

Word order in the German middle field – scrambling

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This chapter provides an overview of the major empirical and theoretical aspects of word order variation in the German middle field, viz., scrambling. After introducing the German clause structure and providing basic properties of scrambling, this chapter will mostly focus on two aspects, viz., whether scrambling should be analyzed as involving base-generation or movement and, should movement indeed be involved, which movement type it instantiates. It will be argued that while many of the arguments for movement are eventually inconclusive, restrictions on scrambling and evidence for intermediate representations provide evidence for a movement approach after all. Much less conclusive, however, is the question regarding the movement type underlying scrambling. While PF-movement can be ruled out quite easily, the categorial restrictions on scrambling and the reconstruction effects observed do not fall neatly into the A- or A'-movement category. In the last section, further important aspects are addressed, including questions regarding the base order of double object verbs, possible triggers for scrambling and implications for clause structure. It will become clear that despite 40 years of intense research, scrambling still represents a challenge for linguistic theory in that its properties cannot easily be reconciled with elementary assumptions of current versions of the Minimalist Program.

1 Introduction: German clause structure and scrambling

The topic of this paper is the word order in a particular part of the German clause, namely in the so-called *middle-field*. Like other Germanic languages except English, German is a verb second language with the finite verb in main clauses appearing after the first phrasal constituent. Non-finite verbs occur at the end of the clause, after the arguments:¹

- (1) Gestern hat der Peter der Maria den Hans vorgestellt.
yesterday has the.NOM Peter the.DAT Mary the.ACC John introduced
'Yesterday, Peter introduced John to Mary.'

Subordinate clauses are introduced by complementizers, while the finite verb, together with non-finite verbs, occurs clause-finally:

- (2) dass gestern der Peter der Maria den Hans vorgestellt hat
that yesterday the.NOM Peter the.DAT Mary the.ACC John introduced has
'that yesterday Peter introduced John to Mary'

It is by now standard to assume that V2-clauses are derived from verb-final clauses by movement of the finite verb to C, which is the position occupied by complementizers in subordinate clauses. This implies that the portion of the clause between C and the clause-final verbs is shared by main and subordinate clauses. In more traditional/descriptive approaches, this portion of the clause is referred to as the *middle field*. It can contain arguments, adjuncts and (secondary) predicates and constituents of various categories (DP, AP, PP, CP), see Haider (2017: 5f.). While filled in most cases, it can, in principle, remain empty (e.g., in impersonal constructions or in sentences consisting of a subject and an intransitive verb, see Haider 2017: 31–33). The middle field is enclosed by what is called the *sentence brackets*. The left bracket is the position of the complementizer/the position of the finite verb in main clauses, the right bracket is the position of the verbal elements

¹All examples will be from Standard German. To the best of my knowledge, there is no dialectal variation w.r.t. the properties discussed in this chapter. Data without explicit references have been constructed by the author. The glosses follow the Leipzig Glossing rules.

in clause-final position (which also includes verbal particles). The sentence brackets separate the middle field from (i) the *prefield*, the phrasal position before the left bracket that can be occupied by essentially any XP in main clauses (and remains empty in subordinate clauses), and the *post-field*, the position after the right sentence bracket which usually need not be occupied, although clausal constituents preferably occur there. In syntactic theory, the pre-field is usually identified with Spec,CP, while the postfield corresponds to an extraposition area, usually modeled as right-adjunction to VP/vP/TP. The organization of the clause into fields has no theoretical status in modern syntactic theory but provides useful terminology to refer to different parts of the clause without having to commit to specific theoretical assumptions.

The focus of this paper is word order in the middle field, which thus roughly corresponds to the part of the clause between C and V. What has intrigued linguists about the middle field is its flexible word order. A sentence like (2) with 4 constituents in the middle field can in principle occur in 24 different versions, viz., any ordering between the arguments and the adjunct is possible. One of these versions is provided in (3):

- (3) dass den Hans der Maria der Peter gestern vorgestellt hat
 that the.ACC John the.DAT Mary the.NOM Peter yesterday introduced has
 ‘that yesterday Peter introduced John to Mary’

The word order in this part of the clause is therefore considered ‘free’ (which is not to mean that all orders are equally unmarked, a topic we return to below). In modern syntactic theory, the word order variation in the middle-field (but also beyond) has been linked to a reordering operation called *scrambling* (a term going back to Ross 1967). For simplicity’s sake, I will often use the term scrambling or speak of reordering; however, this should not imply that the word order freedom necessarily comes about via movement as this is not a generally accepted position (though arguably the majority view). In the rest of this paper, I will provide an overview of the major empirical and theoretical issues surrounding word order in the middle field. I will try to present the discussion from a neutral perspective rather than advocating a particular approach to scrambling. An important task in this paper will consist in separating the uncontroversial facts from the controversial ones. As we will see, many of the crucial empirical facts are either disputed or too subtle to evaluate without careful experimental verification. As a consequence, many theoretical questions remain unresolved despite almost 40 years of research on the topic. I will therefore often focus more on the logic of particular arguments/diagnostics rather than providing theoretical conclusions.

In section two, I will discuss the basic properties of word order variation in the middle field. In section three, I will address the question of whether scrambling involves movement or base-generation. In section four, I discuss the nature of the movement type involved in scrambling. In section five, I will discuss further issues that have played an important role in research on scrambling, and section six concludes.²

2 Basic properties of word order freedom in the middle field

In this section, I will provide a list of basic properties of scrambling.

The first two properties were already illustrated in the example in (3): First, scrambling can lead to reordering of arguments. Second, it can be iterated (in that both objects have been reordered w.r.t. the subject and the direct object has been scrambled across the indirect one). The first property is important because it sets German scrambling apart from object shift in North Germanic

²This overview draws heavily on other overview papers including Abels (2015a), Frey (2015), Haider (2017). For volumes providing an overview of the discussion during the Government-and-Binding era, see Grewendorf & Sternefeld (1990), Corver & Riemsdijk (1994), Müller (1995: 91–181). Given space constraints, I will frequently refer the reader to these sources for further data and discussion.

and, to some extent, scrambling in Dutch. The second property distinguishes scrambling from *wh*-movement or topicalization (in German), which can affect only one constituent per clause. Third, scrambling can affect constituents of various categories, viz., DP, PP and CP. DP-scrambling is illustrated in (3); PP- and CP-scrambling (which includes finite and non-restructuring non-finite clauses) are illustrated in (4) (from Haider 2010: 147; again, the fact that the following representations include traces co-indexed with the scrambled constituents should not be interpreted that movement is necessarily involved; the traces simply indicate the unmarked position of the constituent in question):³

- (4) a. dass dort jetzt [auf Peter]₁ jemand ___₁ wartet
 that there now for Peter someone.NOM waits
 ‘that someone is waiting for Peter there now’
- b. ?weil ja heutzutage [dass die Erde rund ist]₁ niemand ernstlich ___₁ bezweifelt
 since PRT today [that the earth round is] nobody.NOM seriously doubts
 ‘That nowadays nobody seriously doubts that the earth is round’
- c. dass doch [diese Tür aufzubrechen]₁ keiner je ___₁ versucht hat
 that PRT [this door to.break.open] nobody.NOM ever tried has
 ‘that nobody ever tried to break open this door’

There are two empirical aspects here that are controversial. First, it is frequently claimed that scrambling is confined to arguments (e.g., Haider (2017)). This seems to be supported by the fact that predicates, including (primary and secondary) AP-predicates and (bare infinitival/participial) VPs do not seem to scramble, see, e.g., Müller (1995: 154–155):⁴

- (5) ??daß [_{AP} krank]₁ der Hans am Montag ___₁ nicht gewesen ist
 that ill the.NOM Hans on Monday not been is
 ‘that John was not ill on Monday’

However, predicate scrambling is generally deemed relatively acceptable once a rise-fall contour is involved, see Grewendorf & Sternefeld (1990: 13), Müller (1995: 307, fn. 39). It is not a priori clear what this implies. As will be discussed towards the end of this section, perhaps the rise-fall contour is indicative of a different type of scrambling, viz., *A'*-scrambling, in which case the generalization for – regular – scrambling could be upheld.

The second issue concerns the scrambling of adverbials. It is clear that adverbials can occur in different positions of the middle-field. For instance, in a sentence like (3), the temporal adverbial *gestern* ‘yesterday’ can occur not only directly before the verb but either before all arguments as in (2) or in between any of the arguments. This is, however, not enough to show that it actually undergoes scrambling since it is conceivable that certain adverbials can be merged in different positions of the middle field (as long as they are semantically compatible with the constituent they attach to). However, Frey & Pittner (1998), Frey (2015: 532–538) provide evidence that adverbials actually pass the same reordering diagnostics as arguments (viz., scope reconstruction). We will return to this issue in the discussion about the movement type underlying scrambling in section 4.2.1 below.

Fourth, scrambling is possible within head-final phrases, viz., VPs and APs, but not within NPs and PPs, see Müller (1995: 112–118), Haider (2017: 6). This can be shown by means of VP- and AP-topicalization (presupposing that the fronted constituents are indeed not larger than *vP/aP*). The following examples provide illustrations of this ((6-a) is adapted from Haider 2017: 6)

³Pronouns will be briefly addressed in section 5.3 below. Certain DPs and PPs do not seem to scramble, see Frey (2015: 538–542). According to Frey, they all bear the hallmarks of pseudo-incorporated constituents. Unlike *wh*-indefinites, cf. fn. 5, and predicates, they also cannot be stranded by VP-topicalization, cf. fn. 4.

⁴This observation causes complications for the theory of remnant movement since remnant VP-topicalization leaving behind predicates in the middle-field is well-formed. See Fanselow (2002), Fanselow (2012: 288–292), Müller (2014: 99–113).

- (6) a. [AP [DP dem Briefträger]₁ in vielen Merkmalen ___₁ ähnlich] war der Hund.
 the postman.DAT in many features resembling was the dog.NOM
 ‘The dog was resembling the postman in many features.’
- b. [VP [DP den Hans]₁ der Maria gestern ___₁ vorgestellt]₁ hat der Peter ___₂.
 the.ACC Hans the.DAT Mary yesterday introduced has the.NOM Peter
 ‘Peter introduced John to Mary yesterday.’

Fifth, scrambling affects constituents of VP, AP, NP and PP. In the case of the last two, given that they are not scrambling domains, this implies that the constituents must leave the projection of their predicate and surface within VP, while in the case of the first two, scrambled constituents can either remain within the domain of the predicate as in (6) or can target the next higher VP (in the case of VP-constituents, this means that they can surface in the VP projected by a governing restructuring verb/auxiliary). The following two examples illustrate scrambling from NP and PP, see Müller (1995: 91–92):

- (7) a. daß Ellen [PP über Gisbert]₁ mal wieder [NP ein Gerücht ___₁] gehört hat
 that Ellen about Gisbert PRT again a rumour heard has
 ‘that Ellen again heard a rumor about Gisbert’
- b. daß da₁ wieder der Fritz [PP ___₁ für] zahlen mußte
 that it again the.NOM Fritz for pay.INF had.to
 ‘that again Fritz had to pay for it’

Sixth, scrambling is optional (see Haider 2017: 9-11). Optional means that there are no cases where reordering would be necessary to obtain a grammatical result (e.g., unlike with fronting of a *wh*- or relative pronoun; see Abels 2015a: 1402 for discussion of the notion of ‘free’). This property is related to the discussion about interpretive effects of scrambling and possible triggers, a topic we return to in section 5.2 below.⁵

Seventh, scrambling is clause-bound, viz., cannot cross a finite clause-boundary (Haider 2017: 7):

- (8) *dass [die Lösung]₁ niemand geglaubt hat, [dass er ___₁ gefunden hätte]
 that the solution no.one.NOM believed has that he found had
 ‘that no one believed that he had found the solution’

With respect to non-finite clauses, it is uncontroversial that scrambling is possible from the complement of restructuring verbs as in (9), which are usually taken to involve less structure than a CP (e.g., VP, vP or TP; for a recent overview of verb clusters and restructuring, see Wurmbrand 2017):

- (9) weil [das Buch]₁ keiner ___₁ zu lesen versuchte
 because the book no.one.NOM to read.INF tried
 ‘because no one tried to read the book’

The status of scrambling from the complement of non-restructuring verbs is contested, however. Traditionally, it is regarded as impossible, which is in line with the assumption that they are CPs and thus of the same size as finite clauses. But according to Wurmbrand (2001: 269f), scrambling *is* possible from non-restructuring verbs with irrealis complements if the scrambled DP is focused. However, this may indicate that a different type of scrambling, viz., A'-scrambling, is involved.⁶

I will conclude this chapter by a few remarks on A'-scrambling. The construction was brought

⁵A possible exception is the scrambling behavior of *wh*-indefinites. While they can normally not scramble in the sense that they cannot easily be reordered with arguments, there are contexts where it seems that they have to be scrambled to prevent ungrammaticality. This involves sentential negation, weak crossover, parasitic gaps, and remnant topicalization, see Heck & Müller (2000: sections 2.1-2.4), Müller (2014: 100–101). But see Fanselow (2012: 277) for data suggesting that they can undergo scrambling after all, though only to a very limited extent.

⁶Further complicated issues arise w.r.t. the nature of scrambling from the so-called 3rd construction, where the dependent VP is extraposed but certain constituents from it occur in the superordinate VP. For recent discussion, see Salzmann (2019: 100–105).

into the discussion in Neeleman (1994: 395–400) on the basis of Dutch data. He observed that it differed from regular scrambling in that it could cross clause-boundaries and apply to categories that normally don't scramble, viz., manner adverbials, predicative adjectives and VPs. The construction seems confined to the spoken language and necessarily involves a rise-fall contour, indicated by / \ (in the literature on German, one can also find the term *I-topicalization*). While sometimes referred to as focus-fronting, the fronted constituent arguably rather receives a contrastive topic interpretation. (10) illustrates local A'-scrambling of a predicative adjective (from Müller 1995: 157), (11) illustrate long-distance scrambling (from Haider 2010: 144):

- (10) daß [so Richtig/ krank]₁ der Hans am Montag natürlich nicht\ ___₁ gewesen ist
 that thus really ill the.NOM Hans on Monday of.course not been is
 'that, of course, John wasn't really ill on Monday'
- (11) a. dass [/so eine Lösung]₁ nie\mand geglaubt hat, [dass einer ___₁ finden
 that such a solution no.one.NOM believed has [that someone.NOM find
 würde]
 would]
 'that no one believed that anyone had found such a solution'
- b. dass ja [/so frugal]₁ kei\ner von uns glaubte, dass man ___₁ leben könnte
 that PRT [so frugal] nobody.NOM of us thought that one live.INF could
 'that none of us thought that one could live so frugally'

Most examples of A'-scrambling in the literature are characterized by a high landing site, viz., usually the position immediately following the complementizer, and thus possibly a position in the left periphery (assuming a complex left periphery). However, one also finds examples where A'-scrambling targets a lower position after the subject in both local and long-distance versions. This is illustrated in (12) (from Haider 2017: 7 and Müller 1995: 408).

- (12) a. dass sie ja [/SO viel]₁ nicht\ geglaubt hat [dass man dafür ___₁ bezahlen müsse]
 that she PRT so much not believed has [that one for.that pay.INF must]
 'that she didn't believe that one would have to pay so much for that'
- b. obwohl er verlieren/₁ nur sehr schwer\ ___₁ kann
 although he lose.INF only very hardly can
 'although he is hardly able to lose'

There are two further properties of A'-scrambling that are sometimes thought to set it apart from regular scrambling, viz., systematic reconstruction for binding (Neeleman 1994: 399-400) and the presence of freezing effects (Frey 2015: 547). I will not discuss these properties here as I will come back to them when addressing the movement type involved in scrambling in Section 4 below.

While I will have nothing more to say about long-distance scrambling, the possibility of local A'-scrambling is a potential confound that needs to be controlled for when analyzing local scrambling, especially when the displacement of DPs or PPs is involved: On the surface, one cannot easily tell in that case which type of scrambling one is dealing with, unless there is explicit information about intonation. As far as I can tell, much previous work is somewhat unsystematic in that intonation is not discussed explicitly. Often, there is reference to a certain intonation that makes certain examples more acceptable, but whether this implies that a different type of scrambling is involved often remains unclear. In some approaches, e.g., Müller (1995), it is in fact assumed that there is just one type of scrambling, but a rise-fall contour makes scrambling in certain configurations acceptable. Thus, some of the limitations listed above (e.g., no fronting of predicates) are eventually not considered properties of clause-bound scrambling.⁷

In the next section I will address one of the most contested issues surrounding the analysis of scrambling, viz., whether it is derived by movement or not.

⁷Note also in this context that Müller (1995: 408) takes long-distance scrambling to be generally impossible.

3 Movement or base-generation?

Consider the following minimal pair where the direct object either precedes or follows the subject:

- (13) a. dass keiner das Buch gelesen hat b. dass das Buch keiner gelesen hat
 that no.one.NOM the book read has that the book no.one.NOM read has
 ‘that no one read the book’

There are two logical possibilities to analyze the word order flexibility: Either the arguments can be merged in flexible order, viz., the two orders can be base-generated, or, one is derived from the other via movement. Both possibilities have been advocated in the literature, with base-generation representing the less prominent position (see, e.g., Bayer & Kornfilt 1994, Fanselow (2001, 2003a), and work in non-derivational/declarative frameworks, see Abels 2015a: 1424–1432 for references).

The question now is how to determine what kind of evidence can be used to decide between these two options. As we will see, this is by no means trivial. While one may consider the sentence in (13-a) more basic/unmarked since subjects normally precede objects, this is not sufficient to motivate a movement account of (13-b). I will in what follows set aside the following two conceptual arguments that have been used in the discussion: First, under the assumption that argument-structure hierarchy is mapped onto syntactic hierarchy (the so-called Uniformity of Theta Assignment Hypothesis, see Baker 1988), a movement analysis is inevitable given that the two sentences in (13) involve the same predicate and argument roles. Since the UTAH is explicitly not adopted in base-generation approaches, it is of little use in this discussion (it is useful, though, under movement approaches, to determine the base order). Second, there is no clear feature/trigger for scrambling, at least none that would be similar to the triggers used elsewhere in much of Minimalist syntax (cf., e.g., Fanselow 2001). However, the problem with specific triggers is arguably more general, as shown in Fanselow & Lenertová (2011) w.r.t. German topicalization. They end up postulating an unspecific edge-feature for this construction, which everybody agrees involves movement. In similar vein, Heck & Himmelreich (2017) adopt edge features for scrambling in German. Thus, while it may be difficult to come up with contentful triggers, this theory-internal argument should be separated from the movement vs. base-generation debate. We return to the issue of triggers in Section 5.2 below.

I will in what follows discuss two types of evidence in favor of movement. The first one is based on the interaction of scrambling with locality constraints, the second type of evidence is based on diagnostics suggesting that a given constituent must have occupied a lower position at some point of the derivation.

3.1 Scrambling and locality constraints

If scrambling involves movement, we expect it to interact with locality constraints. If it involves base-generation, such interaction is not necessarily expected. There are two ways in which scrambling has been argued to interact with locality constraints.

3.1.1 Consequences of scrambling: freezing effects

The first argument from locality concerns the consequences of scrambling. If scrambling is movement, we expect it to cause freezing effects, like other movement operations, viz., be ruled out by the Condition on Extraction Domains (CED, see Huang 1982). In Müller (1998: 143–146), it is argued that this prediction is borne out: PP-extraction or extraction of an R-pronoun from DP is possible if the DP is in-situ but not once it has undergone scrambling:

- (14) a. Wo₁ meinst du [_{CP} ___₁ dass keiner [_{PP} ___₁ mit]₂ gerechnet hat]?
 what think you that no.one.NOM with counted has?

- b. *Wo₁ meinst du [_{CP} ___₁ dass [_{PP} ___₁ mit]₂ keiner ___₂ gerechnet hat]?
 what think you that with no.one.NOM counted has
 ‘What do you think no one counted on?’

However, the freezing argument is contested. It is related to a more general issue concerning the status of the CED in German. The intransparency of subjects has been questioned for a long time, see, e.g., De Kuthy & Meurers (2001: 148), Fanselow (2003b: 21), and Haider (2017: 25) for examples and references. The same goes for freezing effects. See, e.g., De Kuthy & Meurers (2001: 151), Fanselow (2003b: 22), Haider (2010: 155-157), and Haider (2017: 51–53) for examples suggesting that scrambled phrases are transparent. (15) is from Fanselow (2003b: 22):

- (15) [_{PP} Über welches Thema]₁ würde [_{NP} solch einen Artikel ___₁] selbst der Hubert
 about which topic would such an article even the.NOM Hubert
 nicht in die Zeitung setzen?
 not in the newspaper put
 ‘Which topic would not even Hubert put an article about in the newspaper?’

While many of these examples are quite complex, it seems fair to conclude that it is surely possible to provide grammatical examples that involve extraction from a scrambled phrase, suggesting that scrambling does not necessarily lead to freezing effects in German.⁸ It remains to be explained why some of the examples, e.g., like (14-b) clearly seem unacceptable and others do not. Fanselow (2003b: 21–22) suggests that this is related to information structure in that subextraction is usually restricted to focused phrases. Given that subjects and scrambled objects are often topical, the fact that they often disallow subextraction would follow. Since the issue is orthogonal to the questions pursued here, we will not dwell on this.

While it thus seems clear that scrambling does not necessarily entail freezing effects, it is much less clear what this implies for the movement base-generation debate. Under a conservative approach to the CED, any XP that is a non-complement should be opaque for extraction. Crucially, this holds irrespective of whether that XP is moved to that position or is externally merged/base-generated there. Thus, the facts above eventually are more a puzzle for theories of the CED rather than useful diagnostics for the movement vs. base-generation debate.⁹ The same conclusion applies to more refined approaches to the CED like Müller (2010) where only the last merged specifiers of a phrase constitute opaque domains; again, how those specifiers are created is immaterial for the opacity. In conclusion, then, freezing effects are not informative w.r.t. the movement base-generation debate.

3.1.2 Locality constraints on scrambling

The second argument from locality, however, does provide relevant information for our discussion: It has been argued that scrambling itself is subject to well-established locality constraints, see Müller (1995: 122–124). He argues that scrambling from NP is subject to the same constraints as wh-movement: It cannot extract PPs from subjects and indirect objects. Furthermore, when applying to constituents of direct objects, scrambling is blocked from specific/definite NPs and is subject to the familiar lexical restrictions, viz., is only possible if verb and DP form what is considered a natural predicate. Finally, if the direct object contains a possessor, scrambling of either the possessor or another constituent of that DP is not possible. The following pair illustrates (failed)

⁸The examples in Fanselow (2001: 413–414) involving split constructions, however, can arguably be reanalyzed in terms of remnant movement.

⁹It is, of course, conceivable, to develop a theory of the CED where the movement vs. base-generation difference is crucial after all, see Fanselow (2002: 107ff.). He argues that SU>DO>PP verbs allow extraction from the DO, which must be merged as a specifier. This is argued to provide independent evidence that XPs base-generated as specifiers can be transparent.

scrambling from indirect objects and failed scrambling of possessors:

- (16) a. *daß man [PP über die Liebe]₁ neulich [NP einem Film __₁] einen Preis verliehen hat
 that one about the love lately a.DAT movie a.ACC prize awarded has
 ‘that one lately awarded a prize to a movie about love’
 b. *daß ich Antjes₁ gestern [NP __₁ Papiere über Benjamin] gelesen habe
 that I Antje.GEN yesterday papers about Benjamin read have
 ‘that yesterday I read Antje’s papers about Benjamin’

Before assessing the consequences of these data, one important potential confound has to be addressed here: It has been claimed that the PPs occurring in examples with PP-scrambling like (16-a) do not originate NP-internally but are actually externally merged in the VP. There are indeed clear cases where *von*-PPs should not be treated as subextracted, namely in cases of putative long-distance movement where in fact they are rather a proleptic constituent of the matrix verb, see Müller (1995: 397-399, fn. 51). In addition, De Kuthy & Meurers (2001) propose that also PPs as in (16-a) should not be treated as dependents of N, reviving an older reanalysis approach. Possible supporting evidence for a reanalysis approach comes from the observation that the PPs can sometimes be used without the noun (e.g. *to write about John*) or co-occur with a personal pronoun that replaces the DP, suggesting that the PP is not part of the DP (e.g., *He wrote it about Nixon*, as an answer to *Who did he write his newest book about?*). A reanalysis approach is probably correct for verbs of creation like *write* where, given that the object does not exist yet, the PP cannot function as a modifier that restricts the reference of the noun. The question is, though, whether all cases of PP-extraction/scrambling can be handled like this. A reanalysis approach is rejected in Müller (1998: 11–13) on two grounds. First, replacing the NP with a pronoun in the presence of a PP is impossible in some cases where (putative) extraction is nevertheless possible.¹⁰ Second, he argues that a reanalysis approach cannot account for the fact that PP-extraction is subject to familiar locality constraints, viz., those listed above the example in (16). However, De Kuthy & Meurers (2001: 147-151) provide empirical arguments against most of Müller’s generalizations (although in the case of subjects, it is not always clear whether they really are external arguments). Thus, the argument from locality constraints is significantly weakened. Still, there remain restrictions that only a movement approach seems to be able to explain. First, the facts with indirect objects as in (16-a) strike me as robust. Second, other NP-internal constituents, viz., prenominal possessors as in (16-b) and (pre- and postnominal) genitives as in (17) are as immobile as in *wh*-movement (see Müller 1995: 46 for examples showing that NP-internal genitives generally fail to undergo movement in German):

- (17) *dass ich [NP des Professors]₁ gestern [NP geheime Berichte __₁] gelesen habe
 that I.NOM the.GEN professor.GEN yesterday secret reports read have
 ‘that I read secret reports by the professor’

At least w.r.t. the examples in (16) and (17), there seems to be no doubt that they are ungrammatical. This strongly suggests that scrambling is subject to the same constraints that other movement operations are constrained by.

The force of this argument for movement depends, of course, on how such phenomena could be treated under a base-generation account. Within Chomskyan syntax, the most recent account is Fanselow (2001, 2003a,b). An assumption underlying the different versions is that the checking of the selectional requirements of verbs and theta-role assignment can be delayed. In Fanselow (2001), V and v incorporate into T at LF. The checking is then initiated by the parts of the complex head in T (V, v or T), from where they c-command all arguments (which are in vP). Since by assumption checking is relativized to specific case values (accusative, dative, nominative), there

¹⁰I must admit that I find a clear contrast between (German equivalents of) *He wrote it about Nixon* vs. *??He read it about Nixon*, although examples like the latter are represented as acceptable in Müller (1998: 12).

are no intervention effects. Consequently, the arguments can be freely ordered within vP. For scrambling from coherent infinitives and scrambling from NPs and PPs into (a superordinate) VP, Fanselow (2001: 417–422) proposes that V, P and N form an (abstract) complex predicate with the governing verb via LF-incorporation (implemented by means of feature movement at LF). An argument of P, N or a lower V can then be merged within the higher vP because it will be c-commanded by its predicate that forms part of the complex head in matrix T. In Fanselow (2003a: 207, ex. 27), Fanselow (2003b: 16) it is explicitly stated that the argument has to c-command the (possibly complex) predicate to receive a theta-role, thereby ruling out that an argument is base-generated too low (e.g., the argument of a matrix verb inside its complement VP, a possibility not ruled out in Fanselow 2001).

Given that LF-incorporation of V/N/P into V is subject to c-command, it seems to correctly predict that the head (N/P) of a non-complement cannot incorporate into V, thereby making scrambling from non-complements in principle impossible. However, given that the arguments of V can be merged in any order in Fanselow (2001), whichever argument is the complement of V, potentially including external arguments or indirect objects, is expected to be transparent for scrambling, contrary to fact, as its head could incorporate into V. Thus, to block scrambling from indirect objects, additional assumptions would be necessary; the restrictions actually do not follow in the theory developed in Fanselow (2001). Things are different in the implementation in Fanselow (2003a: 207–209), Fanselow (2003b: 16–18), where arguments have to be merged within the projection of their predicate or of a head into which this predicate has incorporated. This implies that the subject cannot be merged as a complement of V given that it is an argument of v. If we assume that each argument is introduced by a separate head (e.g., the DO by V and the IO by a functional head like Appl), then reordering will only be possible if an argument is merged in a projection dominating the projection of their predicate. Thus, if the DO precedes the IO, it is merged in Spec,ApplP, if it precedes the subject, it is merged in Spec,vP (or TP). The VP then remains without an argument at every point of the derivation. This entails that only the direct object/unaccusative subject/theme argument can ever be a complement. Consequently, scrambling from non-complements is excluded after all under this version of base-generation and thus accounts for failed scrambling from indirect objects as in (16-a). However, given the discussion above showing that scrambling from non-complements, viz, subjects and scrambled objects, sometimes does seem possible, it would seem that the base-generation approach undergenerates just like the movement approach. In fact, the situation seems worse because the mechanism (in Fanselow 2003a, combined with abstract incorporation of N/P to account for scrambling from NP/PP) is set up in such a way that scrambling from non-complements simply cannot be generated. Thus, one cannot regulate the different shades of acceptability with reference to information structure, unlike in a movement account that does not rely on the CED.

In addition, and this is surely the most serious problem, failed scrambling of possessors and NP-internal genitives as in (16-b) and (17-b) remains a serious problem under both versions of base-generation (viz., Fanselow 2001 and Fanselow 2003a,b). Assuming that they are arguments of an N in direct object position, incorporation of N into V should always make it possible for them to be merged within VP, contrary to fact. There seems to be no straightforward way to allow scrambling of PP-complements of nouns and disallow scrambling of genitives at the same time in this type of approach. In other words, while many arguments from locality constraints on scrambling are eventually inconclusive for the movement/base-generation debate, the fact that certain subconstituents of NP cannot scramble, just like they cannot undergo wh-movement/topicalization, represents an argument for scrambling as movement after all.¹¹

¹¹The so-called Müller-Takano generalization is often considered an argument for a movement approach to scrambling. According to this generalization, remnant movement must not involve the same movement type as was involved in the remnant-creating movement step. Thus, scrambling a VP from which scrambling has taken place is ungram-

3.2 Evidence for a lower position/trace

We will discuss three types of evidence for a trace. First, if a construction depends on the presence of a trace, then one can infer from its availability that a trace is present. Second, evidence for a trace can come from reconstruction effects, viz., a constituent behaves w.r.t. semantic interpretation as if it occupied a different, lower position. Third, evidence for a trace can come from the interaction of word order with focus projection.

3.2.1 Parasitic Gap-licensing

The first argument for a movement account comes from parasitic gap-licensing as in examples like (18), from Fanselow (2001: 411):

- (18) dass er Maria₁ [_{CP} ohne __ anzuschauen] __₁ geküsst hat
 that he.NOM Maria without to.look.at.INF kissed has
 ‘that he kissed Maria without looking at her’

It seems that the direct object is scrambled across the adjunct containing the parasitic gap (assuming the adjunct is adjoined above VP). Crucially, the example is ungrammatical if the direct object follows the adjunct. Given that parasitic gaps are only licensed by movement dependencies (Culicover & Postal 2001), this would seem to be a strong argument for a movement dependency being involved in scrambling. Unfortunately, the analysis of the phenomenon in (18) is very contested, and there is no consensus on whether it actually contains a proper parasitic gap. For instance, Fanselow (2001: 411-413), Kathol (2001) and Haider (2017: 57–60) show that it has properties that differ significantly from those of canonical parasitic gaps (as in English), e.g., in that the filler can be non-referential, a PP and that there can be several gaps within the adjunct. Fanselow proposes instead that the phenomenon should receive an analysis in terms of coordination with forward deletion. Given that conclusion, the phenomenon is irrelevant for the movement debate.

While the issue is far from settled, I consider the argument inconclusive given the controversy and therefore set it aside. We will briefly come back to parasitic gap-licensing when we discuss the movement type underlying scrambling in 4.2 below.

3.2.2 Reconstruction effects

The reconstruction properties of scrambling are somewhat puzzling and rather complex. Scrambling does not seem to reconstruct for binding, at least not when reordering between objects is taken into account. Rather, objects scrambled over each other are interpreted in their surface position, which can lead to new binding relations or the destruction of binding relations, see the following examples involving Principle A from Haider (2010: 148f.):

- (19) a. dass wer [die Kandidaten_i]₁ einander_i __₁ präsentierte
 that someone.NOM the candidates.ACC each.other.DAT presented
 ‘that someone presented the candidates_i to each other_i?’

matical, see Müller (2015: 65):

- (i) *dass [__ zu lesen] [das Buch] keiner versucht hat
 that to read.inf the book no.one.NOM tried has
 ‘that no one tried to read the book’

There are good accounts of this effect under derivational approaches (based on the A-over-A principle). But as discussed in Fanselow (2002: 117-118), the base-generation account can explain this effect as well: Given that the fronted VP is scrambled, it will be base-generated in the projection of the auxiliary. Since it has not moved, it cannot reconstruct. Because of this, the head of the fronted VP cannot incorporate into the matrix VP and as a consequence, arguments of the fronted VP cannot be merged in the projection of the governing auxiliary.

- b. *dass man [nebeneinander_i]₁ die Kandidaten_i —₁ setzte
 that one next.to.each.other the candidates.ACC seated
 ‘that someone seated the candidates_i next to each other_i’

The same pattern is reported for Condition C and variable binding. This would, in principle, be compatible with both a base-generation approach or a movement approach where movement does not reconstruct (for binding). There are complications, though, with binding in dat>acc orders and in that XPs scrambled across the subject sometimes do seem to reconstruct, at least weak anaphors and bound pronouns; we therefore defer discussion of reconstruction for binding to the section on movement types in 4.2. The reconstruction argument presupposes, of course, that there is a fixed base order for such ditransitive verbs and that it is dat>acc. This is not innocuous and contested in part, and we will come back to it in sections 4.2.2 and 5.1 below.

We will, in this subsection, instead focus on scope reconstruction, which has received most attention in this respect and which in prominent parts of the literature, see Frey (2015), Haider (2017), is considered a solid argument in favor of movement. In the following pair, while the example displaying the postulated dat>acc base order only allows surface scope, the one with acc>dat order allows both surface and inverse scope (from Frey 1993, as cited in Frey 2015: 528):¹²

- (20) Peter thinks that
- a. man mindestens einem Experten fast jedes Bild zeigte.
 one at.least one expert.DAT nearly every picture showed
 ‘they showed at least one expert nearly every picture.’ only $\exists > \forall$
- b. man mindestens ein Bild fast jedem Experten zeigte.
 one at.least one picture nearly every expert.DAT showed
 ‘they showed nearly every expert at least one picture.’ $\exists > \forall$; $\forall > \exists$

Under the assumption that a scrambled phrase can be interpreted both in its base position and in its landing site w.r.t. scope, a movement account provides a straightforward account of the asymmetry in (20).

However, upon closer inspection, the argument based on scope is problematic in a number of ways that, in my view, eventually renders it inconclusive. They are all empirical in nature in some way. The first issue comes from the following observation in Fanselow (2001: 415–416): If both objects scramble across the subject but retain their unmarked order, only surface scope (between the objects) is possible:

- (21) dass fast jedem Kind mindestens ein Buch nur Hans vorlas
 that nearly each.DAT child at.least one book only Hans read
 ‘that only Hans read at least one book to nearly every child’ only $\forall > \exists$

This is unexpected under a movement account given that the two (putatively) moved objects should be able to be interpreted in their base-position. If only one of them is (and nothing would seem to rule this out), we expect scope ambiguity, contrary to fact. Fanselow proposes that the correct generalization is that inverse scope is only possible if two XPs do not occur in their unmarked order; he further argues that such data favor the base-generation account as long as there is a way of referring to the unmarked order, a topic we return to presently (for more discussion and an explanation in derivational terms, see Fanselow 2012: 280–285). Unfortunately, the scope data, including those in (21), are contested, see Abels (2015a: 1406, 1432–1434) for references. In addition, recent experimental evidence in Fanselow et al. (2022) shows that inverse scope is indeed available to some extent also in the unmarked order (and crucially without the rise-fall contour).

¹²At least some speakers allow inverse scope also in the (putative) base order once the rise and fall contour is applied, see Wurmbrand (2008: 90) for references (and see Haider 2017: 68, fn. 21 for a different view). Wurmbrand interprets inverse scope under the rise-fall contour as indicating QR and develops a system of scope interpretation that allows QR in languages like German in very specific circumstances.

Whatever the mechanism that is responsible for that (e.g., Quantifier Raising), it clearly opens up the possibility that the reconstructed/non-surface scope reading in (20-b) is not the result of reconstruction but of whatever allows the lower of two XPs take scope over the higher one. Consequently, reference to a lower position may no longer be necessary to account for scope ambiguity. Therefore, the scope argument is inconclusive.

3.2.3 Focus projection

Another important diagnostic for movement is the interaction of word order and focus projection, an observation going back to Höhle (1982), also discussed in detail in Frey (2015: 526-528) and Haider (2017: 16-18). The (somewhat simplified) generalization is that a sentence can only have wide focus if the constituent carrying the nuclear accent is left-adjacent to the verb-final position (in which case it ‘projects’ to the whole clause/sentence). In addition, and this is the crucial part for our debate, focus projection is structure sensitive in that it is only possible if stress falls onto the structurally lowest XP, viz., the sister constituent of the lexical verb (Cinque 1993), as illustrated in (22) (see Kratzer & Selkirk 2007 for a more recent treatment that arrives at a slightly different generalization):

- (22) What happened?
- a. Gerade hat Maria dem Milliardär das BILD gezeigt.
just.now has Maria the billionaire.DAT the painting.ACC shown
‘Just now Maria has shown the billionaire the painting.’
 - b. #Gerade hat Maria dem MilliarDÄR das Bild gezeigt.
 - c. #Gerade hat Maria das Bild dem MilliarDÄR gezeigt.
 - d. #Gerade hat Maria das BILD dem Milliardär gezeigt.

The crucial example is thus (22-c) where the nuclear accent falls onto a verb-adjacent constituent, but focus projection is nevertheless not possible. This suggests that, given that the unmarked order with this verb is *dat>acc*, focus projection is only possible if the nuclear accent is on the lowest argument *in its base-position*. This thus furnishes an argument for movement. In (22-c), the DO has scrambled across the IO, leaving a trace/copy, which cannot be stressed.

Under a base-generation account where the arguments can be projected in any order it is a priori not clear how to capture this generalization since there will be no trace. One would have to find a different way to refer to unmarked order. Fanselow (2003a: 206–209) indeed proposes a theory of base-generation where the difference between marked and unmarked orders can be captured configurationally: As already mentioned above, the generalization is that an argument can only be merged within the projection of its predicate or another predicate into which its predicate has incorporated. Under the assumption that direct objects, indirect objects and subjects are all introduced by designated heads (V, Appl, v), a marked order will be visible in that one of the heads will not have a complement/specifier (e.g., if the DO is merged in Spec,ApplP). Thus, under this base-generation account, the absence of structure is an indication of marked word order and the principles of focus projection introduced above can be applied to such structures: If the DO is not projected within VP (but within ApplP or vP), it will no longer be the most deeply embedded category (given that there is also a VP) and focus projection is no longer possible.¹³ Thus, contrary to many claims in the literature, the argument from focus projection is not decisive.

¹³It is actually not fully clear to me what rules out focus projection if the stress falls onto the IO as in (22-c) under this approach. Somehow, the empty VP must count and this can be read off from the syntactic structure, but the formulation of the nuclear stress rule may have to be adapted to explicitly refer to material in VP for focus projection to be possible.

3.2.4 Opacity

While the previous arguments from a possible lower trace ended up being inconclusive, there is one argument involving a lower trace that I believe does help distinguish between movement and base-generation accounts. It is based on the paradigm in (23) and (24) from Heck & Himmelreich (2017) (they provide a parallel argument from parasitic-gap licensing that I will not discuss):

- (23) a. *Wer₁ hat einen Professor alles₁ vergöttert?
 who.NOM has a professor.ACC all idolized
 intended: ‘Who all idolized a professor’
 b. *Wem₁ hat sie einen Professor alles₁ vorgestellt?
 who.DAT has she a professor.ACC all introduced
 intended: ‘Who all did she introduce a professor to?’
 c. Wem₁ hat sie alles₁ einen Professor vorgestellt?
 who.DAT has she all a professor.ACC introduced
 ‘Who all did she introduce a professor to?’
- (24) a. Wen₁ hat ein Professor alles₁ beleidigt?
 who.ACC has a professor.NOM all insulted
 ‘Who all did a professor insult?’
 b. Wen₁ hat sie einem Professor alles₁ vorgestellt?
 who.ACC has she a professor.DAT all introduced
 ‘Who all did she introduce a professor to?’

The first triple suggests that an indefinite cannot occur between a *wh*-phrase that is associated with a floating quantifier, pointing towards some sort of intervention effect (note that no problems obtain if a definite DP occurs in this position). The pair in (24), however, shows that this cannot be a constraint applying to the surface order. Heck & Himmelreich (2017) argue that this paradigm provides evidence for intermediate representations and, crucially, for scrambling involving movement. On their account, the generalization covering the data in (23) and (24) is as follows (where the antecedent is the *wh*-phrase and the associate the floating quantifier):

- (25) *Generalized intervention asymmetry*
 An antecedent α can establish a relation with an associate β in the presence of a co-argument γ that precedes β , if and only if γ is higher on the hierarchy *nom*>*dat*>*acc* than α .

They provide the following derivational account of the facts above: The floating quantifier is merged as a specifier of *vP*. This can occur either before the subject is merged and the object is scrambled to *Spec,vP* or thereafter. In the grammatical case in (23-c), FQ is merged after scrambling of the direct object, then, the indirect object is scrambled across the FQ. At this point, when the IO c-commands the FQ, Agree successfully applies between the two. In the ungrammatical cases in (23), the FP is merged before the direct object is scrambled across it. At that point, the indefinite and the FP agree, which affects the features of the FQ in such a way that subsequent Agree between the subject/indirect object and the FQ fails and the derivation crashes. In the grammatical cases in (24), however, the *wh*-phrase can scramble across the FQ before the indefinite is merged/scrambled to *Spec,vP*. It thus can associate with the FQ. Subsequent *wh*-movement across the indefinite will not affect this. There are two important assumptions for the analysis to work: First, when *v* has an edge feature and both objects undergo scrambling, they have to move in order preserving fashion. As a consequence, the DO will invariably be merged in a lower specifier than the IO and will thus be closer to the FQ than the IO. Second, the subject is always merged after scrambling of the objects. Thus, it will always occupy a higher specifier than the objects, which will thus be invariably closer to the FQ (thus, unlike in more standard accounts, EF-driven movement targets inner and not outer specifiers). With these assumptions in place, the paradigm above can be successfully

derived.

The question is now what a base-generation account has to say about these data. As Heck & Himmelreich (2017) argue, it is arguably impossible to capture the paradigm above once arguments can be merged in flexible order. The grammatical cases in (24) are unproblematic since the *wh*-phrase could be merged before the indefinite so that it can be associated with the FP. However, it seems impossible to rule out the ungrammatical cases in (23): If the subject can be merged in Spec,vP before the direct/indirect object or the indirect object before the direct object, then there will be a stage where the *wh*-phrase is closer to the FQ than the indefinite and, consequently, association should be possible, contrary to fact. As far as I can tell, this issue holds for both approaches like Fanselow (2001), where the arguments of a predicate can be merged in any order (and thus subjects and indirect objects could be merged as complements), and Fanselow (2003a), where ‘scrambled’ constituents are base-generated in the projection of a higher head. In both approaches, the argument merged first can be higher on the argument hierarchy than the argument merged next; but once this is possible, the generalization in (25) can no longer be captured. Thus, it seems, to derive the paradigm above, it is crucial that arguments are introduced in a fixed order. As a consequence, orders that deviate from the fixed order must arise via movement. Taken together, the paradigm above thus represents an interesting and, in my view, convincing argument in favor of a movement approach to scrambling.

4 Movement type

Having established that scrambling is eventually more amenable to a movement account, it remains to be discussed what type of movement it involves. In the following subsections, I will briefly discuss the possibility of PF-movement before focusing on the discussion of scrambling as A- or A'-movement.

4.1 Against PF-movement

The term scrambling goes back to Ross (1967), who used it for free word order phenomena quite generally. He proposed that scrambling takes place in a separate, stylistic component of the grammar, without elaborating much on the properties of this component (but implying that it is not properly syntactic). In modern terms, this would arguably be equated with PF-movement. This option can be set aside quite easily. First, we have already seen that scrambling is subject to the same locality constraints as other types of movement. Second, different serializations have consequences for semantic interpretation. The scope and anaphor binding data discussed above already showed that different serializations come with different (preferred) interpretations/binding possibilities. The binding/scope patterns are straightforward if this reordering is syntactic and can be interpreted in its surface position. If the reordering took place at PF, scrambling should always reconstruct, contrary to fact. Thus, PF-movement can be set aside.

4.2 A- vs. A'-movement

Once one accepts that scrambling involves movement, the next obvious question is whether this movement instantiates A- or A'-movement. This has been a prominent controversy which, as we will see, is difficult to resolve since scrambling doesn't seem to fall neatly into one of the two categories.

When comparing canonical cases of A- vs. A'-movement like English raising vs. *wh*-movement, the dichotomy is relatively straightforward: First, the former is clause-bound, while the latter is

not. Second, the former is restricted to (usually nominal) arguments and displaces them to case-positions, while the latter is not restricted to a particular category and targets a non-case-position. Third, the former leads to new binding possibilities, while the latter does not (in fact, leads to crossover violations). Fourth, only A'-movement can license parasitic gaps.

When looking at the properties of scrambling, a mixed picture arises. The clause-boundedness clearly speaks in favor of A-movement. On the other hand, as pointed out in Abels (2015b: 1416), the fact that scrambling can extract constituents of NP (as well as PP and AP) seems to militate against a treatment in terms of A-movement – at the very least, there are no other clear cases of A-movement that would target constituents in such domains. The parasitic gap argument is, unfortunately, of limited help only given the dispute over the nature of parasitic gaps in German is disputed. In addition, there has been intensive discussion about the interaction of parasitic gap-licensing and binding, including the famous paradox by Webelhuth. Since the discussion has eventually lead to an inconclusive result and is adequately summarized in Abels (2015a: 1418-1421), I will not discuss it any further here.

In what follows, we will instead look at two other types of diagnostics in more detail, viz., categorial restrictions and the binding/reconstruction profile.

4.2.1 Categorial restrictions

As mentioned at the beginning, scrambling is often claimed to be restricted to arguments of the categories DP, PP and CP. The fact that PPs can scramble is often taken to imply that it cannot be A-movement (see, e.g., Abels 2015a: 1415-1416). However, at least on some accounts, movement to the subject position in English can also involve PPs (and even APs and VPs), namely in locative and predicate inversion, see (26) for an example and den Dikken (2006) for extensive discussion:

(26) *Down the hill rolled the baby carriage.*

Thus, the relevance of PP-scrambling for this debate is usually overstated in my view.

More important is the issue of adjunct scrambling. As mentioned above it is still prominently claimed that scrambling is restricted to arguments (e.g., Haider 2017). Indeed, at least certain adverbials, especially predicative and manner adverbials, do not seem to scramble. But this does not seem to hold for all adverbials. Fanselow (2003a: 213-214) discusses scrambling from coherent constructions and observes that scrambling of adjuncts seems more restricted than scrambling of arguments, but once the examples are properly constructed, some cases of adjunct-scrambling from coherent constructions turn out to be quite well-formed after all, e.g. (27):

(27) *dass man [in diesem Hotel] niemandem zu essen empfehlen kann*
 that one in this hotel no.one.DAT to eat.INF recommend.INF can
 'that one recommend to anyone to eat in this hotel'

Examples of this type are important because they cannot just be handled by assuming that adverbs can be adjoined to different projections as long as they can semantically compose with their sister. Given that the adverbial in (27) clearly modifies the lower VP, scrambling is inevitable (no matter how it is implemented).

A similar point is made by examples in Frey & Pittner (1998) and Frey (2015: 532-538), who argue that reordering of adverbials can lead to scope ambiguities:

(28) a. *Er HAT mindestens eine Kollegin auf fast jede Art und Weise umworben*
 he has at.least one colleague.F in nearly every way and manner courted
 'He has courted at least one colleague in nearly every way.' only $\exists > \forall$
 b. *Er HAT auf mindestens eine Art und Weise fast jede Kollegin umworben*
 he has in at.least one way and manner nearly every colleague.F courted
 'He has courted nearly every colleague in at least one way.' $\exists > \forall$; $\forall > \exists$

While the logic of the argument is clear, it seems fair to say that there is no consensus on the facts here, which is little surprising given our discussion on scope reconstruction above. More specifically, Fanselow (2003a: 215-217) discusses data with adverbials which, according to his judgment, are ambiguous without scrambling. Thus, the force of the scope argument remains weak, but there seems to be at least some residual evidence that adverbials can scramble. If this can be substantiated, it represents a clear argument against A-movement.

The question is whether we can conclude from this that scrambling is A'-movement; for this assumption a puzzle presents itself immediately: Scrambling is more restrictive than topicalization, a bona fide case of A'-movement, which can apply to adverbials of all kinds, including predicative adjectives and manner adverbials:

- (29) Krank ist der Hans am Montag nicht gewesen.
 sick is the.NOM John on Monday not been
 'John was not ill on Monday.'

This asymmetry is rather puzzling and there is, to the best of my knowledge, no obvious explanation for it. Thus, w.r.t. categorial restrictions, German scrambling neither patterns with bona fide A-movement type constructions like English raising nor with A'-movement constructions within German.

4.2.2 Binding/reconstruction profile

Turning to the binding/reconstruction profile of scrambling, as we have already mentioned above, it is frequently claimed, e.g., Haider (2017), that scrambling has the profile of A-movement in that it can create new binding relations and destroy existing ones, viz., it is interpreted in its surface position. The data in (19) involved reciprocals, but the same can be illustrated on the basis of Principle C and variable binding (from Haider 2010: 148f.):¹⁴

- (30) a. *dass man [den Peter_i]₁ [Peters_i Vater] ___₁ nicht übergeben hat
 that one the.ACC Peter.ACC Peter's father.DAT NEG surrendered has
 'that one has not handed over Peter_i to Peter_i's father'
 b. dass man [den Hut des Polizisten_i]₁ [dem Polizisten]_i/ihm_i ___₁ nicht
 that one the.ACC hat the.GEN policeman the.DAT policeman/he.DAT NEG
 übergeben hat
 handed.over has
 'that one didn't hand over the policeman_i's hat to the policeman_i/him_i.'
- (31) a. dass man [fast jeden]_i [seinem_i Vorgesetzten] __ ankündigte
 that one almost everyone.ACC his.DAT boss.DAT announced
 'that one announced almost everyone_i to his_i boss'
 b. *dass man [seinen_i Vorgesetzten]₁ jedem_i ___₁ ankündigte
 that one his.ACC boss.ACC everyone.DAT announced
 'that one announced everyone_i his_i boss'

This paradigm tends to argue against A'-movement, which is normally thought not to create/destroy binding relations (but systematically reconstructs for binding).

Unfortunately, data based on double object constructions are somewhat inconclusive because the neat picture painted above becomes more puzzling once anaphors are taken into account. The major problem is that an accusative anaphor cannot be bound by a dative object, neither in the putatively unmarked dat>acc order, nor in the acc>dat order, a fact that holds for both reciprocals and reflexives (although the facts are subtle and contested, see Abels 2015a); binding is only possible if the anaphor is dative and is bound by a preceding accusative object, see Müller (1995: 159f.):

¹⁴But see Frey (2015: 530, ex. 25a) for a different judgment concerning Condition C reconstruction.

- (32) a. *dass ich {[den Gästen]_i einander_i | einander_i [den Gästen]_i}
 that I the.DAT.PL guest.PL.DAT each.other each.other the.DAT.PL guest.DAT.PL
 vorgestellt habe
 introduced have
 intended: ‘that I introduced the guests_i to each other_i’
 b. dass ich [die Gäste]_i einander_i vorgestellt habe
 that I the.ACC.PL guest.ACC.PL each.other introduced have
 ‘that I introduced the guests_i to each other_i’

As discussed in Abels (2015a), there are two logical options to account for this pattern: Under the dat>acc base order, one will have to assume that datives for some reason cannot bind accusative anaphors. An alternative perspective arises if the base order is taken to be acc>dat (Müller 1995, 1999). This accounts for (32-b). Furthermore, once scrambling is taken to be A'-movement, the ungrammaticality of (32-a) also follows (since it cannot create new binding relations). While an acc>dat base order together with A'-scrambling accounts for the pattern with anaphors, problems arise with bound variables and Condition C, since there are dat>acc orders where the dative object needs to be interpreted in its surface position as it establishes a binding relationship there, which in turn argues against A'-movement:

- (33) a. dass man jedem_i [seinen_i Vorgesetzten] ankündigte
 that one everyone.DAT his.ACC boss.ACC announced
 b. *dass man [dem Polizisten]_i [den Hut des Polizisten]_i nicht
 that one the.DAT policeman.DAT the.ACC hat the.GEN policeman.GEN NEG
 übergeben hat
 handed.over has
 ‘that one didn’t hand over the policeman_i’s hat to the policeman_i/him_i.’

Thus, the pattern is somewhat equivocal (see Müller 1995: chapter 4 for an attempt to reconcile the conflicting properties). Possible confounds with unclear base orders can be avoided if different verb types are used, viz., nom>acc>PP verbs, where the base order is not contested. The pattern with these verbs strikes me as quite clear. In the acc>PP order, the acc can bind an anaphor/variable within the PP. If a PP containing these elements is scrambled across the DO, ungrammaticality results:

- (34) a. dass ich [die Kandidaten]_i nebeneinander_i setzte
 that I the candidates next.to.each.other put
 ‘that I put the candidates next to each other’
 b. *dass ich nebeneinander_i [die Kandidaten]_i __ setzte
 that I next.to.each.other the candidates put
- (35) a. dass ich Peter_i nicht [von sich_i] überzeugen konnte.
 that I Peter not of self convince.INF could
 ‘that I couldn’t convince Peter of himself’
 b. *dass ich [von sich_i] Peter_i nicht __ überzeugen konnte
 that I of self Peter not convince.INF could
- (36) a. dass ich [jeden Studenten]_i [von seinem_i Betreuer] überzeugen konnte.
 that I every.ACC student.ACC of his advisor convince.INF could
 ‘that I could convince every student_i of his_i advisor’
 b. *dass ich [von seinem_i Betreuer] [jeden Studenten]_i __ überzeugen konnte
 that I of his advisor every.ACC student.ACC convince.INF could

So far, this shows that the scrambled PP is interpreted in its surface position (it does not reconstruct) w.r.t. binding. Note that if the scrambled constituent were topicalized instead, binding

would be unproblematic. In a next step, one can also show that scrambling the PP can lead to new binding relationships. This is difficult if not impossible to illustrate with Condition A and Condition C (perhaps because of lack of c-command out of the PP), but the following triple involving variable binding does illustrate the effect clearly:¹⁵

- (37) a. weil ich [jeden Studenten]_i [neben seinen_i Professor] setzte.
 because I every.ACC student.ACC next.to his professor put
 ‘because I put every student_i next to his_i professor’
 b. *weil ich [seinen_i Professor] [neben jeden Studenten]_i setzte
 because I his.ACC professor next.to every student put
 c. weil ich [neben jeden Studenten]_i [seinen_i Professor] __ setzte.
 because I next.to every student his.ACC professor put

(37-a) shows that a quantified DO can bind a variable within the PP, while the reverse is not possible, (37-b). (37-c) crucially shows that scrambling the PP across the bound variable leads to a well-formed result. Thus, the pattern with nom>acc>PP-verbs is relatively clear: scrambling can create new binding relationships and destroy existing ones; it is thus interpreted in its surface position and does not reconstruct w.r.t. binding. This pattern seems more in line with A-movement than A'-movement (on the lack of reconstruction, see below).

Another complexity arises with scrambling across the subject. At least with anaphors, it is undisputed that this cannot lead to new binding options, for both reflexives and reciprocals, see Müller (1995: 161) and Abels (2015a: 1417):

- (38) *dass {[den Fisch und den Frosch]_i einander_i | einander_i den [Fisch
 that the.ACC fish and the.ACC frog each.other each.other the.ACC fish and
 und den Frosch]} angeguckt haben
 the.ACC frog at.looked have
 intended: ‘that the fish and the frog looked at each other’

Given that the base order is undisputed with such nom>acc verbs, it is clear that the acc>nom version of (38) involves a derived order. One could now conclude from this that scrambling across the subject is indeed A'-movement, perhaps also because it targets a higher position. But even this will not solve all issues because scrambling a quantified phrase across a bound pronoun contained in a subject *is* possible, see (39) from Abels (2015a: 1407):

- (39) a. *weil seine_i Mutter jedem Kind_i hilft
 because his.NOM mother every.DAT child helps
 ‘because his_i mother helps every child_i’
 b. weil jedem Kind_i seine_i Mutter hilft
 because every.DAT child his.NOM mother helps
 ‘because every child_i is helped by his_i mother?’

Thus, variable binding and anaphor binding diverge here. Recall from (33-a) that they also diverge w.r.t. double objects, where a dative quantifier can easily bind a bound pronoun contained in the DO, while the same is not possible with anaphors contained in the DO.

There is a caveat in order, though, when discussing the WCO/variable binding data. So far, the facts tend to be more in line with A-movement, under the assumption that A'-movement uniformly leads to robust WCO violations. However, it has been known since at least Lasnik & Stowell (1991) that this in fact depends on the construction type, with some A'-constructions causing

¹⁵The following example illustrates failed anaphor binding:

- (i) dass Maria_j/man_j [von Peter_i/von den Künstlern_i] sich_{*i/j}/einander_{*i/j} überzeugen konnte
 that Mary/one of Peter/of the artists self/each.other convince.INF could
 ‘that Mary_j/one_j could convince Peter_i/the artists_i of himself_{*i/j}/each other_{*i/j}’

much weaker or perhaps no WCO effects at all. One can therefore not completely exclude the possibility that scrambling involves A'-movement after all and belongs to the constructions that do not trigger (noticeable) WCO effects.¹⁶

The next relevant question is the behavior of Condition C w.r.t. scrambling across the subject. There do not seem to be relevant examples in the literature; the following illustrates the relevant configuration, but the judgment is difficult, and I will leave this open here.

- (40) a. dass [den Peter]_i gestern [Peters_i Student] angeschrien hat
 that the.ACC Peter yesterday Peter's student.NOM yelled.at has
 'that Peter_i's student yelled at Peter_i'
 b. dass [Peters_i Student] gestern [der Peter]_i angeschrien hat
 that Peter.GEN student yesterday the.NOM Peter yelled.at has
 'that Peter_i yelled at Peter_i's student'

So far, then scrambling across subjects leads to a mixed pattern. Under an A-movement account, the absence of new binding relations with anaphors is unexpected, only the variable binding data fall into place. For a coherent pattern, one would have to account for the anaphor data by assuming special properties for anaphors, e.g., that they cannot occur as subjects. Under A'-movement, the WCO/variable binding data are problematic.

Another aspect of this complicated debate are reconstruction effects. W.r.t. scrambling to a position below the subject, the majority view seems to be that reconstruction is not possible for anaphor/variable binding. Example with a reciprocal was already illustrated in (19-b) above (but see Abels 2015a for an example with a different judgment), one with variable binding in (31-b), and the same also holds for anaphor binding, see Müller (1995: 177):¹⁷

- (41) daß der Arzt_i, sich_{i/*j} den Patienten_j, ___ im Spiegel gezeigt hat
 that the doctor.NOM self.DAT the patient in.the mirror shown has
 'that the doctor_i showed the patient_j to himself_{i/*j} in the mirror'

Based on such data (and the data in Section 3.2.2 above), a rather puzzling pattern arises: Scrambling (to a position below the subject) does not reconstruct for binding, only for scope. This motivated the proposal in Lechner (1998) that scrambling cannot undergo syntactic reconstruction but only semantic reconstruction. While descriptively adequate, it is by no means obvious why things should be like this, under both A- and A'-movement approaches, not the least since bona fide cases of A-movement can reconstruct for both binding and scope (e.g., English raising). Thus, this pattern does not really argue in favor of either approach.

Be this as it may, the situation is even more complicated in that scrambling across the subject does seem to reconstruct for binding, see Müller (1995: 178):¹⁸

- (42) a. daß sich_i der Fritz_i ___ schlau vorkommt
 that self the.NOM Fritz intelligent appears
 'that Fritz_i appears to himself_i to be smart'
 b. daß seine_i Schwester jeder_i ___ mag
 that his sister everyone.NOM likes
 that everyone_i likes his_i sister'

What seems clear is that such examples do not necessarily involve a rise-fall contour and thus do

¹⁶One should also mention at this point that the variable binding/WCO data were disputed at some point, with some detecting weak violations after all, see, e.g., Müller (1995: 165-172), although it seems to me that this controversy has been settled.

¹⁷A different view can be found in Wurmbrand (2008: 104), who claims that reconstruction from a position below the subject is possible if the rise-fall intonation is involved.

¹⁸To make things even more complex, this does not seem to be possible with reciprocals, see Corver & Riemsdijk (1994: 7).

not necessarily have to be treated as instances of the type of scrambling that can cross clause-boundaries. The facts would be compatible with scrambling as A'-movement; proponents of scrambling as A-movement usually claim that somehow, binding is established via the T-head, which can be assumed to be in a spec-head relationship with the fronted constituents (see, e.g., Frey 1993, Haider 2017). Alternatively, it has been proposed that there is covert movement of the subject across the scrambled constituents, which seems to presuppose that the subjects in (42) actually occupy the low subject position, viz., Spec,vP. While there is robust evidence against covert movement of the subject and this would thus rule out an alternative explanation of the reconstruction facts in (42), see Wurmbrand (2006), Haider (2017:21), reconstruction of reflexives indeed seems to be restricted to those bound by the subject, see, e.g., Fanselow (2001):¹⁹

- (43) a. dass ich [den Hans]_i sich_i im Spiegel zeigte
 that I the.ACC Hans self in.the mirror showed
 'that I showed Hans_i himself_i in the mirror'
 b. *dass ich sich_i/sich_i ich [den Hans]_i im Spiegel zeigte

Thus, the pattern is rather murky. There is a tendency that low scrambling is less likely to reconstruct than scrambling across the subject, but even if this should turn out to be correct, it is not clear that this would support an A- vs. A'-distinction given that A-movement can, in principle, also reconstruct for binding. Note in this context that Wurmbrand (2008:105) argues that what is relevant to account for the reconstruction pattern is not the movement type but information structure: reconstruction is possible if the moved constituent is interpreted as a topic.

Another complication is that it is not always made explicit whether scrambling across the subject involves a marked intonation. Once it does, a different type of scrambling is arguably involved (viz., contrastive topic scrambling, which can go long distance, recall from Section 2 above). The question is whether scrambling across the subject should be distinguished from contrastive topic scrambling. This is hard to say, but there are clearly cases where no rise-fall intonation is involved, e.g. in the examples in (42), suggesting that not all instances of scrambling across the subject are the same.

To conclude this section, it seems clear that scrambling does not neatly fall into the categories A- or A'-movement, neither w.r.t. categorial restrictions, nor with respect to reconstruction effects. While scrambling across the subject patterns somewhat differently from scrambling to a position below the subject, the differences are not clear-cut enough to warrant the postulation of a separate movement type. We will briefly come back to the movement type involved in scrambling in Section 5.3 below that deals with possible landing sites for scrambling.

¹⁹The facts are clear with reflexives as in (43); whether bound variables can reconstruct and be bound by a non-subject has not received much discussion; the following example strikes me as degraded:

- (i) ??dass [seinen_i neuen Studenten] die Uni [jedem_i Professor] vorgestellt hat.
 that his.ACC new student the university every.DAT professor introduced.to has
 'that the university introduced his_i new student to every professor_i'

Note that Müller (1995:178) claims that a version of (43) with topicalization of the reflexive is equally degraded, suggesting that something else may be going on.

Additionally, reconstruction of a scrambled XP from a position above an ECM-subject also seems to be impossible, see Fanselow (2003b:27), Haider (2017:13), suggesting that reconstruction for binding is only possible if the subject is nominative.

5 Further issues

5.1 A note on establishing the base order

In the discussion above about the basic movement vs. base-generation dichotomy, the base order was determined on the basis of reconstruction effects and focus projection. From a syntactic perspective, these seem to be the most straightforward principles to determine the base order. It is worth mentioning, though, that other perspectives have been pursued in the study of scrambling. Perhaps the most important alternative is based on the assumption that the basic order corresponds to the unmarked order, see Lenerz (1977) for an early proposal to this effect. Apart from possible empirical challenges to determine markedness (for an important contribution, see Höhle 1982), the following arguments call the basic assumption into question, see Müller (1999: 784f.): First, the assumption does not follow from anything. Second, markedness is highly affected by the semantic properties of the arguments (definiteness, animacy). With sufficient manipulation, different orders of the same verb can be unmarked. This would entail that the same verb can have different base orders, probably an undesirable state of affairs. Or, if one adheres to just one base order, that the unmarked order involves scrambling after all (see also Fanselow 2003a: 201). Because of these shortcomings, approaches that solely determine the base order by means of markedness have largely been abandoned. Another possible strategy is to probe the base order of verbs by using NP-types that do not scramble like, e.g., *wh*-indefinites, see Frey (2015: 523–525). But even there, animacy can be a confounding factor (a fact that also holds for the data discussed by Frey). For instance, with a verb like *zeigen* ‘show’, only *dat>acc* seems to be possible if the DO is inanimate. But once both objects are animate, this clear preference disappears (at least for me, (44-b)):

- (44) a. *dass sie wem was/*was wem gezeigt hat*
 that she someone.DAT something.ACC/something.ACC someone.DAT shown has
 ‘that she showed something to someone’
- b. *dass sie wem wen/?wen wem gezeigt hat*
 that she someone.DAT someone.ACC/someone.ACC someone.DAT shown has
 ‘that she showed someone to someone’

Thus, it strikes me as more secure to determine the base order on the basis of grammatical diagnostics like those discussed above.

Even if this view is adopted, there are still two positions in this debate: As alluded to in Section 4.2.2, Müller (1999: 780–782) argues in favor of a uniform *acc>dat* base order for double object verbs based on the pattern in anaphor binding, where, for all verbs, the DO can bind an IO-anaphor, while the reverse is not possible. A second argument is furnished from the order of weak pronouns, where the unmarked order in the standard language is *acc>dat*, again for all double object verbs. While I consider the first valid in principle, the second strikes me as weak given that in many languages (cf., e.g., clitics in Romance) weak pronominal elements can be subject to ordering principles that are different from those that govern full noun phrases.

A slightly different position is advocated in Frey (2015: 526–532, 545–546) and Haider (2017: 15–20). By applying the focus projection and scope reconstruction diagnostic, they come to the conclusion that there are two classes of ditransitives (and also several classes of intransitives): one with a *dat>acc* base order (e.g., verbs like ‘give’, ‘introduce to’, ‘entrust to’) and one with an *acc>dat* base order (e.g., verbs like ‘expose’, ‘devote’, ‘take away from’). W.r.t. the *acc>dat* verbs, it has been objected that they often happen involve an animate DO and an inanimate IO, suggesting that the preference may thus be more a reflex of the influence of animacy (see, e.g., Müller 1999: 786). However, Frey (2015) and Haider (2017) argue that the difference in base order is not only supported by markedness considerations but also by the two grammatical diagnostics. Thus, with an *acc>dat* verb, focus projection is only possible if the accent falls on the IO in an *acc>dat* order, and only

acc>dat (but not dat>acc) orders are scopally unambiguous). Haider (2017: 18, ex. 25c/d) also provides an example of an acc>dat verb, viz., ‘devote’, where the DO is inanimate and the IO animate. This would suggest that the different base orders have nothing to do with animacy but rather are based on different argument structures (with the dative in dat>acc verbs corresponding to a recipient and the dative in acc>dat verbs corresponding to a goal).

With respect to double object verbs, the controversy regarding the base orders, especially w.r.t. verbs with unmarked dat>acc order, remains unresolved and the diagnostics presented by different authors conflict (viz., anaphor binding vs. focus projection/scope reconstruction). To make progress in this debate, careful experimental work seems to be required that applies the diagnostics to proper minimal pairs and takes the animacy/definiteness confound into account; for instance, apart from two examples (ex. 25c/d in Haider 2017 and ex. 29 in Frey 2015), all examples with focus projection and scope reconstruction in Frey (2015) and Haider (2017) involve verbs where one of the objects is inanimate and one therefore cannot be completely sure that such examples test what they are supposed to.²⁰

5.2 Ordering principles and triggers for scrambling

Given that the arguments of a verb often do not occur in their base order, one can then ask what causes these deviations. To some extent, reordering takes place to satisfy certain linearization constraints that generally hold for languages with free word order, e.g., definite > indefinite, animate > inanimate, topic>non-topic, given > new etc., see Frey (2015: 522) for a list of possible constraints. Scrambling is thus to a certain extent used to accommodate the needs of information structure. While it seems largely undisputed that scrambling can have this effect, it is much less clear what this implies for the trigger of scrambling, an issue that only arose with the advent of the Minimalist Program (Chomsky 1995), where movement is subject to last resort and thus can only take place if it ends up in feature checking.

As a consequence, a significant amount of more recent work has attempted to characterize scrambling in terms of (semantic/information-structural) triggers (e.g., Meinunger 2000) or in terms of prosody, which in turn has information-structural consequences (e.g., Krifka 1998). Possible triggers that have been proposed include specificity, givenness, topicality, referentiality, and scope.²¹ It seems fair to conclude that all attempts at finding a coherent trigger for scrambling and thereby establishing a direct link between syntax and information structure have failed. Since this is adequately discussed elsewhere (see, e.g., Abels 2015a: 1422–1423, Frey 2015: 548–556), I will be brief. Scope fails because non-scopal elements (like proper names) can scramble; it is also implausible given the possibility of scope reconstruction. More semantic and information-structural features fail because scrambling can target quantifiers (see the examples with scope reconstruction above), wh-indefinites (Heck & Müller 2000, Fanselow 2012: 277–279), and even idiom chunks (see Fanselow 2012: 277).²² Also, while it is generally argued that focused phrases cannot scramble, Fanselow (2012: 270–271) shows that under certain conditions, scrambling can also take place within the focus domain (if the scrambled XP is definite). Next to the fact that there are XPs that defy any trigger, reordering is often not obligatory to achieve the postulated semantic/information-

²⁰Frey (2015: 529) discusses Condition C reconstruction of topicalized XPs as another possible diagnostic for base-positions. There are at least two problems with this diagnostic: First, the robustness of Condition C reconstruction has recently been called into question, see Salzmann et al. (to appear). Second, one could imagine that topicalization is preceded by an instance of scrambling across an object. Reconstruction of the A'-step then would only target the higher A-position, not necessarily the lower one.

²¹Probably the only non-semantic/pragmatic trigger that has been proposed is case. But given that non-NPs scramble as well, this possibility can be set aside quickly.

²²As pointed out by Fanselow, the scrambling of idiom chunks presents a serious problem for base-generation accounts as it not clear how the idiomatic meaning can obtain given that the parts of the idiom are no longer contiguous.

structural effect. Thus, as shown in Frey (2015: 551-552) and Haider (2017: 10f.) w.r.t. the interpretation of indefinites, scrambling can surely have semantic consequences in that scrambled indefinites are normally only interpreted as specific. But this cannot serve as the trigger given that the specific interpretation is also available in-situ. Rather, scrambling often reduces interpretive options (scrambled indefinites usually can no longer receive a non-specific interpretation). Similarly, as shown in Frey (2015: 549-551), while given objects often scramble, they can also remain within VP. Perhaps the strongest argument against a direct link between syntax and information structure comes from instances of altruistic scrambling, see Fanselow (2003a: 210-211), Fanselow (2003b: 11–12): scrambling often takes place so a different constituent, e.g., the verb or the subject, can be in focus/receives the nuclear accent, but this does not imply that the scrambled XP necessarily receives a special information-structural property. Such interactions cannot be expressed in a system based on attracting features; Optimality-theoretic approaches seem at an advantage here (see, e.g., Müller 1999). So in other words, the factors/linearization preferences are soft constraints (of different strength). When they are violated, some degree of markedness obtains, but not ungrammaticality. There are two possible reactions to this state of affairs. Either scrambling is treated as a non-uniform phenomenon with different reorderings corresponding to different movement types/being triggered by different features. Or it is assumed that there is a generic trigger for scrambling, a scrambling feature in the earlier literature (e.g., Müller 1998) or, more recently, an EPP- or edge feature (e.g., Heck & Himmelreich 2017). While the use of generic features is often criticized as providing little insight, it should be pointed out that the same may be required for other well-established movement operations. For instance, Fanselow & Lenertová (2011) show convincingly that movement to the German prefield, traditionally called topicalization, cannot be characterized in terms of information structure. Rather, they propose that an unspecified edge-feature is responsible. Fanselow (2012) shows that some of the issues that arise with topicalization also arise with scrambling. Thus, the issue with movement triggers may be more general (and, upon closer inspection, will arise in other languages/constructions as well). One issue with using generic movement triggers for scrambling is that, as discussed in Heck & Himmelreich (2017), attraction cannot be subject to Minimality/the Minimal Link Condition because scrambling can target several phrases, which, however, need not preserve their order upon movement (e.g., if both objects are scrambled across the subject, they can appear in acc>dat or dat>acc order). This implies that either of two objects can be targeted by a scrambling probe on, say, *v*. Thus, eventually, integrating scrambling into Minimalist syntax remains a challenge. Haider & Rosengren (2003) therefore take a radically different approach and treat scrambling as a free non-triggered operation of syntax. One final challenge needs to be mentioned. Haider (2017: 56f.) correctly points out that current accounts have little to say about the fact that scrambling in German can only take place within head-final phrases. Once movement-triggering features are postulated, one wonders why they can be on a head in VP/AP but not in NP/PP.

5.3 Possible landing sites

In the section on movement types, we saw that scrambling can both target a position below the subject and a position above the subject. This is usually correlated with a different landing site, at least in the earlier literature: If it targets a position below the subject, it is somewhere in the vP-area; if it targets a position above the subject, it is in the TP-area. Movement to spec,vP is then considered A-movement, movement to Spec,TP (or, in earlier approaches, adjunction to TP), will instantiate A'-movement. However, given the well-established fact that subjects in German can either move to Spec,TP or remain in their base-position in Spec,vP (Müller 1999), this is far from obvious. For the A-/A'-distinction to correlate with structural positions, the subjects would always have to occupy Spec,TP in the relevant examples with high scrambling. This is, unfortunately, not

controlled for in the examples in the literature (e.g., by using diagnostics like modal particles that delimit certain parts of the structure). Thus, we cannot be sure which position the subject, and, consequently, the scrambled object, actually occupy. But without a configurational difference, it may be difficult to derive the A- vs. A'-asymmetry (should it be real).^{23,24}

Note in this context that according to Müller (1999), the diagnostic for whether subjects occupy Spec,TP is whether they precede weak pronouns, which are assumed to occupy specifiers of a designated functional head between T and vP. It is claimed that this sets subjects apart from objects, which are claimed not to be able to precede weak pronouns. Scrambling across the subject is then predicted to be impossible if the subject precedes a weak pronoun. While such examples are surely not perfect, it is not fully clear whether they are ungrammatical (without a rise-fall contour):

- (45) weil ??{diesen Roman} Peter ??{diesen Roman} ihr {diesen Roman} gestern
 because this.ACC novel Peter this.ACC novel her.DAT this.ACC novel yesterday
 nicht geben wollte
 not give.INF wanted
 'because Peter didn't want to give this book to her yesterday'

But if such examples are ungrammatical, then there cannot be any scrambling to Spec,TP.²⁵ The question is then whether the high/low asymmetry can be captured configurationally at all. The answer is clearly no if the only possible landing site is Spec,vP. Now, there can be reordering between the objects below the subject, also when the subject can be shown to occupy a vP-internal position, e.g., by using a wh-indefinite, which cannot move to Spec,TP, or by having the subject follow a modal particle, which, according to Diesing (1992), marks the vP-boundary, see Fanselow (2001: 408) for examples. However, implementing this reordering is far from trivial in a Minimalist system: Moving, e.g., the direct object across the indirect object to Spec,VP would seem to violate anti-locality (Abels 2012) and should therefore be blocked. Heck & Himmelreich (2017) propose instead that scrambling of an object can target an inner specifier of vP. But once that option is chosen, scrambling below and above the subject can no longer be distinguished configurationally.

6 Conclusion

Despite roughly 40 years of intense research, scrambling still represents a challenge, both empirically and theoretically. While the field has accumulated a wealth of data and arguments for certain

²³Admittedly, A-scrambling in Japanese and Korean can very well target Spec,TP. Conversely, it is not ruled out that there can be instances of A'-movement that target Spec,vP, e.g., movement to low focus or topic positions. Thus, there may be other means to capture the A- vs. A'-distinction, e.g., the nature of the attracting feature, see Urk (2015).

²⁴Haider (2017: 20–26, 41–44) argues against the existence of Spec,TP on several grounds. First, there is no strong evidence for verb movement to T in German. Second, the subject can remain vP-internally, and when it does, there is strong evidence against covert movement. Third, extraction from subjects is possible. Fourth, there are no expletive subjects in the middle field (in the presence of low DP-subjects). All arguments strike me as inconclusive. The absence of evidence for movement to T does not preclude the possibility that there can be a TP. Verb movement in English also does not go up to T, yet there is sufficient independent evidence for a functional projection above vP. As long as the EPP-feature on T is optional, no problems arise with low subjects, and we don't expect expletives in that case. The CED argument is largely orthogonal to the vP/TP distinction given that the subject occupies a specifier position in any case.

Wurmbrand (2006: 185–200, 210–216) also argues against covert movement of the subject to Spec,TP (on the basis of scope freezing effects and the possibility of subjects in fronted VPs) but nevertheless argues in favor of the existence of a TP in German (on the basis of the long-distance passive that requires externalization of the subject for case reasons).

For discussion of arguments for a more fine-grained structure of the middle field, including a designated position for aboutness topics, see Frey (2004), Frey (2015: 550) and Fanselow (2003a: 217–223).

²⁵Haider (2017) presents well-formed data where a scrambled object precedes a weak reflexive pronoun. This would seem to argue against Müller's generalization. However, such examples become degraded once weak non-reflexive pronouns are used, suggesting that a special property of reflexives may be involved.

theoretical positions, it seems fair to say many crucial aspects still remain unclear/controversial. This concerns, among other things, empirical aspects such as the scope data but also theoretical aspects such as the movement type underlying scrambling. While we can characterize scrambling quite easily in negative terms, viz., by describing what scrambling is not (e.g., neither clearly A- nor A'-movement), it seems much more difficult to characterize scrambling in positive terms and capture it by means of the tools afforded by current syntactic theory. At this point, it seems that further progress in this domain will only be possible on the basis of careful empirical/experimental work.

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