. In: U. Lutz & G. Müller, eds., *Papers on Wh-Scope Marking*. Number 76 *in* 'Arbeitspapiere', SFB 340, Universität Stuttgart and Universität Tübingen, pp. 131–177.

Frey, Werner (2004): The Grammar-Pragmatics Interface and the German Prefield,

Sprache & Pragmatik 52, 1–39.
Freywald, Ulrike (2009): V2 in German Complement Clauses Introduced by *dass* 'that'. Ms., Universität Potsdam.
Gärtner, Hans-Martin (2000): Are There V2 Relative Clauses in German?, *The Journal of Comparative Germanic Linguistics* 3, 97–141.
Georgi, Doreen & Gereon Müller (2010): Noun Phrase Structure by Reprojection, *Syntax* 13(1).
Grewendorf, Günther (1989): *Ergativity in German*. Foris, Dordrecht.
Haider, Hubert (1984): Topic, Focus, and V-Second, *Groninger Arbeiten zur Germanistischen Linguistik* 25, 72–120.
Haider, Hubert (1992): The Basic Branching Conjecture. Ms., Universität Stuttgart.
Haider, Hubert (1993a): *Deutsche Syntax – generativ*. Narr, Tübingen.
Haider, Hubert (1993b): ECP-Etüden: Anmerkungen zur Extraktion aus eingebetteten Verb-Zweit-Sätzen, *Linguistische Berichte* 145, 185–203.
Haider, Hubert (2000): Branching and Discharge. In: P. Coopmans, M. Everaert & J. Grimshaw, eds., *Lexical Specification and Insertion*. Benjamins, Amsterdam, pp. 135–164.
Heck, Fabian (2010): Against Direct Recursion in Syntax. Ms., Universität Leipzig.
Heck, Fabian & Gereon Müller (2007): Extremely Local Optimization. In: E. Brainbridge & B. Agbayani, eds., *Proceedings of the 26th WECOL*. California State University, Fresno, pp. 170–183.
Holmberg, Anders (1991): Head Scrambling. Handout of talk; GLOW 1991 (Leiden).
Hooper, Joan & Sandra Thompson (1973): On the Applicability of Root Transformations, *Linguistic Inquiry* 4, 465–497.
Hornstein, Norbert & Juan Uriagereka (2002): Reprojections. In: S. D. Epstein & D. Seely, eds., *Derivation and Explanation in the Minimalist Program*. Blackwell, London, pp. 106–132.
Huang, Cheng-Teh James (1982): Logical Relations in Chinese and the Theory of Grammar. PhD thesis, MIT, Cambridge, Mass.
Kayne, Richard (1984): *Connectedness and Unambiguous Paths*. Foris, Dordrecht.
Kiziak, Tanja (2007): Long Extraction or Parenthetical Insertion? Evidence from Judgement Studies. In: N. Dehé & Y. Kavalova, eds., *Parentheticals*. Benjamins, Amsterdam, pp. 121–144.
Koeneman, Olaf (2000): The Flexible Nature of Verb Movement. PhD thesis, Utrecht University.
Koopman, Hilda (1995): On Verbs that Fail to Undergo V-Second, *Linguistic Inquiry* 26, 137–163.
Koster, Jan (1987): *Domains and Dynasties*. Foris, Dordrecht.
Lahne, Antje (2009): Where There is Fire There is Smoke. Local Modelling of Successive-Cyclic Movement. PhD thesis, Universität Leipzig.
Lasnik, Howard & Mamoru Saito (1984): On the Nature of Proper Government, *Linguistic Inquiry* 15, 235–289.
Legate, Julie Anne (2005): Phases and Cyclic Agreement, *MITWPL* 49, 147–156. Perspectives on Phases.
Lenerz, Jürgen (1984): *Syntaktischer Wandel und Grammatiktheorie*. Niemeyer, Tübin-

gen.
Mahajan, Anoop (2001): Word Order and Remnant VP Movement. UCLA, Ms.
Manzini, Rita (1992): *Locality. A Theory and Some of Its Empirical Consequences.* MIT Press, Cambridge, Mass.
Matushansky, Ora (2006): Head-Movement in Linguistic Theory, *Linguistic Inquiry* 37, 69–109.
Meinunger, André (2004): Verb Position, Verbal Mood and the Anchoring (Potential) of Sentences. In: H. Lohnstein & S. Trissler, eds., *The Syntax and Semantics of the Left Periphery.* Mouton de Gruyter, Berlin, pp. 313–341.
Müller, Gereon (1989): Barrieren und Inkorporation. Master's thesis, Universität Konstanz.
Müller, Gereon (1999): Imperfect Checking, *The Linguistic Review* 16, 359–404.
Müller, Gereon (2003): Local vs. Global Optimization in Syntax: A Case Study. In: J. Spenader, A. Eriksson & Ö. Dahl, eds., *Variation within Optimality Theory. Proceedings of the Stockholm Workshop.* Stockholm University, Department of Linguistics, pp. 82–91.
Müller, Gereon (2004): Verb-Second as vP-First, *Journal of Comparative Germanic Linguistics* 7, 179–234.
Müller, Gereon (2010): On Deriving CED Effects from the PIC, *Linguistic Inquiry* 41(1), 35–82.
Müller, Gereon & Wolfgang Sternefeld (1993): Improper Movement and Unambiguous Binding, *Linguistic Inquiry* 24, 461–507.
Pesetsky, David (1998): Some Optimality Principles of Sentence Pronunciation. In: P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis & D. Pesetsky, eds., *Is the Best Good Enough?.* MIT Press and MITWPL, Cambridge, Mass., pp. 337–383.
Reis, Marga (1985): Satzeinleitende Strukturen im Deutschen. In: W. Abraham, ed., *Erklärende Syntax des Deutschen.* Narr, Tübingen, pp. 271–311.
Reis, Marga (1996): Extractions from Verb-Second Clauses in German?. In: U. Lutz & J. Pafel, eds., *On Extraction and Extraposition in German.* Benjamins, Amsterdam, pp. 45–88.
Richards, Norvin (2001): *Movement in Language.* Oxford University Press, Oxford.
Roberts, Ian (2009): On the Probable Existence of Head Movement and the Definite Non-Existence of the Head Movement Constraint. Ms., University of Cambridge.
Roberts, Ian (2010): *Agreement and Head Movement: Clitics, Incorporation and Defective Goals.* MIT Press, Cambridge, Mass.
Roberts, Ian & Anna Roussou (2002): The Extended Projection Principle as a Condition for the Tense-Dependency. In: P. Svenonius, ed., *Subjects, Expletives, and the EPP.* Benjamins, Amsterdam, pp. 125–156.
Sabel, Joachim (1996): *Restrukturierung und Lokalität.* Akademie-Verlag, Berlin.
Shin, Soo Song (1988): On Long-Distance Movement in German, *Linguistische Berichte* 115, 229–254.
Staudacher, Peter (1987): Extraktion aus deutschen Verbz-Zweit-Komplementen. Ms., Universität Regensburg.
Staudacher, Peter (1990): Long Movement from Verb-Second-Complements in German. In: G. Grewendorf & W. Sternefeld, eds., *Scrambling and Barriers.* Benjamins, Ams-

terdam, pp. 319–339.

Stechow, Arnim von & Wolfgang Sternefeld (1988): *Bausteine syntaktischen Wissens.* Westdeutscher Verlag, Opladen.

Sternefeld, Wolfgang (1989): V-Movement, Extraction from V/2 Clauses, and the ECP, *Working Papers in Scandinavian Syntax* 44, 119–140.

Sternefeld, Wolfgang (1991): *Syntaktische Grenzen. Chomskys Barrierentheorie und ihre Weiterentwicklungen.* Westdeutscher Verlag, Opladen.

Sternefeld, Wolfgang (1992): Transformationstypologie und strukturelle Hierarchie. Ms., Universität Tübingen.

Tappe, Thilo (1981): Wer glaubst du hat recht?. In: M. Kohrt & J. Lenerz, eds., *Sprache: Formen und Strukturen.* Niemeyer, Tübingen, pp. 203–212.

Thiersch, Craig (1978): Topics in German Syntax. PhD thesis, MIT, Cambridge, Mass.

Williams, Edwin (1974): Rule Ordering in Syntax. PhD thesis, MIT, Cambridge, Mass.

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