

A null theory of scrambling

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Abstract

Grammars are decomposable. On the one hand, an adequate characterization of a given utterance factorizes the contributions of each subsystem of grammar and on the other hand, it thereby reduces the apparent overall complexity to the interaction of less complex subsystems. Scrambling is an apt showcase. Its complicated properties are not inherent properties of a syntactic construction but the result of the interaction of phrase structuring with other subsystems of grammar, and in particular with the information-structuring (IS) subsystem of pragmatics. Scrambling is 'utilized' rather than 'triggered'. In general, when syntax admits structural variation, this potential is captured and utilized by other subsystems of grammar.

Germanic and Slavic languages are handy testimonies for rejecting syntactic trigger scenarios not only for scrambling but also for other constructions with displaced items. Cross-linguistically, Scrambling is not a matter of syntactical determinism. For an adequate syntactical account of Scrambling it is sufficient to understand and explain the structural conditions that make a language a scrambling language. The pragmatic functions that utilize scrambling structures are not a concern of syntax. They are syntactically not causal and epiphenomenal to syntax.

1. Introduction

Scrambling is a showcase of the particular interplay between the availability of various degrees of structural freedom on the one hand and the independent utilization in diverse contexts on the other hand. Since these contexts are diverse, it is not surprising that the long-lasting quest for a particular syntactic trigger of scrambling has not proven successful. Here is a non-exhaustive sample of typical scrambling contexts in German.

- | | |
|---|-----------------------------|
| (1) a. Man hat [jedes ⁱ Auto] _j sofort seinem ⁱ neuen Besitzer -- _j übergeben. | <i>Q-Binding</i> |
| one has [each car] immediately (to) its new owner consigned | |
| b. Man hat die Gäste ⁱ einander ⁱ -- _j vorgestellt. | <i>A-Binding</i> |
| one has the guests _{Acc} (to) each-other _{Dat} introduced | |
| c. Er hat [mindestens eine Frage] _j jedem Prüfling -- _j gestellt. | <i>Q-Scope</i> |
| he has [at-least one question] every candidate asked | |
| d. Heute regiert das Land _j eine korrupte Clique -- _j . | <i>IS (given vs. focus)</i> |
| today governs the country _{Acc} a corrupt clique _{Nom} | |
| e. Da hat die Bibel _j vielleicht jemand -- _j missverstanden. | <i>IS ('altruistic')</i> |
| there has the bible _{Acc} perhaps somebody _{Nom} misunderstood | |
| f. dass den Mann <i>der Schlag getroffen</i> / <i>der Teufel geritten</i> / <i>der Hafer gestochen</i> / ... hat | |
| that the man _{Acc} the stroke _{Nom} hit ¹ / ... the devil _{Nom} ridden / the oats pricked / ... has | |

¹ i. "Diesen Mann_{Acc} hat der Schlag_{Nom} getroffen" = This man has suffered a (brain- or heart) stroke;
 ii. "Diesen Mann_{Acc} hat der Teufel_{Nom} geritten." = This man has taken leave of his senses.
 iii. "Diesen Mann sticht der Hafer_{Nom}" = This man behaves boisterously.

In (1a,b), scrambling makes available c-command relations between binder and bindee. In (1c), the scrambled position of one of the quantified expressions disambiguates the scopal relation. The choice of the scrambled order conveys the information that the base order is dispreferred. So, the scrambling pattern is a way of disambiguating scope. In a language like English, which does not provide a simple² order alternation, the utterance corresponding to (1c) is ambiguously interpreted in its base order instead.³

(1d) provides a serialization with the subject in the clause final area, which is the preferred area of focus-placement and therefore also for placing the question-answer focus. The items that count as given precede it. The scrambling pattern is perfect in the answer to a question that asks for the subject. It matches the IS-preferred partitioning of an utterance in given vs. new or background vs. focus areas with the subject as focus or new information.

When (1e) is used, with the consequence that the verb receives nuclear stress, scrambling appears to apply 'altruistically' (Fanselow 2003: 210). The reading for the scrambled version (1e) is identical with the reading for the version without scrambling, *provided* the stress accent is placed on the verb and not on the object in its base position, which would be the default accent. In a written version of (1e), this is guaranteed by resorting to the scrambling pattern. In the scrambled version, the base-position of the object is empty and trivially unstressed. Hence the verbal head as the only item in the deepest position receives nuclear stress. Syntacticians typically study written material rather than sound files. Therefore, such circumstances matter.

(1f), eventually, illustrates a phenomenon that is absent in strict SVO languages (Haider 1993: 173; 2013: 54). In such languages, idiom formation cannot join the verb and the subject while sparing the object as the referentially free constituent. The reason is that in SVO languages, there is an obligatory subject position outside of, and preceding, the verb phrase while the object is VP internal. So, an idiomatic sub-constituent that contains the subject and the verb necessarily contains the object.⁴ If in an SVO language, the subject and the verb are parts of an idiom, then the whole VP is part of the idiom and the object cannot be spared. In OV languages, scrambling is a way of forming a sub-constituent that contains only the subject and the adjacent verb. The object precedes and is not part of this sub-constituent. In the idiomatic usage, it is a free slot while the sub-constituent is treated as the idiomatic part.

What this brief exposition illustrates is the multi-purpose utility of scrambling patterns in a modular perspective on grammar. Scrambling is not syntactically *triggered* by any one of these grammatical requirements or preferences. The syntactically available patterns are *utilized* by other modules of grammar. Trivially, a language whose syntax does not provide such options cannot utilize them. Nevertheless, languages are able to cope with pragmatic demands also in the absence of scrambling. The potential utility has not forced grammars of such languages to change. In sum, scrambling is not a construction that is available in one language but not in the

² English speakers would have to resort to other constructions, as for instance, the dative shift variant: [...] *"are prepared to hand over every square centimetre of land back to its traditional owners."*

³ i. *"asked every candidate at least one question"*

Richard Montague's example of scopal ambiguity is well-remembered: *"Every man loves a woman."* English cannot disambiguate by simple word order change because its syntax does not provide the means.

⁴ The items an idiom consists of in its "dictionary form" are continuous and idiomatized bottom-up. O'Grady (1998:293) credits this generalization to Kiparsky.

other. It is a syntactic system potential. It is – as will be explicated in the following section – a property of certain phrases structures and it is – if available – subsequently exploited by other components of grammar.

2. When inappropriate modelling leads to a dead end

Scrambling is a challenge for a 'mechanistic' view that assumes that items only move if they have to. Movement supposedly requires a trigger, otherwise an item would not move. In mainstream Generative Grammar (Minimalist Program), it is popular to directly syntactify desired properties in terms of features that trigger the necessary moves; see Breitbarth & Riemsdijk (2004: 8). In the absence of a restrictive feature theory, one is free to introduce a feature and declare it a trigger. For example, in cases such as (1a,c), a scope feature is deemed to make a scope-bearing item move to a c-commanding position where its feature gets checked (Hinterhölzl 2004, 2013: 183). For cases like (1d,e), an "anti-focus" feature has been suggested as the suspected trigger of scrambling by Molnárfi (2004). However, translating an empirical problem into a technical description is just a translation of a problem, not its solution. It is merely a restatement of facts in a technical notation. Apart from that, focus-avoidance would be an empirically inadequate trigger. It is known at least since Lenerz (1977: 63) that a question-answer focus followed by non-focused items is a fully acceptable configuration in German.⁵

When grammarians syntactify such properties (viz. information structure properties, semantic effects, etc.) as alleged triggers of syntactic structuring, they are apparently not aware of their essentially functionalist attitude. It is not the *function* of scrambling to satisfy information structure preferences or the needs of any other subcomponents, otherwise any language would employ it. Information structure preferences only *utilize* an independently available grammatical potential. The syntactical potential is the availability of alternative positions⁶ within phrase structure. Besides IS, other subcomponents of grammar utilize the ensuing variability of linear ordering, too.

Generative Grammar continues modelling the relation between subcomponents in terms of step-wise derivations and seems to ignore the advancements in cognitive science over the last three decades in developing cognitively more adequate models of computing, namely parallel distributed processing, see Rogers & McClelland (2014) for a review. In such models, the contributions of different subcomponents become effective in simultaneous *superposition* rather than in a step-wise derivational *sequence*. In other words, a given utterance *simultaneously* meets the requirements of more than one subsystem. Information is not passed on from module to module, but shared by all modules instantaneously. Figure 1 is an example of superimposed structures. The focus-background partitioning of IS and the syntactic structuring are superimposed.

⁵ Q: *Wem* hast Du das Geld gegeben? A: Ich haben *dem Kassier_F* das Geld gegeben.
 whom have you the money given I have the teller the money given.

⁶ The alternative positions are not pre-specified either, unlike what "Cartographic syntax" suggests. Syntactic cartography is but a restatement of usage-based properties, in a technical and partially circular way. [s. Struckmeier (2016: 382), (2017: 9) and the literature cited there]. A cartographic representation is just the *structural notation* of the *pragmatic tuning* of a clause. The properties it ascribes to structure are mere superposition effects of modules that meet and interact. The cross-linguistic complexity is the complexity of various interacting principles, but not the superposition of the aggregate of any functionally equivalent structures encountered in any odd language.

Let us assume that sentence (a.) in Figure 1 is part of an answer to a question such as "*Who do they think will deliver the piano to their uncle?*" In this case, the question-answer focus will be the subject of (a.). The remainder of the utterance is given information, that is, background information, and is preferred to precede. The serialization of the scrambled variant (a.) provides an accurate match between (b.) and (a.), as indicated in (c). Hence (a.) is a preferred variant in this particular context by IS.

Figure 1: IS-partitioning superimposed on a syntactic structure

- a. dass ihrem Onkel das Klavier eine hiesige Firma zustellen wird
 that her uncle_{Dat} the piano_{Acc} a local company_{Nom} deliver shall
- b. background / given focus / new
- c. ihrem Onkel das Klavier eine hiesige Firma zustellen wird
-

The variant (a.) is the variant in which the IS-preferred partitioning for the utterance in (b.) can be neatly superimposed on the structural representation of (a.), with the result (c.), that is, the appropriate IS-mapping on a well-formed syntactic structure. This is a matter of simple pattern matching. If a language such as German admits serialization variations, this potential is exploited by IS. English does not provide such a potential.

In a cross-linguistic perspective, some types of phrase-structures are more 'flexible' than others, as will be made precise below. Flexibility means that in some languages, there is variation among structure templates. This variation space can be partitioned by interacting modules when a module attaches some of its properties to some structures but not to others. Someone who thinks primarily in categories of syntactic derivations is misled into assuming syntactic principles to be semantically or pragmatically geared in order to guarantee a certain outcome. This neglects the fact that the systems involved are in *superposition* rather than connected in *series of derivations*. The triggering view is simple but misleading. This is not the way science models complex systems. Science decomposes systems; see Simon (1962), on "nearly decomposable" systems.

Interacting subsystems of grammar that are relevant for scrambling comprise phrase structuring on the one hand and pragmatics (information structuring), semantics (binding), prosody (focus), and others. Whenever there is more than one option for arriving at a well-formed structure, a deterministic account in terms of triggering is challenged since it has to identify a trigger, which does not exist, if the source of variation is a system potential that is available in one type of grammar but absent in another type, as in the case of scrambling.

Syntactic 'movement' phenomena typically allow for choices in general. As for A'-movement, it is a well-known fact of German – which is representative of V2-languages in this respect – that in the main clause version (2a) of an example such as (2b), the clause-initial position can be filled by any one of the five underlined expressions. An additional option is waiving any fronting. Instead, the obligatory structural Spec-position can be 'plugged' with a syntactic dummy, namely the expletive item '*es*' (it/there).

- (2) a. [...] werden in Zukunft vielleicht doch noch weitere Saurierreste auf Mallorca gefunden.
 are in future perhaps yet still further saurian-remnants at M. found

- b. dass in Zukunft vielleicht doch noch weitere Saurierreste auf Mallorca gefunden werden
that in future perhaps yet still further saurian-remnants at Mallorca found are

The actual choice of the clause initial item may be guided by preferences of information structuring, but this is a pragmatic and not a syntactic issue. Pragmatic preferences utilize syntactic options but cannot compel syntax to provide them. The *particular choice* of the constituent for lexicalizing the clause-initial position of Germanic V2-declaratives is not dictated by the grammar (= triggered). This insight⁷ has been grasped and published already in the 19th century, by Erdmann (1886:183).

At least at this point, readers should feel tempted to object. In wh-interrogatives, a wh-phrase *must* be fronted in order to derive an interrogative clause in German, for instance. This is true (but the wording is accurate only if one believes in 'movement') and it is nevertheless compatible with a non-deterministic choice-scenario. The grammatical principle that characterizes an interrogative clause with reference to the clause-initial spec-position of the main clause does not 'select' or 'attract' a wh-item. It merely defines the property of a wh-clause. Anyone uttering a wh-clause will have to activate the appropriate pattern with a wh-item in the top spec position. In case there is only a single option, the choice appears to be forced. Let us have a look at some details (3).

- (3) a. Gestern hat *wen* *was* schockiert.
yesterday has whom what shocked ('Yesterday, something has shocked someone')
b. *Wen* hat gestern *was* schockiert? (ambiguous w.r.t. *was*: interrogative or indefinite)
whom has what shocked
c. *Was* hat gestern *wen* schockiert? (ambiguous w.r.t. *wen*: interrogative or indefinite)
what has yesterday whom shocked

In (3a), the unstressed⁸ wh-pronouns are interpreted as indefinite pronouns. The interrogative interpretation is in general restricted to wh-pronouns in spec-positions and to wh-pronouns in situ provided they are bound by a wh-pronoun in a spec-position. In fact, for a bare⁹ wh-pronoun in a spec-position, an indefinite construal is dispreferred. In other words, (3b) and (3c) are not interpreted as declarative clauses.¹⁰ So, there seems to be no choice. Is this a trigger situation? It is, if syntax is construed as a generative algorithm subserving semantics and pragmatics. It is not a trigger if syntax is understood as an autonomous structure projection system.

What syntax contributes is this: It characterizes the structural position and relation of the wh-pronoun and it types the clause. The essential difference between an interrogative V2 clause and a declarative V2-clauses concerns the item in the spec position. Interrogative clauses have an interrogative phrase in their spec-position. Hence (3a) is a declarative clause, and (3b,c) are

⁷ "Enthält ein Satz mehrere Bestandteile, so steht vor dem Verbum immer nur einer." (If a sentence contains several constituents, then only a single one occurs in front of the verb). "Die Auswahl dieses einen aber ist im Deutschen völlig dem Belieben des Redenden überlassen." (The choice of the particular item is entirely up to the speaker).

⁸ If stressed, the utterance is an echo question, but not a regular wh-question.

⁹ If the wh-item is embedded in a fronted phrase, it may keep its indefinite interpretation, as Meinunger (2019: 178) reminds.

¹⁰ Even a discourse particle such as "doch", which cancels an interrogative interpretation in V1 clauses (i), would not turn (3b,c) into fully acceptable declarative clauses with a clause-initial indefinite pronoun:

i. Hat doch schon Erdmann betont, dass Fragepronomina im Vorfeld nicht als Indefinitpronomina fungieren.
has "doch" already Erdmann stressed that question-pronouns in-the prefield not as indefinite-pronouns act

interrogative clauses. The impression of syntactic triggering arises only in a derivational model. This impression, however, is a theory-internal matter. (3a) is not an ungrammatical would-be interrogative, and (3b,c) are not deviant would-be declarative clauses. These utterances each are syntactically well-formed, but they differ in clausal typing.

In SVO languages, the situation is slightly complicated by the fact that the obligatory subject position in the [S[VO]]¹¹ clause structure is a spec-position. Wh-items in spec-positions qualify as operators and resist being bound. So, a subject wh-pronoun in such a position does not tolerate being bound. Consequently, (3b) is ungrammatical in English. For a detailed exposition of the grammatical intricacies of wh-subjects in situ in SVO, please consult Haider (2010 ch. 3). Such a problem does not arise in SOV languages. The arguments of the verbal head – objects as well as the subject – remain in their base positions in the verb phrase. But even English provides choices for multiple wh-constructions, once one abstracts away from the special conditions that apply to the subject position of SVO languages:

- (4) a. *When* did he publish *what*? – *What* did he publish *when*?
 b. *When* did he show up *where*? – *Where* did he show up *when*?

What English shows is this. The choice between alternatives may be narrowed down by grammatical restrictions on the elements involved. The limiting case is a context in which there is just a single option left. This context may be mistaken for a triggering situation: "*This item has to move in order to ...*". A simple and straightforward account is this: Such items are ungrammatical in-situ. Here is such a context:

- (5) a. It is unclear, *why* he contacted *whom*.
 b. It is unclear whom he therefore/**why* contacted.
 c. It is unclear whom he contacted therefore/**why*.

In English, and in SVO-languages like English, but not in SOV languages, '*why*' and '*how*' are ungrammatical in any available *in-situ* position (5b,c); for an explanation see Haider (2010: 117). So, the only option is fronting.¹² In OV-languages, however, there is no such restriction and hence there is a choice:

- (6) a. Es ist unklar, *weshalb* er *wen* kontaktiert hat.
 it is unclear *why* he *whom* contacted has
 b. Es ist unklar, *wen* er *weshalb* kontaktiert hat.¹³
 it is unclear, *whom* he *why* contacted has

¹¹ This notation is used in order to emphasize that the relevant property for identifying a language as "SVO" is the particular clause structure and not merely the preferred order of *subject-verb-object* in a minimal clause consisting only of the verb, the subject and the direct object. Such orders are structurally ambiguous and therefore a misleading criterion. Typologists in the Greenbergian tradition stick to the order property and misclassify Slavic and Germanic SOV languages as SVO. The resulting set of languages is typologically inconsistent.

¹² For any pairing of '*how*' and '*why*' with a wh-subject in a simple English clause, there exists no well-formed configuration at all, since both compete for the clause-initial position and are ungrammatical in-situ.

*"*Who objected why?*" – **Why* did *who* object?"

The ersatz is a coordination of two interrogative clauses (plus sluicing): "*Who objected, and why?*"

¹³ (i.) "protokollieren, *wen* sie *weshalb* kontrolliert haben"

(to) record *whom* they *why* checked have

(<https://tageswoche.ch/stadtleben/grenzwaechter-schikanieren-obdachlose-basler-bahnhof/>).

- c. Es ist unklar, *wen wer* kontaktiert hat.¹⁴
it is unclear *whom who* contacted has

Since Generative Grammar has been developed mainly on the basis of grammatical properties of VO languages, namely English and languages like English (Romance, North Germanic), it is biased towards SVO languages. Consequently, type-specific [S[VO]]-properties have been elevated to the rank of universal constraints. One of these type-dependent properties is the specific behaviour of *wh*-subjects and of *why* and *how* as *wh*-forms for semantically higher order adverbials in SVO languages. In SOV languages, these properties are absent, as the examples (3) and (6) illustrate.

As for *A-movement* configurations, a particularly instructive case of a free choice situation is the Norwegian passive (Taraldsen 1979:49; Lødrup 1991:127). This language¹⁵ demonstrates how the full grammatical potential may be tapped when it comes to filling the obligatory structural subject position of an [S[VO]] clause structure. A potential filler for the subject position is, as expected, the direct object turned into a derived subject (7a). In (7b), the so-called pseudo-passive, the complement of the prepositional object is fronted to the subject position *despite* the presence of a direct object. Eventually, in (7c), the subject position is filled with a dummy subject although there would be candidates available for filling the syntactic subject position. (7d) is the only unacceptable option since the subject position would remain empty. These patterns are identical for main clauses as well as embedded ones.

- (7) a. (at) frimerker ble klistret på brevet. Norwegian
(that) stamps were pasted on letter_{DEF}
b. (at) brevet ble klistret *noen frimerker* på.
(that) letter_{DEF} was pasted some stamps on
c. (at) *det* ble klistret frimerker på brevet.
(that) EXPL was pasted stamps on letter_{DEF}.
d. *(at) ble klistret frimerker på brevet.

Obviously, there is no deterministic grammatical trigger at work in (7). Either an available item is fronted to the subject position or a dummy is used to lexicalize it instead. The alternatively available options of fronting either the direct object or the PP-internal noun phrase demonstrates that deterministic scenarios of fronting are inadequate. Even English displays the same phenomenon to a much larger extent than it is generally acknowledged.¹⁶ Bolinger (1975:65) adduces examples such as (8), in which a PP-contained noun phrase is fronted across a direct object in a passive construction.

- (8) a. That city_i has been fought *many a battle* over --_i.
b. He_i has been burned, stuck *pins* in --_i, beheaded – all in effigy, of course.
c. (PRO)_i to be whispered *such dirty innuendos* about --_i was enough to break any girl's heart.

¹⁴ (i) da bis heute unklar ist, *wen wer* meinte (<https://kurier.at/kultur/beethoven-2020-er-war-auch-superstar-und-revolutionaer/400715175>)
since until today unclear is, *whom who* meant

¹⁵ In Danish and Swedish, prepositional passive is used infrequently (Engdahl & Laanemets 2015: 326). A pattern fully parallel to (7) is not attested in Danish or Swedish.

¹⁶ In English, idioms such as "*take advantage of*" or "*keep tabs at*" are usually cited as examples for the same kind of alternation: *She was taken unfair advantage of.* – *Unfair advantage was taken of her.*

- d. (This tool has never been used for its main purpose) *It*_i's never been done *anything* with --_i at all.¹⁷

It is evident that the familiar narrative of Generative Grammar (cf. Truswell 2009) and LFG w.r.t. pseudo-passives fails in Norwegian (7) as well as in English (8). In an *intransitive* pseudo-passive construction, the verb is said to incorporate the preposition and to thereby turn the complement of the preposition into a (derived) object of V+P. This would evidently not work in the *transitive* contexts of (8). Incorporation of the preposition could neither apply in (8) nor in (7b), but nevertheless there is a choice between fronting the direct object or stranding the preposition in the English examples and there is a free choice in Norwegian generally. The trigger scenario suggested in the standard analysis of NP-movement in passive in terms of case 'absorption' and obligatorily A-moved direct objects in Generative Grammar is empirically contradicted by Norwegian and other languages.

In sum, this section is a reminder of a well-known maxim, namely the maxim of the autonomy of syntax; see Adger (2018) for a review. Syntactic rules and principles of a language do not anticipate and encode discourse functions. Discourse functions utilize the available grammatical potential of syntactic structuring. In particular, Scrambling is not driven by syntactified features. Scrambling is syntactically optional. This is not exceptional since A'-movement as well as A-movement are optional to a certain extent, too.

3. Scrambling – a predictable epiphenomenon of phrase structuring

Scrambling is a system potential of particular phrase-structure configurations. The structural patterns we look at when we look at instances of scrambling are head-*final* phrases (see Corver/Riemsdijk 1997, Haider & Rosengren 1998, Haider & Rosengren 2003) or phrases with *unspecified* directionality of the head of the phrase. The existence of the latter type, the "third type" or "T3" (Haider 2010:162; 2013:131, 2015) tends to be overlooked because the Greenbergian types are viewed as an exhaustive set of types. T3-languages are usually misclassified as SVO languages with an exceptional property, viz. exceptionally 'free' word order.

In Generative grammar, a proper understanding of scrambling as the reflex of an *independent* system potential of certain phrase structures is inaccessible since scrambling is modelled as movement to higher spec-positions.¹⁸ Spec-positions are not type-specific. They ought to be available in any language, that is, in SVO languages just as well as in SOV language, contrary to the facts. Uncontroversial SVO languages do not scramble. Alleged SVO languages with scrambling – upon closer scrutiny – turn out to be T3 languages that are misclassified as SVO (see the discussion of Slavic languages below).

The crucial *syntactic* question is this: What is the essential syntactic difference between a scrambling and non-scrambling phrase structure setting? The current explanation in Generative Grammar is begging the question: Scrambling languages provide the necessary functional spec positions and non-scrambling languages don't. Such an 'explanation' is merely camouflaging the problem by a technical jargon. The question still remains why precisely SOV (and type III)

¹⁷ One more example: "*The rooms cannot have been done anything with since it was built.*" (source: Trip Advisor)

¹⁸ If this assumption is seriously put to test, nobody can overlook (but only suppress the fact) that scrambled items do not have the syntactic properties of phrases in preverbal spec-positions. They remain transparent for extractions, which no phrase in a preverbal spec position does (Haider 2010: 155-157):

i. Was_i hat denn [damit --_i zu beweisen]_{CP} der Schreiber dieser Zeilen schon vor Jahrzehnten versucht?
what has PARTICLE [with-it to prove] the writer (of) these lines already before decades tried

languages would provide such structures, but unquestionable [S[VO]] languages would not. Moreover, the question usually focuses on too narrow a set of data. Scrambling is not a sentence-level property; it is a phenomenon of the phrasal level. Since the VP is the base constituent of a clause, its phrase level properties can easily be mistaken for sentence level properties.¹⁹ German is a handy demonstration case since it is head-final for VP and APs, but head-initial for NPs and PPs. In addition, any verb can be converted into a noun. This guarantees minimal pair patterns such as in (9). VPs (9a,b) and APs²⁰ show order variation, NPs (9c,d) and PPs don't.

- (9) a. [gesunden Menschen gefährliche Medikamente verabreichen]_{VP} base order
 healthy people_{Dat} dangerous drugs_{Acc} administer_{V°Inf.}
 b. [gefährliche Medikamente gesunden Menschen verabreichen]_{VP} scrambled order
 c. das [Verabreichen gefährlicher Medikamente an gesunde Menschen]_{NP} base order
 the administer_{V°Inf=N°} dangerous drugs_{Gen.} to healthy people
 'the administering of dangerous drugs to healthy people
 d. *das [Verabreichen an gesunde Menschen gefährlicher Medikamente]_{NP} scrambled order
 e. *das Verabreichen *über lange Zeit* solcher Medikamente
 the administer_{V°Inf=N°} *for long time* such drugs_{Gen.}

In a head-final VP, the serialization is variable (9a,b), in the head-initial NP it is not (9c,d). The NP patterns are identical with the patterns of English NPs or VPs: The serialization is strict, and the nominal object is immediately adjacent to the head. No adjunct may intervene (9e), no item may be scrambled. Generative discussions of scrambling remain silent on scrambling in non-clausal domains. The structure of noun phrases is incompatible with the structural expenditures envisaged on the clause-level, but nevertheless, head-*final* NPs admit scrambling. Urdu, for instance, is a strictly head-*final* language and its NP-internal arguments scramble (Raza & Ahmed 2011).

Once it is acknowledged that scrambling is a phrase-level phenomenon, it is much easier to understand and capture the clear-cut typological contrast between languages with and without scrambling. Scrambling patterns are a system potential that follows from the licensing conditions which hold between the head of a phrase and its phrase mates; see Haider (1992a, 2013: 57-61; 2015, sect. 4). The central conditions are as follows:

- (10) i. Phrase-internal projection lines are universally *right-branching*.²¹
 ii. A dependent phrase is licensed *directionally* (= in the parametric canonical direction)
 iii. The position of a dependent phrase P is structurally licensed by the phrasal head h =_{Def.} (a projection of) the phrase head h and P *minimally and mutually c-command* each other.

¹⁹ The strict locality property of scrambling (as opposed to the non-local kind of fronting) is a trivial consequence of the phrase-internal nature of the phenomenon.

²⁰ Since APs do not contain overt subjects or direct objects, Scrambling is less observable than with VPs.

i. eine [allen an Intelligenz überlegene]_{AP} Frau – eine [an Intelligenz_i allen e_i überlegene]_{AP} Frau
 a [(to)-all_{Dat} in intelligence superior] woman – a [in intelligence (to)-all_{Dat} superior] woman

²¹ In the diction of 'merging': external and internal merge is to the left. 'Phrase-internal' does not include the positions of adjunctions to a phrase.

It is the *minimal & mutual* c-command condition (10 iii) that is directly causal for many of the OV/VO contrasts in phrase structuring. Mutual c-command is fulfilled in sister positions or in chains. Here, A and B meet the mutual c-command relation if A c-commands the base of the chain while the head of the chain c-commands A. This is the structural source of the VP-shell organization of complex head-initial phrases.²²

Type-defining properties of [S[VO]] languages, such as the shell-structure, *the absence of scrambling*, the Left-Left Constraint (Haider 2019), and the obligatory presence of a functional subject position in the [S[VO]] clause structure, with the concomitant syntactic properties of a subject in an obligatory spec position, follow directly from (10), as demonstrated in detail by Haider (2015).

Please note that it is *the very same principle* (viz. universality of merger to the left) and *the very same licensing condition* applied under parametrized directionality that covers the different outcomes. Let us focus on scrambling. Scrambling patterns are patterns with variable order of arguments in a phrase. In head-final phrases (11a), the base position *and* the re-ordered position of a phrase are positions within the directionality domain of the head. In head-initial phrases (11b), the re-ordered phrase would end up outside of the directionality domain of the head. The arrows in (11) signify the direction of licensing, which, in head-final phrases, is 'to the left'.

- (11) a. $[XP \leftarrow [YP \leftarrow V^\circ]]_{VP} \Rightarrow_{Scr.} [YP_i \leftarrow [XP \leftarrow [V' \rightarrow \rightarrow_i V^\circ]]]_{VP}]_{VP}$ head-final
 b. $[XP [V' V^\circ \rightarrow YP]]_{VP} \Rightarrow_{Scr.} * [YP_i [VP XP [V' \rightarrow V^\circ \rightarrow \rightarrow_i]]_{VP \rightarrow}]_{VP}$ head-initial

Scrambling does not transgress the licensing domain. Hence, strictly head-*initial* phrases are incompatible with scrambling to the left edge since it would leave the directionality domain of the head. As for Scrambling *within* the directionality domain of a head, the minimality condition (10 iii) prevents the pattern (12a) in English but permits (12b) in German or Dutch.

- (12) a. [send several mails to friends] \Rightarrow *[send to friends several mails]
 b. [einige Mails an Freunde schicken] \Rightarrow [an Freunde einige Mails schicken]

The scrambled pattern in (12a), but not in (12b), violates the *minimal & mutual* c-command condition (10iii). The scrambled item in (12a) is an illicit intervener that blocks the *minimal* c-command relation between the licensing verbal head and the licensee. "*Several mails*" in the scrambled variant of (12a) is not minimally c-commanded by a licensing head. Another case of an illicit intervener would be a VP-internal adverbial. It also destroys the minimal c-command relation between the phrase-initial head and its argument.

In OV (13b), *any projection* of the verb is a licit licenser, since any projecting node is a sister node with the required canonical directionality property. Hence the minimal & mutual c-command relation is guaranteed in any position within the phrase, preceding the head. In the VO setting, a scrambled variant of (12a), as in (13a), would be an instance of (13c). Any intervener

²² i. $[_{VP} V^\circ_i [XP [e_{V^\circ-i} YP]]]$.

In a head-initial transitive VP (i), the verb needs to be instantiated twice, otherwise it could not directionally license XP. This is the immediate source of the V-chain ("VP-shell", "little v") in complex head-initial VPs. The verb c-commands XP and XP c-commands a link of the V-chain. Mutual-c-command also explains why subjects move to Spec-T in SVO languages: The subject is not directionally licensed by the verb since it precedes. The directional licenser is a pre-VP functional head. Mutual c-command is fulfilled if the subject raises to the spec position of the functional head. Here it c-commands the functional head which in turn c-commands the base position of the subject.

π , viz. a scrambled phrase or an adjunct, destroys the minimal c-command relation. This is the reason for the compactness property of head-initial phrases. No adjunct may intervene between the verbal head and its nominal arguments and no phrase can be scrambled to such a position in a head-initial phrase. In head-final phrases, this is not the case, neither empirically not theoretically (13e).

- (13) a. ... [send \rightarrow [[*to friends] [several mails [send \rightarrow --_i] \rightarrow] \rightarrow]] VO
 b. ... [[an Freunde] \leftarrow [[einige Mails] \leftarrow [--_i \leftarrow schicken]]] OV
 c. ... [send \rightarrow [[π] [several mails [send \rightarrow to friends] \rightarrow] \rightarrow]] VO
 d. ... send (*today) some friends (*hastily) several mails VO
 e. ... an einige Freunden *heute* einige Mails *hastig* verschicken OV
 to some friends *today* several mails *hastily* send

In German, VPs are head-final, NPs are head-initial. Hence, scrambling is possible in VPs but not in NPs. VPs admit VP-internal adverb positions, but NPs don't (see 9e). The latter property correlates with the former. Phrase-internal scrambling and phrase-internal adjuncts are excluded by the same principle, namely (10iii) in head-initial phrases. This pattern has been wrongly generalized from English to other languages, such as Dutch. This unjustified transfer is the source of the idea of "Dutch scrambling". NPs preceding VP-internal adjuncts are analysed as scrambled merely because in English adjuncts precede a VP and are banned from VP-internal positions. However, this is not a universal property. It is a particular property of head-initial phrases. Dutch does not scramble NPs in clear cases of scrambling, as in (14c), or in double-object constructions such as (14d), and hence it does not scramble across adverbials. The alternative serialization of adverbials merely reflects the availability of alternative slots for adverbials in head-final phrases.

- (14) a. dat hij deze mensen_(i) *van dichtbij* (--_i) heeft mogen leren kennen Dutch
 that he these people at close-range has wanted get to-know
 b. omdat hij mensen_(i) *graag* (--_i) helpt bij een gezonde leefstijl
 because he people gladly helps with a healthy lifestyle
 c. *Stoort de bure*n*_i het geluid --_i?
 annoys the neighbours the noise
 d. *Toen hebben de autoriteiten het kind_i de moeder --_i teruggegeven
 then have the authorities the child the mother back-given

In Dutch, scrambling is limited to arguments that are morphologically uniquely identifiable. This is the case with PP-objects (15), as acknowledged by Dutch standard grammars (e.g. Geerts et al. 1984: 989-990).

- (15) a. Toen hebben de autoriteiten het kind aan de moeder teruggegeven
 then have the authorities the child to the mother back-given
 b. Toen hebben de autoriteiten *aan de moeder*_i het kind --_i teruggegeven
 then have the authorities to the mother the child back-given

Structures as exemplified by (15b) identify Dutch as a scrambling language, which is what is predicted for a language with a head-final VP. The English counterparts with a scrambled PP would be ungrammatical, as predicted. The lack of case morphology of NPs in Dutch is likely

to contribute to the lack of NP scrambling.²³ However, the absence of morphological case distinctions for NPs is compatible with Scrambling, as Bulgarian attests. Slavic languages are notorious for their word order variations, and Bulgarian shares most of them, in the absence of morphological case-marking of NPs. Icelandic on the other hand, as an [S[VO]] language, forbids scrambling, despite its rich case morphology (Dehé 2004:94).

Slavic languages are generally filed as SVO languages. The following section will argue that this categorization is in need of revision. Even if the order Subject>Verb>Object is a frequent order in Slavic languages, these languages do not share the structural architecture of [S[VO]] languages. They are languages of a type of its own. They are languages in which the directionality of the lexical heads of a phrase, and in particular of the VP, is unspecified. So, they are able to license phrases in either direction. This brings about a huge potential for word order variation since it combines with scrambling.

To sum up, the variable serialization of arguments (viz. Scrambling") is the outcome of a structuring potential of head-final phrases (and of phrases with 'variable' head-positioning, as will be shown in the following section). Any reordered phrase (by adjunction or "internal merge") remains within the directionality domain of the head. The very same licensing conditions applied to head-*initial* phrases rule out reordering arguments within head-*initial* phrase or across the phrase-initial head. The differences reduce to a *single* factor, namely the directionality value for the standard licensing directionality of a lexical head.

4. Scrambling in Slavic languages

The correlation between scrambling and head-positioning seems to be at odds with the word order freedom of Slavic languages, if it were correct that these languages are [S[VO]]-languages. They are not.

"Anything goes" is – in fewest words – the appropriate characterization of the wealth of word order variations in Slavic declarative clauses: *"Apart from the location of clitics there are virtually no syntactic constraints on the ordering of phrases in main declarative clauses. Thus in each of the Slavic languages all twenty-four possible combinations of a subject, direct object, indirect object and verb occur as grammatical declarative orders."* Siewierska & Uhliřová (2010:109).

Since the time when Ross (1967) framed the later discussion by coining the term "scrambling", Slavic clauses have been identified as apparent hotspots of reordering a basically English-like clause structure. This approach is missing an essential generalization, however. If Scrambling were such an easily available grammatical option for SVO languages, why are there so many strictly head-initial SVO languages with rigid word order and other recurrent properties that are all absent in Slavic languages? Either Slavic languages are highly exceptional SVO languages or the rigid SVO languages are exceptionally rigid.

²³ Although pronouns are distinctively case-marked they are fronted only rarely. Here are Dutch excerpts from *Volkskrant* (i); *N. Neuhaus, Diepe wonden & Sneeuw witte moet sterven* (ii); *Daagblad van het Noorden* (iii):

i. omdat *hem*_i de vuurkracht --_i ontbeert ii. omdat *hem*_i niets anders --_i te binnen wilde schieten
 because *him*_{Obj.} the firepower_{Subj.} lacks because *him* nothing to mind would come
 iii. omdat *zich*_i een tweede getuige --_i heeft gemeld [Link](#)
 because *himself* a second witness reported has

This apparent impasse can be resolved so that neither group is exceptional. The English-like languages are languages with uniformly head-initial phrases, plus a VP-external, obligatory, structural subject position, or, in other words, languages with an [S[VO]] clause structure. The Slavic languages are not exceptional either. They are well-behaved members of a different phrase structure type, namely the "third type" (T3), that is, languages without specified directionality values for the (verbal) head of a phrase. Such heads can license in either direction.

An immediate consequence is a VP in which the verbal head may appear in any structurally available position (16); see Szucsich & Haider (2015) and & Haider & Szucsich (submitted). One of the available and frequently employed serializations is subject > verb > object. Since this pattern seems to be preferred (for whatever reason), it is more frequent than other equally grammatical, that is, well-formed patterns. However, frequency is not a syntactic property. It is a fact about language *use*. Grammars characterize the well-formedness of patterns, irrespective of their frequency. The less frequent ones are as "grammatical" as the more frequent ones. In (16), the T3-compatible projections of a VP are listed in such a way that the partial overlap with serialization patterns of other types is recognizable.

(16) Alternative head-positioning in T3-type VPs, with XP and YP as objects

- a. [XP [YP V°]]_{VP} (= OV-like)
- b. [V_i° [XP [--_i YP]]]_{VP} (= VO-like)
- c. [XP [V° YP]]_{VP} (= T3-only)

The Polish examples in (17) – see Leszkowicz (2015:121) – illustrate the patterns in (16). In all these patterns, the relative order of subject and objects is the same; it is the verb position that changes. Logically, in a series of three items, there are four possible positions for the fourth one: at the end, at the beginning, and two in-between. This is true for the verb in a finite Slavic main clause with three arguments. A *single* theoretical property – unspecified head-directionality – covers the four empirically attested patterns. In addition, the arguments may scramble, that is, change their relative order, just like in OV. V-positioning plus the re-positioning of arguments within the directionality domain of the verb, as it is familiar from head-final structures, cover the other *twenty* variants. In sum, the word order variations in T3 languages, such as the Slavic languages, are a combination of the scrambling options familiar from OV languages with the V-positioning options of T3 languages.

- (17) a. (że) Marek Ewie kwiaty \leftarrow *dał*. SOV-like
(that) Marek_{Nom} Eve_{Dat} flowers_{Acc} gave
- b. (że) Marek \leftarrow *dał* \rightarrow Ewie kwiaty. SVO-like
- c. (że) *dał* \rightarrow Marek Ewie kwiaty. VSO-like
- d. (że) Marek Ewie \leftarrow *dał* \rightarrow kwiaty. T3 only

In an [S[VO]]-based analysis, (17b) has been assumed to be closest to the base structure. In (17a), the two objects are deemed to be scrambled (to functional spec positions). In (17d), only the indirect object would count as scrambled. (17c) cannot be derived from (17b) by scrambling. So, V-fronting has to be added to the analysis kit. Unfortunately for the proponents, independent evidence for these derivations is missing. The preverbal objects in (17a) and (17d) have not, and cannot, be shown to have the predictable properties of arguments in spec positions. Counterevidence tends to be downgraded.

Here is a core prediction that goes back to the intensive research on conditions on extraction domains. In SVO languages, any phrase above the VP level is inaccessible for filler-gap structures that terminate inside such phrases. In other words, a phrase in such a position blocks any extraction. This is neither true for the preverbal objects in (17a,d) nor for the subject in Slavic languages. (18) is a well-known construction that is absent in an unquestionable SVO language, namely 'left-branch' extraction (see Grosu 1973):

- (18) a. Jaki_i Jarek [--_i samochód] kupił swojej żonie? Polish
 which_i Jarek [--_i car] bought his wife
 b. Koju_i Petar [--_i knjigu] daje svojoj ženi? Bosnian/Croatian/Serbian
 which_i Petar [--_i book] gives his wife
 a. Kakuju_i Ivan [--_i mašinu] *kupil* svoej žene? Russian
 which_i Ivan [--_i car] *bought* his wife
 b. Japonskiju_i Ivan [--_i mašinu] *kupil* svoej žene.
 Japanese_i Ivan [--_i car] *bought* his wife

In each example in (18), the gap-containing phrase is preverbal. Nevertheless, each construction is acceptable, given an appropriate context for the information structure effect of the particular word order with a preverbal object. The respective grammars of these languages do not rule out such a construction, the reason being that the noun phrase that contains the gap is in the directionality domain of the verb, *and* the attribute phrase is in the directionality domain of the nominal head. Hence, the syntactic conditions for filler-gap dependencies are fulfilled. Note that this is a trivial consequence of heads without a specified licensing directionality. The license in both directions.

In English neither the preverbal nominal phrase itself nor its attribute would be within the directionality domain of a phrase-internal head. In German, it is the attribute that is not in the directionality domain of the head-noun. This is the syntactic reason of the restriction known as "left-branch constraint" (Ross 1967:123). Left branches of VPs are easily fronted in German since these VPs are head final.

Here are two additional facts out of the set of deducible predictions that correctly describe Slavic grammars once they are filed as grammars of T3 rather than SVO languages (Haider & Szucsich submitted, Szucsich & Haider 2015). The first fact is the obligatoriness of a structural subject position in [S[VO]] languages. The second fact is a fact about adjuncts that immediately precede a head-initial phrase, viz. the *Left-Left constraint* (LLC).

The mandatory VP-external, structural subject position in [S[VO]] languages is a particularly unerring indicator of an [S[VO]] status of clause structure. In the absence of a subject argument, this position must be lexicalized by a dummy. In OV languages, there is no VP-external structural position for a subject attestable, available, or required, since any argument of the verb is within the directionality domain of the verbal head (Haider 2019). The ultimate test case for [S[VO]] is the mandatory presence of an expletive subject in an otherwise subjectless sentence. The passive of an intransitive verb is the locus classicus. Passive deprives (intransitive) verbs of their would-be subject argument. In the case of intransitives, the resulting construction becomes subjectless. An expletive lexicalizes the obligatory structural subject position in the [S[VO]] clause structure. This is the *expletive subject* known from SVO languages such as the

fact that Slavic languages are not [S[VO]] and therefore are not obliged to lexicalise an allegedly universal, obligatory subject position of an [S[VO]] clause structure (21a,b). In T3 languages, in SOV and in VSO²⁷ languages, too, there is no (structural position for a) VP external functional subject since pre- and postverbal argument positions are within the directionality domain of the (ambidirectional) verbal head. Hence there is neither room nor need for an expletive subject.

- (21) a. V komnate bylo nakureno Russian
 in room was smoked
 b. Ob ètom bylo napisano v gazete
 about this was written in newspaper
 c. V stajat e vlezano Bulgarian (Desclés & Guentchéva 1996:56)
 in room is entered
 d. Po trevata est xodeno
 on grass_{def.} is walked_{IMPF-PPP}

Let us turn now to the LLC (= left-left-constraint). This is a constraint on left-adjoined adjuncts to left-headed (= head-initial) phrases, that is, adjuncts off-side of the directionality domain of the head of the phrase (Haider 2019). In a language like English or French, with head-initial VP and NPs, LLC restricts prenominal attributes as well as preverbal adverbial phrases.

- (22) a. [a much easier (*than I thought)] *task*.
 b. The new boss will [much more often (*than you would like)] *call* you into his office.
 c. Lausanne a [[plus souvent (*que Berne)] perdu].²⁸ French
 Lausanne has more often (than Bern) lost
 d. une [[fière (*d'elle-même)]_{AP} nation] vs. une [nation [fière (d'elle-même)]_{AP}]
 a proud (of itself) nation

German and Dutch are head-initial with NPs but head-final with VPs. So the LLC is at work only in NPs (23b,d), but not in head-final VPs (23a,c). If Slavic languages were [S[VO]] languages, the LLC is predicted to constrain prenominal attributes as well as preverbal adverbial phrases, just like in English and any other SVO language.

- (23) a. Sie hat das Problem genau so schnell (wie ihr Konkurrent) gelöst German
 he has the problem exactly as fast (as her competitor) solved
 b. eine [fast so geniale (*wie Newtons) Lösung
 an almost as ingenious (as Newton's) solution
 c. De ziekte heeft zich [veel sneller (dan werd verwacht)] verspreid. Dutch
 the disease has itself [much faster (than was expected)] spread
 s. een [veel sneller (*dan een fietser)] paard
 a much faster (than a cyclist) horse

²⁷ McCloskey (1996:261) emphasized that in a VSO language such as Irish, subjectless sentences do not contain an expletive subject: nuair a bhí tráite síos uaidh

when COMP was ebbd down from-it ('when the tide ebbd down from it')

²⁸ The only licit option for "*plus souvent que ...*" in this position is parenthetical. A parenthesis is not integrated into the phrase structure and hence it is not subject to the LLC:

(i.) et doit, *plus souvent que moi*, souffrir de la faim
 and must, *more often than me*, suffer from the hunger

If VPs are T3 phrase-structures in Slavic languages, and NPs, too, LLC-effects are predicted to be absent in any of these phrases, and this is the case indeed, as the examples in (24) and (25) illustrate. Stylistically, extraposition of the comparative PP is an alternative and may be stylistically preferred, whence the slight degradation in (24b), but the given order is grammatical and acceptable.

- | | |
|---|---------|
| (24)a. V prošlom godu [gorazdo bol'she čem Igor] vyigrala tol'ko Maša | Russian |
| in previous year [much more <i>than</i> Igor] won only Mary | |
| ‘Last year, only Mary has much more won than Igor.’ | |
| b. ?W zeszłym roku [dużo więcej niż Jarek] pracowała tylko Roza | Polish |
| in last year much more <i>than</i> Jarek worked only Roza | |
| (25) a. [verni-jat (na žena si)] mąż | Bulg. |
| [faithful _{Def} (to wife his _{REFL})] husband | |
| b. [vernyj (svoej žene)] muž | Russian |
| faithful his wife _{DAT} husband | |
| c. [wierny (swojej żonie)] mąż | Polish |
| faithful his wife _{DAT} husband | |

Let us summarize this section: The properties under discussion, namely scrambling, variable V-positioning, lack of subject expletives in subjectless clauses, and the absence of LLC effects are independent properties. Their uniting bond is the T3 nature of the phrasal architecture in Slavic languages. For those who insist that Slavic languages are [S[VO]] languages with exceptional properties, all these properties are completely unexpected and independent 'exceptions', and there are more 'exceptions' of this kind (see Haider & Szucsich submitted), which follow straightforwardly from the T3 analysis.

5. A sketch of a null theory of scrambling

For a syntactical characterization of Scrambling, it is sufficient to identify the conditions that provide room for reordering the base order of items within phrases. The resulting potential of order variation is occupied by other modules that partition the set of order variants in terms of order preferences of their own. Here is once more a non-exhaustive, merely illustrative list of the resulting effects that call for explanation & coverage.

- ☑ Scrambling separates the domains of given and new information.
- ☑ Scrambling clears the clause final area of un-focused items.
- ☑ Scrambling provides contiguity for idiom formation with subject plus verb.
- ☑ Scrambling extends the binding domain of quantifiers for variable-binding.
- ☑ Scrambling extends the scoping domain of quantifiers.
- ☑ Scrambling is found in head-final VPs, APs, and NPs.
- ☑ Scrambling is absent in head-initial phrase structure settings.
- ☑ ... and so on.

Phenomenologically, scrambling is word order variation. Grammatically, scrambling is a structural property, namely the availability of alternative structural positions for the arguments of the head of a phrase within the directionality domain of the head. It is this structural property that accounts for the scrambling potential of phrases cross-linguistically. Let us start with the

simple case of a verb whose licensing directionality is 'to the left', as indicated by the subscripted arrows in (26).

- (26) a. $[A_1 \leftarrow V^\circ]_{VP}$
 b. $[A_1 \leftarrow [A_2 \leftarrow V^\circ]]$
 c. $[A_1 \leftarrow [A_2 \leftarrow [A_3 \leftarrow V^\circ]]]$
 d. $[A_{2-i} \leftarrow [A_1 \leftarrow [-i \leftarrow V^\circ]]]$

Arguments are serialized according to their ranking in the lexical argument structure and according to the right-branching constraint (viz. merger 'to the left'; 10i). The result is – depending on the number of arguments to be projected – one of the three VP-structures in (26a-c). Next, let us compare (26d), viz. the scrambled variant of (26b), with (26c). The two phrases are structured *isomorphically*. The difference lies only in the number of arguments. In (26c) the structure accommodates *three* arguments in *three* argument positions. In (26d), however, the structure contains the very same *three* positions, but only *two* arguments, since one is not in its base position anymore, that is, not in the position in which it is projected according to the ranking of arguments in the lexical-argument structure of the verbal head. This position is empty and counts as a gap position whose filler is higher up in the structure, in another argument position. This configuration is rendered possible because a head-final head is able to license any position merged to the left of it or one of its projections because the directionality of licensing is identical with the universal directionality of merger, that is, 'to the left'.

The situation is entirely different for head-*initial* projections, despite the fact that the same rules and principles are at work. The essential difference is the *directionality mismatch* between the parametric direction of licensing (10ii) and the universal direction of merging (10i). The head of a head-initial phrase²⁹ licenses 'to the right', but merger is to the left. A minimal compatible structure is (27a). Once there is more than one argument, it is projected outside of the directionality domain of the head, as in (27b). If A_x is the subject, it gets licensed by a functional head that selects the structure (27b) as a VP. Since licensing requires minimal & mutual c-command, A_x is raised to the spec position of the functional head.

- (27) a. $[V^\circ \rightarrow A]$
 b. $[A_x [V^\circ \rightarrow A_y]]$

How is the VP structured if there is more than one object to be accommodated? Let's assume, A_x and A_y are the two objects of a double object verb. Then A_x is not directionally licensed in its position in (27b) by the verbal head since the head, and therefore any projection of the head, licenses only 'to the right'. The grammatical solution is this: The verb is re-instantiated in a higher position (28a). This is the grammatical causality of the "shell"-structure³⁰ of complex head-initial phrase. There is only a single head item, but it has to be instantiated in two positions. So, the result is a filler-gap dependency, aka head-chain. What tends to be constantly overlooked by grammarians who stare only at VPs like (28a) is the fact that complex head-initial NPs (28b) are structured in the same way (Haider 1992a,b).

²⁹ In the VP-shell, each position on the head-chain is a licenser (" \rightarrow "): $[\text{explain}_i \rightarrow [\text{readers } [e_i \rightarrow \text{the problem}]]]$.

³⁰ Note that the lower position is just the base position of the re-instantiated head. There is no need of inventing a "little v" category. It follows immediately from the system, and, it follows only for head-initial phrases. The fruitless search for "little v" in OV languages can be ended. There simply is no "little v" in a head-final VP.

- (28) a. $[V^{\circ}_i [A_x [--i \rightarrow A_y]]]$
 b. $[N^{\circ}_i [A_x [--i \rightarrow A_y]]]$

Structures such as (28a) and (28b), do not provide *any room* for scrambling. If one of the two arguments were placed in the phrase initial position, it would be outside of the directionality domain of the head. If on the other hand, A_y were scrambled across A_x , the minimal c-command relation between the head and A_x (necessitated by the general licensing constraint) would be disrupted (see 10iii). In other words, the order in (28a) and (28b) is the only structurally available order for the objects A_x and A_y .³¹ As a consequence, head-*initial* phrases – VPs as well as NPs – are no domains of scrambling since the resulting structures are not well-formed VPs or NPs. As a consequence, serialization is invariant. This is a property of phrase structuring.

Let us turn now to head-*final* and *T3*-phrases. Such phrases provide ample room for variation. (29) lists the six possible serialization patterns for three phrases in a head-final VP. The first one (29a) is the base order. The other five options are structures with a serialization that is not the serialization of the base order of arguments as determined by the lexical argument structure of the verbal head. However, any position in this structure is a position within the directionality domain of the head and hence a possible A-position. The choice of one of these structures depends on the interaction with other modules, such as IS or Binding.

- | | | |
|------|---|----------------|
| (29) | a. $[A_1 \leftarrow [A_2 \leftarrow [A_3 \leftarrow V^{\circ}]]]$ | SOV base order |
| | b. $[A_1 [A_{3-i} [A_2 [--i V^{\circ}]]]]$ | SOV scrambled |
| | c. $[A_{3-i} [A_1 [A_2 [--i V^{\circ}]]]]$ | SOV scrambled |
| | d. $[A_{2-j} [A_1 [--j [A_{3-i} V^{\circ}]]]]$ | SOV scrambled |
| | e. $[A_{2-j} [A_{3-i} [A_1 [--j [--i V^{\circ}]]]]]$ | SOV scrambled |
| | f. $[A_{3-j} [A_{2-i} [A_1 [--j [--i V^{\circ}]]]]]$ | SOV scrambled |

Here are some illustrations of (29). (30a) is the base order (29a). (30b) is an instance of (29e). (30c) is based on (29d), with the lowest V'-constituent fronted to the clause-initial position.

- (30) a. dass eine hiesige Firma ihrem Onkel das Klavier zustellte
 that a local company_{Nom} (to) her uncle_{Dat} the piano_{Acc} delivered
 b. dass ihrem Onkel das Klavier eine hiesige Firma zustellte
 that (to) her uncle_{Dat} the piano_{Acc} a local company_{Nom} delivered
 c. [Das Klavier zugestellt]_j hat ihrem Onkel_i eine hiesige Firma e_i e_j
 the piano_{Acc} has (to) her uncle_{Dat} a local company_{Nom} delivered

IS typically partitions a structure into (contiguous) sections, such as 'given' vs. 'focused'. (30c) would be a felicitous answer to a question like "*Who moved the piano to her uncle's flat?*" The topic part, that is, the information already contained in the question is presented first, in the fronted V'-projection. Background information precedes the focal part, that is, the subject as the question-answer focus. (29f) is the structure that meets these requirements and hence it is selected by a speaker.

Analogous considerations apply to items that are subject to binding conditions. If the binder is a lower-ranked argument, then its domain can be enlarged by fronting. In (31), the quantified

³¹ The verb is re-instantiated in a higher position only for licensing the immediately discharged, positionally unlicensed argument and not for an already licensed argument.

direct object binds the pronominal variable, that is, the possessive pronoun of the subject. The suitable structure is the structure with a scrambled direct object.

- (31) a. wenn jedenⁱ Menschen seinⁱ Engel als Wächter begleiten würde³²
 if each human-being_{Acc} his angel_{Nom} as custodian accompany would

Let us turn now to T3 phrases. Since the licensing domain of the head of a T3 phrase is not restricted directionally, it licenses ambidirectionally (32). As a consequence, T3-phrases have the full variation (= scrambling) potential of head-final phrases, since any position is within the domain of the head. A second variation potential comes from variable head-positioning. In (32), the alternative head-positions of the verb are indicated by brackets. Taken together, these two dimensions of structural variation account for the famous word order freedom of phrases and clause in Slavic and other T3 languages.

- (32) [(V° →) A₁ (← V° →) A₃ (← V° →) A₂ (← V°)]_{VP}

As in the head-final setting, the alternative verb positioning as well as the availability of scrambling positions for arguments is utilized and partitioned by other modules of grammar, notably by IS. Slavic word order has preferably been described in terms of information structure categories (theme, rheme, communicative units) because these are the phenomenological and easily detectable repercussions of serialization variations in Slavic languages (see Firbas 1992).

6. Concluding remark

The cross-linguistic incidence of 'Scrambling' is a by-product of phrase structuring. The parametric directional licensing relation that associates the head of a phrase with its phrase mates brings about a potential for variation in head-final and T3 phrases. This syntactic potential is occupied and partitioned by components of grammar superimposed to syntax, such as information structuring, binding, scoping, or prosody. Properties that seem to immediately correlate with scrambling are not syntactic triggers but resultant properties of superimposed systems that utilize the variation space provided by phrase structures. The apparently incoherent set of alleged triggers is but the incoherent aggregate of properties of subsystems that utilize the variation space.

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³² Source: Zeitschrift für die historische Theologie, Vol. 12:108.

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