Mittelfeld Phenomena

Scrambling in Germanic

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1   The *Mittelfeld* – in OV and VO

1.1   What is the *Mittelfeld*?

The term *Mittelfeld* (MF) refers to one of five segments (*fields* in the topological model) of a clause. The *topological field* scheme (for an accurate exposition based on German, see Höhle 1986) partitions a clause into five segments: *pre-field* (*Vorfeld*), *left bracket*,[1] *mid-field* (*Mittelfeld*), *right bracket*, and *post-field* (*Nachfeld*). The example sentence in (1) illustrates the maximal expansion. It provides material in all five standard segment frames plus the left dislocation frame (LD), preceding the clause proper.

(1)   German
      (Wer das liest)   [dem$_i$]   [fällt]   [e$_i$ sofort]   [*auf*]   [wo es sich befindet]
      left dislocated   PRE-F   LB   MF   RB   POST-F
      (who this reads)   him$_{dat}$ *falls*   immediately   *up*   where it itself locates
      'He, who reads this, *realizes immediately* where it is located.'

The MF is that segment of a clause that is sandwiched by the *left bracket segment* (*LB*; German *linke Klammer*) and the *right bracket segment* (*RB*; German: *rechte Klammer*). It is worth emphasizing that the MF does not correspond to a single constituent in terms of a phrase structure representation, simply because the verb position is assigned to a separate segment frame, namely the *right bracket*. In phrase structure terms, the left bracket position is C°, that is, the position of the complementizer or the structurally homomorphic position of the fronted finite verb. The right bracket is the region of the clause-final verb(s). So, the MF includes everything between C° on the left and the verb(s) on the right-hand side. The exact correspondence to phrase structure constituents is theory-dependent and therefore varies, depending on the respective models (see section 3.1).

   For the *left bracket frame,* the alternative realizations are as follows: the *finite verb* in a verb-first (2a) or verb-second clause (1), the *imperative verb* form in a clausal imperative construction, or a *complementizer* (2b). The left bracket may be *empty* as in infinitival clauses (2c) or embedded *wh*-clauses (2d).

   The *pre-field* (German *Vorfeld*) immediately precedes the left bracket; the *post-field* (German *Nachfeld*) follows the right bracket. In the terminology of the principles and parameters (P&P) model, the post-field is the extraposition area and the pre-field

is the spec C position. The left dislocation segment in (1) is external to the clause frame, and therefore it requires pronominal co-referencing as a mechanism of linking its content to the clause. In (1), the demonstrative pronoun in the pre-field is coreferent with the left-dislocated free relative. In clauses without accessible pre-field (e.g. in verb-first interrogative clauses), the resumptive demonstrative is located in the middle field.[2]

(2) German

    a. [$_{LB}$ *Fällt*] [$_{MF}$ der Leserin sofort   etwas]   *auf*?
        strikes[3]   the   reader immediately something up
        'Does something immediately come to the mind of the reader?'

    b. [$_{LB}$ *dass*] [$_{MF}$ der Leserin sofort   etwas]   *auffällt*
        that   the   reader immediately something up.strikes

    c. [ohne]$_{P°}$ [$_{PF}$ ∅] [$_{LB}$ ∅] [$_{MF}$ der Leserin sofort]   *aufzufallen*
        (without)   the   reader immediately up.to.strike
        'without immediately striking the reader'

    d. [$_{PF}$ wem] [$_{LB}$ ∅] [$_{MF}$ sofort   etwas]   auffällt
        whom   immediately something up.strikes

In OV languages, the MF is easy to identify. It is the segment of a clause whose left boundary is immediately after the position of the sentence-initial complementizer or the finite verb and whose right boundary is right before the position of the clause-final verb(s) or stranded verbal particles (see (2a) and (2b)).

1.2   The MF in German as an OV language

In German or Dutch, as languages with a head-final VP, the MF is in principle open for all constituents of a clause, that is, *arguments* ((3b), (3d), and (3e)), *adjuncts* ((3c) and (3d)), and *predicates* (3b), of all categories, that is, noun phrases, PPs, clausal constituents ((3c), (3d), and (3e)), and particles (3d). German allows a genuinely empty MF (3a), and in fact it must be empty in constructions as in (3a), since an expletive pronoun is ruled out. As for clausal constituents, the preferred though not grammatically enforced position is the post-field (see section 2.5 for more details). In the post-field, predicates, particles, and noun phrases are generally ungrammatical, except for Heavy NP Shift constructions. The post-field typically hosts extraposed clauses and PPs.

(3) German

    a. *Intransitive Passive*
        [$_{LB}$ als] [$_{MF}$ [*empty*]] gelacht   wurde (*empty post-field*)
              when   laughed was

    b. *Secondary Predicates*
        dass [$_{MF}$ er sein Steak *betrunken* *roh*] aß
        that   he^{i} his   steak^{j} drunk^{i} raw^{j} ate
                                       (for details, see Haider 1997c)[4]

    c. *Adverbial Clause*
        dass [$_{MF}$ [als   wir vorbei fuhren]] geschossen wurde
        that   [when we   by   passed] shot   was
        'that (someone) shot when we passed by'

    d. *Finite Argument Clause*
       Ich habe [$_{MF}$ ja [*dass die Erde rund sei*] nie] bezweifelt
       I have *particle* [that the earth flat is] never doubted
    e. *Infinitival Argument Clause*
       Bis jetzt hat [$_{MF}$ ja [diese Frage zu stellen] noch keiner] gewagt
       until now has *particle* [this question to pose] not.yet anyone dared

Note that in Dutch, there is a stricter ban against clausal arguments in the MF (see section 2.5). Infinitival argument clauses in the MF corresponding to (3e) are ungrammatical. They are replaced by the clause union variant ('V-raising') that integrates (parts of) the infinitival clause into the matrix clause. Clausal infinitivals are therefore found only in extraposed or topicalized positions, that is, in the post-field or the pre-field, respectively. Not only for this reason is the Dutch equivalent of (3e) ungrammatical: the first reason is that a clausal infinitive must not occur in the MF, and, second, a (clausal) object cannot occur in front of the transitive subject in Dutch (i.e. no scrambling of arguments across a transitive subject).

1.3   The MF in a VO language

What corresponds to the OV-MF in a VO language? The Germanic Scandinavian languages are both VO and V2 languages; English is a "residual" V2 language (notably in interrogative constructions). So, the topological segmentation tailored to capture the main subparts of a clause in a V2 language can be applied in an analogous manner to a VO clause. The pre-field and the left bracket are easy to identify. But where exactly is the MF located?

(4) a. [$_{pre-F}$ Never before] [$_{LB}$ had] he *read* such a good article
    b. Danish[5]
       [$_{pre-F}$ Aldrig før] [$_{LB}$ had] han *læst* sådan en god artikel
    c. German
       [$_{pre-F}$ Nie zuvor] [$_{LB}$ hatte] er so einen guten Artikel *gelesen*
    d. Dutch
       [$_{pre-F}$ Nooit tevoren] [$_{LB}$ had] hij zo'n goed artikel *gelezen*

In OV languages, the right bracket is the position of the verbal head of the main VP. Thus, the entire VP is part of the MF, if we stretch the notion of *Mittelfeld* and include the right bracket into the MF, as its right boundary. With this proviso, it is easy to identify the MF in an VO language, despite the absence of a manifest right boundary: the MF in a "verb-second" VO language is that segment of a clause that is in between the V2-position (= the position of a clause-initial complementizer or the fronted finite verb) as the left boundary and the right edge of the VP as the right boundary. The extraposition area corresponds to the *post-field* of an OV clause:

(5) Did [$_{MF}$ more people misidentify the MF] [$_{post-F}$ than the pre-field?]

In OV languages, it is evident that a comparative clause that is detached is necessarily extraposed. Hence, it is safe to conclude that the comparative clause in (5) is in the post-field of the VO clause.

For descriptive purposes, the primary utility of the notion MF rests on one's non-commitment in terms of the fine-grained details of phrase structure. It can serve as a theory-neutral label for a well-defined portion of a clause in an OV language whose exact phrase structure analysis may remain open or even controversial. The *prima facie* utility of the notion MF for VO languages is less obvious than for OV languages. Nevertheless, it can serve as a frame of reference for issues of cross-linguistic comparison. It is of considerable heuristic value for questions regarding the proper analysis of the crucial grammatical parameters that are constitutive of the OV versus VO clause type, however.

2   MF phenomena – a survey

2.1   Serialization variation (scrambling)

The model language for this survey is German because of its wealth of word order alternations in the MF. Compared to other Germanic OV languages, as for instance Dutch, the potential of word order variation in German is much greater. For example, all of the six possible serialization permutations of the three DPs in the MF of (6a) yield a fully grammatical order. One of the five alternative serializations for (6a) is given in (6b). In Dutch, however, DP arguments must not be permuted.

(6)   German
    a.   dass   das   Objekt   dem   Subjekt   den   ersten   Platz   streitig
        that   the   object.NOM   the   subject.DAT   the   initial   place.ACC   contested
        macht
        makes
        'that the object competes with the subject for the initial place'
    b.   dass   dem   Subjekt   den   ersten   Platz   das   Objekt
        that   the   subject.DAT   the   initial   place.ACC   the   object.NOM
        streitig   macht
        contested   makes

Ross (1967) not only furnished the name *scrambling* for this phenomenon, but also had placed it outside grammar proper and treated it as a stylistic rule. In the Minimalist Program (1995, 324), Chomsky considers a similar move. However, the fact that scrambling interacts with structurally determined phenomena (e.g. anaphor and variable binding), that it has LF-relevant effects (scope), plus that the very existence of scrambling in a given language is grammatically and not phonologically conditioned[6] militate against attempts of disqualifying scrambling as a phenomenon of core grammar by deferring it to PF. The following grammatical properties are characteristic of scrambling in German (Stechow and Sternefeld 1988; Grewendorf and Sternefeld 1990; Müller 1995, 95–102; Haider and Rosengren 2003; Haider 2010),

some of which are not fully accurately described in the literature; they will be discussed in the given order:

(i)   Scrambling proper (in German) is clause-bound and confined to the MF.
(ii)   There is no instance of obligatory scrambling.
(iii)   Scrambling applies to arguments of all categories (i.e. DP, PP, and CP).
(iv)   Scrambling of potential binders extends their respective binding domains.
(v)   Scrambling produces scope ambiguities (as a chain effect).
(vi)   Scrambling can be iterated.
(vii)   Scrambling reorders arguments (*object shift* does not; see section 2.3.1).

Scrambling is usually described as a clausal phenomenon. But in fact it should be seen as a more general phenomenon in the context of head-final projections (Haider 1991; Corver and Van Riemsdijk 1997; Haider 1997b). In German, scrambling is found within VPs (7) and within APs (8), but not within NPs and PPs, as they are head-initial:

(7) a.   [$_{VP}$ Dem Subjekt   den   ersten Platz   streitig   gemacht] hat
          (to).the subject.DAT   the   first   place.ACC   contested   made   has
          das   Objekt
          the   object

     b.   [$_{VP}$ Den ersten Platz$_i$ dem Subjekt e$_i$ streitig gemacht] hat das Objekt

(8) der [$_{AP}$ *dem Briefträger*   in   vielen Merkmalen ähnliche]   Sohn des
     the the   postman.DAT   in   many   features   resembling] son   of.the
     Nachbarn
     neighbor
     'the son of the neighbour resembling the postman in many features'

(9) der [$_{AP}$ in vielen Merkmalen *dem Briefträger*   ähnliche]   Sohn des
     the [in   many   features   the postman.DAT   resembling] son   of.the
     Nachbarn
     neighbour

Property (i): Scrambling – in contrast to *focus fronting* – is clause bound.

The claim that scrambling is clause bound is uncontroversial for cases of extraction out of finite clauses, as illustrated in (10), but it holds also for extraction out of infinitival clauses. Apparent counterevidence is controversial. It is open for an alternative analysis as a verb-clustering clause–union construction (see Haider 2010, ch. 7). Examples (10a) and (10c) are unacceptable. The examples (10b) and (10d) are cases of *contrastive topic fronting* (CTF) (for Dutch, see Neeleman 1994, 395–396; for the semantic interpretation of CTF, see Büring 2003), a construction that occurs less frequently in written than in oral style, presumably because of the necessity of a manifest intonation contour (i.e. a rise–fall contour), here indicated by / and \, respectively. Keep in mind that scrambling and CTF are two clearly distinct phenomena. For instance, CTF may apply to elements that do not scramble, like

selected manner adverbials or VPs (see the contrasts in (10f) and (10g)), and it is not locally bounded, as exemplified by (4b), (4d), and (4f). For scrambling proper, this kind of long-distance displacement is ungrammatical in German:

(10)   a.   *dass die Lösung$_i$ niemand geglaubt hat, [dass er e$_i$ gefunden hätte]
            that   the solution no.one   believed has that he   found   had
       b.   dass /SO eine   Lösung$_i$ NIE\mand geglaubt hat, [dass einer e$_i$
            that such a   solution   no.one   believed has that someone
            gefunden   hätte][7]
            found   had
            'that no one believed that anyone had found such a solution'
       c.   *dass   niemand [sie   zu besuchen]$_i$ glaubt, [dass er   sich e$_i$
            that   no.one   [her   to visit]   believes that he   REFL
            leisten   kann].
            afford   can
       d.   dass   [sie zu be/SUchen]$_i$ NIE\mand glaubt, dass er   sich e$_i$
            that   [her to visit]   no.one   believes that he   REFL
            leisten kann
            afford   can
            'that no one believes that he can afford to visit him'
       e.   Da   habe ich mich$_i$ angefangen, e$_i$ damit   zu beschäftigen[8]
            there   have I   myself$_i$ begun   [therewith to engage]
            'So I began to engage myself for it'
       f.   dass   sie ja [/SO viel]$_i$ nicht\ geglaubt hat [dass man dafür e$_i$
            that   she PRT [so   much] not   believed has [that one for.that
            bezahlen müsse]
            pay   must]

(10e) is an example of a construction whose analysis is controversial (*third infinitival construction*; see Den Besten and Rutten 1989; Bayer and Kornfilt 1991; Haider 1993, ch. 9; Grewendorf and Sabel 1999). In Haider (2010, 284), it is analyzed as a clause union construction in combination with verb clustering.

Excursus 1   Topicalized V-projections are VPs

Scrambling can be observed also in topicalized V-projections. For the theoretical modeling of scrambling, it is relevant to decide whether these constituents are just VPs or VPs within higher functional projections. In the first case, scrambling must be analyzed as a VP-internal phenomenon. In the latter case, however, the analysis of scrambling may be framed in terms of movement to specs of functional heads.

Claim: Topicalized projections must not contain the trace of the finite verb. Therefore, topicalized V-projections are VPs, rather than topicalized functional projections that contain a VP.

Background: If the fronted constituent contains a functional projection on top of VP (i.e. TP plus higher projections), part of the head chain of V movement that

relates the finite verb in the V2-position and its base position in the VP would be within the topicalized constituents. This would incur a crossing violation: the trace is not within the c-command domain of its antecedent. Evidence comes from systematic contrasts such as between structures like (1a) and (1c). Stranded particles of verb–particle combinations remain at the base position of the verb.

(1) German
    a. [Einen Fehler   **zu**gegeben] hat   er noch nie
        [a   mistake ad.mitted]   has   he never ever
        'admitted a mistake he never ever has'
    b. Er gab$_j$ noch   nie   einen Fehler   zu-e$_j$
        he mitted$_j$ never ever   a   mistake   ad-e$_i$
    c. *[Einen Fehler   zu-e$_j$] gab$_j$ er noch nie
        [a   mistake ad-e$_j$] mitted$_j$ he never ever
        'admitted a mistake, he never ever has'

The examples in (1) contain a particle verb. When the finite verb moves to spec-C, the particle is stranded (1b). (1c) shows that the stranded particle cannot be part of the fronted constituent.[9] In other words, the trace of the finite verb must not be part of the topicalized constituent: (1c) demonstrates that the topicalized constituent cannot contain the trace of the finite verb (Fanselow 1993, 69); the unacceptability of (1c) is due to a crossing violation; and the trace of the verb in (1c) fails to be in the c-command domain of the moved verb.

The argument is this: if the topicalized constituent in (1a) contained the trace of the finite verb, it would be predicted to be ungrammatical, contrary to the facts. The conclusion must be, therefore, that the topicalized phrase does not contain the trace of the finite verb. For (1a), this means that the topicalized constituent must be a complement of the auxiliary. It is only in this case that the finite auxiliary would not have to pass through the functional head of a functional projection that hosts arguments of the main verb (cf. 2a). So, if the topicalized constituent in (1a) is not a VP but a VP within a functional projection, this functional projection must be a complement of the auxiliary (2a).

Unavoidable though this conclusion is, it is an unwanted conclusion, at least for the following reason: this solution is bound to overgenerate. The structure (2a) incurs ungrammaticality, as (2b), illustrated by (3b), indicates.

(2) a. [$_{Aux-VP}$ [$_{FP}$ XP F° [$_{VP}$... YP... V°]] V$_{Aux}$]^{10}
     b. [$_{Aux-VP}$ [$_{FP}$ XP F° [$_{VP}$... YP... V°] (*ZP)]V$_{Aux}$]

(3) German
    a. Gesprochen *mit ihr*/*mit ihr* gesprochen hat   er nicht mehr
        spoken   *to her*/*to   her* spoken   has he not   anymore
    b. *dass er nicht mehr gesprochen *mit ihr* hat
    c. dass er nicht mehr *mit ihr* gesprochen *hat*
    d. dass er nicht mehr gesprochen *hat* mit ihr

PP-objects may be "extraposed." The first box in (3a) is VP-topicalization with an extraposed PP. A VP with extraposition is ungrammatical in the base position

(see 3b). If the topicalized constituent in (3a) is a functional projection that allows extraposition, it should allow extraposition in the base position. But this is not the case. (3c) is the version with the unexptraposed PP. Extraposition of the PP targets a position after the finite verb (3d).

One might object that the distributional properties in the base position are obscured by an intervening factor, namely V-raising: each verb is raised to the next higher V-position, forming a head cluster. But this objection is without force. If it were so, (4c) would be predicted to be grammatical: if V-raising out of the VP amalgamates the sequence of verbs at the end of the clause, the VP nevertheless remains a target of extraposition. The prediction is then that in a double object clause, extraposition may place a relative clause that goes with the first object in between the second object and the verb cluster:

(4) German
  a. dass er *die Frage*   allen   gestellt hat, *die^i*   *ihn*   *plagte*
      that he *the question* (to).all posed   has   which him   vexed
      'that he posed the question that vexed him to all'
  b. [Die Frage   gestellt, die   ihn   plagte]$_{VP}$ hat er   allen
      the   question   posed,   that him   vexed   has he   to.all
  c. *dass er *die Frage$_i$* allen, e$_i$ e$_j$ $\boxed{die^i \ ihn \ geplagt \ hat}$ gestellt$_j$ hat

The right edge of a VP is an extraposition site. V-raising would overgenerate since (2c) is consistent with V-raising. Here, the VP contains an extraposed relative clause, but its head would have raised and formed a cluster with the auxiliary verb.

In sum, there is robust enough evidence for VP-topicalization and against VP-within-functional-projection(s) topicalization.[11] Hence, topicalized V-projections are a valid testing ground for VP-internal structure.

For a detailed analysis of extraposition, see Haider (2010, ch. 5). The extraposition phenomena are not properly covered by movement analyses since the *Nachfeld* items display properties of embedded rather than right-adjoined elements.

Property (ii): Syntactically, scrambling is optional. There is no evident *syntactic* trigger.

Scrambling is optional in the sense that there is no syntactic context that makes an unscrambled order ungrammatical. This is generally acknowledged (see e.g. Müller 1995, 95–100). There are pragmatic (i.e. information-structuring) conditions that utilize word order variation. However, the pragmatic effects induced by scrambling cannot be taken to be *grammatical* triggering factors of scrambling since the specific interpretation effects that are suspected to trigger scrambling are found in unscrambled structures as well. Scrambling in fact *reduces*, but does not *enhance* or *replace*, the interpretation potential. (10a) has the definite DP after an indefinite pronoun (morphologically identical with the interrogative form and specifically chosen here because it does not scramble). So it is safe to assume that the definite DP is in situ.

Analogous considerations apply to (11b) and (11c). The generic interpretation (11a), the indefinite specific interpretation (11b), and the definite specific interpretation (11c) of DPs are available for DPs in situ as well as for scrambled DPs. What may *get lost* in the course of scrambling of indefinites is the existentially bound interpretation. Note, however, that the 'strong' interpretation (generic as in (11a) or specific as in (11b)) is available in the base position as well. The grammar-theoretic reason will be analyzed below.

(11)   German
    a.   *Existential or Generic Bare Plural*
        dass ja   **wer** *(die) Pockenviren* ausrotten   sollte
        that PARTICLE who (the) pox.virus   exterminate should
        'that surely someone should exterminate the poxvirus'
    b.   *Indefinite Specific*
        wenn **wer** *eine rothaarige Frau*   sucht, dann ist das Maria
        if   who a   red.haired woman seeks, then is this Mary
        'if someone is looking for a red-haired person, then this is Mary'
    c.   *Definite Specific*
        dass Er **wem**   *ihr Kleid* gezeigt hat, hat Anna   nicht gefallen
        that he who.DAT her dress shown has, has Anna.NOM not   liked'
        'that he has shown her dress to someone Anna did not like'

The only case for allegedly obligatory scrambling (cf. 12a) – indefinites cannot occur in the domain of negation in German – rests on a controversial premise, namely the premise that the negation universally c-commands the whole VP. This premise holds for VO languages, but not for OV languages like German or Dutch.[12] There are elements (e.g. indefinite W-pronouns) that do not scramble (cf. 12b) but do occur in front of the negation (12c).

(12)   German
    a.   *dass jemand   nicht   *wen*   verjagte
        that   someone not   someone chased
    b. $^{*/??}$Dass mitunter wen$_i$ jemand e$_i$ beleidigt, kommt   vor
        that   sometimes someone someone   offends, happens PRT
    c.   dass mitunter   wer   wen   nicht beleidigt, kommt   vor
        that sometimes someone someone not   offends, happens PRT
        'that it sometimes happens that someone does not offend somebody'

The fact that scrambled indefinites may lose their indefinite or unspecific interpretation is but an epiphenomenon, and not the *trigger*, of scrambling. (12b) is ungrammatical because an indefinite scrambled out of the *minimal domain of argument-projection* (MAC = minimal argument complex)[13] cannot receive an existential reading: it has left the domain of existential closure. The generic or indefinite-specific interpretation that indefinites receive outside the MAC is incompatible with the lexical semantics of indefinite pronouns.

The examples in (13) illustrate that the very interpretation that is applicable to scrambled indefinites is available already in the base position. In other words,

scrambling *eliminates* interpretation options, but it does not *add* or *generate* them. In a triggering account, the 'generated' interpretation would be an element of the triggering mechanism.

(13) German
    a. dass ja   Fisch/einen Fisch keiner   bestellte
       that PRT fish/a   fish   nobody ordered
       'that nobody ordered fish/a fish'
    b. dass ja   keiner   Fisch/einen   Fisch bestellte
       that PRT nobody fish.GENERIC/a fish ordered

The bare indefinite in (13) is interpreted generically in (13a), and it can be interpreted so in (13b). With an indefinite article, the NP in (13a) can be interpreted as specific, and so it can be in (13b). The loss of the existential reading in (13a) is a by-product of scrambling, however. The scrambled DP has left the minimal argument domain of the VP (MAC), which means that it has left the default domain[14] of existential closure.

Property (iii): Scrambling applies to arguments of all categories (i.e. DP, PP, and CP).

Irrespective of the category of an argument, namely as a DP, as a PP (14a), as a finite CP (14b) or as an infinitival CP-construction (14c), the *argument* may scramble.[15]

(14) German
    a. dass dort jetzt [auf Peter]$_i$ jemand   e$_i$ wartet
       that there now for Peter someone   waits
       'that someone is waiting for Peter there now'
    b. ?weil ja   heutzutage [dass die Erde rund   ist]$_i$ niemand e$_i$
       since PARTICLE today   [that the earth round is]   nobody
       ernstlich bezweifelt
       seriously doubts
    c. dass doch [diese Tür aufzubrechen]$_i$ keiner je   e$_i$ versucht hat
       that *particle* [this door to.open]   nobody ever   tried   has
       'that nobody ever tried to open this door'

Note that the examples show the scrambled constituent to the left of the subject but to the right of modal particles and temporal adverbials. This, plus the fact that they are well-formed in the absence of focus intonation, indicates that focus movement (CTF) is not at stake here. However, as the question mark in (14b) indicates, non-extraposed finite (scrambled) clauses are slightly marginal; but they are equally marked in the position of the trace as well. They are best when extraposed or in the position immediately after C°, the area for topic material.

A remark on the *scrambling properties of adjuncts* seems to be appropriate here: if there are alternative positions for adverbials, this is not evidence enough for claiming scrambling. Scrambling can be assumed only if there is a unique base position. If, however, adjuncts can be generated in alternative positions, scrambling is not at stake. This is claimed for Dutch by Neeleman and Weerman (1999). Arguments for

base *domains*, but not base *positions*, of adverbials in German are developed in Frey and Pittner (1998). Typically, in OV there are alternative positions for a given adverbial within its domain (see Haider 2013).

Property (iv): Scrambling of possible binders extends their respective binding domains.

Scrambling of a potential binder creates new binding possibilities since scrambling enlarges the c-command domain of the binder. This holds for principle-A effects (15a), for principle-C effects (15b), and for Q-binding of pronouns (15c).

Note that the discussion of Q-bound variables in scrambling constructions in the literature contains controversial data judgments (see Frey 1993; Moltmann 1990; Müller and Sternefeld 1994).

In all cases in (15), binding in the base positions[16] is illicit: the non-scrambled version of (15a) would be ungrammatical, (15b) would be grammatical, and in (15c) the pronoun could not get a Q-bound reading with the quantifier in its base position.

(15)   German
   a.   dass   man   die   Zeugenaussagen$_i$ einander^i e$_i$ anglich
        that   one   the   testimonies.ACC   each.other.DAT   adjusted
        'that the testimonies were adjusted to one another'
   b.   *dass   man   Peter$_i$ [Peters$_i$ Vater]   e$_i$ nicht   übergeben   hat
        that   one   Peter   Peter's   father.DAT   not   surrendered   has
   c.   dass   man   fast   jeden$_i$ seinem^i Vorgesetzten   e$_i$ ankündigte
        that   one   almost   everyone   his   boss.DAT   announced
        'that almost everyone was announced to his boss'

The counterpart of an *extended binding domain* as an effect of scrambling a potential binder is the *destruction of a binding configuration* by scrambling the bindee across a binder. Note that this is a property of A-movement, but not A′-movement. In general, A′-moved bindees are reconstructed for binding.

Scrambling of a bindee across a binder destroys binding relations that hold in the base position for principle A-effects (16a), for principle-C effects (16b), and for Q-binding (16c). Binding of a fronted reflexive by a nominative (16d) is exceptional, since in this case F-binding applies, that is, binding by the functional head, whose F-features agree with the nominative (see Haider 1989; 1993, 167; for a detailed implementation, see Frey 1993).[17] This is a nominative effect, not a subject effect: ECM subjects behave like objects, and scrambling of the bindee across the binder in (16e) is ungrammatical.

(16)   German
   a.   *dass   man   aneinander$_i$ die   Bilder^i e$_i$ anglich
        that   one   to.each.other   the   pictures   assimilated
   b.   dass   man   [den Vater [des Polizisten] ^{j}]$_i$ dem Polizisten^j/ihm^j e$_i$ nicht
        that   one   the father.ACC of.the policeman   the   policeman/him   not
        übergeben   hat
        handed.over   has
        'that the father of the policeman was not handed over to the policeman/him'

   c. $^?$dass   man   [seinen^i Vorgesetzten]$_j$ jedem^i e$_j$ ankündigte
       that   one   his boss.ACC   everyone.DAT   announced

   d.   dass sich$_i$ bei   diesem Fall viele^i e$_i$ geirrt haben
       that   REFL with this   case many   erred have
       'that in this case many erred'

   e.   *dass man sich$_i$ keinen^i e$_i$ vorstellen ließ
       that   one himself nobody   introduce let

These examples demonstrate that binding is computed at the target position of scrambling and not at the respective base positions; see Frey (1993) for a detailed comparison of these A-movement properties with A′-movement properties, which allow reconstruction. Reconstruction is not at issue with scrambling. Note that this distinguishes structures resulting from scrambling from those resulting from topicalization (17a) and (17b), which is an undisputed instance of A′-movement.

(17)   German

   a.   Aneinander$_i$ hat   man die Bilder^i e$_i$ angeglichen.
       to.each.other has   one   the   pictures   assimilated
       'The pictures were assimilated to one another.'

   b.   [Aus   Peters^i Wagen]$_j$ hat   man ihn$^{k/*i}$ e$_j$ gezerrt.
       out.of Peter's car   has   one   him   dragged
       'Peter was dragged out of his car.'

In A′-chains, binding is checked in the lower position. So (17a) meets condition (A), and (17b) violates condition (C). The relevant contrasts are (16a) versus (17a) and (16b) versus (17b).

   Property (v): Scrambling produces scope ambiguities.

Scrambling of quantifiers across quantifier-sensitive elements produces scope ambiguities. Unlike binding, which depends on the surface position of the head of a movement chain, scoping refers to chain links (see Frey 1993): a quantifier Q can get a wide scope reading with respect to a phrase E, if at least one member of the chain of E is c-commanded by Q; see also Aoun and Li's (1993) scope principle.[18] Since scrambling – under most of the current analyses – produces chain links, it is predicted to produce scope ambiguities.

(18)   German

   a.   *Ambiguous Scope*
      dass man [*mindestens ein* Bild]$_i$ *fast*   *jedem* Experten
      that   one   at.least   one   picture.ACC (to) almost every expert.DAT
      e$_i$ zeigte
         showed
      'that at least one picture was shown to almost every expert'

   b.   *Unambiguous Scope*
      dass man   *mindestens einem* Experten *fast*   *jedes* Bild
      that   they (to) at.least   one   expert$_{DAT}$ almost every picture.ACC
      zeigte
      showed

The ambiguity of (18a) is a scrambling effect. The wide-scope reading of the existentially quantified expression follows from its surface position. It c-commands the universal quantifier. The universally quantified expression, however, c-commands a trace of the scrambled existential quantifier expression. Hence, this phrase can be assigned to the scope of the lower quantifier. The order of the objects in (18b) – DAT before ACC object – is a base order, given the head verb *zeigen* (= show).

   Property (vi): Scrambling can be iterated.

Example (19), repeated for convenience, is representative: in the MF of a clause with three arguments, the arguments can be serialized in any order. So, there are orders in which more than one argument changes place. Hence, scrambling, unlike *wh*-movement, is not restricted to a single application.

(19)   German
    a. dass   das Objekt   dem   Subjekt   den   ersten   Platz
        that   the object   the.DAT   subject   the   initial   place.ACC
        streitig   macht
        contentious   makes
        'that the object disputes the right of the subject for the initial place'
    b. dass   dem   Subjekt   den   ersten   Platz   das   Objekt
        that   the   subject.DAT   the   initial   place.ACC   the   object.NOM
        streitig   macht
        contentious   makes

If (19a) reflects the base order, (19b) is the result of scrambling the objects across the subject. Note that the resulting order of the scrambled objects is free: changing the order of the dative and the accusative object in (19b) does not affect grammaticality.

   Property (vii): Scrambling reorders arguments (*object shift* does not; see section 2.3.1).

In a genuine scrambling language like German or Japanese, scrambling produces the complete permutation set of argument order variants for a given clause (see the discussion of example (1)). The term *scrambling* is sometimes used in a wider sense. In the discussion of Dutch word order, *scrambling* is used to refer to the order variation between an argument and an adverbial (see section 2.2.1).

   Object shift denotes a phenomenon found in Scandinavian languages: pronominal objects (in Icelandic, any kind of objects) may precede pre-VP adverbials if the VP is beheaded, that is, if the verb is (finite and) moved to the V2-position. The Dutch phenomenon and the Scandinavian object shift share the property of order conservation: the relative order of arguments must not change. So, it is justified and necessary – at least on the descriptive level – to distinguish *scrambling proper* from variants of object shift, as in Scandinavian languages and Dutch. It is still an unsettled issue as to whether "object shift" should be analyzed as an argument movement phenomenon or as an adverb-related phenomenon (see Neeleman and Weerman 1999, 38ff.).

2.2 Base positions of arguments

2.2.1 Base order as a function of A-structure projection

In German, scrambling cannot be identified without reference to the A-structure of the particular verbal head. The reason is this: <mark>the German base order is not a function of grammatical relations (e.g. case), but directly reflects the ranking of the arguments in the A-structure of the given head. The ranking is a function of the hierarchical organization of the lexical-conceptual structure in the lexical entry of a head.</mark>

Several verb classes can be distinguished in German with respect to the serialization type determined by their respective A-structure. It is worth emphasizing that this is not a peculiarity of German. German compares with Icelandic in this respect. V-class-dependent base orders are familiar from Icelandic (Kress 1982; Yip, Maling, and Jackendoff 1987), too. In this language, variant base orders are easy to identify just because of the lack of scrambling. They can be read off from the surface order of DPs inside a VP. So, this is a safe indicator that the ordering type is neither an idiosyncratic property nor dependent on scrambling.

A given order of arguments that is the result of scrambling for one verb class (cf. (20a), (20c), and (20e)) may be a base order for another verb class (cf. (20b), (20d), and (20f)). Therefore, a naive inspection of the order of DPs in terms of their case functions does not reveal whether a given order is a base order or a scrambling order. What is needed is an empirically reliable test criterion for the identification of antecedent–gap configurations that are indicative of scrambling.

In German, the patterns in (20) are possible base orders for nominal arguments in German (see Haider 1997a):

(20)	a.	NOM > ACC	anfassen	bedauern	interpretieren
			touch	regret	interpret
	b.	ACC > NOM	ängstigen	beeindrucken	interessieren
			frighten	impress	interest
	c.	NOM > DAT	helfen	gratulieren	widersprechen
			support	congratulate	oppose
	d.	DAT > NOM	gefallen	fehlen	imponieren
			appeal/please	lack/be missing	impress
	e.	NOM > DAT > ACC	anvertrauen	verbieten	zeigen
			entrust	forbid	show
	f.	NOM > ACC > DAT	aussetzen	unterordnen	zuschreiben
			expose something to someone	subordinate	attribute

All the verbs listed in (20a) through (20f) are verbs that require *have* as an auxiliary, and hence the patterns in (20b) and (20d) cannot be explained away as an ergative–unergative effect. The subject of the verbs in these two classes receives a Theme

interpretation. If an Agent interpretation is chosen, the verbs must be allocated into class (20a) and (20c), respectively.

It is worth emphasizing that in Dutch, a language without nominal case marking,[19] base orders with a nominative following an object are found only with unaccusative verbs.[20] What is called scrambling in the literature on Dutch is the variation in the relative order of arguments and certain adverbials. Genuine scrambling is the permutation of arguments. This is absent in Dutch. The reason has to be sought in the implementation of case checking.

What determines the base order? The base order reflects the order in which the arguments are discharged into the syntactic structure: the asymmetric ranking order of the arguments in the argument grid is mapped onto an asymmetric syntactic structure. A higher ranked argument ends up in a higher position in the syntactic constituent structure (c-structure).

(21)   A-structure c-structure (head-final)

$H°$: $<A <B <C>>>$ (ranked) lexical A-structure $\Rightarrow$ $[A [B [C h°]]]$ syntactic c-structure (head final)

For the present purpose, it is sufficient to grant that ranking is a function of the A-structure of a lexical head. The ranking of the A-structure in the lexical entry is not idiosyncratic (but see also Emonds 1991). It seems to be determined by the conceptual structure.

In order to avoid begging the question, *syntactic* criteria for the identification of base versus derived order are needed to ascertain whether a given serialization is the result of scrambling or whether it is a base order. Moreover, the test should be sensitive for antecedent–gap constellations that go together with scrambling in order to verify or falsify the assumption that scrambling involves chain formation.

A set of diagnostics with the desired property is found at the phonology–syntax interface. The first diagnostic property is the availability of a *maximal focus potential* under a nuclear stress intonation. The second property is *scope inversion* under rise–fall intonation. This property can be explained without additional assumptions if there is an antecedent–gap configuration with the rise intonation on the antecedent and the fall intonation on the constituent adjacent to the gap (see Haider 2001).[21]

2.2.2 *Focus potential*

It is by now widely accepted that maximal or wide focus (the whole utterance focused) is only possible in clauses where the focus exponent (i.e. the argument carrying the nuclear accent) is both in its base position and in the sister position of the head, which is the lowest position in the phrase.[22]

In order to be a felicitous answer to a question like "What is the case?" or "What has happened?" wide focus potential is required. Scrambling of the most deeply embedded argument destroys this constellation, since then the most deeply embedded A-position is a trace – and traces cannot be stressed. Stress on any other position yields only a restricted focus domain. So, scrambling of the lowest argument in the base order results in the loss of maximal focus potential.

With this in mind, let us test utterances for the potential extension of their focus domain by looking at them in the question context mentioned earlier in this chapter. Whenever the focus of a clause with a V-adjacent argument is restricted (and the utterance is consequently an unacceptable answer in the given context), we know that the expected focus exponent in structural terms is not the closest argument to the verb. A closer argument must have left a trace in its own base position closer to the verb and thereby lower in the VP. Hence, this test will tell us not only which one of two alternative constellations is the base constellation but also that the scrambled phrase has left a trace. Let us look at some representative examples. The examples in (22) contrast a verb with NOM>ACC base order (*interpretieren*, 'interpret') and one with ACC>NOM base order (*interessieren*, 'interest'):

(22) German
    a. *Maximal Focus*

	dass	Linguisten	Bal*LAD*en	interpretieren
	that	linguists.NOM	ballads.ACC	interpret.3P.PL

    b. *Maximal Focus*

	dass	Linguisten	Bal*LAD*en	interessieren
	that	linguists.ACC	ballads.NOM	interest.3P.PL

    c. *Minimal Focus*

	dass	Balladen$_i$	Lingu*IST*en	e$_i$	interpretieren
	that	ballads.ACC	linguists.NOM		interpret.3P.PL

    d. *Minimal Focus*

	dass	Balladen$_i$	Lingu*IST*en	e$_i$	interessieren
	that	ballads.NOM	linguists.ACC		interest.3P.PL

In (22c) and (22d), only the DP with the focus exponent is a possible focus domain. They do not allow maximal focus. Note that the order of arguments in terms of case is different in (22c) and (22d). The utterances would be felicitous answers only to questions like "Who interprets ballads?" for (22c) and "Who do ballads interest?" for (22d), but not to a question like "What happened?" Equally felicitous answers to the questions would be the sentences in (22a) and (22b), respectively, but with stress on the first DP:[23]

(23) German
    a. *Minimal Focus*

	dass	Lingu*IST*en.NOM	Balladen.ACC	interpretieren
	that	linguists	ballads	interpret

    b. *Minimal Focus*

	dass	Lingu*IST*en.ACC	Balladen.NOM	interessieren
	that	linguists	ballads	interest

The stress pattern in (22c)–(22d) is identical with the stress pattern in (23a)–(22b) – a DP preceding another DP is stressed – and so is the focus potential, namely, minimal focus only. This parallelism is evidence for the existence of a trace in (22c) and (22d): only with the trace in the base positions, the structures of (22c)–(22d) and (23a)–(22b) are equivalent with respect to the positioning of the focus stress.

The same contrast as illustrated in (22) for subject and object can be observed with pairs of verbs that differ in the base order of double objects: for a minority class of verbs, ACC-DAT, and not DAT-ACC, is the base order:

(24)   German

    a.   *Maximal Focus*

Es	hinterließ	jemand	einer	Frau	eine	*NACH*richt.
there	left	someone	a	woman.DAT	a	message.ACC

    b.   *Non-maximal Focus*

Es	hinterließ	jemand	eine	Nachricht	einer	*FRAU.*
there	left	someone	a	message.ACC	a	woman.DAT

    c.   *Maximal Focus*

Ein	Lehrer	setzte	einen	Schüler	einer	großen	Ge*FAHR*	aus.
a	teacher	exposed	a	pupil.ACC (to)	a	great	danger.DAT	

    d.   *Non-maximal Focus*

Ein	Lehrer	setzte	einer	großen	Gefahr	einen	*SCHÜ*ler aus.
a	teacher	exposed (to)	a	great	danger.DAT	a	pupil.ACC

The basic difference between the two verb classes is obvious: in the DAT-ACC class, the dative argument is typically an experiencer; hence, it denotes an animate discourse referent. In the ACC-DAT class, the dative marked argument has frequently a non-animate denotation, since it typically codes for a goal or source relation. ==This difference – experiencer versus goal – is reflected as a difference in the argument ranking in the argument structure of the respective verbs.== Note, however, that it is not simply an animacy-triggered difference:

(25)   German

    a.   *Maximal Focus*

dass	man	ja	seine	Kinder.ACC	den	*LEH*rern	aussetzen	muss
that	one	PRT	one's	children (to)	the	teachers	expose	must

    b.   *Non-maximal Focus*

dass	man	ja	den	Lehrern	seine	*KIN*der.ACC	aussetzen	muss
that	one	PRT (to)	the	teachers	one's	children	expose	must

    c.   *Maximal Focus*

Er	hat	das	erste	Gedicht.ACC	seiner	*MUT*ter	gewidmet.
he	has	the	first	poem (to)	his	mother	devoted

    d.   *Non-maximal Focus*

Er	hat	seiner	Mutter	das	erste	Ge*DICHT*.ACC	gewidmet.
he	has (to)	his	mother	the	first	poem	devoted

In (25a)–(25b), all DPs involved denote animate individuals, but nevertheless the base order is identical with the base order in (24c), namely ACC-DAT. On the other hand, an animate dative as in (25c) has no influence on the base order. This becomes understandable if one bears in mind that in the lexical-conceptual structure of a verb like *devote*, animacy is irrelevant for ranking, because the animate argument nevertheless is a goal argument.[24] Analogously, in the DAT-ACC class, animacy has no effect on the base order either.

2.2.3 Scope

Scrambling affects scope relations. If the scrambled element is a scope-sensitive one, its scope domain gets wider by virtue of being moved to a position higher in the tree. If it moves across another scope-bearing element, scope ambiguities arise (see Frey 1993). Let us examine the following example:

Question: Wie steht es mit der Beantwortung all der Fragen?
how stands it with the answering all the questions?
'What about the answers to all the questions?'
Answer: Du weißt doch, …
you know PRT, …
'You know, …'

(26) German
   a. dass mindestens einige Schüler fast ALLe Fragen
       that at.least some pupils almost all questions
       beantworten konnte
       answer could
       'that some pupils could answer almost all questions'
   b. dass [mindestens einige Fragen]$_i$ fast ALLe Schüler e$_i$
       that at.least some questions almost all pupils
       beantworten konnten
       answer could

In (26a), the only unforced reading is scope according to the overt order. In (26b), two readings are available. One corresponds to the surface linear order, the other reading to the base order: since the trace of the scrambled object is in the scope of the subject, the subject can get scope over the scrambled DP. This is in accordance with our assumption that (26a) is the base order and (26b) the scrambled order, resulting in a chain. Let us now apply this diagnostics to a verb with the base order pattern ACC-NOM, namely *interessieren* (interest).

(27) German
   a. Dass einige Linguisten fast ALLe Balladen interessierten
       that some linguists almost all ballads interested
       'that some linguists were interested in almost all ballads'
   b. Dass [einige Balladen]$_i$ fast ALLe Linguisten e$_i$ interessierten
       that some ballads almost all linguists interested

The verb *interessieren* projects the argument structure EXP<THEME/CAUSE into the base order with the result that ACC precedes NOM. We therefore expect (27b) but not (27a) to give rise to two readings. This expectation is fulfilled. Analogous considerations apply to the other verb classes mentioned in section 2.2.1. Compare the following examples:

(28) German
   a. dass er einen Kandidaten fast ALLen Tests unterzogen hat
       that he one candidate almost all tests subjected has
       'that he subjected one candidate to almost all tests'

b. dass er [einem Test]$_i$ fast   ALLe Kandidaten e$_i$ unterzogen hat
    that he one   test   almost all   candidates   subjected has

As expected, (29a) with the base order ACC>DAT yields only one reading, whereas (29b) gives rise to two readings. The converse pattern is characteristic for verbs with the base order DAT>ACC:

(29) German
      a. dass er zwei Kandidaten fast   ALLe Fragen   stellte
          that he two   candidates almost all   questions posed
          'that he asked two candidates almost all questions'
      b. dass er [zwei Fragen]$_i$ fast   ALLen Kandidaten e$_i$ stellte
          that he two   questions almost all   candidates   posed

In both cases, thus, the scrambled order and only the scrambled order – DAT>ACC in one case, and ACC>DAT with the other V-class – results in two readings.

2.2.4 The base order of arguments in German is not a function of their grammatical relations

German does not provide compelling evidence for, but displays a considerable amount of evidence against, the contention that the base order is a function of the syntactic licensing relation (case checking), and in particular against the contention that case checking obligatorily requires a functional head in the spec-position of which case features are checked, overtly or covertly. The data presented in the scrambling section in connection with the issue of semantically determined base order types is one body of evidence.

In this section, four issues will be addressed. The first one is the exclusion of non-argumental expletives: if there were a functional spec-position for subjects in German, this spec-position would license clause-internal, non-argumental expletives. But this kind of clause-internal expletive is ungrammatical in German (and arguably in OV in general), and this cannot be attributed to pro-drop. The second one is the opacity of spec-positions: a phrase in a spec-position and in particular a subject is predicted to be opaque for extraction. This prediction is incorrect. *Third*, even covert movement to a spec-position must be ruled out, since the LF resulting from LF-raising out of fronted VPs is ill-formed. The conclusion must be that the unscrambled positions of arguments in the German clause structure are the base-generated, *preverbal* argument positions within the V-projection.

In addition to these three areas of theory-internal considerations, there is a set of data that bears directly on phrase structure decisions. This is the evidence from VP-topicalization in German. It provides immediate evidence for the claim that in German clause structure, unlike English, all argument-positions may remain in their VP-internal positions in surface structure (see also excursus 1).

Subjects inside topicalized VPs

Subjects may appear in the topicalized V-projection if two conditions – a semantic and a syntactic one – are met: first, the subject must be non-specific. At best, the VP

denotes a property of an event in the scope of a quantifier. This accounts for the contrast between (30a) and (30b). This instance of a *specificity effect* was noted first by Kratzer (1984).[25]

(30) German
  a. *Indefinite* Unspecific *Subject*
      [Ein   Außenseiter gewonnen] hat   da   nie.
      an   outsider   won   has   here   never
  b. *Definite* Specific *Subject*
      *[Der krasse   Außenseiter gewonnen] hat   da   nie.
      the   rank   outsider   won   has   here   never
  c. [Linguisten gespeist] haben hier   schon   oft.
      linguists   dined   have   here   already often
  d. *[Die Linguisten aus   Wien   gespeist] haben hier   schon   oft.
      the   linguists   from   Vienna   dined   have   here   already often
  e. [Kinder gespielt] haben hier   nie.
      kids   played   have   here   never
  f. *[Ihre Kinder gespielt] haben hier   nie.
      her   kids   played   have   here   never

It is worth emphasizing that subjects within topicalized VPs do not prevent the licensing of anaphors as illustrated in the following examples. A solution is proposed in Frey (1993): a nominative subject agrees with the finite verb, and thereby finiteness-features c-command the anaphor. So the anaphor indirectly agrees with its binding antecedent (31a)–(31b).

(31) German
  a. [Ein Wunder[j] ereignet][i] *hat*[j] sich[j] hier   noch   nie   e[i]
      a   miracle   occurred   has   REFL   here   never ever
      'A miracle has never ever occured here'
  b. [Wunder[j] ereignet][i] *haben*[j] sich[j] hier   noch   nie   e[i]
      miracles   occurred   have   REFL   here   never ever

Note that VP-internal transitive subjects are problematic for *remnant topicalization analyses* (see Den Besten and Webelhuth 1990). According to this analysis, what appears to be the topicalization of a part of the VP is analyzed as the result of the interaction of VP-topicalization and scrambling: scrambling removes constituents from the VP. Then, the partially emptied VP is fronted across the elements that have been moved out. This analysis overgenerates in the crucial case, namely with objects that resist scrambling. The grammaticality of (32c) remains unaccounted under a remnant-movement account.

(32) German
  a. dass hier   ein Aussenseiter noch nie   *was*   gewonnen   hat
      that there an outsider   never ever *what* (= something) won has
  b. *dass hier *was*[i] ein Aussenseiter noch nie e[i] gewonnen hat
  c. [Ein Außenseiter gewonnen][i] hat hier noch nie *was* e[i]

Subjects of unaccusative verbs, whose base position is lower than the position of an object, behave as expected. This is no surprise, since the nominative-DP is generated in the position of the direct object.

(33) German
    a. [Ein Fehler   unterlaufen] ist hier noch nie   einem Professor/wem.
        a   mistake slipped.in   is here never ever(to) a   professor.DAT
        'Never ever has a professor committed a mistake here'
    b. Unangenehme Fragen   gestellt werden auch hier   manchmal den
        unpleasant   questions posed   were   also   here sometimes the
        Professoren/wem.
        professors/someone.DAT

The crucial difference between the subjects in the examples above and the unergative subjects is the following: the base position of the ergative subjects (34) in the VP is lower than the base position of the dative object. This is not an exclusive property of ergative subjects. Transitive subjects of idiom chunks behave as expected, for the following reason: the specificity constraint (Kratzer 1984) that applies to subjects in fronted VPs is void for non-referential subjects. Hence, subjects as parts of idioms are admitted. Syntactically, they are nevertheless true subjects of transitive verbs. A fronted VP that contains a transitive subject is not limited to idiom chunks, though, as (34c) illustrates.[26] The property in common is a definite subject without specific reference.

(34) German
    a. dass den Mann der   Schlag getroffen hat
        that   the   man   the.NOM stroke   hit   has
        'that the man suffered a stroke'
    b. [Der   Schlag getroffen] hat den   Mann.
        the.NOM stroke   hit   has the.ACC man
    c. [Die Wut   gepackt] hat den.ACC Mann dabei   schon   oft.
        the   anger seized   has the   man   it.with already often

In sum, transitive subjects in topicalized VPs are grammatical. Hence, the VP-internal position is a licit surface position for *nominative DPs* in German. The counterpart in the VO language family is Icelandic. Postverbal nominatives in combination with a non-nominative preverbal functional subject are evidence for the possibility of VP-internal nominative assignment in VO.

Expletive non-argumental subjects
Descriptively speaking, a subject is a *non-argumental expletive subject* if there is a lexical item for the canonical subject position for which the verb does not provide any argument relation. The test case is the passive of an intransitive verb. In German, expletive subjects in the MF are ungrammatical. It is instructive to compare Dutch and German in this respect. The examples and the judgments in (35a)–(35c) are taken from the descriptive grammar of Paardekooper (1963, 55). He states explicitly that the apparent optionality of an expletive in constructions like (35b) (i.e. with a non-extraposed local adverbial) is an effect of the presence of a (local) adverbial.

This can be observed in English as well, in a different construction, though (see (35d)).

(35) a. Dutch
         In deze hoek   wordt volgens   mij   gefluisterd.
         in this corner is   according to me   whispered
      b. ?Volgens mij wordt in deze hoek gefluisterd.
      c. *Volgens mij wordt gefluisterd in deze hoek.
      d. On this spot (there) will stand a huge tower.
      e. dat   *(er)   werd   gelachen
         that (there)   was   laughed
      f. German
         dass (*es)   gelacht   wurde
         that (there) laughed   was
      g. Dutch
         Er   werd   gelachen.
         there   was   laughed
      h. German
         Es   wurde gelacht.
         there   was   laughed

In Dutch, the expletive subject in the clause-internal position in (36e) is obligatory; in German, it is obligatorily missing (36f), although the respective elements can be found as expletives, but only in the spec-C position ((36g) and (36h)). If German had an obligatory spec-position for the subject in the MF, the expletive would have to appear in this position, just like in Dutch.

The fact that in Dutch but not in German there is a structural subject position (arguably either as a spec-VP or as a functional spec-position) finds support in the distribution patterns of fronted pronouns: in German and in Dutch, pronouns are fronted to the left edge of the VP. In Dutch, this is a position following the spec-position that hosts the subject. Hence, fronted pronouns in Dutch but not in German must not precede the subject, if the subject occurs in the spec-position (see Kieft 1963, 301); see also section 4.3.

(36) a. Dutch
         Toen vond   mijn broer *het* opeens   tussen   oude   kranten.
         then found my   brother it   suddenly between old   newspapers
      b. Dutch
         *Toen vond *het* mijn broer opeens tussen oude kranten.
      c. German (=36a)
         Damals fand *es* mein Bruder plötzlich zwischen alten Zeitungen.
      d. Dutch
         Nog   nooit had de   jongen zich   meer   ingespannen.
         never ever   had the boys   themselves more   struggled
         dan   dit   jaar
         than   this year
      e. Dutch
         *Nog nooit had *zich* de jongen meer ingespannen dan dit jaar.
      f. German (=36d)
         Noch nie hatte *sich* der Junge mehr angestrengt als in diesem Jahr.

This set of data indicates that the subject position in Dutch is structurally different from the subject position in German. Given that pronoun fronting targets the left edge of the VP, a transitive subject is VP-internal in German, but arguably VP-external in Dutch. The contrast in (36) is easy to account for if the absence of an expletive subject in German is a function of the absence of a functional subject-position.

   If there is an obligatory spec-position for the subject, on the other hand, this position legitimates and triggers the presence of an expletive. The obligatory absence of a subject-expletive in intransitive passives and in presentative constructions (cf. (37)) in German calls for a structural explanation (see Haider 1990; 1993; 2010). Invoking a language-specific pro-drop option is an ad-hoc patch-up strategy that does not adequately capture the empirical situation.

(37)   Dutch
       a.   dat (er) gisteren iemand vertrokken is
       German
       b.   dass (*es)   gestern   jemand   abgereist   ist
            that (there) yesterday someone   left   has
            'that someone left yesterday'

Accounts in terms of pro-drop as an independent parametric difference disregard an important fact: there are semantically empty subjects in German (cf. (38)) that must not be dropped. If German were pro-drop, pronominal subjects in these constructions would have to be expected to be dropped. Alleged semi-pro-drop languages as German should drop exactly these pronominal subjects. These data are counterevidence for the semi-pro-drop hypothesis.

(38)   German
       a.   *Quasi-Argument*
            dass *(es)   sich   dabei   um   einen   Irrtum   handelt
            that (it)   REFL   it.by   at   an   error   deals
            'It is a mistake'
       b.   *Intransitive Middle Construction*
            dass *(**es**)   sich   in   dieser   Stadt   gut   lebt
            that (it)   REFL   in   this   city   well   lives
       c.   *Extraposition*
            dass *(es)   zu   gefährlich   ist,   diese   Route   zu   benützen
            that (it)   too dangerous   is   this   route   to.take
            'that it is too dangerous to take this route'

The verb *handeln* in the construction (38a) takes two semantically empty arguments, namely *es* (= it) as a subject and a reflexive as an object, plus PPs that host the DPs that are equated. Semantically, the verb establishes an equation relation between the DPs contained in the PPs. (38b) is the intransitive middle construction with the verb *live*. In German, the middle of an intransitive verb introduces an expletive subject and a reflexive object. (38c) is an extraposition construction. Dropping the pronominal subject that goes together with the extraposed subject clause is optional for some predicates but not for all, as the predicate in (38c) illustrates. A pro-drop-account that

treats German as a semi-pro-drop language, which drops non-referential pronouns, would wrongly predict that the pronominal subject should drop in all these constructions.

If, on the other hand, no functional projections in the MF call for lexical material for at least their spec-positions, the absence of *obligatory* spec-positions in the MF is the direct grammatical reason for the absence of subject expletives. There is no room for an expletive subject and consequently no need for invoking an exceptional type of pro-drop (see Haider 1990).

Extraction out of subjects (CED effects)
Further corroborative evidence for the claim that the position of subjects in German is VP-internal (rather than in the spec-position of a functional projection above the VP) is the lack of opacity effects with subjects in German: there are no clear-cut structural subject–object asymmetries for extraction or *wh*-in-situ constructions. If a subject were moved to a spec-position, this would render it an opaque domain for extraction out of this phrase. A decade of research on extraction restrictions proved the *subject condition* to be a robust phenomenon: a subject in a functional spec-position is opaque for extraction because phrases in functional spec-positions are opaque. Consequently, non-opaque subjects must be subjects that are not in functional spec-positions. They are VP-internal.

(39) a. *$What_i$ would [to discuss e_i with him] be worthwhile?
　　 b. $^{(?)}What_i$ would it be worthwhile [to discuss e_i with him]?
　　 German
　　 c. Was_i　würde　sich　[mit　ihm e_i　zu　besprechen]　denn　lohnen?
　　　　 what　would　itself　with　him　　to　discuss　　　 PRT　pay
　　 d. Nur das_i　würde　sich　[mit　ihm e_i　zu　besprechen]　ja　lohnen.
　　　　 only this　would　itself　with　him　　to　discuss　　　 PRT　pay
　　 e. Was/das_i　würde　[mit　ihm e_i　zu　besprechen]　denn　Spaß.ACC　machen?
　　　　 what/this　would　with　him　　to　discuss　　　 PRT　fun　　　make

Since the subject clause in (39c)–(39e) is systematically transparent for extraction, it cannot be assigned to a functional spec-position. A phrase in such a position is opaque for extraction. So, if there were a medial spec-position in (39c)–(39e), its status would be that of a pronominal empty category. Fronting the clause across this empty pronominal element in (40b) should produce the same effect as fronting a clause across an overt pronominal antecedent in (40a). In addition, the empty pronominal in the spec-I position would force extraposition. (40c)–(40e) illustrates the contrast between extraposed and non-extraposed complements in the presence of a pronominal antecedent:

(40) German
　　 a. *[Alles mit ihm zu besprechen]$_i$　würde　es^i　sich　nicht　lohnen　e_i
　　　　 everything with him to discuss　　would　it　itself　not　　pay
　　 b. [Alles mit ihm zu besprechen]$_i$　würde　e_i　sich　nicht　lohnen.
　　　　 everything with him to discuss　　would　　　itself　not　　pay
　　 c. dass　*es*　sich　nicht　lohnen　würde　[alles mit ihm zu besprechen]
　　　　 that　it　itself　not　　pay　　would　everything with him to discuss

    d. dass (*es) [alles mit ihm zu besprechen] sich nicht lohnen würde
        that (it)   everything with him to discuss itself not   pay   would
        'that it would not pay to discuss everything with him'

The contrasts in (39) follow immediately if the embedded subject clause is not in relation with an empty pronominal in an IP-spec of the matrix clause. The empty category in (39b) is the single trace of the fronted clause, and there is no other empty category the clause is coindexed with.

    Note: The structural conditions are necessary but not sufficient for extraction. The *bridge verb quality* (remember: verbs of saying are bridge verbs for clausal objects, but factive verbs like *regret* are not) is an additional independent factor that should be controlled if you try to countercheck the data generalizations. Sometimes, the impression of a subject–object contrast may arise because there are only a few subject-related bridge verbs, that is, verbs with a semantic relation to the subject argument that is of a similar semantic quality as the thematic relation to the objects of verbs like verbs of saying, and so on (try *träumen* 'dream' with a subject clause and a dative object, and you have a candidate for extraction out of a finite subject clause) (see Haider 1993, 158ff.).

2.3   Pronouns

Unstressed pronouns have properties of their own that differ from non-pronominal DPs:

- Serialization preference: fronting to the left edge (see the parametric factors discussed further in this chapter)
- Order template by case: *nominative* before *accusative* before *dative* (same for Dutch)
- Serialization restriction with respect to information structure–sensitive particles and adverbials.

2.3.1   Fronting

Unstressed pronouns tend to be fronted to the left edge of the MF in German. Pronoun fronting applies both to argumental pronouns and to pronominal adjuncts (e.g. *there*). Cross-linguistically, the domain of fronting may appear to be different at first glance, if the patterns are compared. In German, object pronouns are fronted to a position following the topmost functional head (41a), that is, the complementizer or the finite verb. In Dutch, an object pronoun must not be fronted across an unergative subject (41b). In English, pronouns are fronted within the VP to a position after the verbal head (41c). In the continental Scandinavian languages (41e)–(41f), pronouns must be fronted across clause-internal adverbials and negation in the so-called obligatory object shift configuration (see Vikner 1994 and Object Shift in Scandinavian).

(41) a. German
        dass [es$_i$ jeder e$_i$ zurücksteckte]
        that it   everyone back.put

  b.　Dutch
　　　*dat　het$_i$　iedereen　[e$_i$　terugzette]
　　　that　it　　everyone　　back.put
  c.　that everyone [put it back e$_i$]
  d.　Danish
　　　Studenterne　læste　den$_i$　　　alligevel　ikke e$_i$
　　　students　　　read　　it/there　after.all　not
  e.　Danish
　　　Studenterne　læste　alligevel　ikke　artiklen/*den.
　　　students　　　read　　after.all　not　article-the/it/there

Despite the apparently diverse patterns, the serialization of unstressed pronouns in the Germanic languages is uniform. It is the parametric diversification of a single condition: if a pronoun can be fronted, it is fronted to the area closest to the left edge of the VP. Once it is realized that in German the surface subject position is in general VP-internal (but perhaps not in Dutch), it is easy to provide a simple descriptive generalization for the range of fronting in a Germanic OV language.

Pronoun fronting targets the highest accessible VP-internal position: in German, this is the left edge of the MF. In Dutch, it is an MF-internal position, namely the left edge of the VP, arguably with the transitive subject in a (functional) position outside the VP. In VO languages, pronouns targeting the left edge of the VP end up in positions immediately following the V. In English (46c) as well as in Scandinavian languages (except for object shift contexts), pronoun fronting can be observed only in contexts in which fronting does not affect the argument order. The position targeted by fronting is closest to the left edge of the VP. In the Scandinavian languages, there is an additional possibility, namely *object shift*. The pronouns may be fronted to the left edge of the VP, provided that the overt head of the VP is not crossed. This is possible only if the verb has moved as in the case of the finite verb moved to the V2-position (see (41)).

In German, there are distributional restrictions that seem to differentiate between pronoun fronting and scrambling. Fronted negation ('light negation') in non-asserted clauses (i.e. conditionals and indirect questions) and information-structuring particles may precede scrambled NPs, but not fronted pronominals (see Haider 1997c):

(42)　German
  a.　wenn　damals　*nicht/doch*　{den　Mann$_i$,　*ihn$_i$}　jemand e$_i$
　　　if　　　then　　not/yet　　{the　man,　*him}　someone
　　　gewarnt　hätte
　　　warned　had
　　　'if (it had) not (been the case that) someone warned {the man, him} then'
  b.　wenn damals {den Mann$_i$, ihn$_i$} *nicht/doch* jemand e$_i$ gewarnt hätte

In (42a), the object is fronted across the subject. The result is ungrammatical for a pronominal but is perfect for a non-pronominal DP, if a particle of the kind discussed above precedes. The following example shows, however, that the restriction

against pronouns in the c-command domain of the particles including negation is independent of fronting. It holds in the base position, too:

(43) German
a. dass der Mann ja   doch die Frau/*sie   gesehen hat
     that the man   PRT   PRT   the woman/her   seen   has
     'that the man has seen her/the woman after all'
b. dass der Mann sie/die Frau   ja   doch gesehen hat
     that the man   her/the woman   PRT   PRT   seen   has

The contrast between (43a) and (43b) parallels the contrast in (42). Hence it is independent of scrambling. The only difference between scrambling and pronoun fronting is an order restriction. The preferred order for fronted pronouns is NOM-ACC-DAT. There is no such restriction for scrambled non-pronominal DPs (see Lenerz 1994).

2.3.2 Order restriction for pronouns: NOM *before* ACC *before* DAT

The order restriction is independent of the base order induced by the verbal head: whatever base order pattern the verbal head requires for its nominal arguments, pronominal arguments are ordered according to the template in the headline. If the order deviates from the standard serialization nominative < accusative < dative (cf. (44b) with a stressed pronominal subject), then the pronoun that follows, and thereby deviates, is stressed and as a stressed (= strong) pronoun exempted from the restriction.

(44) German
a. dass niemand/er.NOM ihn.ACC ihr.DAT vorstellte
b. dass *ihn ihr* niemand/ER vorstellte

The same ordering patterns hold in Dutch. This is remarkable because of the Dutch prohibition against scrambling a direct object in front of the indirect object. So this is additional evidence that the order of pronominal arguments cannot be a result of scrambling, nor can it be taken as an indicator of the base order for arguments. For both issues, Dutch provides the relevant counterevidence: since DP-objects cannot be reordered by scrambling, the pronoun order cannot be achieved by scrambling. However, if the pronoun order would be the base order for arguments, the canonical Dutch order for non-pronominal arguments, namely IO before DO, would have to be analyzed as an instance of scrambling the IO across the DO. The result would be overgenerating an ungrammatical DO before IO order as a base order.

The examples in (45) show that the demonstrative *dat* (see 51b) and the strong form *haar* appear in the order of non-pronominal forms, whereas the other pronouns come in the order of direct object before indirect object.

(45) Dutch
a. Had Jan/*hij* **het** *zich*   niet ingebeeld?
     had Jan/he   **it**   himself   not   imagined

   b. Had Jan/*hij* *zich*   **dat** niet ingebeeld?
       had   Jan/he himself **it**   not   imagined
   c. Eigenlijk had Jan/*hij* *zich*   **haar** heel   anders   voorgesteld.
       actually   had Jan/he himself **she** completely different imagined
   d. Eigenlijk had Jan/*hij* *ze* *zich*   heel   anders   voorgesteld.
       actually   had Jan/he **she** himself completely different imagined

The Dutch data provide immediate evidence for a general, cross-linguistically relevant issue that is hard to tackle with German data: the difference between the Dutch patterns of pronominal and non-pronominal DPs is evidence against the assumption of a case-driven underlying order for DPs in general.

    The invariant pronoun order in German might be and has in fact been (see Müller 1995) identified with an invariant case-driven underlying order for DPs in general, and the V-dependent serializations discussed here could be taken to be scrambling variants. The Dutch data clearly forbid this hypothesis, however: as in German, the pronominal direct object precedes a pronominal indirect object. For non-pronominal objects, the inverse order is required. But Dutch scrambling does not cross DP arguments. So the order of non-pronominal DPs cannot be a scrambling effect, and consequently, the pronominal order cannot be the base order of DPs in general. What is the source of the order restriction for personal pronouns?

    It is worth emphasizing that the order pattern NOM-ACC-DAT is not a consequence of fronting. It holds also for pronouns that are not fronted to the left edge of the MF, as (46) illustrates, and it holds for non-adjacent sequences of pronouns (47). Of course, non-pronominal DPs (47c) do not follow this restriction.

(46) German
    a. dass   endlich   einer   sie   uns   vorstellen/zeigen sollte
       that   after-all someone them.ACC us.DAT introduce/show   should
    b. *dass   endlich   einer   uns   sie   vorstellen/zeigen sollte
       that   after-all someone us.DAT them.ACC introduce/show   should

(47) German
    a. dass   bei dieser Gelegenheit *sie*   einer   *uns*   kurz
       that   on   this   occasion   them.ACC someone us.DAT briefly
       vorstellen/zeigen   sollte
       introduce/show   should
    b. ?dass   bei dieser Gelegenheit *uns*   einer   *sie*   kurz
       that   on   this   occasion   us.DAT   someone them.ACC briefly
       vorstellen/zeigen   sollte
       introduce/show   should
    c. dass   bei dieser Gelegenheit *den*   *Besuchern* einer   *die Bilder*
       that   on   this   occasion   to.the visitors   someone the pictures
       kurz   zeigen sollte
       briefly show   should

2.3.3   Particle distribution

Particularly instructive for the analysis of pronoun positions is the serialization pattern with respect to certain sentence particles (e.g. *ja* and *denn*). These particles are used for information structuring. They partition the clause into the backgrounded (topic, given) and the asserted part:

(48)   German
 a.   weil *sich*_j   ja   niemand dem Mob e_j in den Weg gestellt hat
       since *himself* PRT nobody the mob in the way put has
       'since nobody tried to stop the mob'
 b.   *weil **ja** *sich*_j niemand dem Mob e_j in den Weg gestellt hat
 c.   wenn *sich*_j **nicht** noch jemand der Meute e_j in den Weg wirft,….
 d.   *wenn **nicht** *sich*_j noch jemand der Meute e_j in den Weg wirft,….
 e.   weil **ja** unter diesen Umständen *sich* niemand dem Mob in den Weg stellen könnte

The descriptive generalization behind the pattern in (48) is this: if a pronoun is fronted, it cannot *exclusively* constitute the extendable VP-domain in the scope of a sentence particle: In (48b) and (48d), the extendable VP-domain contains only a pronoun that follows a sentence particle. This is unacceptable. The well-formed serialization is (48a) and (48c), with the pronoun preceding the particle. It is worth emphasizing that this is not a strict positional effect of an edge effect. Note that the fronted pronouns may be separated from the preceding functional head position (see 48e) by frame adverbials like *unter diesen Umständen* (= 'under these circumstances') and *angesichts der drohenden Gefahr* (= 'in view of the threatening danger'). The resulting expression becomes acceptable.

   It would be premature to conclude that if pronouns are fronted, they must be fronted to a specific 'position' preceding sentence particles. What we suggest is that the crucial factor behind the ungrammaticality of (48b) and (48d) is an information structure effect: pronouns are the canonical means of re-addressing given information. ==Given information is presented first, that is, in the initial portion of the MF.==

   The examples in (49) contrast, as expected, with the corresponding examples in (48). If a scrambled DP (preceding the fronted pronoun in this case) ends up higher than the domain of the particle, this DP receives the secondary stress. The slight degradation in (49) is to be blamed on the pronoun in this domain for a semantic reason. As non-referential material, it could and hence should precede the particle.

(49)   German
 a.   ^(?)weil ja [*dem Mob*_i sich_j niemand e_i e_j in den Weg gestellt hat]
 b.   ^(?)wenn nicht [*der Meute*_i sich_j noch jemand e_i e_j in den Weg wirft], …

The distribution with respect to adjuncts is analogous to the pattern found with sentence particles. Pronouns may be preceded, as mentioned here, by frame adverbials and adverbials of reasoning but not by lower adverbials.

(50)   German
 a.   dass *unter diesen Umständen* sich_i/sie_i Max (ja) e_i verstecken hätte müssen
 b.   dass *in vielen Fällen* sich_i/sie_i Max e_i (ja) nicht rechtzeitig informiert hat

    c.   ??dass (ja) *hier* sich$_i$/sie$_i$ niemand e$_i$ verstecken mußte
    d.   ??dass (ja) *gestern* sich$_i$/sie$_i$ niemand e$_i$ rechtzeitig informiert hat

The deviant sentences in (50) contain two candidates whose serialization disobeys the interface condition of mapping syntactic domains properly on semantic domains: the pronoun is in too low a domain, and the adjunct is too high. The pronoun as a background item is in the domain of an event adjunct that modifies the assertion part, and the adjunct c-commands an unnecessarily big domain.

2.4   Constraints on a well-formed MF

2.4.1 *Empty MF*
In this section, syntactic restrictions on elements in the MF are briefly reviewed (see also the "Expletive non-argumental subjects" part of section 2.2.4). The trivial case to start with is an *empty* MF. As mentioned in section 1, the MF in German, but not in Dutch, may be radically empty, as in (52a) versus (52b). An expletive element is ungrammatical in German but optional in Dutch.

(51) a. German
        Wird (*es)   gearbeitet?
        is   (there) worked
    b. Dutch
        Wordt (er)   gewerkt?[27]
        is   (there) worked

As in the case of English locative constructions (52a), a locative PP may substitute for the expletive in Dutch in an intransitive passive (52b). That a PP may replace an expletive in English as well becomes obvious in *wh*-constructions. The locative-PP as *wh*-element does not trigger *do*-support (52c). This indicates that the PP is in the same position as 'there' in (52d).

(52) a. On this spot (there) will stand a huge tower.
    b. Dutch
        In deze hoek werd gefluisterd.
    c. *Out of which* box jumped a rabbit?
    d. Out of which box did *there* jump a rabbit?

It would be misleading for German, and to a certain extent for Dutch or English as well, to characterize the absence of an expletive as a case of (semi) *pro-drop*. Quite a few attempts to that extent have been made in the 1980s (e.g. McKay 1985; Safir 1985; Platzack 1987; Grewendorf 1989).

It is misleading for English and Dutch in cases like (52a) and (52b), since these are cases of locative preposing. If Dutch were semi-pro-drop, the use of an expletive in (51b) would be as deviant as the use of an expletive in a full-pro-drop language. Dutch would be like German (52a).

But German is neither pro-drop nor semi-pro-drop. It merely shares the property of OV languages, namely the principled absence of an obligatory functional

position for the subject. OV languages generally "violate" the alleged universal extended projection principle (EPP) (see Haider 2010, 20, 36). The absence of an expletive in the German MF is the reflex of this structural difference and not a case of expletive pro-drop. There is no EPP-triggered expletive because there is no position that needs to be lexicalized. There are, however, conditions that trigger an expletive, and these expletives must not be dropped. First, there are semantically empty arguments, as a lexical requirement of certain verbs, such as weather verbs (53a) or impersonal variants of agentive verbs (53b):

(53)   German
   a.   *Quasi-argument*
        Gestern   hat *(es) geregnet
        yesterday   has it   rained
   b.   Irgendwann hat *(es) auch   ihn   erwischt
        eventually   has it   also   him   caught
        'eventually, he got caught, too'

Secondly, expletives are introduced by the middle construction, and they must not be dropped (54a)–(54b). Finally, German places expletives in the top functional spec in V2-declaratives (54c):

(54)   a.   Hier   plaudert *(es) sich   angenehm.
            here   chats   it   itself pleasantly
            'Here it is pleasant to chat.'
       b.   Hier   lässt *(es) sich   den   Urlaub   angenehm   verbringen.
            here   lets   it   itself the   vacation.ACC pleasantly spend
            'Here, vacation can be spent pleasantly.'
       c.   *(Es) spricht jetzt   der   Präsident.
            it   talks   now   the   president
            'The president is going to talk now.'

The expletive pronouns in (53a) and (53b) are expletive arguments, that is, semantically empty subjects. Crucially, they are not structurally expletive. There is no spec-position in OV that needs to be lexicalized (Haider 2010, 35). The only structural expletive is the expletive pronoun in (54c). It lexicalizes the obligatorily lexicalized spec-position in a V2-sentence. Structural expletives are absent in the German MF, however.

   Next, let us briefly look at a *derivationally emptied MF*: Although the MF may be empty from the beginning, it must not be emptied derivationally (Haider 1989). In other words, topicalization of the whole MF (i.e. the whole VP) as in (55a) is ungrammatical, but only if the MF area of the resulting clause is thereby completely emptied. This must not be confounded with the case of (55c), in which the MF contains only a single constituent that is fronted to the pre-field.

(55)   German
   a.   *[Eine Hymne gesungen]$_i$ wurde$_j$ e$_i$ e$_j$
        a   hymn   sung   was

b. [Eine Hymne gesungen]ᵢ wurdeⱼ dabei   noch   nie   eᵢ eⱼ
   a   hymn   sung   was   it.with never erver

c. [Eine Hymne] erklang.
   a   hymn   sounded

The crucial difference between (55a) and (55b) is that the movement in (55a), but not
in (55b), is string vacuous. But why should string-vacuous movement matter in (55a)
but not in (55c)? An answer is suggested in Haider (1989): In string-vacuous deriva-
tions, the well-formedness conditions for the target and the source structure must be
met simultaneously. This is the case for (55c): in the base structure, the order conforms
to the *complement+head* configuration, as a derived structure conforms to a *spec+head*
configuration. In (55a), the spec-constituent in the derived structure is not a possible
constellation in the non-derived order because of obligatory V-raising (i.e. cluster for-
mation): the participle and the auxiliary ought to be adjoined to each other. Of course
this is not the case in (55a) because the functional head position targeted by the finite
verb would not accept a verb cluster but only the single finite verb.

2.4.2   Banned from the MF

Let us turn to the next question: are there grammatical restrictions for phrases in the
MF? First, there are no *category* restrictions. Arguments and adjuncts in the MF are
allowed in all possible categories, that is, DP, PP, and CP, infinival and to some
extent even finite CPs.

(56) German
      a. Ich habe ja   [dass 2 plus 2 vier ergibt] nicht bezweifelt.
         I   have PRT   [that 2 plus 2 four yields] not   doubted

      b. Du   must aber   [sobald   das Licht erscheint] sofort   den Knopf
         you must however [as.soon.as the light appears] directly the button
         drücken.
         press

      c. Ich werde [was   ich gefunden habe] niemandem   zeigen.
         I   shall what   I   found   have   nobody   show

      d. ??Mich hat ja   [ob er es getan hat]   nicht wirklich interessiert.
         me.ACC has PRT   [whether he it done has] not   really   interested

      e. ??Mir hat sie [wer es getan hat] ja   nicht gesagt.
         me.DAT has she [who it done   has] PRT   not   said

      f. *Bis   jetzt hat sie [er würde auch kommen] geglaubt.
         until now   has she [he would also come]   believed

Finite CPs in the MF occur as declarative argument clauses of a subset of verbs (56a),
as adverbial clauses of all kinds (56b), or as free relatives (56c). Argumental CPs in
the function of indirect *wh*-clauses are less acceptable or at least highly marginal
(56d)–(56e). Embedded V2 clauses are ungrammatical in the MF (56f). They must
be extraposed.

   Second, there are strict dependency restrictions. Constituents that are not "VP-
compatible" are excluded from the German MF. A constituent XP is VP-compatible
if it is an argument of V°, an adjunct of V° or its extended projection, or a secondary

predicate of an argument of V° (57). VP-incompatible constituents are phrases without a dependency relation to the V° head of the VP, for instance wrongly extraposed elements, as in (59a)–(59c).

(57) German
    a. Er[i] hat [das Steak[j] betrunken roh[j] gegessen[i]]
         he has the steak drunk raw eaten
    b. He[i] [ate the steak[j] raw[j] drunk[i]]

Note that secondary predicates and extraposable attributes like relative clauses behave differently: the former can be part of a topicalized VP (58a), while the latter cannot (58b), unless the antecedent is contained in the VP (58c).

(58) German
    a. [Betrunken roh gegessen] hat nur einer sein Steak.
         drunk raw eaten had only one his steak
         'Only one has eaten his steak raw drunk.'
    b. *[Entdeckt, [den[i] er gemacht hat]] hat er ja einen Fehler[i].
         discovered [which he made has] has he indeed a mistake
    c. [Einen Fehler[i] entdeckt, [den[i] er gemacht hat]] hat er in
         a mistake discovered [which he made has] has he well
         der Tat.
         indeed has
         'discovered a mistake that he has made, he has indeed'

The examples in (59) illustrate that wrongly detached (= extraposed) clauses (e.g. relative clauses and comparative clauses) cannot occur in the MF but only in the post-field. The relation between an extraposed argument clause and the correlate pronoun in the MF follows the same pattern (60). Fronting to the pre-field is unacceptable in all these cases. Note that this asymmetry (OK in post-field, but not OK in pre-field) raises a non-trivial problem for movement approaches to extraposition (see Culicover and Rochemont 1990; Haider 2010, ch. 5), since in both cases the trace would guarantee the proper identification of the extraction site.

(59) German
    a. *Er hat alles[i] auf Anhieb [was sie gesagt hat][i] auch verstanden.
    b. Er hat auf Anhieb [was sie gesagt hat] auch verstanden. (N.B.: *free relative*)
    c. *Sie hat mehr[i] Leuten die Geschichte [als[i] notwendig war] erzählt.
    d. Sie hat mehr[i] Leuten die Geschichte erzählt [als[i] notwendig war].

(60) German
    a. Bisher hat (*es[i]) den meisten [per e-mail benachrichtigt zu werden][i]
         until.now has (it) for the.most [by e-mail notified to be]
         genügt.
         sufficed
         'Until now, it was sufficient for most of them to be notified by e-mail.'
    b. Bisher hat (es[i]) den meisten genügt [per e-mail benachrichtigt zu werden][i].
    c. [Per e-mail benachrichtigt zu werden][i] hat (*es[i]) bisher den meisten genügt.

Let me repeat: <mark>structural expletives (i.e. expletives for spec-positions) are banned from the German MF.</mark> This is not true for Dutch *er*, as the contrast between (61a) and (61b) illustrates. Note that the very same element is the required expletive for the pre-field in the respective language. It would be misleading to attribute the absence of an expletive in German to pro-drop of non-referential subjects because quasi-arguments (62a), subjects of middle constructions (62b), and the correlates of extraposed clauses (62c) cannot be dropped freely.

(61) a. German

       Mitunter   steht   (***es**) jemand   an der   Tür.

       sometimes stands it   someone at the door

       'Sometimes, there is someone at the door.'

    b. Dutch

       Soms staat (*er*) iemand aan de deur.

    c. German

       Es steht mitunter jemand an der Tür.

    d. Dutch

       Er staat soms iemand aan de deur.

(62) German

    a. Heute hat   *(es) gehagelt.

       today   has   it   hailed

    b. Mit   ihm plaudert *(es) sich   angenehm.

       with   him chats   it   itself pleasantly

       'He is pleasant to chat with.'

    c. Eigentlich ist *(es) peinlich,   dass man das häufig   übersieht.

       actually   is   it   embarrassing that one   this frequently overlooks

2.4.3 Remarks on the IPP

The IPP construction (*infinitivus pro participio* = **i**nfinitive instead of a **p**ast **p**articiple) raises a problem – at least in German – for the delimitation of the MF because in this construction, at least the finite verb (in a non-V2 clause type) may apparently appear in the MF, as the following examples illustrate.[28] The finite auxiliary may precede phrases that do not belong to the clause-final verbal cluster (63a)–(63c). In Dutch, the finite verb must not precede a non-verbal intervener (74d) in general. In other words, if there is variation in the verb order of clause-final verbs in Dutch, it is verb order variation within the verbal cluster.[29]

(63) a. German

       Thomas Mann

       dass er für ihn nicht *hatte* **die Firma**   **am Leben** halten wollen

       that he for him not   had   **the company alive**   keep   want.INF

    b. German

       Thomas Mann

       Gerda, die   sie   nicht *hatte* **in der Familie grau** werden sehen

       Gerda, who she not   had   **in the   family   gray** become see.INF

    c. German
       Franz Werfel

dass	der	Tod	ihr	*werde*	**in unabsolviertem Zustand**	auflauern	dürfen
that	the	death	her	would	**in unabsolved state**	waylay	may.INF

    d. Dutch

*dat	hij	graag	*wilde*	kraanvogels	fotograferen
that	he	with.delight	wanted	cranes	photograph

                                        (Geerts et al. 1984, 949)

    e. Dutch
       dat hij graag kraanvogels *wilde* fotograferen

    g. German

dass	der	Tod	ihr	in	unabsolviertem	Zustand	*werde*	auflauern
that	the	death	her	in	unabsolved	state	would	waylay

       dürfen
       may.INF

In German IPP constructions, the "inverted verb(s)" can even precede objects (63a). In Dutch, "inversion" takes place in the cluster only; this is an option in German, too (63e)–(63f).

The patterns in (63a)–(63c) are customarily filed under the term *V-projections raising*, but this is only a file header and not the reference to the accepted analysis since the theoretical modeling of the IPP construction is still controversial. Several approaches have found their advocates, but until now none got fully accepted: (i) the structure is base-generated with a V-projection in the extraposition area (Den Dikken 1996; Haider 2010, 284), (ii) a verb-projection is extraposed (Haegeman 1992) by movement, or (iii) the finite verb is placed in a position in the MF, like in a VO language (Zwart 1994).

2.5   Differences between German and Dutch word order in the MF

2.5.1 *The relative order of DP arguments in Dutch does not alternate*

It is handbook knowledge for Dutch (see Geerts et al. 1984)[30] that – contrary to German – the relative order of DP arguments must not be permuted in the MF. This holds for subject–object order (76), as well as for the order of the indirect object before the direct object (77).

(64)   Dutch

    a.

dat	(er)	iemand	krakers	oppakt
that	(there)	someone	squatters	arrests

       'that someone arrests squatters'

    b.

*dat	(er)	krakers$_i$	iemand	e$_i$	oppakt
that	(there)	squatters	someone		arrests

(65)   Dutch

    a.

dat	ik	de	jongen	het/een	boek	gegeven	heb
that	I	the	boys	the/a	book	given	have

       'that I gave the/a book to the boys'

b. *dat ik het/een boek_i de jongen e_i gegeven heb
    that I the/a book the boys given have

What is called a *scrambling* order in the literature on Dutch refers to the serialization options of adverbials relative to arguments: if there are two possible serializations, one with a DP following an adjunct (66a), and one with a DP preceding an adjunct (66b), scrambling refers to the latter order.

(66) Dutch
    a. dat de politie/iemand *altijd/vandaag* krakers oppakt
        that the police/someone always/today squatters arrests
        'that the police/someone always arrests squatters'
    b. dat de politie/iemand krakers_(i) *altijd/ vandaag* (e_i) oppakt
        that the police/someone squatters always/today arrests

If (66b) is indeed a result of scrambling (either by re-merger or by substitution into a suitable F-spec), (65b) should in principle be a potential result of the same process that derives (66b). The scrambling analysis of (66b) presupposes that the time or frequency adverb precedes the VP-boundary. So the object is moved across the VP-boundary into a position preceding the VP, suitable for hosting a scrambled direct object. But this is exactly what would be necessary to derive (65b): the indirect object would stay in situ, and the direct object would be scrambled. Since (65b) is ungrammatical, scrambling does not provide a satisfactory account solution for (66b) as long as the ungrammaticality of (65b) remains unaccounted for.

A more satisfactory account must pay attention to the Dutch–German contrasts in addition to the argument–adjunct contrasts seen here. In section 2.2.1, a crucial difference has been located in the case system, namely the lack of morphological case in Dutch. The lack of morphologically overt case marking has a consequence for case checking. The lack of morphological case distinctions for DPs requires a hierarchical implementation of case checking: first come, first checked. This implies that objects cannot be permuted unless they are morphologically identifiable. So, PP-arguments can scramble but not DPs.

In sum, scrambling of DP-objects is ungrammatical in Dutch if arguments are permuted. The grammar-theoretical reason seems to be the identification of object arguments in terms of their abstract case ranking. This statement does not include subjects and PP-objects, for a good reason: they are morphologically identifiable, and hence they may enter chain relations in the middle field (i.e. they may scramble). The subject is identifiable by overt agreement; PPs are categorially identified.

This fact is not properly stressed in current syntactic literature, although descriptive grammars like Geerts et al. (1984)[31] are quite explicit in this respect. As for scrambling of PP-objects, see (67):

(67) Dutch
    a. Het is verkeerd om [een huis *aan Jan* te schenken]
        it is wrong C° [a house to Jan to give.away]
    b. Het is verkeerd [om [*aan Jan* een huis te schenken]]
        it is wrong [C° [to Jan a house to give.away]]
        'It is wrong to give away a house to Jan.'

   c. Toen heeft hij [de oplossing aan de studenten verteld]
      then has he [the solution to the students told]
   d. Toen heeft hij [aan de studenten de oplossing verteld]
      then has he [to the students the solution told]
      'Then he told the solution to the students.'

One of the alternative orders in the bracketed constituents in (67) is a scrambling order. Since PP-objects follow DP-objects in the base order, it is safe to assume that (67b) and (67d) are the result of scrambling with a trace in the base position of the PP-object to the right of the direct object.

   Fronting of subjects (see (68)) is found with passive and unaccusative subjects, that is, nominative DPs whose base position follows an object position. In this case, there are two options. The nominative DP may stay in situ in its VP-internal position, or it may move across the object. The following examples are quoted from Geerts et al. (1984, sect. 22.5.6.2). The existential-closure reading gets lost if an indefinite nominative is fronted, unless *er* is inserted, as in (68c). This is the reason why (68b), with an indefinite article and an existential reading, is unacceptable:

(68) Dutch
   a. Daarom werd de burgermeester het/ een schilderij aangeboden.
      therefore is the mayor the/ a painting offered
      'Therefore the/a painting is offered to the mayor'
   b. Daarom werd [het/ *een schilderij]$_i$ de burgermeester e_i aangeboden.
      therefore is the/ a painting the mayor offered
   c. Daarom werd er [een schilderij]$_i$ de burgermeester e_i aangeboden.
      therefore is there a painting the mayor offered

If *er* in (68c) is analyzed as an expletive for a subject position as a functional spec-position, the fronted nominative is VP-internal, that is, adjoined to the VP, as a consequence of scrambling. So, there exists genuine scrambling in Dutch (i.e. permutation of the order of arguments). This supports the theory of scrambling described in section 3.6: Dutch is an OV language with *hierarchical* identification of case for DP-*objects*. A nominative DP is not confined to a structurally unique configuration. This can be inferred from the fact that a nominative can appear in the position of the direct object (see (68a)) or in a VP-initial position (see (68c)). So the preconditions for scrambling are met for a nominative DP that follows an object in the base order: there is more than one position available in the domain of the projection of the verbal head.

   Similar considerations apply to PP-objects: PPs are not identified by case, but the head of the PP, which is selected by V, identifies them. There is no structurally unique identification position for a PP. The PP may in principle appear in any position in the VP: it can precede or follow a DP-object (see (67)) or a subject (see (69)):

(69) Dutch
   a. dat (er) voor je vader niemand wat meegebracht heeft
      that (there) for your father no one something presented has
      'that no one brought father anything'

    b. dat (er)   aan dit jongetje niemand snoepjes gegeven heeft
        that (there) to   this boy   no one   cookies   given   has
        'that no one gave this boy cookies'

2.5.2 *No infinitival clauses in the Dutch midfield*

In Dutch, sentential infinitival complements cannot be projected in the position in which nominal complements would be projected (70a); they are either replaced by a clause union construction (*V-raising*) (70d) or extraposed (70e):

(70) a. *dat Jan [het boek terug te geven] (niet) vergat
          that Jan [the book back to give] (not)   forgot
    b. dass Jan [das Buch zurückzugeben] (nicht) vergaß
          that Jan [the book back.to.give] (not)   forgot
    c. eine Kür   die$_i$ sicher [*PRO* e$_i$ spektakulär zu nennen] nicht
          a   free-exercise that surely [spectacular to call]   not
          übertrieben wäre[32]
          exaggerated   would.be
    d. dat Jan het boek niet vergat terug te geven
    e. dat Jan niet vergat [het boek terug te geven]
    f. dass [sein Buch zurückzugeben] keiner   vergaß
          that [his   book back.to.give] nobody forgot

German allows infinitival clauses as objects (70b) and subjects (70c), and the sentential argument may scramble (70f). The clause union construction is available in German, too, but it is optional. For verbs that optionally allow a clustering construction in German, these sentences are systematically ambiguous between a construction with clausal embedding and a simple clause structure with V-clustering:

(71) a. dass uns [zwischen zwei Strukturen zu wählen] erlaubt   wird
          that us   [between two   structures to choose] permitted is
    b. dass uns zwischen zwei Strukturen [zu wählen erlaubt   wird]
          that us   between   two   structures [to choose permitted is]

This ambiguity is the source for the case alternation in the construction with a passive matrix verb or a matrix unaccusative verb that selects an infinitival complement:

(72) German
    a. dass der.NOM/den.NOM Brief einzuwerfen vergessen wurde
          that the   letter to.post   forgotten was
    b. dass uns (?)der.NOM/den.NOM Text zu entziffern gelungen ist
          that us.DAT the   text to decipher   succeeded is

If the clausal construction is forced by splitting the potential verbal cluster (73), the nominative option is cancelled, as expected, since the nominative is licensed only in the clustering (= clause union) construction.

(73) German

    a. dass   [*der.NOM/den.NOM   Brief   einzuwerfen]   *leider*   vergessen
        that   [the   letter   to.post]   *unfortunately*   forgotten
        wurde
        was

    b. dass uns   [*der.NOM/den.NOM Text zu entziffern] *endlich* gelungen   ist
        that   us.DAT [the   text   to   decipher] *finally*   succeeded is

It is presently not known what the (micro-)parametric source of this grammatical contrast between the German and the Dutch system of sentential complementation is.

3 Theoretical accounts of word order variation in the MF (= scrambling)

Theoretical accounts of scrambling are directly connected with particular assumptions on clause structure. The given clause structure determines whether scrambling is applicable and what the range of word order variation is. As for clause structure, there is much more consensus on the empirically adequate structure for VO languages, notably English, Romance, and Scandinavian languages, than there is consensus on what the proper clause structure is for an OV language like German or Dutch. Section 3.1 highlights two controversial issues – namely, the positioning of the argument under agreement (i.e. the nominative subject) and the positioning of functional heads targeted by the finite verb – and their implications for the implementation of adequate scrambling mechanisms.

    Section 3.2 briefly surveys the theoretical approaches on scrambling that are discussed one after the other in section 3.3.

3.1 Clause structure controversies

- Where are – if there are any – the (covert) functional head positions in the MF?
- Where are – if there are any – the specs of the functional head positions in the MF?

    In current generative versions of German grammar, the MF is equated with the VP plus the cascade of functional projections above the VP. The functional head positions are assumed to be either clause final or clause medial and empty, except the top V2-position. Most if not all phrases in the MF, notably arguments, are taken to be moved to distinct functional spec-positions.

    The resulting structures are in conflict with a wide range of empirical issues of German syntax, however. Presently, its plausibility is borrowed more from the relative success of the structural analysis for VO languages than from the satisfactory coverage of German data. In this section, two problem areas will be highlighted: one is the position of the clause-final finite verb, and the other is the evidence for or against spec-positions in the MF.

3.1.1 Is the overt position of the **clause-final** *finite verb a functional head position?*

There is good evidence for the following claim: the surface position of the finite verb in the *clause-final* position in a German or Dutch clause is *not a derived position*, that is, not a *functional head position* (e.g. associated with features like finiteness, such as agreement or tense). Its positional properties are those of the position of the lexical head of the VP. Like an English finite main verb (see (74a)), the finite verb in German stays in its head position as the head of the V-projection. For verb-final clauses, there is neither evidence of overt movement of the finite verb to (an F-head on) the right nor of movement to (an F-head to) the left, and there is robust counterevidence for the assumption that a clause-final finite verb in German or Dutch is moved to a functional head position. An overt V-to-F-movement analysis for the positioning of the finite verb – either to an F-head that follows (see (74b)) or to a preceding F-head ((74c)) – is in conflict with evidence that bears directly on V-movement:

(74) a. $[C° [….[F_1\text{-}e [F_2\text{-}e [V°….]]]]]^{33}$ [VO, e.g. English]
   b. $^*[C° [[[…. V°] F_2\text{-}e] F_1\text{-}e….]]$ [OV + final functional heads]
   c. $^*[C° [….F_1\text{-}e [F_2\text{-}e […. V°]]]]$ [OV + preceding functional heads]

As originally noted by Höhle (1991) and discussed in Haider (1993, 62f.; 2010, ch. 2), finite denominal verbs, derived from complex nouns, occur in verb-final clauses in German but not in V2- or V1-clauses (see (75)). The corresponding case of Dutch (see Koopman 1995) is the case of complex verbs (see (76)) with a separable prefix preceded by an inseparable one (*her-* as in (76b) and (76c)).

(75) German
   a. dass sie es uraufführten
       that they it ur.performed (*ur* = as a premiere)
   b. *Uraufführen$_i$ sie es e$_i$?
       ur.perform they it?
       'Do they ur-perform it?'
   c. *Führen$_i$ sie es urauf-e$_i$?

(76) Dutch
   a. dat hij het *her*opbouwde
       that he it re.up.built
   b. *Hij bouwde het *her*op.
   c. *Hij *her*opbouwde het.
   d. Hij bouwde het op.

In descriptive terms, the problem seems to arise because two requirements get into conflict, namely the requirement to strand a prefix (separable prefix, like *an-* in German and *op-* in Dutch) with the requirement to pied-pipe a prefix (inseparable prefix, like *her-* in Dutch and *ur-* in German).

The most straightforward case is that of verbs with two prefixes, each one of the class of separable prefixes (see also Vikner 2002). Each of these prefixes requires stranding, so there is no way to meet these requirements if there is more than

one prefix. Since prefixing is a productive word formation rule in German, it is safe to presuppose that these verbs illustrate a phenomenon of German core grammar:

(77) a. wenn sie den Kurs *mit-an*-kündigen
          if   they the course with-an-nounce (= announce together)
     b. *Man *kündigt*$_i$ den Kurs *mit-an*-e$_i$
     c. *Man *an-kündigt*$_i$ den Kurs *mit*-e$_i$
     d. *Man *mit-an*-kündigt$_i$ den Kurs e$_i$

Both prefixes, namely *an-* (78a) and *mit-* (78b), are prefixes that require stranding. In the combination (77a), there is no possibility to simultaneously meet this requirement. If *an-* is stranded (77b), *mit-* remains attached to the following prefix and hence is not stranded. Stranding the prefix *mit-* (77c), however, is possible only if the following prefix is pied-piped with the verb. But this violates the stranding requirement of the second particle. Needless to say, pied-piping both particles is ungrammatical as well (77d).

(78) German
     a. Sie kündigen$_i$ den Kurs an-e$_i$
     b. Sie diskutieren$_i$ heute mit-e$_i$

What these data show is that the conflict arises once the verb is overtly moved. As long as it stays, the issue of stranding does not arise. So, the fact that finite forms are possible even for these verbs shows that they do not require overt movement.

If they had to be moved in order to become finite, further movement to the V2-position could not be blocked, except by ad-hoc mechanisms. I-to-C is an automatic process that cannot be blocked by idiosyncrasies of the morphological make-up of verbs. English proves this point: if a verb does not move to I, it does not move to C; and if it moves to I, it moves to C in the contexts of I-to-C movement.

It is safe to conclude, therefore, that clause-final finite verbs are not overtly moved to intermediate functional head positions. If overt V-to-I were required, doubly prefixed verbs would be predicted to occur only in *nonfinite* forms (because of the impossibility of licit V-to-I). The fact that they are grammatical as finite forms, but only in the clause-final position, is a clear case against *overt* V-to-I in German and Dutch.

Hence: if there is no overt movement, there is no need to assume a post-VP functional head position. If there are covert positions, they can just as well be assumed to be in pre-VP positions.

3.1.2   Are there positions in the German MF that are functional spec-positions?

In this section, three issues will be addressed that are problematic for a spec-F analysis of the subject position or other argument positions. *First*, if there were a functional spec-position for subjects, this spec-position would license clause-internal expletives (see the "Expletive non-argumental subjects" subpart of section 2.2.4). But clause-internal expletives are ungrammatical in German, and this cannot be attributed to pro-drop. *Second*, subjects in spec-positions are predicted to be opaque for extraction. This prediction is incorrect (see section 3.1.2.1). *Third*, covert

movement can be ruled out, since the LF resulting from LF-raising out of fronted VPs is ill-formed (see the "Covert movement to a spec-position?" subpart of this section).

Expletive subjects as evidence for a functional spec-position

The ungrammaticality of non-argumental expletive subjects in the MF in German is direct evidence against the need for a functional spec-position for the subject if pro-drop can be excluded. The relevant data are discussed and analyzed in the "Expletive non-argumental subjects" subpart. German does not allow non-argumental expletive subjects, and their absence cannot be attributed to pro-drop.

Hence, we conclude: if there were obligatory functional spec-positions in the MF, at least one of them would require lexical support. In all languages with a functional subject position, this position must be lexicalized, unless the language is pro-drop. This is a consequence of the EPP property.

The fact that German requires overt argumental expletive subjects but forbids purely structural expletives points directly to the conclusions that structural expletives do not occur because there is no structural position to host them. If this is correct, the overt positions of the subject and the objects are VP-internal in German.

Covert movement to a spec-position?

Finally, the fact that VP-topicalization with a VP-internal *unergative* subject is grammatical in German (see (79)) is clear and sufficient evidence at least for the following conclusion: no (obligatory) overt movement of a nominative to a functional spec-position, that is, no movement (to Spec-T, Spec-Agr-S, or any other functional spec candidate) in German:

(79) a. [Ein Wunder^j ereignet]$_i$ *hat^j* sich^j hier noch nie e$_i$
      a miracle occurred has REFL here never ever
      'A miracle has never ever occured here'

   b. [Wunder^j ereignet]$_i$ *haben^j* sich^j hier noch nie e$_i$
      miracles occurred have REFL here never ever

   c. [Aussenseiter^j gewonnen]$_i$ *haben^j* es noch nie e$_i$
      outsiders won have it never ever

VP-topicalization in (79) cannot be reanalyzed as the topicalization of a functional projection in order to save the claim that nominatives are overtly moved to a functional spec-position: if the topicalized projection in (79) contains the functional head in whose spec-position the nominative occurs, this functional head is a head-position. So, the topicalized constituent would have to contain the trace of the finite verb as well. Clear instances of this structure are ungrammatical, however. In German, the topicalized constituent cannot contain the trace of the finite verb. It must be analyzed as VP and not as a more complex functional projection containing the VP (see the discussion of example (77) and the examples in excursus 1):

(80) German
   a. [Ein Schiff.NOM abgefahren]$_j$ ist$_i$ hier noch nie e$_j$ e$_i$
      [a boat de.parted] has here yet never
      'Here, a boat never ever departed.'[34]

b.　*[Ein　Schiff.NOM　ab-$_i$]$_j$　fuhr$_i$　hier　noch　nie　　e$_j$
　　[a　　boat　　　de-e$_i$]　partedt$_i$　here　yet　　never
c.　Ein　Schiff　fuhr$_i$　　hier　noch　nie　　ab-e$_i$
　　a　　boat　　parted$_i$　here　yet　　never　de-e$_i$

(80a) is compatible with the standard analysis (i.e. VP-topicalization) as well as with the alternative analysis as a topicalized functional projection. If it were a functional projection, however, (80b) would be structurally parallel to (80a) – both would contain the trace of the finite verb – and therefore both should be grammatical or ungrammatical. That the topicalized constituent in (80b) contains the trace of the finite verb is signaled by the stranded verbal prefix *unter*, because *untergehen* is a verb with a separable prefix (see (80c)). The prefix is stranded in the base position of the verb. The standard analysis correctly predicts (80b) to be ungrammatical because the trace of the topicalized VP is not lexically head-governed. In (80a), the topicalized VP is a complement of the copular verb.

Having established that there is no overt movement of the subject to Agr-S, we have to check the possibility of covert movement. Again, VP-topicalization with a subject is a suitable testing ground: the topicalized VP as a *wh*-moved phrase in a spec-position is opaque for extraction. So, covert movement (i.e. extracting the subject out of the topicalized VP) is ruled out. Reconstruction of the VP plus subsequent extraction would violate the cycle. So, there is no covert movement either. A recheck with quantifiers confirms the opacity of a fronted VP for covert extraction with or without reconstruction:

(81)　German
　　a.　*Wide Scope of the Universal Q*
　　　　Jeden　Passagier　hat　er　zweimal　befragt.
　　　　every　passenger　has　he　twice　　questioned
　　b.　*Narrow Scope of the Universal Q*
　　　　[Jeden　Passagier　befragt]　　hat　er　zweimal.
　　　　every　passenger　questioned　has　he　twice
　　c.　*Wide Scope of the Universal Q*
　　　　[Zweimal　befragt]　　hat　er　jeden　Passagier.
　　　　twice　　　questioned　has　he　every　passenger

In (81b), the domain of the universal Q is the fronted VP. It does not c-command into the MF. The quantifier in the MF c-commands the trace of the fronted VP. So the VP belongs to the scope domain of the MF quantifier. If a quantifier could be Q-raised out of the fronted VP, it ought to get scope over the Q in the MF. Moreover, (81b) and (81c) show that the fronted VP cannot be treated as a remnant VP, that is, it cannot contain the trace of either the frequency adverbial (81b) or the quantified object. Since one would c-command the trace of the other within the fronted VP, either (81b) or (81c) would get a second scope reading, which is not the case.

3.2   A grammar-theoretical perspective on free word order in the MF

The key issues to be addressed in this section are:

- Scrambling as base-generated free word order?
- Scrambling as the result of movement?
- Scrambling as triggered movement?
- Movement by re-merger or movement to functional spec-positions (or both)?
- A or A′ chains? Parasitic gaps as evidence for scrambling as A′-chaining?

The theoretical positions available in grammar theory have all found their (at least part-time) advocates. Nevertheless, the ultimate and uncontroversial insight is still missing. So it is worthwhile to focus on the problematic areas of each of the competing candidates for an empirically and theoretically satisfactory theory of scrambling. Here is the set of theoretically available options to choose from. The position of a phrase in a clause-internally scrambled position is:

- A base-generated *argument* position
- A base-generated *adjoined* position
- The head of an *A′-chain* targeting a spec-position
- The head of an *A′-chain* targeting an adjoined position
- The head of an *A-chain* targeting a spec-position
- The head of an *A-chain* targeting an adjoined position.

The baseline hypothesis to start with is that scrambling does not involve any derivational machinery at all: the word order variation called *scrambling* is but a set of individually available serialization patterns, each of which is a possible base-generated order of A-positions. This possibility for German – suggested first in Haider (1984) as an option provided by the German case system – has been revived vigorously in more detail, in greater theoretical depth, and on theoretically up-to-date foundations by Fanselow (2001) for German. Scrambling as base-generated A′-positions with subsequent lowering to theta-positions on LF has been suggested by Bošković and Takahashi (1998). These approaches will be referred to as the *base-generation* approaches. In this perspective, a scrambling language is characterized as a language with a clause structure that allows a choice of positions for arguments. Potential sources of counterevidence are phenomena indicative of antecedent–gap relations and typological overgeneration.

   The next and more widely assumed general option is the *derivational* approach: scrambling is the result of rearranging a given base order. This general option is narrowly channeled by syntactic theory. The two main channels are A-chaining or A′-chaining with the additional bifurcation as to whether movement targets a spec-position or a position adjoined to a (lexical) projection. The evaluation of these proposals calls for a clarification of the basics of German clause structure as the underlying source of some controversies.

   A crucial theoretic issue is the issue of optionality versus triggered movement. Traditionally, scrambling is considered to be optional modulo various side effects. Of course, these side effects could be reflexes of a hidden triggering mechanism. Explorative attempts to uncover these mechanisms produced various triggering scenarios,

syntactic ones (e.g. movement to case-checking positions) as well as semantic (e.g. movement triggered by definiteness features) or pragmatic ones (e.g. movement triggered by information-structuring features like topicality). Undoubtedly, scrambling influences the information structure conveyed by a clause, but it is far from obvious that this is the result of a *grammatical* causality of movement.

Once movement is granted, several questions arise. What type of movement is scrambling an instance of? The two basic options – A′-movement or A-movement – have been exploited and even combined because of an apparent simultaneous aggregate of A and A′ properties (Webelhuth 1992). The grammatical phenomenology of the parasitic gap construction has played an important role in this respect. Another question relates to the nature of movement. Is it movement to a spec-position, or is it internal merge? Here is a selection of suggestions from the scrambling literature of the 1990s:[35]

Its syntactic nature

- Base-generated A-positions: Haider (1984), Bayer and Kornfilt (1991), Fanselow (1993; 2001; 2003), Kiss (1994), and Heck (2000)
- Base-generated A′-positions: Bošković and Takahashi (1998)
- Scrambling as the result of both A- and A′-movement: Webelhuth (1992) and Mahajan (1994; 1997)
- Scrambling as A′-movement: Müller and Sternefeld (1994)
- Scrambling as A-movement: De Hoop and Kosmeijer (1995) and Neeleman and Van de Koot (2008)
- Scrambling as A-movement, as the result of re-merger within the canonical directionality domain: Haider and Rosengren (2003) and Haider (2010).

The quest for triggers – a selection

- Syntactically untriggered scrambling (syntactically optional): Saito and Fukui (1998), Haider and Rosengren (2003), and Haider (2010)
- Scrambling triggered by (strong/weak) case features: De Hoop (1992)
- Scrambling triggered by a topic-feature: Müller (1995, 107; 1997)
- Scrambling triggered by theta-features on LF: Bošković and Takahashi (1998).
- Scrambling triggered by a scrambling-feature: Grewendorf and Sabel (1994; 1999) and Sauerland (1999)
- Scrambling triggered by specificity or scope features: Hinterhölzl (2006).

3.3   The grammar-theoretic modeling of scrambling – a critical survey

3.3.1   Scrambling = base-generated word order?

Pros

- Shifts the optionality issue to structure generation rather than to the application of movement
- Occam's razor: if base-generated, no additional derivational devices are required.

Cons

- Positive evidence for antecedent–gap properties
- Missing generalization for the OV versus VO asymmetry (esp. Icelandic).

The idea that the "scrambled" order is a base-generated order can be implemented in various ways. The overarching assumption is that there are no antecedent–gap relations involved, that is, no movement chains. The first possibility is the *single-level implementation*. The alternative orders are taken to be alternative realizations of V-projections. In this perspective, scrambling languages are languages with "free" base orders. The second possibility is a *dual-level implementation*: the alternative surface orders are related to a single structure on a hidden level, namely LF. Again, this allows various alternative implementations. One possibility is the combination of a free base order with LF-movement to some kind of checking positions. This characterizes a scrambling language as a language that differs from a non-scrambling language in the checking system. The relevant feature is checked covertly rather than overtly. For a particular implementation of this strategy, see Fanselow (1990).

Another possibility for base-generating scrambled order is suggested by Bošković and Takahashi (1998). The scrambled positions are base-generated adjunction positions generated in a generalized merger-operation that needs to be related to base position. This is managed on LF. The difference between this hypothesis and a movement hypothesis is that on the surface structure, there are no movement chains, whereas on LF, operations are foreseen (e.g. lowering) that are forbidden for overt movement processes.

The direct criterion of success for these hypotheses is obvious: if they are right, scrambling does not involve antecedent–gap relations on surface structure. On the other hand, evidence of movement traces is counterevidence for these proposals. A more indirect criterion is the typological question: why is (clause-bound) scrambling strongly correlated with head-final projections? How is this captured in a theory of base-generable alternative orders?

Note that in a VO language like Icelandic, VP-internal reordering is in general ungrammatical, despite the fact that there are alternative, verb-specific ordering patterns. Only for the *give*-type double object constructions are both DAT-ACC and ACC-DAT order available (see Holmberg and Platzack 1995, ch. 7; Haider 1992/2000). If this order variation is interpreted as scrambling (rather than alternative base orders), it strengthens the point that scrambling is confined to the domain of head-final phrases. Scrambling to the left, across the verb, is not possible.

The base-generation approach opens various possibilities for a specific interplay between PF and LF. For instance, a subset of the scoping data could be captured in the following way: scope could be read off either from the PF order or from the LF configuration, given that there is a fixed order of feature-checking positions at LF (see Fanselow 1990, sect. 3.5) or a fixed order of base positions

in Bošković and Takahashi's (1998) approach. Let's assume the LF order is
DAT-ACC:

(82)   German
    a.   *PF*
        dass   er [mindestens eine Frage.ACC] [fast   jedem Kandidaten.DAT]
        that   he at.least   one   question   almost every candidate
        stellte
        put
        'that he asked almost every candidate at least one question'
    b.   *LF*
        [jedem   Kandidaten.DAT [mindestens   eine   Frage.ACC [stellte …]]]
        every   candidate   at.least   one   question   put

The fact that the sentence in (82) is ambiguous with respect to the scope of the quan-
tified DPs can be captured in the following way: scope is read off either at spell-out
(i.e. from the surface order) or after spell-out (i.e. from LF). If scope is read off from
the surface order (82a), the accusative DP has wide scope. But at LF (82b), the dative
feature has wide scope by virtue of LF-movement into the checking position for
dative, which is higher than the position for accusative.

    This approach has shortcomings, however. If it is assumed that in general dative
is checked at LF in a higher position than the accusative, then the inverse scoping
effects for the base order class ACC-DAT (18f) would not follow (see (83)). Analogous
considerations apply to the classes ACC-NOM (18b) and DAT-NOM (18d). Whatever
order is taken to be the LF order will run into problems with the converse base order
class of verbs:

(83)   German
    a.   *Unambiguous Scope*
        dass   man   ja   fast   alle   Kandidaten   mehr   als   einem   Test
        that   one   PRT almost   every   candidate   more   than   one   test
        unterzog
        subjected
        'that almost all candidates had to undergo more than one test'
    b.   *Ambiguous Scope*
        dass   man   ja   [mehr als   einem Test]$_i$ fast   alle   Kandidaten e$_i$
        that   one   PRT more   than   one   test   almost   every   candidate
        unterzog
        subjected
        'that almost all candidates had to undergo more than one test'

Scoping either at surface structure or at LF, with the dative higher than the accusa-
tive at LF, predicts (83a) to be scope-ambiguous: at the surface, the accusative c-
commands the dative, and at LF the converse applies. (83b), in contrast, is predicted
to have the unique scope property that corresponds to the surface order, because
surface order and LF order coincide. In fact, the scope data do not match these

predictions. They follow from an ACC-DAT base order (83a) plus scrambling (83b): scrambling introduces the ambiguity because of chain formation (see the discussion of property (vi), "Scrambling can be iterated," in section 2.2.1).

From a more general theoretical perspective, *first*, the free choice between either surface structure or LF as the relevant level of representation for the semantic interface would be unique for scoping and therefore ad hoc, since the fact that all binding relations are determined by the surface order in German forbids going to and fro between surface structure and LF. Note that in our approach, the surface structure is the relevant representation at the syntax–semantic interface. *Second*, and most importantly, the interplay between PF and syntax (see the data discussed in section 2) that becomes manifest in a structurally determined position of sentence accent, focus potential, and chain connectivity for topic–focus accent (rise–fall intonation) would have to be discarded in order to await redesigning in yet unexplored ways.

Third, and most important on the theoretical level, the base-generation approach does not provide insights as to why the type Icelandic – a language with as rich a case system as German – does not allow free argument order, although Icelandic allows various verb-specific order patterns that parallel the German verb-specific base order patterns. In Icelandic, the same verb-class-dependent word orders as in German (see Haider 1992/2000) are attested. But still there is free word order neither within VP nor, in the case of object shift, outside of VP (see Collins and Thráinsson 1996, 418; but cf. Holmberg and Platzack 1995, ch. 7). The fact that, depending on the verb class, for instance a dative may precede or follow an accusative is incompatible with the assumption that checking is taking place in specific spec-positions of functional heads before spell-out. So, for Icelandic, checking features have to be diagnosed as weak ones. But, if checking is postponed to LF, the free word order in the VP, if there were any free word order, should be visible, just as in German. Exactly this is not the case, and therefore these data are in conflict with the assumption of a correlation of strict word order and feature strength.

If scrambling were just free base ordering in a language with morphologically identifiable grammatical functions, the clear-cut OV–VO contrast is unaccounted for. If, however, the scrambling order is the result of chain formation, the OV–VO contrast is expected: in VO languages, scrambling chains would sandwich the verbal head, that is, the target position of scrambling would precede the head, but the base position would be in the domain of the head. In OV languages, however, left-adjunction to VP projects structures in which the target and the gap are in the same directional domain of the verbal head. This is an essential fact for understanding the grammatical nature of scrambling: in languages with differentiated head directionality, scrambling is confined to constituents with final heads. An example case is German, with scrambling in VP and AP, but not in NP and PP.

Finally, "free" word order is not "arbitrary" word order (in the absence of factors that are instrumental for grammatical reordering preferences) in German. What is the only word order in English is exactly what is the only neutral word order – which we equate with *base order* – of the corresponding V-class in German, which

of course can be checked only with verbs with the same meaning and *ceteris paribus* the same construction type:

(84) a. *Maximal Focus Available*
      Peter zeigte   seiner Schwester das neue RAThaus.
      Peter showed   his   sister   the new   town.hall
      'Peter showed his sister the new town hall.'
   b. *Minimal Focus Only*
      Peter zeigte   [das neue Rathaus]$_i$ seiner SCHWEster e$_i$
      Peter showed   the new town.hall   his   sister
      *'Peter showed the new town hall his sister'

Of course, English may use a PP instead of a bare DP with the inverted order between the objects. This is the only option for the verbs in (85), however.

   Dative functions like goal (85a) or beneficiary (85b) are not coded with bare DPs in languages without morphological relation marking. So English does not allow double object constructions corresponding to ACC-DAT base orders in German. Instead, the argument coded with dative in German appears as a PP in English (*aussetzen* 'expose to', *unterordnen* 'subject to', *unterwerfen* 'submit to', etc.):

(85) a. Er hat uns einer ernsten Gefahr   ausgesetzt.
      he has us   a   severe   danger   exposed
      'He exposed us to a severe danger.'
   b. Er hat der Frau   die Tür   geöffnet.
      he has the woman   the door opened
      'He opened the door to the woman.'

This fact, however, is additional support for our assumption that the argument order in the lexical entry (as the result of mapping the lexical-conceptual structure on the lexical argument structure) is not arbitrary but semantically determined and that it determines the syntactic configuration by ranking-geared discharge of the A-structure into syntactic structure.

3.3.2   *Does scrambling target functional spec-positions?*

Pros

- Simple characterization of the movement targets: spec-positions of empty functional heads
- Currently a widespread assumption in the literature because of its immediate compatibility with widely accepted assumptions on the organization of clause structure.

Cons

- Scrambled XPs lack the syntactic properties of phrases in functional spec-positions.
- Scrambling, unlike object shift in Scandinavian languages, does not reflect a unique order of functional projections.

There are at least three independent issues that are hard to reconcile with the assumption that the scrambled constituent is in a spec-position: *first*, scrambled XPs are transparent for extraction (*contra* Diesing 1992; see also Müller 1997). *Second*, scrambling may occur *within* a constituent fronted to Spec-C. If this constituent is a higher functional projection, *crossing violations* are predicted for head-movement chains that involve the finite verb. *Third*, neither a multiple F-spec analysis nor a multiple F-projection analysis can capture the freedom of scrambling orders in German. An analysis in terms of functional projections would be justified if there were a *strictly fixed sequence* of scrambled XPs, as in the case of Icelandic object shift.

Let us start with the argument from extraction patterns, that is, transparency for extraction: in a language with easily identifiable spec-positions, for example English, XPs in specs are opaque for extractions:

(86)　*Spec-IP*: *Who$_i$ has [a picture of e$_i$]$_j$ been sold e$_j$?

XPs, topicalized to positions between Spec-IP and C°, are opaque as well (see (87b)). This indicates that this position either is a spec-position or is a position adjoined to IP. In both cases, extraction is illicit, as the evidence suggests:

(87)　a.　(that) [a picture of this painter] virtually everyone has admired
　　　b.　*Who$_i$ has [a picture of e$_i$] virtually everyone admired?
　　　c.　(that) [with him] I should talk at once
　　　d.　*Who$_i$ should [with e$_i$] I talk at once?

The ungrammaticality of (87d) cannot be attributed to an adjacency requirement for V and the preposition.[36] Cross-linguistic evidence can be found, for instance, in Danish (see Vikner 1994, 268), where prepositions can be stranded at a distance from the verb.

In German, scrambling does not create opaque domains for extraction. This is easy to demonstrate for scrambled infinitival clauses. Neither scrambling nor "extraposition" has an effect on extractability:

(88)　a.　dass schon mal jemand [ihn damit zu überzeugen] versucht
　　　　　that already PRT someone him with.that to convince tried
　　　　　hat
　　　　　has
　　　　　'that someone already tried to convince him with this'
　　　b.　Wen$_i$ hat (denn) [e$_i$ damit zu überzeugen]$_j$ schon mal jemand e$_j$
　　　　　who has PRT [with.that to convince] already PRT someone
　　　　　versucht?
　　　　　tried
　　　　　'Who did someone try to convince with this?'
　　　c.　Wen$_i$ hat (denn) schon mal jemand versucht [e$_i$ damit zu
　　　　　who has PRT already PRT someone tried with.that to
　　　　　überzeugen]?
　　　　　convince

Diesing's (1992, 32–33) claim that scrambling creates opaque domains is based on inadequately chosen data. She adduces '*was-für* split' constructions as the main body of evidence. The contrast in (26) is interpreted as the result of an opacity effect incurred by scrambling.

(89) German
    a. Was$_i$ hat denn jeder von euch [e$_i$ für Witze] erzählt?
       what has PRT everyone of you for jokes told
       'What kind of jokes did everyone tell?'
    b. $^{??}$Was$_i$ hat [e$_i$ für Witze] denn jeder von euch erzählt?
       what has for jokes PRT everyone of you told

The degraded acceptability of (89b) cannot be the result of scrambling, however. (90a), with a scrambled object DP, is perfectly acceptable. The degradation is of a different nature: it is not extraction out of, but scrambling of, a *wh*-marked DP across a particle like *denn* that induces ungrammaticality (see (90b)). (89b), just like (90b), is ungrammatical not because of extraction but because of illicit scrambling of a *wh*-DP to the left of the particle, as the contrast between (90b) and (90c) illustrates. (89b) and (90b) are counterparts, and so are (90a) and (90c).

(90) German
    a. Was$_i$ hat denn damals [e$_i$ für Witze]$_j$ jeder von euch e$_j$ erzählt?
       what has PRT then for jokes everyone of you told
       'What kind of jokes did at that time everyone of you tell?'
    b. *Wem hat [was für Witze]$_i$ denn damals jeder von euch e$_i$
       whom has what for jokes PRT then everyone of you
       erzählt?
       told
    c. Wem hat denn damals [was für einen Witz]$_i$ jeder von euch e$_i$
       whom has PRT then what for a joke everyone of you
       erzählt?
       told
       'To whom did at that time everyone of you tell what kind of joke?'

However, what is essential is not so much the particle as such but the position on the left edge of the MF, which is adjacent to the C°-position: dropping the intervening adverbial in (91a) reduces the acceptability considerably. The marginality of (91b) is of the same nature, but this is completely unexpected in Diesing's account because the subject of (91b) is the subject of an unaccusative verb and it may stay in its base position.

   Whatever theoretical reason is behind this restriction, it is independent of structural considerations with respect to the position of the particle *denn*: in (91a), the split is possible despite the presence of *denn*, if the phrase with the extraction site is preceded by another element.

(91) German

    a.   Was$_i$ hat $^{??}$(*damals*)   [e$_i$ für Ergebnisse] (*denn*) jeder   von euch
        what   has at that time for   results   PRT   everyone of you
        erzielt?
        achieved
        'What kind of results did at that time everyone of you achieve?'

    b. $^{??}$Was$_i$ fielen$_j$ [e$_i$ für Gläser] um-e$_j$?
        what   fell   [for glasses] down
        'What kind of glasses fell down?'

The fact that extraction out of a scrambled constituent in front of the particle is perfectly grammatical (see (91a)) proves that what rules out (89b) and (90b) cannot be a positional effect on extraction proper.

Next, let us inspect the second area of counterevidence and examine the hypothesis that scrambled XPs are hosted by F-specs above VP. If this is the case, a topicalized constituent with scrambled arguments must be analyzed as a topicalized functional projection, whose spec is hosting the scrambled XP. It is important, however, to note that these F-projections must be lower than the starting point of the head chain that leads to the V2-position of the finite verb. The contrast between (92a) and (92b) illustrates this point (see also excursus 1).

(92)   a. [Ein Fehler$_i$ einem Linguisten e$_i$ *auf*gefallen] ist dabei noch nie.
        an   error a   linguist   *up.struck* is at.that yet never[37]
        'In this connection, no linguist ever noticed an error.'

    b. *[Ein Fehler$_j$ einem Linguisten e$_j$ *auf*-e$_i$] fiel$_i$ dabei   noch nie.
        [an   error a   linguist   up-e$_i$] struck$_i$ at.that yet   never

    c. [Einem Linguisten *ein Fehler* aufgefallen]   ist dabei noch nie.
        a   linguist   an error conspicuous-made is at.that yet never

    d. Es fiel$_j$ dabei   einem Linguisten ein Fehler *auf*-e$_j$.
        it   was   at.that a   linguist   an   error   conspicuous made
        'In this connection, a linguist noticed an error.'

The examples in (92) feature an unaccusative subject. Its base position is the position following the indirect object (92c). In (92a) and (92b), the subject is scrambled across the indirect object. If the target position of scrambling in (92a) and (92b) is the spec of a functional projection that dominates the base position of the finite verb, the corresponding functional head is a head on the movement path of the finite verb from its base position to the V2-position: for the example chosen in (92b), this conclusion is unavoidable, since the clause contains only the main verb. When it leaves its basic V-projection in order to start its travel up to the topmost F-projection, it will unavoidably travel through all the intermediate functional heads up to the top projection.

With this in mind, let us proceed to the argument: (92b) demonstrates that the topicalized constituent cannot contain the trace of the finite verb.

(93)   Tree sketch of (92b):

```
                        FP
                   /         \
               Spec           F′
                |              |
[Ein Fehler einem Linguisten auf-ej]i
                          F°        XP
                          |        /    \
                         fielj  |       YP
                             dabei     /    \
                                  noch nie    ........
                                             ZP
                                            /    \
                                          ei       ej
```
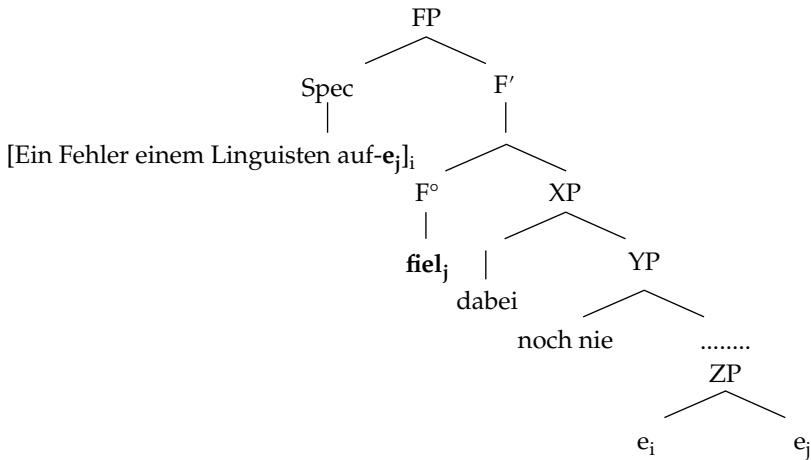
The particle in (92b) and (92d) is an indicator for the position of the trace of the finite verb, since the verb is one with a so-called separable particle (see (92d)) that is stranded by V2. Topicalizing the constituent that contains the trace of the verb incurs a crossing violation: the trace of the verb in (92b) fails to be in the c-command domain of the moved verb.

So, if the topicalized constituent in (92a) contained the trace of the finite verb, it would be predicted to be ungrammatical, contrary to the facts. The conclusion must be, therefore, that the functional projection that hosts the scrambled item cannot contain the auxiliary. It must be a *complement* of the auxiliary, only in this case the finite auxiliary does not have to pass through the functional heads of the scrambling domain:

(94)   a. $[_{Aux\text{-}VP}\ldots [_{FP}\ XP_i\ [_{VP}\ldots e_i \ldots V°]\ V_{Aux}]]$ scrambling = re-merger with mother phrase

       b. $[_{Aux\text{-}VP}\ldots [_{FP}\ XP_i\ F°\ [_{VP}\ldots e_i \ldots V°]]\ V_{Aux}]$ scrambling = movement-to spec

Scrambling of the nominative in (92a) cannot have targeted the alleged default A-position for the subject, namely AgrS, because this projection is higher and includes the base position of the auxiliary. This would incorrectly imply that scrambling must stop short exactly when the projection is topicalized. In all the other cases, scrambling may target higher positions. This is unavoidable again because adverbials that relate to the finite verb must be higher in the structure, but scrambled items may precede these adverbials.

On the one hand, scrambled constituents may precede these adverbials in the middle field ((95d) and (95f)) but, on the other, scrambling may take place within the topicalized constituent that must not contain these adverbials ((95b) and (95e)).

(95)   a.   *[Sein Argument *leider/vermutlich*   allen   mehrmals
             his   argument unfortunately/probably everyone many.times
             erklären] mußte   er
             explain   had.to   he

b.   [Sein Argument$_j$ allen e$_j$ erklären]$_i$ mußte er *leider/vermutlich*
     his argument   everyone explain   had.to he unfortunately/probably
     mehrmals   e$_i$
     many.times
     'Unfortunately/probably, he had to explain his argument to everyone more
     than once.'

c.   dass er sein Argument allen   *leider*   mehrmals   erklären
     that he his   argument everyone unfortunately many.times explain
     musste
     had.to
     'that unfortunately/probably he had to explain his argument to everyone
     more than once'

d.   *[Sein Argument$_j$ *gestern*   allen e$_j$ erläutert] hat er   doch
     his   argument yesterday everyone explained has he PRT

e.   [Sein Argument$_j$ allen e$_j$ erläutert]$_i$ hat er   doch *gestern*   e$_i$
     his   argument everyone explained has he PRT yesterday
     'He explained his argument to everyone yesterday.'

f.   dass er sein Argument doch *gestern*   allen   erläutert hat
     that he his   argument PRT yesterday everyone explained has
     'that he explained his argument to everyone yesterday'

What this entails is at least that a spec-position targeted by scrambling cannot be a *single uniquely identified* position: scrambling in this scenario must be able to *optionally* target either a spec-position that is lower than certain adverbials or a spec-position that is higher. It is unclear, moreover, what kind of functional heads could provide these lower spec-positions; it cannot be an agreement position because of (92b): AgrS would have to be higher in the structure. It cannot be an aspectual position either, because these F-heads must be accessible for the respective auxiliaries and therefore higher. In fact, there is no obvious candidate. Postulating an F-head in this case is motivated only by the premise that scrambling targets an F-spec. What this amounts to is equivalent to what is defended in section 4: the extended VP is the scrambling domain.

    As for the second reason: overgeneration is a serious problem for (93). If an auxiliary selects an FP rather than a VP, this opens room for elements intervening between the VP that contains the main verb and the following auxiliary. But in a German verb cluster, this room is not available: extraposed prepositional objects are VP-final (96a), and they may not intervene between the VP and the following verb (96b):

(96) a.   [Gewartet *auf uns*]$_i$ hat sie   nicht e$_i$
         waited   for us   has she   not

     b.   *dass sie nicht [gewartet *auf uns*] hat
         that   she not   waited   for us   has

     c.   dass sie nicht gewartet hat *auf uns*
         that she not   waited   has for us

The third issue mentioned at the beginning of this section is the complete permutation potential of scrambling in German. This calls for an adequate structural solution. Cascading functional projections are ordered, and so would be the outcome of scrambling. Scrambling would map one particular order onto another particular

order. From this perspective, scrambling would not be equivalent to the *permutation* of arguments. It should rather behave like Scandinavian Object Shift, which is not the case, however. Cumulating scrambled items in a multiple spec-projection would not be adequate either because scrambled items may be separated by intervening adverbials. They do not come in packages.

3.3.3   Is scrambling triggered by a functional feature?

Pro

- A syntactic trigger feature provides a core–syntax causality for movement. This is favored by accounts framed within the Minimalist Program.

Cons

- *Empirical*: The various triggering properties suggested in the literature do not single out scrambled items. The alleged triggering properties are also found with phrases in situ.
- *Theoretical*: Triggering features are employed as technical devices for recoding the data. In the absence of a syntactic feature theory, explanatory power is missing.

This section is to complete the evidence against scrambling as movement targeting a functional projection. The evidence presented in section 3.2.1 is counterevidence for scrambling that is to target functional spec-positions. This section argues against triggering scenarios in terms of feature checking.

In the simplest case, the property *XP has to be moved* is coded by means of a triggering feature. Grewendorf and Sabel (1994; 1999) as well as Sauerland (1999, 163) postulate such a feature, that is, a feature whose only job is to trigger scrambling by fiat. Other attempts try to single out properties resulting from scrambling and code them by features that are deemed to trigger movement as part of a feature-checking procedure. For instance, Hinterhölzl (2006, 58) assumes that scrambling can be reduced to specificity or scope seeking. He postulates features that code for these properties and ascribes checking requirements to them. As for the DP features [w(ide)/n(arrow) scope], the [w] feature is assumed to trigger the scrambling of scope-sensitive items.[38] All these attempts and various others that try to turn the effects of scrambling into a cause do not stand systematic empirical testing: "German has no movement operations that are triggered or licensed by distinctions of information structure" (Fanselow 2012, 294).

Feature-based accounts are explanatorily deficient since they miss the relevant generalization. Scrambling is confined to head-final phrases[39] and absent in head-initial ones. Features could not discriminate between the head positions of phrases. In German (and in all the continental West Germanic languages), the VP is head-final and the NP is head-initial. Scrambling is operative in the VP (97b) but not in the NP (97e). (97a)–(97b) and (97c)–(97e) are minimal pairs modulo infinitive nominalization, which converts an infinitival verb into a noun.

(97)   a.   [Kollegen   auf   diese   Umstände   hinweisen]$_{VP}$
            colleagues.ACC   of   this   circumstances   advise
       b.   [auf diese Umstände$_i$ Kollegen e$_i$ hinweisen]$_{VP}$

c. [das [Hinweisen von Kollegen auf diese Umstände]$_{NP}$]$_{DP}$
   the advise(ing) of colleagues of these circumstances
d. [das [Hinweisen der Kollegen auf diese Umstände]$_{NP}$]$_{DP}$
   the advise(ing) (of) the colleagues.GEN of these circumstances
e. *[das [Hinweisen auf diese Umstände$_i$/von Kollegen/der Kollegen e$_i$]$_{NP}$]$_{DP}$

If scrambling were the effect of a triggering feature, this feature would be at work in head-final just as well as in head-initial phrases. This is not the case, however. Complex head-*initial* NPs do not tolerate scrambling, and complex head-*initial* VPs do not tolerate it either, as illustrated by German (97e) and Icelandic (98b), respectively. Icelandic (98b) contrasts with the fully acceptable scrambled order in German (98c). In a controlled study, Dehé (2004) confirmed the contrasts exemplified by (98a) and (98b) for Icelandic double object constructions. Although morphological case clearly identifies the objects, the scrambled order (98) is rated unacceptable. This is in direct contrast to German (98c).

(98) a. Þau sýndu foreldrunum krakkana.
     they showed the.parents.DAT the.kids.ACC
   b. *Þau sýndu krakkana foreldrunum.
   c. Sie zeigten die Kinder.ACC$_i$ den Eltern e$_i$
      they showed the children the parents.DAT

In a feature-triggering scenario of scrambling, the difference between the availability of scrambling in head-final phrases in German and the lack of scrambling in German head-initial phrases or Icelandic head-initial phrases would have to be reduced to an accidental property: it so happens that the relevant feature is "strong" in German but "weak" in Icelandic. The difference is *not* accidental, however. It is a difference that relates directly to the position of the head in a phrase. The arbitrary assignment of strong versus weak values is merely a restatement of the facts by technical means; the relevant generalizations, however, are not captured.

Even if scrambling is not syntactically triggered, this does not preclude that it is exploited for information structure purposes. The syntactic variation potential may be employed for pragmatic distinctions that have been noted in the literature (e.g. Zimmermann and Féry 2009; Kučerová and Neeleman 2012). It is employed when core syntax provides it, but it is not part of core syntax.

3.3.4 *Parasitic gaps as evidence for scrambling as A′-chaining?*

This section provides reasons to dismiss so-called parasitic gaps as evidence for the A′-nature of scrambling in German. The phenomena referred to as German parasitic gap constructions are ellipsis constructions with properties familiar from coordination. Hence, it need not come as a surprise that their grammatical behavior does not match typical parasitic gap patterns.

Binding data suggest that scrambling chains are A-chains rather than A′-chains (see Grewendorf and Sternefeld 1990; Webelhuth 1992). But there seems to be a contradicting piece of evidence, namely parasitic gaps that are apparently licensed by scrambling. The phenomenon of parasitic gaps has been considered as cardinal

evidence for A′-dependencies. However, as has been pointed out by Webelhuth (1992, 410–411), its impact is more confusing than revealing in German:

(99) a. $^?$Er hat jeden$_i$ Gast [ohne pg_i anzuschauen] seinem^i Nachbarn e$_i$
          he   has   every   guest [without to.look.at] (to) his   neighbor
          vorgestellt.
          introduced

      b. $^?$Er hat die Gäste$_i$ [ohne pg_i anzuschauen] einander^i e$_i$ vorgestellt.
          he   has the guests   [without to.look.at] (to) each.other   introduced

If (99a) and (99b) are parasitic gap constructions, their pattern is inconsistent with standard assumptions. On the one hand, a parasitic gap needs an A′-chain for licensing, but on the other hand, A′-antecedents cannot bind anaphors and would trigger weak crossover violations. In (99a) the scrambled quantified DP binds a pronoun without a weak crossover effect, and in (99b) the scrambled object binds an anaphor. These properties are associated with A-positions, however. Since under standard understanding, a position cannot simultaneously be treated as A and A′, either there are two movement steps involved (see Mahajan 1994), the dichotomy must be relaxed (see Deprez 1994), or the data must be reevaluated for their validity. We advocate pursuing the latter option.

   At least for German, the identification of constructions like (99) as parasitic gap constructions is of questionable validity. First of all, the gaps in adverbial infinitival clauses do not have the properties of parasitic gaps in English, as the comparison between (100a)–(100c) and (101a)–(101c) illustrates. The German constructions violate constraints on parasitic gap constructions known from English.

   The typical cases of English (see (100d)) are severely deviant in German, however (see (101d)). Parasitic gap constructions with the gap in a finite clause are ungrammatical in German. Only infinitival adjuncts (see (101a) and (101b)) seem at first glance to display a parasitic gap-like behavior.

(100) a. *Where did Elaine work e$_i$ without ever living e$_i$?
                                                      (Postal 1993, 737)
      b. *What he became e$_i$ without wanting to become e$_i$ was a traitor.
                                                      (Postal 1993, 746)
      c. *This is a topic about which he should think e$_i$ before talking e$_i$
                                                      (Postal 1993, 736)
      d. $^?$Which disease did everyone who caught e$_i$ want Dr Jones to study e$_i$
                                                      (Postal 1993, 738)

(101) a. (= (100a))
          Wo   hat Elaine anstatt   mit   dir zu wohnen, ihr Büro
          where has Elaine instead.of with you to live   her office
          eingerichtet?
          established
          'Where did Elaine establish her office instead of living here together
          with you?'

b. (= (100b))

Was	er	wurde,	ohne	eigentlich	werden	zu	wollen,	war	ein
what	he	became	without	really	become	to	want	was	a

Syntaktiker.
syntactician
'What he became without really wanting it was a syntactician.'

c. (= (100c))

Das	ist	ein	Thema	über	das	er	anstatt	zu	reden	nachdenken
this	is	a	topic	over	which	he	instead	to	talk	think

sollte.
should
'This is a topic about which he should think instead of chatting.'

d. *Welches$_i$ Haus wollte jeder, dem$_j$ er e$_j$ zeigte, e$_i$ sofort
   which house wanted everyone who he showed at.once
   kaufen?
   buy

Furthermore, the same type of construction is found with elements that do not scramble easily: *wh*-elements in situ license the alleged parasitic gaps, both in the function of a *wh*-interrogative (102a) and in the function of a *wh*-indefinite (102b). It should be noted that the alleged parasitic gap in (102a) must be interpreted like a bound pronoun.

(102) a. Wer hat seinem Nachbarn$_i$ wen [ohne e$_i$ anzuschauen]
        who has his neighbor whom [without to.look.at e$_i$]
        vorgestellt?
        introduced
        'Who has introduced whom to his neighbor without looking at?'

     b. Er hat seinem Nachbarn wen$_i$ [ohne e$_i$ anzuschauen] vorgestellt.
        he has his neighbor whom [without to.look.at e$_i$] introduced
        'He has introduced someone to his neighbor without looking at.'

Fanselow (1993) adduces additional evidence against a parasitic gap analysis for structures like (102a)–(102c). He notes parallels between this construction and conjunction reduction, and concludes that *ohne* (= 'without') and *anstatt* (= 'instead of') function syntactically like coordinating heads. Arguably, the alleged parasitic gaps are the result of coordination ellipsis (see (103b)) and not the result of the parasitic gap-type variable binding mechanism. Viewed from this perspective, it is not surprising anymore that the alleged parasitic gap construction unlike the construction in English may contain more than one gap.

(103) a. dass er eine Frau$_i$ einem Mann$_j$ [anstatt e$_i$ e$_j$ vorzuziehen]
        that he a woman a man [instead of to.prefer (to)]
        unterordnen wollte
        to subordinate (to) wanted
        'that he wanted to subordinate a woman to a man instead of preferring [her to him]'

b. dass er eine Frau   einem Mann zuerst unterordnete und dann
    that he a   woman a   man   first   subordinated and then
    [— vorzog]
    [preferred (to) —]
    'that he first subordinated a woman to a man and then preferred her to him'

Once it is realized that elliptic infinitivals are not cases of parasitic gap constructions in German (and the very same considerations apply to Dutch), the puzzling conflict between A- and A′-properties disappears, <mark>and so does the support for an A′-movement analysis of scrambling in German.</mark>

3.3.5   Clause-bound scrambling as re-merger within a head-final VP?

Pros

- Direct correlation with the directionality factor of the verbal head
- Immediate account of the locality properties.

Con

- <mark>Currently a minority position in the field</mark> (*caveat*: the author belongs to this minority).

The previous sections provided evidence against all but one of the currently admissible options, namely A-chains within the projection of $V°$. This seems to be an odd result. It may become less odd, however, once the two crucial factors are appreciated. One factor is the parameter of argument licensing; the other factor is the directionality parameter.

In a language like German with a relational system of argument identification (identification by morphological case), <mark>the syntactic base order of arguments in syntactic structure is an immediate reflex of the ranking in the lexical A-structure.</mark> In particular, it is important to keep in mind that base order patterns of one class may be identical with scrambling orders of another class. This presupposes that the identification of arguments is not a function of case checking in positions that are unique for a given case. If the checking of a specific case is not tied to a unique structural configuration for the given case in a given language, case may be successfully checked in alternative positions. However, the base order must be projected, because the arguments of a head are ranked in the A-structure, and the A-structure is mapped to the phrase structure projected by the head. Simple illustrations are seen in (104) and (105):

(104)   a. $V°$: $<A_1 <A_2>>$
        b. $[_{VP}$ A1 $[A_2 \ V°]]$

Assume a verb with two arguments, ranked as in (104a). This A-structure projected on syntactic representation yields (104b), a VP with base order. If, on the other hand, the arguments appear in the reverse order as in (105a), and the first position is a possible checking position and the second position a possible base position (as in

(105b)), the relation between these two positions fulfills the requirements of an A-chain: the chain locally combines a checking license and a projection license.

(105) a. $/\ldots A_2\ A_1\ V°/$
       b. $[_{VP}\ A_{2\text{-}i}\ [A_1\ [e_i\ V°]]]$

This type of A-chain is possible only in the grammatical setting sketched above. In the following paragraphs, it will be characterized more precisely.

- *Scrambling criterion (observational)*: If a language L with head-final V-projections has different A-structure-dependent base orders for argumental expressions, then L is also a scrambling language.

In other words, if there are A-structure-dependent base orders, the given language allows for non-positional identification of arguments. This is a *precondition* for scrambling. Note that this rules out DP scrambling for Dutch. Dutch has no means of relational identification (i.e. case marking) and therefore no order alternation for DP arguments.

- *Scrambling criterion (technical)*: If in a language L, the identification of argumental constituents is not subject to positionally fixed unique identification configurations, phrases in L that are not head-initial are scrambling domains.

First, the crucial difference between a head-final and a head-initial projection is the availability of the extendable identification domain because the direction of merger is identical with the direction of the identification of merged positions by the head of the phrase. In a head-initial projection, the extendable domain is necessarily empty. In a head-initial projection, a position identifiable by the head is a position preceded by the head. So adjunction to the left creates positions that are not in the identification domain of a phrase-initial head. Therefore, genuine scrambling structures do not occur in head-initial projections.

 Second, scrambling is strictly local since it is restricted to the domain of a phrase-final head.

> **Excursus 2**   OV versus VO – the factor head-final versus head-initial
>
> Head-initial phrases are *compact* (i.e. they do not allow intervening phrases between the head and the nominal object or between the objects); head-final phrases are not compact. As a consequence, scrambling is possible inside of head-final phrases but not within head-initial ones, and adverbials may intervene in head-final phrases but not in head-initial ones. This is the effect of a directionality constraint. The theoretical core assumptions are the following (Haider 1992/2000, 2010, 26; 2013, 3–4):
>
> (1) a. Projection lines are universally right-branching and endocentric.
>   b. A merged phrase is licensed in the canonical direction (parametric).
>   c. The position of a merged phrase P is licensed = DEF the phrase head h (or its projection) and P *minimally* and *mutually c-command* each other.
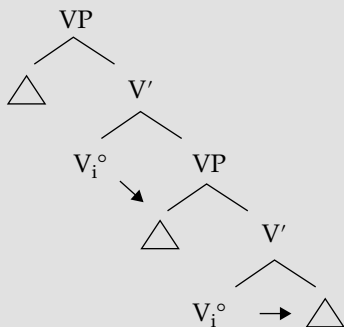
In head-final phrases (2), the universal directionality of phrases matches the canonical directionality of the head. Hence, not only the head but also any node on the projection line serves as licensing node, and condition (c) is fulfilled. Intervening adjoined phrases have no effect, since their immediately dominating node is a node on the projection line.

(2)   Head-final VP ("SOV")

```
            VP
           /  \
         △  ←  V′
              /  \
            △  ←  V′
                 /  \
               △  ←  V°
```
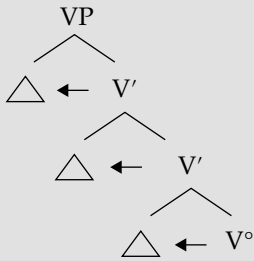
The shell structure of complex head-initial phrases is an immediate consequence of the mismatch between the universal direction of branching (condition (a)) and the converse licensing directionality. The head must be re-instantiated (2) in order to meet the licensing requirement (condition (c)) since the projection nodes – being on the "wrong" side – cannot function as canonical licensers. Interveners matter because they destroy the minimal relation between licenser and licensee.

(3)   Head-initial VP ("SVO")

```
            VP
           /  \
         △    V′
             /  \
          V_i°   VP
             ↘  /  \
              △    V′
                  /  \
               V_i° →  △
```

The implications for scrambling are obvious, given that scrambling is the result of an argument being moved and adjoined[40] to a higher projection of the head. In a head-final phrase, scrambling may target any higher position in the phrase since any position is within the licensing domain of the head and its projection. In a head-initial phrase, there is no position available.

Phrase-internal scrambling is blocked by compactness, as a consequence of condition (c). Scrambling to the left edge of a head-initial phrase is blocked since its target would be an unlicensed position for a dependent of the head.

The implications for scrambling are obvious, given that scrambling is re-merger by adjunction to the V-projection. Re-merger in the structure (106a) but not in (106b) extends the identification domain of the head. Hence, left-adjoining to the projection (as in (106a)) adds one more node to the projection line and opens a position in the identification domain of the head. Left-adjunction as in (44b) creates a position that is not in the identification domain of the verbal head of the projection. This is the basic difference between adjunction to OV and VO projections. If scrambling structures are adjunction structures by internal merger, this difference in the projection structure of head-final versus head-initial projections entails that the grammatical properties of scrambling in OV must be different from those that would result from an analogous operation in a VO language.

The *second factor* differentiates between German as a scrambling language and Icelandic as a non-scrambling language: the scrambling position must be within the identification domain of the lexical head of the projection.[41] We assume that argument identification is subject to the directionality parameter. OV is – as demonstrated in this chapter – the result of regressive identification, whereas VO is the outcome of progressive identification. The difference between scrambling in an OV system in contrast with a VO system is illustrated in (106). In (106a), the scrambled XP *is* in the identification domain of $V°$, but not in (106b), where it precedes a progressively identifying head:

(106) a. $[_{VP}$ XP_i $[_{VP}$… $[e_i$… $V°]]]$
       b. $[_{VP}$ XP_i $[_{VP}$ $V°$ $[… e_i…]]]$

Arguments in positions within the identification domain of the lexical head are *L-related* positions. This is the reason why scrambled and non-scrambled XPs do not differ with respect to grammatical factors conditioning opacity for extraction. It is also the reason for the lack of differences in binding: a position in the identification domain of a lexical head is a position in which an XP is linked. In terms of the A′ versus A distinction, a linking position is an A-position. This accounts for the A-chain properties of scrambling.

We shall have to answer the question: what determines the position of the gap in a scrambling construction? The gap is the foot of the scrambling chain in the *base position* of the scrambled element. This position is determined by the base order and hence predictable from the A-structure of the lexical head of the projection. The pertinent principle is the principle of the discharge of A-structure onto syntactic

structure that guarantees that the ranking in the lexical A-structure is conserved in the syntactic structure:

(107)   *Principle of conservative mapping of A-structure onto syntactic structure*: The A-structure ranking in the lexical A-structure of a lexical head is mapped onto a syntactic c-command hierarchy.

The lowest ranking argument in the A-structure is associated with the lowest A-position in the projection of the head, the next higher one with a position c-commanding the lower one, and so on. In terms of merging, the argument expression that the head merges first with is associated with the lowest ranking argument, and merging continues in the inverse order of the ranking. The minimal domain of mapping will be referred to as MAC (= minimal argument projection complex).

   Let us assume, for the sake of illustration, a head with a three-argument A-structure and a given ranking as in (108a). The resultant MAC, the minimal complete lexical projection that contains all A-positions, is either a structure like (108b) for head-final projections, or a structure like (108c) for head-initial ones.

(108)   a. $h° <A_i <A_j < A_k >>>$ Lexically stored information
        b. $[_{HP} A_i [A_j [Ak\ h°]]]$ Head final
        c. $[_{HP} A_i [h_i° [A_j [h_i° A_k]]]]$ Head initial, projection shells

An illustration for the structures (108b)–(108c) is given in (109a)–(109b), respectively, in the form of a German head-final and an English head-initial V-projection. For the latter, we follow the standard assumption that the external argument is the only argument to the left of the head. This position is structurally a spec-position of the head-initial projection, and it is identifiable as the single position to the left of the head. In head-final projections, there is no position singled out structurally. All positions are positions to the left of the head.

(109)   a. $[_{VP}$ jemand$_i$ [jemandem$_j$ [etwas$_k$ *zeigen*]]]
             someone.(NOM)   someone.DAT   something.ACC   show
        b. $[_{VP}$ someone$_i$ [*show*$_q$ [somebody$_j$ [e$_q$ something$_k$]]]]

Let us now return to the question we started with, namely the identification of the gap in a scrambling construction, as in (110): the gaps are identifiable in the MAC in the order of the ranking of the A-structure.

(110)   dass   (ja)   [die   Bilder$_k$ [Linguisten$_j$ [$_{MAC}$ niemand$_i$ [e$_j$ [e$_k$ zeigte]]]]]]
        that   (PRT)   the   pictures   linguists   nobody   showed
        'that nobody showed the pictures to linguists'

The scrambled constituents are adjoined to the V-projection and thus remain in the identification domain of the head. Note that the scrambled order could, of course, also be *Linguisten*$_j$ *die Bilder*$_k$ since both are scrambled across the subject. The case is checked in the overt position; linking to the A-structure position requires chain formation between the identification position and the base position. The resulting

chain is thus a chain between an overt A-identification position and a covert linking position, that is, an A-chain.

In a *head-initial* projection, this type of structure does not give rise to A-chains for a simple reason: positions adjoined to the MAC are positions to the left of the head position and therefore are not in the potential identification domain of the head:

(111)   [$_{VP}$ something$_k$ [$_{VP}$ someone$_q$ [*show*$_i$ [somebody [e$_i$ e$_k$]]]]]   (*scrambling)

Since the re-merged phrase-initial phrase in (111) is not in the identification domain of the lexical head because identification is subject to a directionality requirement, the chain cannot be an A-chain; it could be an A′-chain only. This is the grammar-theoretical reason for the absence of A-chain-based scrambling of the German type within VO languages. The only remaining possibility, namely scrambling *within* a VP, is ruled out in VO languages for a principled reason (i.e. compactness). Head-initial phrases are compact (see excursus 2), and a scrambled phrase would qualify as an intervener.

3.4   Summary – questions and answers

- What makes an SOV language (like German, Hindi, Japanese, etc.) a scrambling language?
  - Head-final projections, and in particular head-final VPs
  - Non-positionally restricted licensing domains for DPs (as e.g. German vs. Dutch).
- What prevents scrambling in SVO languages (like e.g. English, French, Icelandic, etc.)?
  - No merger to the right (universal restriction), hence no scrambling to the right
  - Heads of head-initial projections do not license to the left, hence no scrambling by merger to the left
  - Head-initial phrases are compact, hence no phrase-internal scrambling
  - Scrambling is restricted to the domain of canonical licensing by the head. Re-ordering is always movement to the left. Hence, only head-final phrases provide a potential for scrambling. A language with mixed headedness (e.g. German, with head-final VPs but head-initial NPs) does not allow for scrambling in head-initial projections (NP and PP), but only in head-final ones (VP and AP).

Apparent counterexamples do not qualify as genuine counterexamples. Slavic languages are known as scrambling languages, but they are standardly filed as SVO. However, a systematic cross-Slavic check of VO properties reveals that scrambling is merely the tip of the iceberg of a set of properties that do *not* match SVO properties (see Haider and Szucsich in press): no fixed order of auxiliaries, no edge effect for preverbal adverbial phrases, no opacity of preverbal arguments, no superiority effects, and no EPP effects. In sum, Slavic languages are not VO but 'Type 3' languages. These languages are neither strictly head-initial (VO) nor strictly head-final (OV) languages, but rather a combination of both (OV + VO). T3 languages are

languages with underspecified licensing directionality of the verbal head. There-fore, their patterning repertoire is the aggregate of OV and VO patterns plus verb positions in between complements, whence their scrambling potential.

- What prevents the permutation of DP arguments in Dutch, unlike German?
  - Positional licensing of DP objects (because of the lack of relational morpholog-ical identification). Note, however, that PPs may be scrambled in Dutch, unlike in English. This shows that it is a scrambling language.
- What is responsible for the alleged co-occurrence of A- and non-A-movement properties (crossover, parasitic gaps, etc.) for scrambling?
  - A (mis)interpretation of data and a (mis)interpretation of theoretical concepts: first, the alleged parasitic-gap constructions in German do not involve parasitic gaps. It is an elision construction like coordination ellipsis, whence the sharp contrast to English *pg*-constructions. So, the evidence for A′ is apparent only. Second, A-movement-like behavior is guaranteed whenever the scrambled position is a potential A-position. The very same order of arguments that is a scrambled order for one class of verbs is a potential base order for another class of verbs.

Acknowledgments

SEE ALSO: Adverb Classes and Adverb Placement; Bound Variable Anaphora; Double Object Constructions; Extraposition; Impersonal Passives; Left Periphery of the Clause; Phrasal Stress and Syntax; Quantifier Scope Ambiguities; Reconstruc-tion, Binding, and Scope; *Wh*-in-Situ

Notes

1. The *LB* is a minimal segment. It accommodates only single lexical items (finite verb or complementizers). The other segments provide room for phrases, even in the case of the right bracket: It accommodates the clause-final verbs, 'close' predicates (i), but even a direct object (ii), which may be sandwiched by what Gunnar Bech (1955) termed 'Ober-feld' and 'Verbalfeld' in the case of IPP constructions:

   (i)　dass sie ein Geheimnis nicht [*würde haben* für sich *behalten können*]$_{RB}$
   (ii)　dass er für ihn nicht [*hat* die Firma am Leben *halten wollen*]$_{RB}$
   　　　　　　　　　　　　　　　　　　　　　　　　　(Thomas Mann, *Buddenbrooks*)

2. (i)　[Mein　Bier$_i$]$_{Left-disloc.}$　[ist　das$_i$　schon　　eingekühlt]?
   　　　my　　beer,　　　　　　is　　this　already　cooled?
   (ii)　[Mein　Bier$_i$]$_{Left-disloc.}$　[warum　ist　das$_i$　noch　nicht　eingekühlt]?
   　　　my　　beer,　　　　　　why　　is　this　not　　yet　　cooled?
   (iii)　[Mein　Bier$_i$]$_{Left-disloc.}$ [kühl das$_i$ bitte sofort ein]!
   　　　my　　beer,　　　　　　cool it please instantly in!

3. The literal glossing 'something up-strikes someone' means 'someone notices something'.
4. (i) *Newspaper Headline*

    Auto   vom   Chef   *betrunken* *zu*   *Schrott* gefahren
    car   of.the boss   drunk   to   wreck   driven
    (http://www.infranken.de/regional/forchheim/Auto-vom-Chef-betrunken-zu-Schrott-gefahren;art216,477897)

5. Representative of the Scandinavian languages (Danish, Faroese, Icelandic, Norwegian, and Swedish).
6. A necessary condition for scrambling within a projection P is: (i) P must be a head-final projection, and (ii) the arguments of the head of P must be licensed relationally, that is, the identification of the given argument phrases does not depend on unique structural positions for each argument (see Corver and Van Riemsdijk 1997; Haider 1997b; Haider and Rosengren 1998).
7. Capitals indicate the locus of the pitch accent.
8. Uttered by the author Stefan Heym in an interview.
9. Apparent counterexamples are discussed in Müller (2005, 311). In cases such as (1), a particle cannot be topicalized separately (cf. *Zu würde er einen Fehler nicht geben). Müller's examples involve particles that can be fronted:

    (i) Los geht es im April damit.
    (ii) [Los damit] geht es im April   (*los* = loose; *losgehen* = begin)

10. *F* is a variable for a suitable functional head, like T° or Agr° or any other functional head that has been proposed for this area of clause structure.
11. Of course, this does not leave room for other functional projections either, like AgrO, Aspect-P, etc. See Haider (2010, chs 2 and 7) for arguments that this is a welcome consequence.
12. The position of a negation particle is a position that c-commands the finite verb or its trace. This is one reason why a negation particle in the role of sentence negation cannot appear in a VP-internal position in a VO language:

    (i)   He has talked *gently* to Mary.
    (ii) *He has talked *never* to Mary.
    (iii) *He has talked *not* to Mary.

    But, in an OV language, the negation particle, just like adverbs of all semantic types, occurs VP-internally, since any VP-internal position c-commands the finite verb in its base position.
13. The MAC (Haider and Rosengren 2003) is the minimal projection of the head that contains all argument positions of the head. This is a modification of Diesing's (1992) claim that the VP is the domain of existential closure. The VP in an OV language may be larger than the MAC. This is the case if scrambling is analyzed as adjunction to VP. In head-initial projections, the left boundary of the MAC is identical with the left boundary of the VP.
14. Existential closure still is an option if the indefinite phrase is in the scope of a quantifier (see Ruys 2001):

    (i) dass   jeder   Premierminister Journalisten/ einen Journalisten oft
        that   every   prime.minister   journalists/   a   journalist   often
        weggeschickt hat
        away.sent   has

If, in (i), *jeder* ('every') is replaced by *der* ('the'), the interpretation with existential closure is not appropriate.

15. There are some restrictions with respect to genitival objects, however (see Rosengren 1993). Since this is of no relevance in this connection, we shall not discuss it further.

16. In the following example, the subscript is the trace index; the superscript is the binding index.

17. Nominative is a bipartite relation because the nominative DP obligatorily agrees with the finite verb. The DP and the finite verb share a feature matrix. The finite verb as the head of the projection c-commands all the phrases in its projection, by definition. So, the feature matrix of the governor of nominative c-commands any position within the VP. If binding is defined in terms of the position of the head that agrees with the DP-features rather than the DP-position itself, the result is in accordance with the empirical facts. It is important to realize that overt agreement is the crucial factor and not the subject function (cf. ECM-subjects).

18. "An operator A may have scope over an operator B if A c-commands B or an A′-element coindexed with B."

19. Only pronouns have distinct case forms in Dutch, much like in English (e.g. *hij* 'he', *hem* 'him').

20. A derived un-accusative predicate is the passive of a ditransitive verb (see (i)). An example of an unaccusative verb is *overkomen* ('happen to so') as in (ii):

(i) | dat | Jan | boeken | gegeven | werden |
     |-----|-----|--------|---------|--------|
     | that | Jan | books | given | were |

(ii) | dat | Jan | rampen | overkomen | zijn |
     |-----|-----|--------|-----------|------|
     | that (to) | Jan | catastrophes | happened | are |

21. In German, a rise–fall intonation invites *scope inversion*, but only if the element with the rising accent has been fronted across the element with the falling accent. In fact, the rise–fall accent signals *reconstruction*, not scope inversion. Scope inversion is the effect: reconstruction is the cause. This is illustrated by (i) and (ii).

(i) | dass/ | jedes | Bild$_i$ | kein\ | Besucher e$_i$ | bewundert | hat | ($\neg\exists\forall$) |
     |-------|-------|----------|-------|----------------|-----------|-----|--------|
     | that | every | picture | no | visitor | admired | has | |

'That no visitor admired every picture.'

(ii) | dass/ | jeder | Besucher | kein\ | Bild | bewundert | hat | ($\forall\neg\exists$), ($^*\neg\exists\forall$) |
     |-------|-------|----------|-------|------|-----------|-----|--------|
     | that | every | visitor | no | picture | admired | has | |

As for scrambling, this is evidence that there must be a trace in (i). Without a trace, we would expect scope inversion in both (i) and (ii) since scope inversion would have to be regarded as a purely semantic effect. In reality, it is a syntactic effect. It depends on reconstruction announced by the rise–fall intonation signal.

22. If the lowest argument is de-accentuated (inherently or contextually), the verbal head is assigned the nuclear accent: *wenn man mir was erkLÄRt* ('if someone me something explains'). An indefinite pronoun such as *was* ('something') is inherently de-accentuated.

23. This is of course not the same as to say that they are informationally equivalent. The difference in position of the minimal focus exponent is, of course, important but of no relevance in this connection.

24. Note that a reflex of this property is the fact that the verb that denotes the same concept in English – the verb *devote* – does not allow for a *dative-alternation*. An unambiguous goal relation is ranked lower than a theme argument in A-structure.

25. Note that contrary to claims that can be found in the literature, there is no specificity effect in the German counterpart of the English *there*-construction:

     (i) *Es* spielt jetzt für sie *die Academy of St Martin in the Fields* unter
         there plays now for you *the Academy of St Martin in the Fields* under
         Neville Mariner.
         Neville Mariner

26. Other examples are:

     (i) [Der Mut verlassen]_{VP} hat ihn noch nie

          the courage left has him.ACC never ever

     (ii) [Die Emotionen überwältigt]_{VP} haben den Mann noch nie

          the emotions overpowered have the man.ACC never ever

27. A Google search (December 12, 2016) produced 813,000 hits for *dat er wordt gewerkt* ('that there is worked') and 313,000 for *dat wordt gewerkt*. A search restricted to news sites produced 876 and 208 hits, respectively. The search for *dass es gearbeitet wird* produced 13 hits (from non-German sites), but the version without *es* produced 58,800.

28. See Askedal (1986). The examples are excerpted from Thomas Mann, *Buddenbrooks*; and Franz Werfel, *Das Lied der Bernadette*.

29. (i) dat hij niets [gezien *kan* hebben] – dat hij niets [*kan* gezien hebben] –
         dat hij niets [*kan* hebben gezien]

      that he nothing [seen *can* have]

                                                        (Geerts et al. 1984, 1069)

30. Geerts et al. (1984, sect. 22.5.6.3): "Als lijdend voorwerp en indirect object beide een substantiefgroep zijn, moet het indirect object steeds vóór het lijdend voorwerp staan, hoewel niet steeds vlak ervoor" ("If the direct object and the indirect object are both DPs, the indirect object must always precede the direct object, although not always immediately").

31. Geerts et al. (1984, sect. 22.5.6.3): "dan is verplaatsing gemakkelijk mogelijk" ("then movement is well possible").

32. Commentary (Eurosport channel, 22.02.2002) on gold medal-winning Sarah Hughes' performance.

33. *F* is a variable for a suitable functional head for this areas of clause structure. The argument does not depend on the inherent quality, but merely on the presence or absence of a functional head.

34. The gloss mimics the particle verb combination in German. *Abfahren* (ab+fahren) literally means 'off-go', which semantically corresponds to 'leave' or 'depart'.

35. The Minimalist Program (Chomsky 1995) has not significantly clarified the theoretical perspectives on scrambling that had been reached before (see e.g. Saito 2003).

36. Examples like "Who was taken advantage of?" or "Who did you give this book to?" show clearly that the verb and the preposition are not adjacent heads, because in both examples the preposition is not adjacent to the verbal head.

37. *Auffallen* is a particle verb: auf+fallen, literally translated up+fall, with the meaning 'to happen to notice'. The gloss uses the translational equivalent 'strike' plus a particle.

38. "A head assigned the feature [w] must c-command a head assigned a feature [n]" (Hinterhölzl 2006, 58). What happens if it does not? There would arise a deviant feature structure that nobody would be able to note.

39. More precisely, it is confined to head-final phrases and to type 3 phrases (see Haider and Szucsich in press).
40. Adjunct(ion) is used here as a purely structural notion: the adjunction position is a position merged with the projection of a syntactic category (daughter and sister of a segment of a (maximal) projection XP), without being selected by the head. The BC (see above) allows adjunction on the left but not on the right side of a projection.
41. Let's assume a P&P theory-checking system for overt case: a lexical head can check for a single case value per case category, that is, one structural case, one lexical case, and one oblique (e.g. prepositional) value.

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