

Generative approaches to Germanic languages

To appear in The Oxford Encyclopedia of Germanic Linguistics, Oxford
University Press
Draft

Comments welcome!

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January 16, 2025

Keywords: syntax, Germanic, Generative Grammar, HPSG, Government & Binding

1 Introduction

This paper is about the analysis of Germanic languages in Generative Grammar. I take the broad view on Generative Grammar (Chomsky 1965: 4) that includes theories like LFG (Bresnan 1982, 2001, Dalrymple 2023), GPSG (Gazdar et al. 1985), and HPSG (Pollard & Sag 1994, Sag 1997, Müller et al. 2024). Even some branches of Construction Grammar regard themselves as being in the generative tradition (Fillmore et al. 1988: 501, Fillmore 1988: 36). When I refer to Generative Grammar in the narrow sense (basically Transformational Grammar/Government & Binding/Minimalism), I use the term established by Culicover & Jackendoff (2005: 3): Mainstream Generative Grammar (MGG). In what follows, I use a reduced and simplified form of HPSG (HPSG light; Müller 2023b) for the exposition: simple \bar{X} -like constituent trees augmented with some valence information.

This overview article focuses on phenomena for which there is a consensus among theories. For example, the analysis of the verb position and V2 in Germanic is rather uncontroversial: it is assumed that the finite verb moves to initial position and that one constituent is placed before this verb (Section 6). Section 2 lays out general assumptions and accounts for basic constituent order of SVO and SOV languages (SVO = Danish, English, Faroese, Icelandic, Norwegian, Swedish; SOV = Afrikaans, Dutch, Frisian, German and dialects or languages like Swiss German and Luxembourgish; Haider 2020: 339). Phenomena like scrambling, verbal complex formation, and passive and case assignment are discussed in the Sections 3–5. The proposals are discussed with examples from Danish, English, and German, but the solutions work for all Germanic languages.

Approaches to scrambling and fronting differ with respect to the position into which constituents are moved. So-called Cartographic approaches assume Topic or Focus phrases, that is, information structural notions are introduced

into syntax. I briefly comment on these approaches in Section 7 and sum up the paper in a final conclusion.

2 General assumptions

Valence plays a crucial role in almost all generative theories. Valence specifications are lexical specifications. GB uses theta-grids, LFG uses specifications of grammatical functions that say which elements have to be present in certain local configurations, HPSG uses complex attribute value matrices to describe syntactic and semantic properties of selected arguments. Minimalism uses features in a way that resembles Categorical Grammar (Ajdukiewicz 1935, Steedman 2000). I will use a simplified version of HPSG (Müller 2023b) in what follows. Let us start with ditransitive verbs. (1) shows an English and a German example:

- (1) a. The child gave the squirrel the nut.
 b. dass das Kind dem Eichhörnchen die Nuss gab
 that the.NOM child the.DAT squirrel the.ACC nut gave

HPSG assumes that arguments of heads are represented in lists. The so-called argument structure (ARG-ST). The ARG-ST lists of the examples in (1) contain three NPs. Linking between syntactic descriptions of arguments and semantics takes place on the level of ARG-ST (Davis et al. 2021). The elements of the ARG-ST list are mapped to the valence features SPR (for specifier) and COMPS (for complements). Subjects and determiners are usually selected via SPR. This is reasonable for languages like English that have complements that follow the head but specifiers that precede the head. Many researchers in generative theories follow Haider (1993: Section 6.3.2) in assuming that subjects and complements of finite verbs should be treated similarly in SOV languages (Pollard 1996: 295, Eisenberg 1994: 376, Kiss 1995: 57, 78).¹ Hence, all arguments of finite verbs are represented in the same valence list. The subject in SVO languages has of course a special status. It is represented in the SPR list, while other arguments are represented in the COMPS list. (2) shows the preliminary ARG-ST list and the mapping to valence features for the English *give* and its German equivalent *geben* ‘give’:

- (2) ARG-ST (to be revised)
- a. give: $\langle \text{NP}[\textit{nom}], \text{NP}[\textit{acc}], \text{NP}[\textit{acc}] \rangle$
 b. geben: $\langle \text{NP}[\textit{nom}], \text{NP}[\textit{dat}], \text{NP}[\textit{acc}] \rangle$
- | | |
|-----|-------|
| SPR | COMPS |
|-----|-------|
- c. give (SVO): $\langle \text{NP}[\textit{nom}] \rangle \langle \text{NP}[\textit{acc}], \text{NP}[\textit{acc}] \rangle$
 d. geben (SOV): $\langle \rangle \langle \text{NP}[\textit{nom}], \text{NP}[\textit{dat}], \text{NP}[\textit{acc}] \rangle$

I assume that the arguments on the ARG-ST list are in the same order for all Germanic languages (and maybe for many other languages as well). As can be seen in (2a,b), the case of the NPs may differ: English does not have a dative case. (2c) shows that the nominative NP is mapped to the SPR list and the two

¹See also Borsley (1989a: 349) for such an approach for the VSO language Welsh.

accusative objects are mapped to COMPS. (2d) shows that all arguments are mapped to COMPS for German.

The examples in (1) are analyzed as in Figure 1 and Figure 2, respectively. I assume binary branching structures. The OV languages allow adjuncts to appear anywhere between arguments. Binary branching structures allow for a more straightforward integration of adjuncts. See Müller 2016: Section 18.1 on a general discussion of binary branching vs. flat structures. VO languages combine the verb with the first element from the COMPS list, while OV languages start from the end of the COMPS list (but see Section 3 for scrambling). Since the subject is in a separate valence feature, SVO languages form a VP to the exclusion of the subject by combining the verb with all complements in the COMPS list. SOV languages do not have a finite VP but have all arguments in the COMPS list. The finite verb combined with all its arguments in COMPS forms a finite clause, as in the figures below.

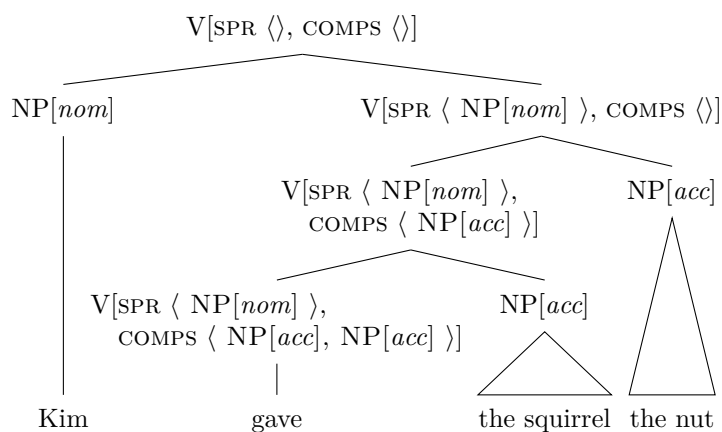


Figure 1: Analysis of the SVO order: subject on SPR and complements on the COMPS list

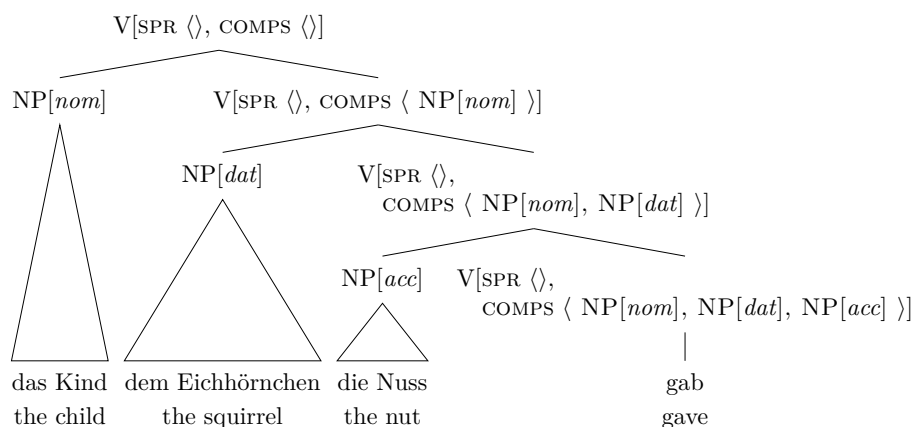


Figure 2: Analysis of the SOV order: all arguments are members of the COMPS list

Since this is a paper about generative approaches to Germanic in general, it has to be mentioned that the branching for English is unusual as far as Mainstream Generative Grammar is concerned. The reason is that MGG uses tree configurations to constrain binding relations (the distribution of pronouns and reflexives) and to compute possible scopings. The central concept in this context is *c-command* (Reinhart 1976: 32) and it is defined with respect to other branchings that make additional structure for ditransitives necessary (Larson 1988, Adger 2003: 133). There is an interesting conceptual difference between the approach explained here and the MGG approach: Here, binding principles are defined with respect to lists of arguments (ARG-ST, but see Branco 2021, Müller 2021a for details) rather than tree configurations. This means that the theory is defined with respect to potential constituent structure rather than actual structure. There are certain puzzles that can be solved on the argument structure but do not seem to have a solution in approaches based on tree configurations. For example, in Balinese there are different voices that have different realizations of subject and object. This is accounted for by different mappings from the argument structure list to the valence list. The tree configurations of agentive and objective voice are different, but the argument structure and hence the predicted binding options are not. Since this paper is on Germanic, I will not go into further details here, but refer the reader to the original papers by Manning & Sag (1998), Wechsler & Arka (1998), and Wechsler (1999) or to discussions in overview articles (Davis et al. 2021: Section 3.3, Müller 2021a: Section 5).

3 Scrambling

The Germanic languages can be grouped in SVO and SOV languages. SVO languages are Danish, English, Faroese, Icelandic, Norwegian, Swedish and SOV languages are Afrikaans, Dutch, Frisian, German and dialectal variants. Yiddish is said to be of a third type allowing for a mix of VO and OV combinations (den Besten & Moed-van Walraven 1986, Haider 2010: 161, 2020). The SOV languages and Yiddish allow for so-called scrambling (see Ross 1967: 75 for the term scrambling), while the VO languages have rather strict order. (3) shows the German data.

- (3) a. [weil] das Kind dem Eichhörnchen die Nuss gab (German)
because the child the squirrel the nut gave
b. [weil] das Kind die Nuss dem Eichhörnchen gab
because the child the nut the squirrel gave
c. [weil] die Nuss das Kind dem Eichhörnchen gab
because the nut the child the squirrel gave
d. [weil] die Nuss dem Eichhörnchen das Kind gab
because the nut the squirrel the child gave
e. [weil] dem Eichhörnchen das Kind die Nuss gab
because the squirrel the child the nut gave
f. [weil] dem Eichhörnchen die Nuss das Kind gab
because the squirrel the nut the child gave

The order in (3a) is the normal order, all other orders are marked, since the number of contexts in which they can be used is smaller than the number of contexts in which (3a) can be used (Höhle 1982).

The order of arguments in Dutch (SOV) is more restricted, but scrambling is possible as well, as the following examples from a Dutch reference grammar show (Geerts et al. 1984: 989, Haider 2010: 14, 152):

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

Scrambling of two NP arguments is not possible in Dutch, but this can be explained by the lack of visible case marking in full NPs. Scrambling is avoided because of possible ambiguities. The same can be observed with NPs in German in cases in which they are not sufficiently case marked and there are no other clues for disambiguation as for instance contrastive intonation or selectional restrictions. As noted by Wegener (1985: 45), one of the two expected readings of (5) is not available:

- (5) Sie mischt Wein Wasser bei. (German)
 she mixes wine water at
 ‘She mixes wine with water.’

This means that there is wine and water is added to it. This corresponds to the order *dat* < *acc*. The situation is different when case marking is visible, e.g., when determiners are present:

- (6) a. Sie mischt dem Wein das Wasser bei. (German)
 she mixes the.DAT wine the.ACC water at
 ‘She mixes wine with water.’
- b. Sie mischt das Wasser dem Wein bei.
 she mixes the.ACC water the.DAT wine at
 ‘She mixes wine with water.’

With determiners, we get the reading in (5) independent of the order of the noun phrases. If we change the order of determinerless NPs in (5), we get a different reading:

- (7) Sie mischt Wasser Wein bei. (German)
 she mixes water wine at
 ‘She mixes water with wine.’

So, without any clues from case marking, intonation or context, one has *dat* < *acc* order; with further information or marking, both orders are possible.

There are basically two approaches to scrambling: the one that is probably most wide-spread in Generative Grammar is a movement-based approach (Frey

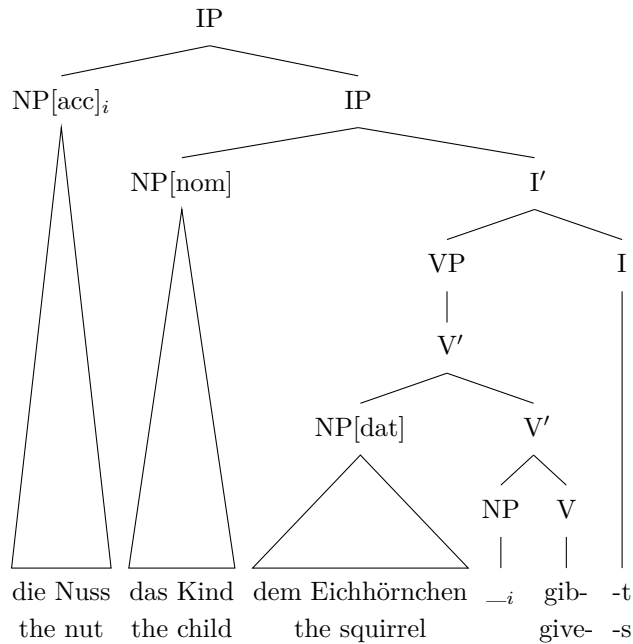


Figure 3: Analysis of local reordering as adjunction to IP in GB

1993). The alternative is called base-generation (Fanselow 1993). A movement-based approach assumes that there is a certain configuration that is regarded as more basic than other configurations. This basic configuration is derived by phrase structure rules and the other orders are derived from this basic configuration by movement. In classical Transformational Grammar, this means that the tree for the basic configuration is mapped to a different tree with different order (Chomsky 1957). One constituent is removed and realized at the left periphery of the resulting tree. See Figure 3. The original position of the scrambled element is marked by a trace: the $_i$ in Figure 3.² It is usually argued that movement-based approaches to scrambling are needed to account for additional scopings that are only available in scrambled structures (Frey 1993: 185). The explanation is that one reading corresponds to the surface order and another reading to the order in the base. But this argument leads to wrong predictions. There are certain configurations in which two arguments of a verb are moved simultaneously. Consider Kiss’s (2001: 146) example:

- (8) Ich glaube, dass mindestens einem Verleger_i fast jedes Gedicht_j
 I believe that at.least one publisher almost every poem
 nur dieser Dichter $_i$ $_j$ angeboten hat.
 only this poet offered has
 ‘I think that only this poet offered almost every poem to at least one publisher.’

The theory predicts that both can be reconstructed or one of them can (Kiss 2001: 146, Fanselow 2001: Section 2.6). This predicts a reading in which the

²An alternative notation for traces is t_i .

initial phrase *mindestens einem Verleger* is reconstructed and scopes lower than *fast jedes Gericht*, but this reading does not exist: if two NPs are “moved” simultaneously their relative scoping does not change.

However, corpus evidence suggests that scope does not depend on tree configurations (Webelhuth 2022) and hence examples like (8) do not provide evidence for or against movement-based approaches. See also Fanselow et al. (2022) for experimental evidence and Salzmann (2025) for an overview.

Fanselow (2012) discusses idiom data like the example in (9):

- (9) Vielleicht hat er *die Flinte* zu früh *ins Korn* *geworfen*
 perhaps has he the gun too early into.the grain thrown
 ‘Perhaps he gave up too early.’

The idiom consists of *die Flinte*, *ins Korn* und *geworfen* ‘to give up’. In the example, the phrase *die Flinte* is realized to the left of the adjunct *zu früh*. Since the idiom parts are not realized continuously, Fanselow (2012: 276) and Salzmann (2025) see this as evidence for movement approaches to scrambling, since “the acceptability of the scrambling of parts of idioms is incompatible with base-generation accounts of scrambling to the extent that only contiguous segments of a tree can receive an idiomatic interpretation”. If this was the case, examples with idioms in subject position as found by Marga Reis (1982: 178) would pose problems for all accounts, since such idioms are not contiguous:

- (10) weil *die Spatzen* das *vom Dach* *gepfiffen* haben
 because the sparrows this from.the roof whistled have
 ‘because everybody knew this’

Fortunately analyses are available in which the head of an idiomatic phrase selects parts of the idiom. In the example above, *geworfen* ‘thrown’ selects *ins Korn* ‘into.the grain’ and *die Flinte* ‘the gun’. Idioms vary in terms of syntactic flexibility and the idiom material does not have to be adjacent. See Sag (2007) for the details of a lexical analysis of idioms without the assumption of a phrasal representation of idioms. So, idiom data is not evidence for a movement-based approach.

Masloch, Poppek & Kiss (2024) provide empirical evidence that there is no preferred linearization of the arguments of experiencer-object verbs with a dative object, if both arguments are animate. They argue that neither SO nor OS should be regarded as the base order from which another order is derived (p. 5, 20).³ They assume binary branching structures in which one argument is combined with the verbal projection and the arguments appear in surface order. The arguments are inserted into a list and linearization constraints can be applied to list elements (Reape 1994, Müller 1999: Chapter 11, 2002: Section 1.9, Masloch et al. 2024: 23).

Interestingly the type of base generation approach suggested by Kiss (2001), Fanselow (2001), Müller (2005) and Masloch et al. (2024) requires structures in which all arguments are realized as sisters of the verb and its projections. Additional layers of phrase structure are ruled out by design since if a subject

³Masloch et al. (2024: 21) mention that approaches that assume a base-order and scrambling operations, while determining the markedness of linearizations by applying constraints to surface orders, are also compatible with their findings. The base order would lose its function as unmarked order and would be important for role assignment, case and binding only.

has to be placed in a specifier position of some designated functional projection (IP or TP, for example), movement is necessary to derive configurations in which the objects are scrambled to the left of the subject. For instance, in Figure 3, in order to linearize the accusative object to the left of the nominative, it has to leave the VP (see Grewendorf 1995: 1304 for such an analysis).

As it turns out, analyses assuming further functional projections between VP and CP for German seem to be problematic, since they predict that there would be a landing place for extraposition. Haider (2010: 62–64) shows that pronominal adverbs can be extraposed in fronted VPs. If there was an IP projection and the finite verb moved via I to C, one would expect that the finite verb would move past the extraposed pronominal adverb like in (11b). However, (11b) is ungrammatical. The extraposed pronominal adverb has to be placed after the finite verb.

- (11) a. $[_{VP} \text{Anfangen damit}]_i$ hat bloß einer $_i$.
 on.caught it.with has just one
 ‘Only one has started with it.’
- b. *weil bloß einer an $_i$ damit fing_i
 because just one on there.with caught
- c. weil bloß einer anfing damit
 because just one on.caught there.with
 ‘because only one has started with it’

The most straightforward explanation of this data is not to assume an intermediate functional projection between CP and VP.

Figure 4 shows the analysis of (3b), repeated here as (12), assuming a base-generation approach.

- (12) [weil] das Kind die Nuss dem Eichhörnchen gab (German)
 because the child the nut the squirrel gave
 ‘because the child gave the squirrel the nut’

It differs from Figure 2 in the order in which the arguments are combined with the verb. For scrambling languages, a head may be combined with any of its arguments, so there is no need to start with the first or last element of the COMPS list. Any element in the COMPS list can be combined with the head and all remaining elements are passed on to the mother node. See Gunji (1986) for an early proposal along these lines for an HPSG grammar of Japanese. The resulting projection may combine with any remaining elements on the COMPS list in further steps until the phrase is fully saturated, that is, the COMPS list is the empty list.⁴

Interestingly, the theory developed here has a level of representation that can fulfill the tasks of a base-structure: the ARG-ST list contains the arguments of a head in a certain order. Therefore it can be used for formulating constraints that are formulated with reference to tree configurations in other theories: assignment of semantic roles, case assignment, binding. On the other hand, if Masloch et al. (2024) are right and one should not assume a base structure,

⁴Note that I explain the analysis in a bottom-up way. This is for explanatory purposes only. HPSG is a constraint-based theory, hence there is no order in which constraints are applied and structure is build. This is important for the theory to be psycholinguistically plausible (Wasow 2024: Section 3.1).

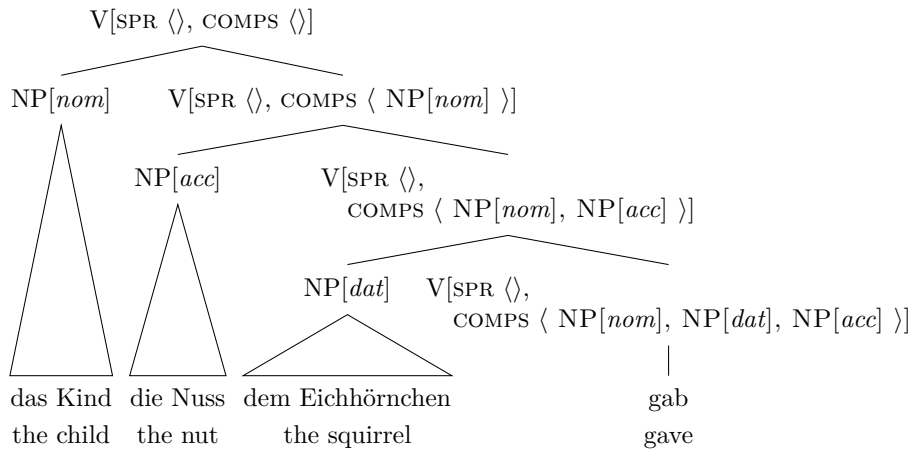


Figure 4: Analysis of scrambling: the dative NP from the middle of the COMPS list is combined first

then this is not a problem for the lexical theory: we just ignore the order of the elements in the ARG-ST list and apply constraints to the derived tree or an ordered list of the type suggested by Masloch et al.

The binary branching base-generation approach has the advantage that both the combination of verb and direct object and verb and indirect object are licenced as partial verbal projections:

- (13) a. [Den Wählern erzählen] sollte man diese Geschichte nicht.
the.DAT voters tell should one this.ACC story not
‘One shouldn’t tell this story to the voters.’
b. [Märchen erzählen] sollte man den Wählern nicht.
fairy.tales.ACC tell should one the.DAT voters not
‘One shouldn’t tell the voters fairy tales.’

Fanselow (2012: 291) claimed that partial verb phrase fronting can be analyzed as fronting of maximal verbal projections. Assuming that the phrases in

- (14) dass niemand [VP dem Kind [VP im Hotel [VP einen Schlüssel
that nobody the.DAT child in.the hotel a.ACC key
gegeben]]] hat
given has
‘that nobody gave a key to the child in the hotel’

In a system with Larsonian verb shells (Larson 1988), *einen Schlüssel gegeben* would be a maximal projection and *dem Kind im Hotel einen Schlüssel gegeben* would be another one. However, this cannot be the full story, since a certain stacking of objects would exclude the fronting of a verb with the object that is usually realized at the outer shell. So, here the base-generation approach seems to have an advantage. For arguments against remnant movement, again by Fanselow, see Fanselow (2002).

Note also that I do not assume that auxiliaries embed maximal projections (Wurmbrand 2003a). Rather I follow Reis & Sternefeld (2004) and others in

assuming that they form a verbal complex in OV languages. The next section deals with such verbal complexes and provides an account for scrambling in so-called clause union cases, that is, cases in which arguments of several verbs are scrambled.

4 Verbal complexes

The Germanic SOV languages form verbal complexes: the verbs are positioned at the end of the clause and arguments of the verbs are realized to the left of the verbs. Languages that allow for scrambling allow for the permutations of the non-verbal arguments. (15) shows a German example due to Haider (1986b: 110; 1991: 128):

- (15) weil es ihr jemand zu lesen versprochen hat
 because it.ACC her.DAT somebody.NOM to read promised has
 ‘because somebody promised her to read it’

The verb *versprochen* ‘promised’ selects *zu lesen* ‘to read’. The NPs *es* and *ihr* depend on *zu lesen* and *versprochen*, respectively, and *jemand* depends on the auxiliary *hat*. Other orders of the three NPs are possible as well. The generalization is that the three verbs together behave like a simplex verb as far as the ordering of the arguments is concerned.

As with scrambling and passive, there are two main approaches: the first one assumes that verbs project all their arguments and that full verbal projections are embedded under a verb (Wurmbrand 2003a). Such an approach is conceptually necessary, if one assumes that semantic roles are assigned to tree positions. This also requires empty elements for the subjects of infinitives; *versprochen* embeds PRO *es zu lesen*, where PRO stands for the phonetically empty subject. *versprochen* combines with its arguments to form *jemand ihr* [PRO *es zu lesen*] *versprochen* and this is combined with *hat*. The subject of *versprochen* is moved to the subject position of *hat*. In addition, several movements apply to produce the order in (15).

The alternative is not to project the arguments in an unwanted order, but to form a verbal complex first. The verbs *zu lesen* and *versprochen* are combined and the resulting verbal complex has all the arguments that the involved verbs need. There are two ways to achieve this: one can assume the technique of argument attraction first suggested in Categorical Grammar and now widely adopted in HPSG and other frameworks (Geach 1970, Hinrichs & Nakazawa 1994, Kiss 1995, Meurers 2000, Müller 2002, Williams 2003: Section 8.2, 8.5, Sternefeld 2006, Bonami & Samvelian 2009: Section 8, Bader & Schmid 2009: Section 8) or pass arguments on in grammar rules (Kim 2016: Section 4.4.1, Van Eynde 2019: 1044). In the latter approach, the unsaturated complements of both the head daughter and the complement daughter are added up to form the list of complements at the mother node. The first approach has the advantage that it can account for the so-called remote passive, which will be covered in Section 5.3.

Figure 5 shows the analysis of the verbal complex in (16) in simplified form. The auxiliary selects for the embedded verb and the arguments of this verb.

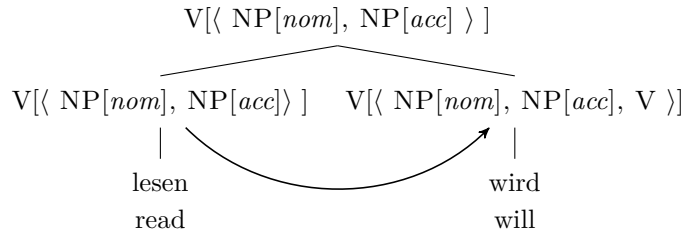


Figure 5: Analysis of the verbal complex formation of *lesen wird* ‘read will’ using argument attraction (preliminary version)

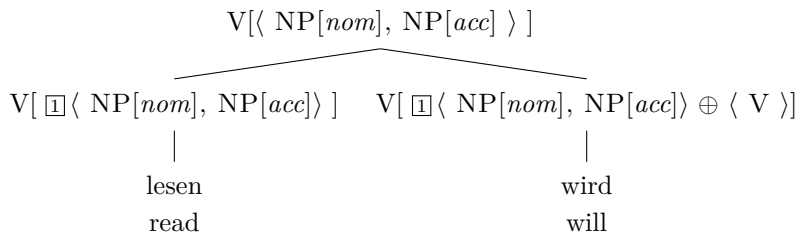


Figure 6: Analysis of *lesen wird* ‘read will’ using argument attraction and structure sharing (preliminary version)

- (16) dass keiner das Buch lesen wird
 that nobody the book read will
 ‘that nobody will read the book’

A more technical notation is used in Figure 6. The boxed number $\boxed{1}$ refers to the valence information of the main verb *lesen* ‘read’ and this information is appended to the valence information of the auxiliary *wird* ‘will’. The boxed numbers stand for identity of the values that follow the boxed numbers. In principle it is sufficient to state the values in one place of the structure or tree, but for reasons of explicitness, I represent the valence information at the selected verb and at the selecting verb in the following figures. \oplus is the symbol for list concatenation. Due to the specification of argument attraction in the lexical item of the auxiliary, the complex formation works independently of the arity of the embedded verb: Whatever the valence information in $\boxed{1}$ is, it is taken over to the auxiliary verb. In Figure 6 the embedded verb is *lesen* ‘to read’ and $\boxed{1}$ is a list with two NPs, but we could also embed an intransitive verb like *schlafen* ‘to sleep’ under *wird* ‘will’ and then $\boxed{1}$ would be a list with exactly one NP.

Figure 7 shows the analysis of (16). The analysis is simplified in that all arguments of the infinitive are listed in one list. Usually subjects are represented in a different valence list for non-finite verbs. See Müller (2002: Chapter 2) and Müller (2023b: Chapter 5) for details.

The analysis of the alternative order in (17) is shown in Figure 8.

- (17) [dass] das Buch keiner lesen wird
 that the book nobody read will
 ‘that nobody will read the book’

The verbal complex behaves like a simplex verb: the arguments of the verbal

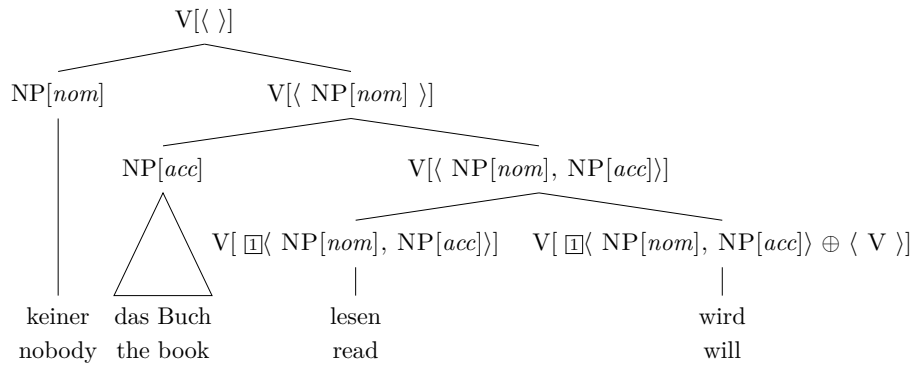


Figure 7: Formation of a verbal complex and realization of arguments in normal order (simplified version)

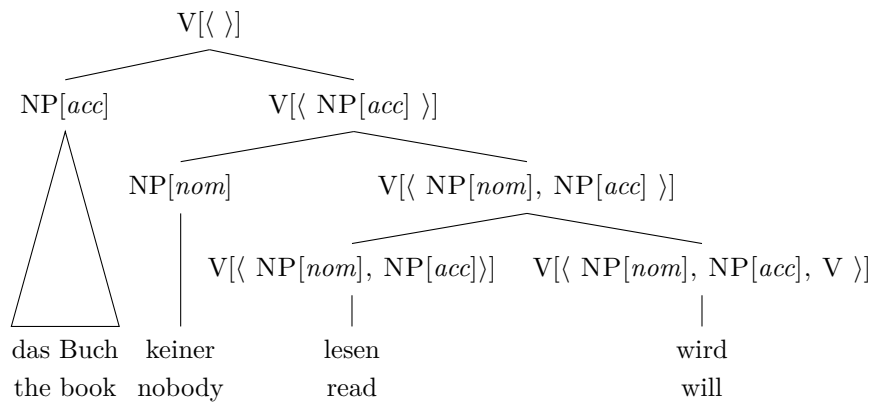


Figure 8: Formation of a verbal complex and scrambling of arguments (simplified version)

complex can be combined with it in any order.

After having dealt with scrambling and verbal complexes, I now turn to passive.

5 Passive

As with scrambling, there are two main proposals in the literature: one is movement-based and the other is a direct-generation one.⁵ The classical analysis of the passive is movement-based. There was a special passive transformation that transformed trees of a certain form into trees with another form (Chomsky 1957: 43). Active sentences were mapped into passive ones. In later versions of the theory, the passive was derived by assuming several interacting constraints that forced the underlying object to move to subject position (Chomsky 1981: 124). It was assumed that the formation of the passive participle resulted in a lexical item that could not assign accusative to its object (Burzio 1986: 178–185). This was said to follow from Burzio’s Generalization, according to which a verb does not assign structural accusative, if it does not have an external argument.⁶ In addition a case filter was applied to structures ruling out NPs without case. It was assumed that subjects get case in the specifier position of IP and hence it was explained why the underlying object of the verb has to move to the specifier of IP. The idea is illustrated by Figure 9.

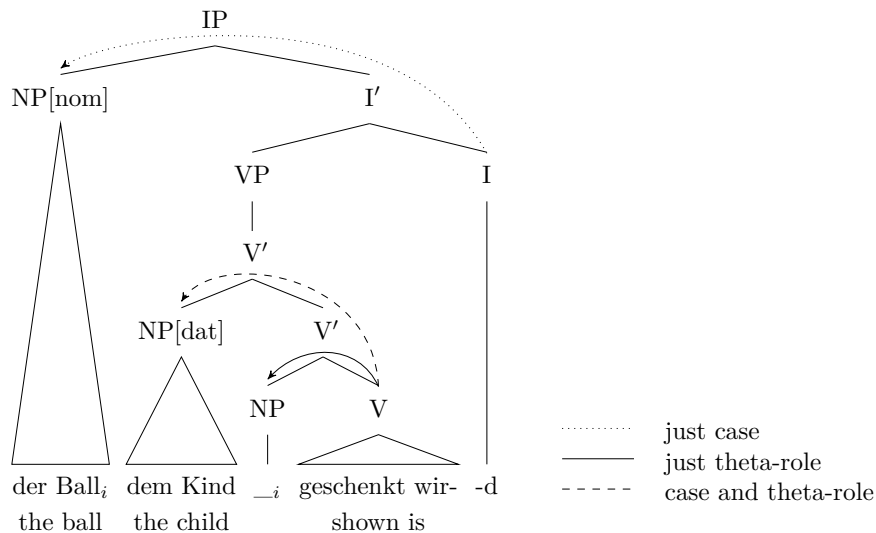


Figure 9: Case and theta-role assignment in passive clauses

The problem of this analysis is that passive does not have anything to do with movement. The fact that the underlying object has to move in SVO languages is simply due to the nature of (most of) these languages. There is a designated

⁵I do not use the term base-generation here, since it entails a transformational base and derived structures. Representational theories do not assume derivations.

⁶See Haider (1999), Webelhuth (1995: 89), and Müller (2016: 110) for a discussion of problems with Burzio’s Generalization.

subject position and when the subject is suppressed due to passivization some other element has to fill the slot. For example, the object *the child* is realized to the right of the verb in the active in (18a) and to the left of the verb in (18b):

- (18) a. Somebody gave [the child] [the ball].
 b. [The child] was given [the ball].

SOV languages behave differently. In fact, the unmarked order is the one with the underlying accusative object realized in the position it would have in active sentences (Lenerz 1977: Section 4.4.3). The following examples illustrate:

- (19) a. weil jemand dem Kind den Ball schenkte
 because somebody.NOM the.DAT child the.ACC ball gave
 ‘because the girl gave the ball to the boy’
 b. weil dem Kind der Ball geschenkt wurde
 because the.DAT child the.NOM ball given AUX
 ‘because the ball was given to the child’
 c. weil der Ball dem Kind geschenkt wurde
 because the.NOM ball the.DAT child given AUX

(19b) is the unmarked order (Höhle 1982). So, if passive had anything to do with movement, one would be forced to assume that the passivization of (19a) is (19c) and then another movement has to be applied to derive the unmarked order in (19b). This means that the most natural order needs more transformational steps than a more marked order, a counter-intuitive result. Instead researchers like Grewendorf (1988: 155–157, 1995: 1311) and Lohnstein (2014: 180) assume that there is an empty expletive pronoun in subject position that is assigned nominative and transfers this case to the underlying object that stays in its position without movement. This, however, is a rather complex analysis for a simple set of data. It poses the challenge of learnability: how are learners of the Germanic SOV languages supposed to discover that there is an IP and that they have to assume this complicated mechanism with invisible elements without any meaning whose only purpose is to fill a slot (motivated in grammars of English) and to transfer case to an element elsewhere in the sentence. The only option to explain the acquisition of this analysis seems to be to assume that information about these mechanisms is part of our genetic endowment. This is or was assumed indeed, but given what we know now about genetics, it is highly unlikely to have such language-specific information encoded in our genes (Hauser, Chomsky & Fitch 2002; Bishop 2002, Dąbrowska 2004: Section 6.4.2.2, Fisher & Marcus 2005). So, while in earlier phases of Mainstream Generative Grammar it was often argued with the argument from the Poverty of the Stimulus (There is not enough information to learn structure X from data, hence knowledge about it must be innate. See Pullum & Scholz (2002), Scholz & Pullum (2002) for a general discussion.), we can now argue with the Inverse Argument of the Poverty of the Stimulus (Müller 2023b: 156): since we know that analysis X is too complicated to be acquirable and since it is impossible for such specific information to be encoded in our genes, it cannot be a plausible analysis. See also Jackendoff (2011: 268–270) for parallel arguments for the Simpler Syntax Hypothesis. While I agree in principle, I have different views on empty elements (Müller 2023c), on underlying structures and on radically

surface-based syntax. The ARG-ST list assumed in this paper corresponds to the Deep Structure in Transformational Grammar with the difference that it is potential tree structure rather than actual structure (Müller 2019). Since it is potential, no transformations are necessary to derive different structures. Active-passive alternations can also be explained with respect to this underlying structure. Lexical rules licensing elements with a different ARG-ST correspond to some of the transformations assumed in MGG. As explained in Müller (2013: 925–927), a surface-based analysis of the passive as it was suggested in Culicover & Jackendoff (2005: Chapter 6.3) is technically impossible, since it cannot account for simultaneous applications of passive and impersonal constructions in the same clause.

In the following, I will therefore not assume something like the GB analysis but instead discuss a simpler and more direct analysis of the passive.

5.1 Passive as argument reduction

An alternative to a movement-based analysis of the passive was suggested by Haider (1986a) in the framework of GB and it is used in HPSG as well (Heinz & Matiassek 1994, Müller 2002: Chapter 3, 2003). For this analysis, a distinction is made between structural and lexical cases. Structural cases are assigned to arguments of heads and they depend on the structure in which the argument is used. For example, the case of the accusative object in (20a) depends on the structure in which it appears: it is accusative in the active, but nominative in the passive. This is not the case for the dative in (20c). The dative is used both in the active and in the passive:

- (20) a. dass jemand ihn unterstützt (German)
 that somebody him.ACC supports
 ‘that somebody supports him’
 b. dass er unterstützt wird
 that he.NOM supported AUX
 ‘that he is supported’
 c. dass jemand ihm hilft
 that somebody him.DAT helps
 ‘that somebody helps him’
 d. dass ihm geholfen wird
 that him.DAT helped AUX
 ‘that he is helped’

In Haider’s analysis, the so-called designated argument (the subject of unergative⁷ and transitive verbs) is suppressed in the passive. Case is not assigned to positions in trees, as in MGG, but according to the position in the argument structure list: the first NP with structural case gets nominative, all other NPs with structural case get accusative in verbal environments. Nominative and accusative are structural cases in that are assigned in verbal environments, genitive is a structural case that is assigned in nominal environments. (21) shows the ARG-ST lists of our example lexical items:

⁷Simplifying, unergative verbs are intransitive verbs with an agent. They can be contrasted with unaccusative verbs. See Perlmutter (1978) on unaccusativity.

- (21) ARG-ST
- a. give-: $\langle \text{NP}[\textit{str}]_i, \text{NP}[\textit{str}]_j, \text{NP}[\textit{lacc}]_k \rangle$
- b. geb-: $\langle \text{NP}[\textit{str}]_i, \text{NP}[\textit{lдат}]_j, \text{NP}[\textit{str}]_k \rangle$

The case of the subject and the first object in English are structural cases and the case of the subject and the last object of ditransitive verbs (the direct object) are structural cases in German. I follow Haider (1985: 80) in assuming that the dative is a lexical case in German.⁸ Lexical cases are assigned in the lexical items of heads and are prefixed with an *l*. Case assignment for active sentences with the verbs in (21) results in nominative, accusative, accusative for English and in nominative, dative, accusative in German. The indices are linked to the semantic roles in the semantic representation of the verbs. Note that the order of elements in ARG-ST corresponds to the (unmarked) surface order in both English and German and that therefore, the linking pattern is the same in both languages: the first argument is the giver, the second the givee and the third one is the given item. See Davis, Koenig & Wechsler (2024) for more on linking.

Now, the generalization about passive is that the subject is suppressed. This is true for so-called personal and impersonal passives (see Section 5.2). As was explained above, passive has nothing to do with movement. That the object moves to the subject position in SVO languages has to do with the designated subject position that has to be filled (Note that Icelandic allows for subjectless passives despite being an SVO language (Thráinsson 2007: 264).).

For transitive verbs the designated argument is always the first NP on the ARG-ST list (the subject). A lexical rule is applied to the verbal stems in (21) and licenses the participle forms in (22):

- (22) ARG-ST SPR COMPS
- a. given: $\langle \text{NP}[\textit{str}]_j, \text{NP}[\textit{lacc}]_k \rangle \langle \text{NP}[\textit{str}]_j \rangle \langle \text{NP}[\textit{lacc}]_k \rangle$
- b. gegeben: $\langle \text{NP}[\textit{lдат}]_j, \text{NP}[\textit{str}]_k \rangle \langle \rangle \langle \text{NP}[\textit{lдат}]_j, \text{NP}[\textit{str}]_k \rangle$

The first NP in the argument structure list of *given* gets nominative. And the second argument of *gegeben* ‘given’ too, since it is the first NP with structural case. After combination with the auxiliary, the first argument of *given* is realized as a specifier and the other arguments as complements. Since the specifier is realized to the left of the verb, we get the SVO order and what looks like movement in English is just the result of mapping ARG-ST elements to valence features. In this analysis, no movement is involved. See Müller (2016: Chapter 20) on the alleged parallelism between extraction, passive, and scrambling. In German, the auxiliary and the participle form a verbal complex and the dative and the nominative are realized as complements of *gegeben wurde* ‘given was’. The normal order is the same as the order of the elements in the COMPS list, but scrambling is possible.

This approach to case assignment and passive works well for the Germanic languages and also accounts for quirky subjects in Icelandic (Zaenen, Maling & Thráinsson 1985). The details will not be discussed here due to space limitations but see Müller (2023b: Section 7.2.4).

⁸This is a controversial issue. See Müller (2023b: Section 7.2.1.3) for discussion. I also assume that the Icelandic dative is a lexical case. This makes the right prediction as far as case assignment and agreement in Icelandic is concerned.

5.2 Impersonal passives

There are interesting differences between the Germanic languages as far as impersonal passives are concerned: SOV languages like German and Dutch allow for impersonal passives, while some SVO languages do not allow for them. That the Germanic SOV languages are fine with subjectless constructions is not surprising, since they do not have a designated subject position. There are subjectless constructions with active verbs like those in (23):⁹

- (23) a. Ihm graut vor der Prüfung. (German)
 him.DAT dreads before the exam
 ‘He dreads the exam.’
 b. Mich friert.
 me.ACC freezes
 ‘I am freezing.’
 c. weil schulfrei ist¹⁰
 because school.free is
 ‘because there is no school today’

Hence impersonal passives like the ones in (24) are expected.

- (24) a. dass nicht gearbeitet wird (German)
 that not worked is
 ‘There is no working.’
 b. dass dem Kind geholfen wurde
 that the.DAT child helped was
 ‘The child was helped.’

The ARG-ST list of passivized intransitive verbs look as follows:

- (25) a. *gearbeitet* ‘worked’: ARG-ST ⟨ ⟩
 b. *geholfen* ‘helped’: ARG-ST ⟨ NP[*ldat*]_j ⟩

The participle of *arbeiten* has no element in its ARG-ST list. Auxiliary and main verb form a verbal complex that simply does not take any arguments. *geholfen* selects for a dative argument. The dative is a lexical case and hence the case of the object of *helfen* is determined in the lexical item. It does not change in the passive.

The case of the SVO languages is more interesting. Impersonal passives are strictly ungrammatical in English.

- (26) * There was worked.

Interestingly, they are possible in Danish; in this Germanic language, an expletive is inserted to fill the subject position.

- (27) fordi der ikke bliver arbejdet (Danish)
 because EXPL not is worked
 ‘because there is no working there’

⁹For further discussion of subjectless verbs in German, see Haider (1993: Sections 6.2.1, 6.5), Fanselow (2000), Nerbonne (1986: 912) and Müller (2007: Section 3.2).

¹⁰Müller (2002: 72).

This expletive insertion is not restricted to impersonal passives but also applies to intransitives (28) and passives of transitives (30):

- (28) at der ikke går en mand på gaden
 that EXPL not walks a man in street.DEF
 ‘that no man is walking in the street’

The examples are constructed with negation to make sure that we have an SVO structure and the expletive is not a positional V2 expletive as is known from V2 structures in German and other languages (Vikner 1995: 46). For example, to form a V2 clause from (24a), the position to the left of the finite verb (the so-called *Vorfeld*) has to be filled. This can be done with an adjunct as in (29a) or with an expletive as in (29b):

- (29) a. Heute wird nicht gearbeitet. (German)
 today is not worked
 ‘There is no working today.’
 b. Es wird nicht gearbeitet.
 EXPL is not worked
 ‘There is no working.’
 c. *dass es nicht gearbeitet wird
 that EXPL not worked is
 Intended: ‘There is no working.’

(29c) shows that the *es* ‘it’ is not a subject, since if it were, one would expect that it appears in the *Mittelfeld* as well. But this type of element appears in the *Vorfeld* only.¹¹

Since the expletive in (28) is not a positional element, we can conclude that *der* is the subject in (28) and *en mand* is in the position of the object. Similarly, an expletive may be inserted in personal passives.

- (30) at der blev spist et æble¹²
 that EXPL AUX eaten an apple
 ‘that an apple was eaten’

It is excluded with transitives though:

- (31) *at der har spist nogen et æble¹³
 that EXPL has eaten somebody an apple
 ‘that somebody has eaten an apple’

So, the generalization seems to be that expletives can be inserted with verbs that do not take a complement (Vikner 1995: Section 6.4). If there is a subject, it is realized as a complement and the expletive takes the position of the subject. This is possible with intransitives and both the personal and the impersonal passive in Danish, Faroese, Icelandic, and Yiddish (Vikner 1995: Section 6.4).

However, the restriction that there may not be a complement seems to be too strong. Prepositional objects are possible in impersonal constructions:

¹¹Müller & Ørsnes (2011) develop an analysis of positional elements in Danish, German and Yiddish that introduces these elements on the ARG-ST list. So in this analysis these expletives are in fact analyzed as arguments. However, further constraints ensure that extraction has to take place in the case of V2 expletives.

¹²Vikner (1995: 202).

¹³Vikner (1995: 198).

- (32) fordi der ikke bliver arbejdet på en ny (Danish)
 because EXPL not is worked on a new
 koalitionsaftale
 coalition.agreement
 ‘because there is no working there’

The condition seems to be that there must not be an accusative object.

So, we have an interesting situation here: the passive lexical rule that blocks the subject licenses lexical items without a subject. Since general constraints for the distribution of arguments to the valence features for English and Danish require a subject, the passive of an intransitive verb is excluded. Danish has a way of fixing this by adding an expletive to the argument structure list of the passive participle and hence makes it usable in passive constructions. To complete the picture of the Germanic languages: Icelandic is an SVO language but allows for subjectless constructions, as the following examples from Thráinsson (2007: 264) show.

- (33) a. Oft var talað um þennan mann. (Icelandic)
 often was talked about this Mann.ACC.SG.M
 ‘This man was often talked about.’
 b. Aldrei hefur verið sofð í þessu rúmi.
 never has been slept in this bed.DAT
 ‘This bed has never been slept in.’

This means that the passive participle may be used right away in Icelandic without the insertion of an expletive.

5.3 Remote passive

The following examples pose an interesting challenge for grammatical theories. Höhle (1978: 175–176) observed that objects of German infinitives with *zu* appear in the nominative in certain contexts.¹⁴

- (34) a. daß er auch von mir zu überreden versucht wurde¹⁵ (German)
 that he.NOM also by me to persuade tried AUX
 ‘that an attempt to persuade him was also made by me’
 b. weil der Wagen oft zu reparieren versucht wurde
 because the.NOM car often to repair tried AUX
 ‘because many attempts were made to repair the car’

The passive participle is *versucht*, but it is not an object of this verb that is realized as a subject but an object of a verb embedded below the participle. The question for theories assuming verb phrases rather than verbal complexes is: why is the object of *zu reparieren* moving to some place to be realized as subject? It could stay in the verb phrase as in (35) and get accusative there:

- (35) a. weil [den Wagen zu reparieren] oft versucht wurde
 because the.ACC car to repair often tried AUX

¹⁴For corpus data see Wurmbrand (2003b) and Haider (2021b).

¹⁵Oppenrieder (1991: 212).

- b. weil oft versucht wurde, [den Wagen zu reparieren]
 because often tried AUX the.ACC car to repair

Theories assuming a verbal complex with argument attraction have a straightforward account: *versuchen* ‘to try’ is a verb that optionally forms a verbal complex. It can either be part of verbal complexes as in (34b) or embed a complete VP as in (35). If it forms a verbal complex, it selects an infinitive with *zu* ‘to’ and all the complements of this infinitive. In the active this would be *den Wagen* ‘the car’:

- (36) weil jemand den Wagen oft zu reparieren versuchen wird
 because sb.NOM the.ACC car often to repair tried will

Since a verbal complex is formed, *versuchen* ‘to try’ attracts the object. This is specified in the lexical item for *versuchen*, so *den Wagen* ‘the car’ is also an argument of *versuchen*, but it does not get a semantic role from *versuchen*. The subject of *zu reparieren* ‘to try’ is coindexed with the subject of *versuchen*, since *versuchen* is a control verb (see Pollard & Sag 1994: Chapter 7 on control).¹⁶ After combination with the future auxiliary *wird* ‘will’, the subject of *versuchen* is realized as the subject of the verbal complex and the object of both *zu reparieren* and also *versuchen* is realized as object of the whole verbal complex *zu reparieren versuchen wird* ‘to repair try will’. As such, these elements are also arguments of *wird*. In this environment the first NP with structural case gets nominative and the second accusative. Hence, *jemand* is nominative and *den Wagen* is accusative in (36).

Now, if the passive lexical rule applies to *versuch-*, the designated argument of *versuch-* is blocked. When the participle is combined with the passive auxiliary, the blocked argument is not deblocked, so the first element on the ARG-ST list of the auxiliary is the NP that is the object of *zu reparieren*. Since it is the first element with structural case, it gets nominative and hence the remote passive follows from verbal complex formation. Note that the remote passive is remote in the sense that an argument of an embedded verb is affected, but it is not remote in the sense that an argument from within another clause is raised to a higher clause. It is just the usual passivization rule that applies to a complex forming verb. See Müller (2002: Section 3.2.5) for a more detailed explanation.

6 Verb first and verb second

The Germanic languages with the exception of English are verb second (V2) languages.¹⁷ This means that (almost) any constituent can be placed initially in front of the finite verb.

¹⁶HPSG differs here from MGG in that subjects of infinitival projections like *den Wagen zu reparieren* ‘the car to repair’ in (35) are not syntactically realized, but remain implicit as elements of SPR. Coindexing is used to establish the identity of the tryer and the agent of *reparieren* ‘to repair’. Subjects are coindexed rather than raised since the case of the controlling NP may differ from the case of the controlled NP. See Müller (2002: Section 2.1.3.2) for Höhle’s test (Höhle 2019: 52–53) and some discussion.

¹⁷English is a so-called “residual V2 language” since there are some V2 patterns left (Rizzi 1990: 375). Examples are *wh* questions with auxiliary verbs and other auxiliary inversion constructions. One example will be discussed below.

- (37) a. [Ich] habe das Buch gestern gelesen. (German)
 I have the book yesterday read
 ‘I have read the book yesterday.’
 b. [Das Buch] habe ich gestern gelesen.
 the book have I yesterday read
 c. [Gestern] habe ich das Buch gelesen.
 yesterday have I the book read
 d. [Gelesen] habe ich das Buch gestern, gekauft hatte ich es aber
 read have I the book yesterday bought had I it but
 schon vor einem Monat.
 yet before a month
 ‘I read the book yesterday, but I bought it last month already.’
 e. [Das Buch] gelesen habe ich gestern.
 the book read have I yesterday
 ‘I have read the book yesterday.’

In (38), Danish examples with a fronted object and a fronted adverb are shown:

- (38) a. [Bogen] læst hver straks. (Danish)
 book.DEF reads everybody promptly
 ‘Everybody reads the book promptly.’
 b. [Straks] læst hver bogen.
 promptly reads everybody book.DEF
 ‘Everybody reads the book promptly.’

As these examples from German and Danish show, the property of being a V2 language is independent of the classification as SOV or SVO language: German is SOV and Danish is SVO. V2 is a phenomenon involving nonlocal dependencies, while the SVO/SOV classification is about local orderings of arguments, which is covered here via valence features (different mappings of arguments to SPR and COMPS) and the order of combination of heads with complements. Note also that by just looking at the sentence in (38a), one could get the impression that Danish is an OVS language. This may be confusing at first encounter, but the two dimensions of classifying languages SOV vs. SVO and V2 vs. non-V2 are independent and the fact that alternative orders of subject, object and verb can be derived by scrambling or fronting is irrelevant for the SOV, OSV, SVO classification.¹⁸

English is not a V2 language, but there are frontings that are similar to the V2 frontings in terms of the processes/representational tools that are involved:

- (39) Chris_i, we saw _i.

The object of *saw* is not realized in the object position, that is, to the right of *saw*, but to the left of the subject. English is called a residual V2 language (Rizzi 1990: 375), since there are some traces of earlier V2 patterns left in question formation and various kinds of inversion constructions like locative inversion and negative inversion. (40) shows an example of question formation:

¹⁸See Müller (2023b: Section 2.1) for a discussion of the methodology of Dryer (2013) to classify languages, which is based on counting patterns and determining the most frequent order. This method fails for the Germanic SOV languages, since the V2 phenomenon disturbs the counting.

(40) [Which book]_i did Kim read ___i?

The object is fronted and appears before the auxiliary. The subject is serialized to the right of the auxiliary.

The fronted constituent in English and the other Germanic languages is not necessarily from the same clause, but may depend on a deeply embedded element:

- (41) a. Chris_i, [we think [Anna claims [that Sandy saw ___i]]].
 b. Wer_i wohl meint er, dass ___i ihm seine Arbeit hier bezahlen
 who perhaps assumes he that him his work here pay
 werde?¹⁹ (German)
 shall
 ‘Who does he perhaps assume would pay him for his work here?’
 c. [Um zwei Millionen Mark]_i soll er versucht haben,
 around two million Deutsche.Marks should he tried have
 [eine Versicherung ___i zu betrügen].²⁰
 an insurance.company to deceive
 ‘He apparently tried to cheat an insurance company out of two
 million Deutsche Marks.’
 d. [Gegen ihn]_i falle es den Republikanern hingegen schwerer,
 against him fall it the Republicans however more.difficult
 [[Angriffe ___i] zu lancieren].²¹
 attacks to launch
 ‘It is, however, more difficult for the Republicans to launch attacks
 against him.’

This shows that these frontings are nonlocal dependencies. It follows that movement or something equivalent has to be used to account for such frontings.²² In Mainstream Generative Grammar, it is assumed that constituents are generated in their base-position and then they are moved to higher specifier positions until they finally end up in the position in front of the finite verb.

The HPSG approach, originally developed in GPSG (Gazdar 1981), is similar, but it is representational and not derivational. It is not the case that some structure is generated first and then changed, but a certain structure is licensed directly. A trace is assumed in the position in which the fronted element would be realized normally. This trace is not there because another constituent is moved from this position but it is a lexical item in its own right that just acts as a placeholder. Like a joker, it assumes all properties that are required in a certain local context. The information about the missing constituent is passed on to dominating nodes along the projection path until there is a filler higher up in the tree.

As was explained in Section 2, Germanic languages are classified as SVO or SOV languages. The examples in (37) are not in SOV order and neither are the

¹⁹The example is due to Paul (1919: 321), who provides two pages full of attested examples of extractions out of *dass* clauses.

²⁰taz, 2001-05-04, p. 20.

²¹taz, 2008-02-08, p. 9.

²²See Müller (2023c) and Müller (2023a) for a discussion of Dependency Grammar proposals.

Danish examples in (38). The general approach to V2 in generative frameworks in the broader sense, is that the finite verb is moved to a position before the rest of the clause and then one constituent is fronted. For SVO languages, this means that the finite verb is placed in front of the subject and then an argument or an adjunct can be put before the finite verb.²³ V2 + SVO and V2 + SOV languages are similar in forming yes/no questions by just fronting the verb:

- (42) a. Liest_i Conny das Buch _{-i}?
 reads Conny the book
 b. Læst_i Conny _{-i} bogen
 reads Conny book.DEF

The respective analyses are given in Figure 10 and Figure 11.²⁴

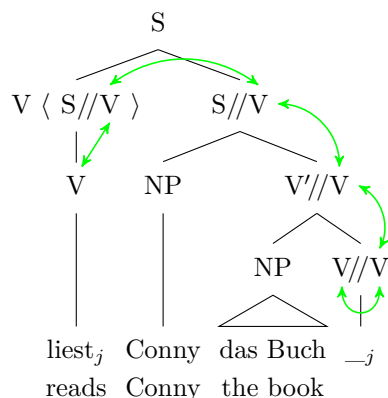


Figure 10: Analysis of verb position in German (SOV)

The analysis uses a lexical rule (or unary projection²⁵) that maps a verb as it would appear in non-verb-initial sentences onto a verb that selects for a clause with exactly this verb missing.²⁶ A trace fulfills the role of the verb in final

²³Note again that the explanation given here talks about movement in a certain order. While this is a good way to explain V2 sentences, there is nothing procedural/derivational about the HPSG analysis. Psycholinguistic experiments show that language processing is incremental (Marslen-Wilson 1975, Tanenhaus et al. 1996). So such a representational and non-derivational approach seems to be the right way to go.

²⁴S stands for a verbal projection with empty SPR and COMPS list. VP stands for a node that has an empty COMPS list and something in SPR. Since both subject and objects of finite verbs are listed under COMPS, the figures of German sentences below do not have VP nodes. V' stands for verbal projections that are not maximal.

²⁵Lexical rules map lexical objects onto other lexical objects, that is, they map words to words or stems to stems or words to words. Unary projections are more general in that they can map an NP to another NP, e.g., as type raising. While a lexical rule for verb-movement can apply to lexical items of verbs only, a unary projection can apply to a coordination of two or more verbs (Müller 2021b: 390).

²⁶The analysis goes back to Jacobson (1987), who suggested a head-movement analysis for English in Categorical Grammar. It was later adapted by Borsley (1989b) in a paper that showed how the Barriers conception of clause structure (Chomsky 1986) can be formalized in HPSG. Kiss & Wesche (1991) developed a “head-movement” approach for German. There seems to be consensus among researchers working on HPSG analyses of German now that a “head movement” approach as standardly assumed in MGG is the correct approach for German. See for example Crysmann (2022).

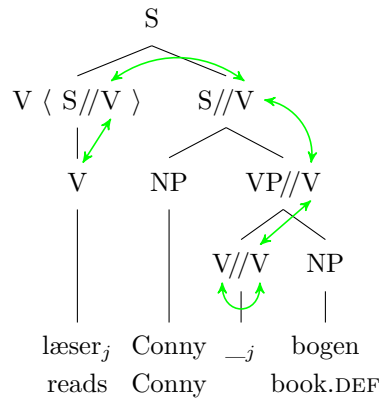


Figure 11: Analysis of verb position in Danish (SVO)

position in Figure 10. The crucial part of the analysis is that the information about the properties of the trace are passed on along the projection path. This is marked with the double slash notation. The verb trace (V//V) shares its features with the representation behind the double slash (the second V, which is identified with the crucial information of the first V), this is projected to higher nodes (V//V, VP//V, and S//V in the figures) and the verb in initial position can select an S with a missing verb (S//V). The flow of information or rather the identity of information is indicated by the double arrows in the figures. Since the double slash information is identical with the properties of the verbal trace and identical to the verb in initial position, it is ensured that semantic information and information about valence is present at the trace.

This analysis of head movement has a nice property: the finite verb in initial position behaves the way complementizers behave. The complementizer *dass* ‘that’ in (43) selects for a verb final projection in the same way as the finite verb in initial position in Figure 10.

- (43) *dass* Conny *das* Buch liest
that Conny the book reads
‘that Conny reads the book’

The only difference is that the complementizer requires a clause with an overt verb (S), while the fronted verb requires a clause with a missing verb (S//V), namely the verb that is input to the lexical rule. This captures Höhle’s (1997) insight that finite verbs and complementizers form a natural class.

The analysis of verb second and fronting in general uses a similar device: there is a trace acting as a joker. It has unspecified syntactic and semantic properties. When combined with a head, the head and the rule used for combination impose properties on the trace and the information about what is missing locally is passed up the tree. As was shown in (41), the dependencies for V2 frontings may be nonlocal, so this is a crucial difference in comparison to head-movement: head-movement information is passed upwards along the head path, while information about constituent fronting is passed on with a separate feature and this feature is passed on even across clause boundaries. Hence, we distinguish between slash and double slash in the following. The slash-based analysis

of nonlocal dependencies goes back to the GPSG analysis (Gazdar 1981).

Figure 12 shows the analysis of (44a) and Figure 13 shows the one of (44b):

- (44) a. Das Buch liest Conny. (German)
 the book reads Conny
 ‘Conny reads the book.’
 b. Bogen læser Conny. (Danish)
 book.DEF reads Conny
 ‘Conny reads the book.’

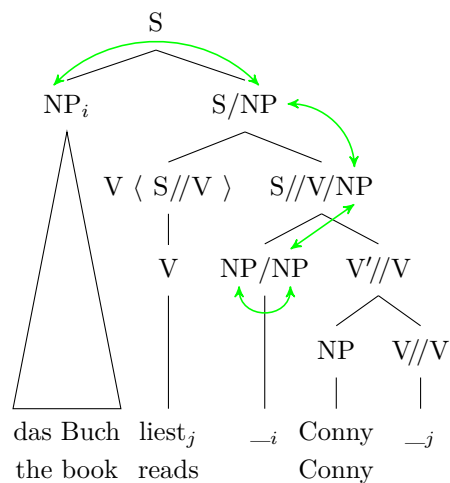


Figure 12: Analysis of V2 in German (SOV)

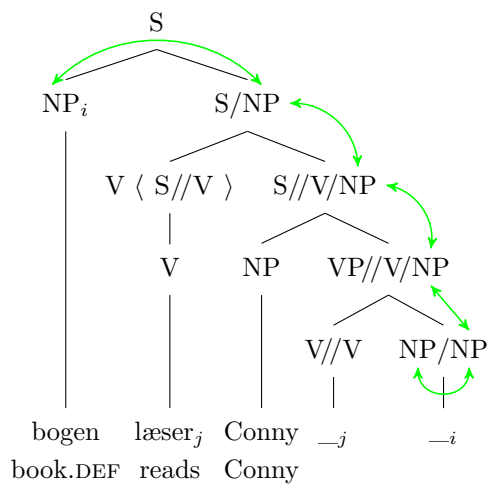


Figure 13: Analysis of V2 in Danish (SVO)

The figures show the combined analyses of verb “movement” (double slash: ‘//’) and NP “movement” (slash: ‘/’). Note that the verbs in initial position still select for a S//V. Valence lists always contain partial descriptions of arguments. For example, it is not specified whether an NP is pronominal or not. In the examples, the initial verbs select for S//V rather than S//V/NP. The information about the missing NP is percolated upwards nevertheless.

The interesting fact about the analysis of extraction is that nothing is actually moved, but information is shared. One effect is that constituents with head-movement or with extracted elements can be described and selected for. This is needed to account for extraction path marking effects (Bouma et al. 2001: Section 3.2). For example, Irish has complementizers that differ in form depending on whether they are combined with sentences with a gap or without a gap (McCloskey 2011: 72).

Another interesting property of this analysis is that it has an interesting account of Across the Board extraction (ATB; Ross 1967, Williams 1978: Section 4.2.4.1). Slash information is shared in coordinations and hence it is ensured that gaps appear in all conjuncts (Gazdar 1981: 173). Across the Board extraction is problematic for transformational accounts, since ATB extraction would require several constituents extracted from several subtrees to land in the same position (as in the analysis suggested by Lohnstein 2014: 183), something that is just technically impossible without extensions of the general mechanisms used in transformational theories.

It is interesting to note that those who work on formalization of Minimalist approaches (Stabler 2011, Torr & Stabler 2016, Torr 2019) also assume a slash-based analysis of nonlocal dependencies. See Müller (2023c: 177–180) for discussion.

7 Germanic syntax uncontaminated by information structure (or any other non-syntactic categories)

This paper dealt with the syntax of the Germanic languages. I followed here the view expressed by Fanselow (2003, 2006), Neeleman & van de Koot (2008), Struckmeier (2017: 3) and Haider (2021a): syntax is about distribution of material and category formation. This is the classical view on syntax and it is assumed in all non-MGG frameworks. The MGG variant Cartography (Cinque & Rizzi 2010) assumes Topic phrases, Focus phrases but also Subject phrases and Object phrases, Speaker and Hearer phrases and so on. The phrases are not named according to their distribution but according to the elements that appear in their specifiers. All this is implausible as far as acquisition is concerned (Cinque & Rizzi 2010: 57 assume at least 400 innate categories, among them categories like ‘nation’) and it comes with a host of technical difficulties (Haider 2021a, Müller 2023b: Section 4.10.2.1).

Alternatively, in the approach adopted here, information structure constraints can be stated with respect to syntactic structure (Engdahl & Vallduví 1994, 1996, Song 2017, De Kuthy 2021) and to prosodic information, but the three components are not conflated. Topic and focus are not syntactic categories. See also Kuhn (2007) on interfaces between syntax and other parts of

the grammar in LFG and HPSG. Theories like LFG and HPSG argue for a tight integration of grammatical knowledge since their inception in the 1980ies. Such approaches are nowadays known under the label of Parallel Architecture (see Jackendoff 1997: 39 and Jackendoff 2007 for an overview).

8 Outlook and summary

It was shown that Germanic languages can be classified into SVO and SOV languages. Yiddish is said to be of a third type. The SVO languages have a designated subject position, the SOV languages treat subjects and complements (of finite verbs) alike. SOV languages allow for scrambling, while this is more restricted in SVO languages. All Germanic languages allow for non-local dependencies and all Germanic languages except English are V2 languages. The passive has some variation as far as impersonal passives are concerned. SVO languages with the exception of Icelandic require the subject position to be filled. From this it follows that the passive of intransitive verbs is excluded (English). However, languages like Danish allow for the insertion of an expletive in sentences with passives and intransitives. This makes impersonal passives possible, provided an expletive pronoun is inserted.

The approaches that have been discussed here can be roughly grouped in two groups: those that assume that semantic roles are connected to certain positions in trees and those who assume a lexical encoding of argument structure in which the arguments are connected to semantic roles. Given that there are certain phrase structure schemata (Merge, \bar{X} -schemata, ID-schemata of HPSG), the lexical specifications stand for potential structure, while the first class of approaches refers to actual structure. I discussed scrambling, verbal complex formation, and passive and demonstrated for all these phenomena that the account relying on actual structure + movement runs into problems. There is also the question of how articulate a phrase structure is needed. Do we need IP or TP? Under Haider's view, which I follow here, the IP approach is not suitable for SOV languages. As I showed, assuming an IP required movement-based approaches to scrambling, which make wrong predictions.

Some of the analyses in Generative Grammar are just hopelessly complex (Kayne 1994, Laenzlinger 2004, Cinque & Rizzi 2010) and have to be rejected for reasons of acquirability. This is the Inverse Argument of the Poverty of the Stimulus. Due to space limitations and since this argument is sufficient, I did not go into further details with regard to these approaches, but see Haider (2021a) and Müller (2023b: Section 4.10.2.1) for discussion of technical problems of these approaches.

What has been proposed here is a minimal, distribution-based syntax of the Germanic languages that covers the core areas of constituent order, verbal complexes and the active-passive alternation.

9 Further reading

Bech, Gunnar. 1955. *Studien über das deutsche Verbum infinitum* (Historisk-filologiske Meddelelser udgivet af Det Kongelige Danske Videnskabernes Selskab. Bind 35, no. 2, 1955; Bind 36, no. 6, 1957). København: Det Kongelige

- Danske Videnskabernes Selskab. Reprint as: *Studien über das deutsche Verbum infinitum*. 2nd edn. (Linguistische Arbeiten 139). Tübingen: Max Niemeyer Verlag, 1983.
- Haider, Hubert. 1986. Fehlende Argumente: Vom Passiv zu kohärenten Infinitiven. *Linguistische Berichte* 101. 3–33.
- Haider, Hubert. 2010. *The syntax of German* (Cambridge Syntax Guides). Cambridge: Cambridge University Press. DOI: 10.1017/CB09780511845314.
- Haider, Hubert. 2020. VO/OV-base ordering. In Michael T. Putnam & B. Richard Page (eds.), *Cambridge handbook of Germanic linguistics* (Cambridge Handbooks in Language and Linguistics 33), 339–364. Cambridge, UK: Cambridge University Press. DOI: 10.1017/9781108378291.016.
- Höhle, Tilman N. 1997. Vorangestellte Verben und Komplementierer sind eine natürliche Klasse. In Christa Dürscheid, Karl Heinz Ramers & Monika Schwarz (eds.), *Sprache im Fokus: Festschrift für Heinz Vater zum 65. Geburtstag*, 107–120. Tübingen: Max Niemeyer Verlag. Reprint as: Vorangestellte Verben und Komplementierer sind eine natürliche Klasse. In Stefan Müller, Marga Reis & Frank Richter (eds.), *Beiträge zur deutschen Grammatik: Gesammelte Schriften von Tilman N. Höhle*, 2nd edn. (Classics in Linguistics 5), 417–433. Berlin: Language Science Press, 2019. DOI: 10.5281/zenodo.2588383.
- Kiss, Tibor. 1995. *Infinite Komplementation: Neue Studien zum deutschen Verbum infinitum* (Linguistische Arbeiten 333). Tübingen: Max Niemeyer Verlag. DOI: 10.1515/9783110934670.
- Müller, Stefan. 2023. *Germanic syntax: A constraint-based view* (Textbooks in Language Sciences 12). Berlin: Language Science Press. DOI: 10.5281/zenodo.7733033.
- Vikner, Sten. 1995. *Verb movement and expletive subjects in the Germanic languages* (Oxford Studies in Comparative Syntax). Oxford: Oxford University Press.

10 Acknowledgements

I thank two reviewers and Antonio Machicao y Primer and Giuseppe Varaschin for comments on an earlier version of this paper and Tibor Kiss for discussion. I also thank Oliver Schallert for comments on versions of this paper and discussion.

References

- Adger, David. 2003. *Core syntax: A Minimalist approach* (Oxford Core Linguistics 1). Oxford: Oxford University Press.
- Ajdukiewicz, Kazimierz. 1935. Die syntaktische Konnexität. *Studia Philosophica* 1. 1–27.
- Bader, Markus & Tanja Schmid. 2009. Verb clusters in colloquial German. *The Journal of Comparative Germanic Linguistics* 12(3). 175–228. DOI: 10.1007/s10828-009-9032-x.
- Bishop, Dorothy V. M. 2002. Putting language genes in perspective. *TRENDS in Genetics* 18(2). 57–59. DOI: 10.1016/S0168-9525(02)02596-9.

- Bonami, Olivier & Pollet Samvelian. 2009. Inflectional periphrasis in Persian. In Stefan Müller (ed.), *Proceedings of the 16th International Conference on Head-Driven Phrase Structure Grammar, University of Göttingen, Germany*, 26–46. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2009.2.
- Borsley, Robert D. 1989a. An HPSG approach to Welsh. *Journal of Linguistics* 25(2). 333–354. DOI: 10.1017/S0022226700014134.
- Borsley, Robert D. 1989b. Phrase-Structure Grammar and the Barriers conception of clause structure. *Linguistics* 27(5). 843–863. DOI: 10.1515/ling.1989.27.5.843.
- Bouma, Gosse, Robert Malouf & Ivan A. Sag. 2001. Satisfying constraints on extraction and adjunction. *Natural Language & Linguistic Theory* 19(1). 1–65. DOI: 10.1023/A:1006473306778.
- Branco, António. 2021. *Anaphoric binding: An integrated overview*. <https://arxiv.org/abs/2103.06924> (16 March, 2021).
- Bresnan, Joan (ed.). 1982. *The mental representation of grammatical relations* (MIT Press Series on Cognitive Theory and Mental Representation). Cambridge, MA: MIT Press.
- Bresnan, Joan. 2001. *Lexical-Functional Syntax*. 1st edn. (Blackwell Textbooks in Linguistics 16). Oxford: Blackwell Publishers Ltd.
- Burzio, Luigi. 1986. *Italian syntax: A Government-Binding approach* (Studies in Natural Language and Linguistic Theory 1). Dordrecht: D. Reidel Publishing Company.
- Chomsky, Noam. 1957. *Syntactic structures* (Janua Linguarum / Series Minor 4). Berlin: Mouton de Gruyter. DOI: 10.1515/9783112316009.
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1981. *Lectures on government and binding* (Studies in Generative Grammar 9). Dordrecht: Foris Publications. DOI: 10.1515/9783110884166.
- Chomsky, Noam. 1986. *Barriers* (Linguistic Inquiry Monographs 13). Cambridge, MA: MIT Press.
- Cinque, Guglielmo & Luigi Rizzi. 2010. The cartography of syntactic structures. In Bernd Heine & Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis* (Oxford Handbooks in Linguistics), 51–65. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199544004.013.0003.
- Crysmann, Berthold. 2022. Conjunctions-as-complements: A lexical approach to SGF coordination in German. In Stefan Müller & Elodie Winckel (eds.), *Proceedings of the 29th International Conference on Head-Driven Phrase Structure Grammar, Online (Nagoya University and the National Institute for Japanese Language and Linguistics)*, 48–64. Frankfurt/Main: University Library. DOI: 10.21248/hpsg.2022.3.
- Culicover, Peter W. & Ray Jackendoff. 2005. *Simpler Syntax* (Oxford Linguistics). Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199271092.001.0001.
- Dąbrowska, Ewa. 2004. *Language, mind and brain: Some psychological and neurological constraints on theories of grammar*. Edinburgh: Edinburgh University Press. DOI: 10.1515/9781474466011.
- Dalrymple, Mary (ed.). 2023. *The handbook of Lexical Functional Grammar* (Empirically Oriented Theoretical Morphology and Syntax 13). Berlin: Language Science Press. DOI: 10.5281/zenodo.10037797.

- Davis, Anthony R., Jean-Pierre Koenig & Stephen Wechsler. 2021. Argument structure and linking. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook* (Empirically Oriented Theoretical Morphology and Syntax 9), 315–367. Berlin: Language Science Press. DOI: 10.5281/zenodo.5599834.
- Davis, Anthony R., Jean-Pierre Koenig & Stephen Wechsler. 2024. Argument structure and linking. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook*, 2nd edn. (Empirically Oriented Theoretical Morphology and Syntax 9), 335–390. Berlin: Language Science Press. DOI: 10.5281/zenodo.13645100.
- De Kuthy, Kordula. 2021. Information structure. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook* (Empirically Oriented Theoretical Morphology and Syntax 9), 1043–1078. Berlin: Language Science Press. DOI: 10.5281/zenodo.5599864.
- den Besten, Hans & Corretje Moed-van Walraven. 1986. The syntax of verbs in Yiddish. In Hubert Haider & Martin Prinzhorn (eds.), *Verb second phenomena in Germanic languages* (Publications in Language Sciences 21), 111–135. Dordrecht: Foris Publications. DOI: 10.1515/9783110846072.111.
- Dryer, Matthew S. 2013. Determining dominant word order. In Matthew S. Dryer & Martin Haspelmath (eds.), *The world atlas of language structures online*. Leipzig: Max Planck Institute for Evolutionary Anthropology. <https://wals.info/chapter/s6> (19 December, 2022).
- Eisenberg, Peter. 1994. German. In Ekkehard König & Johan van der Auwera (eds.), *The Germanic languages* (Routledge Language Family Descriptions 3), 349–387. London: Routledge. DOI: 10.4324/9781315812786.
- Engdahl, Elisabet & Enric Vallduví. 1994. Information packaging and grammar architecture: A constraint-based approach. In Elisabet Engdahl (ed.), *Integrating information structure into constraint-based and categorial approaches* (DYANA-2 Report R.1.3.B), 41–79. Amsterdam: ILLC.
- Engdahl, Elisabet & Enric Vallduví. 1996. Information packaging in HPSG. In Claire Grover & Enric Vallduví (eds.), *Studies in HPSG* (Edinburgh Working Papers in Cognitive Science 12), 1–32. Edinburgh: Centre for Cognitive Science, University of Edinburgh. <ftp://ftp.cogsci.ed.ac.uk/pub/CCS-WPs/wp-12.ps.gz> (10 February, 2021).
- Fanselow, Gisbert. 1993. Die Rückkehr der Basisgenerierer. *Groninger Arbeiten zur Germanistischen Linguistik* 36. 1–74.
- Fanselow, Gisbert. 2000. Optimal exceptions. In Barbara Stiebels & Dieter Wunderlich (eds.), *The lexicon in focus* (studia grammatica 45), 173–209. Berlin: Akademie Verlag. DOI: 10.1515/9783050073712-009.
- Fanselow, Gisbert. 2001. Features, -roles, and free constituent order. *Linguistic Inquiry* 32(3). 405–437. DOI: 10.1162/002438901750372513.
- Fanselow, Gisbert. 2002. Against remnant VP-movement. In Artemis Alexiadou, Elena Anagnostopoulou, Sjef Barbiers & Hans-Martin Gärtner (eds.), *Dimensions of movement: From features to remnants* (Linguistik Aktuell/Linguistics Today 48), 91–125. Amsterdam: John Benjamins Publishing Co. DOI: 10.1075/1a.48.06fan.
- Fanselow, Gisbert. 2003. Free constituent order: A Minimalist interface account. *Folia Linguistica* 37(1–2). 191–231. DOI: 10.1515/flin.2003.37.1-2.191.

- Fanselow, Gisbert. 2006. On pure syntax (uncontaminated by information structure). In Patrick Brandt & Eric Fuß (eds.), *Form, structure, and grammar: A festschrift presented to Günther Grewendorf on occasion of his 60th birthday* (studia grammatica 63), 137–157. Berlin: Akademie Verlag. DOI: 10.1524/9783050085555.
- Fanselow, Gisbert. 2012. Scrambling as formal movement. In Ivona Kučerová & Ad Neeleman (eds.), *Contrasts and positions in information structure*, 267–295. Cambridge: Cambridge University Press.
- Fanselow, Gisbert, Malte Zimmermann & Mareike Philipp. 2022. Accessing the availability of inverse scope in German in the covered box paradigm. *Glossa: a journal of general linguistics* 1(7). 1–24. DOI: 10.16995/glossa.5766.
- Fillmore, Charles J. 1988. The mechanisms of “Construction Grammar”. In Shelley Axmaker, Annie Jaissner & Helen Singmaster (eds.), *Proceedings of the 14th Annual Meeting of the Berkeley Linguistics Society*, 35–55. Berkeley, CA: Berkeley Linguistics Society. DOI: 10.3765/bls.v14i0.1794.
- Fillmore, Charles J., Paul Kay & Mary Catherine O’Connor. 1988. Regularity and idiomaticity in grammatical constructions: The case of *let alone*. *Language* 64(3). 501–538.
- Fisher, Simon E. & Gary F. Marcus. 2005. The eloquent ape: Genes, brains and the evolution of language. *Nature Reviews Genetics* 7(1). 9–20. DOI: 10.1038/nrg1747.
- Frey, Werner. 1993. *Syntaktische Bedingungen für die semantische Interpretation: Über Bindung, implizite Argumente und Skopus* (studia grammatica 35). Berlin: Akademie Verlag.
- Gazdar, Gerald. 1981. Unbounded dependencies and coordinate structure. *Linguistic Inquiry* 12(2). 155–184.
- Gazdar, Gerald, Ewan Klein, Geoffrey K. Pullum & Ivan A. Sag. 1985. *Generalized Phrase Structure Grammar*. Cambridge, MA: Harvard University Press.
- Geach, Peter Thomas. 1970. A program for syntax. *Synthese* 22(1–2). 3–17. DOI: 10.1007/BF00413597.
- Geerts, Guido, Walter Haeseryn, Jaap de Rooij & Maarten C. van den Toorn. 1984. *Algemene nederlandse spraakkunst*. Groningen: Wolters-Noordhoff.
- Grewendorf, Günther. 1988. *Aspekte der deutschen Syntax: Eine Rektions-Bindungs-Analyse* (Studien zur deutschen Grammatik 33). Tübingen: Gunter Narr Verlag.
- Grewendorf, Günther. 1995. German: A grammatical sketch. In Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld & Theo Vennemann (eds.), *Syntax – Ein internationales Handbuch zeitgenössischer Forschung*, vol. 2 (Handbücher zur Sprach- und Kommunikationswissenschaft 9), 1288–1319. Berlin: Walter de Gruyter. DOI: 10.1515/9783110142631.2.
- Gunji, Takao. 1986. Subcategorization and word order. In William J. Poser (ed.), *Papers from the Second International Workshop on Japanese Syntax*, 1–21. Stanford, CA: CSLI Publications.
- Haider, Hubert. 1985. The case of German. In Jindřich Toman (ed.), *Studies in German grammar* (Studies in Generative Grammar 21), 65–101. Dordrecht: Foris Publications. DOI: 10.1515/9783110882711-005.
- Haider, Hubert. 1986a. Fehlende Argumente: Vom Passiv zu kohärenten Infinitiven. *Linguistische Berichte* 101. 3–33.

- Haider, Hubert. 1986b. Nicht-sententiale Infinitive. *Groninger Arbeiten zur Germanistischen Linguistik* 28, 73–114.
- Haider, Hubert. 1991. Pro-bleme? In Gisbert Fanselow & Sascha W. Felix (eds.), *Strukturen und Merkmale syntaktischer Kategorien* (Studien zur deutschen Grammatik 39), 121–143. Tübingen: Gunter Narr Verlag.
- Haider, Hubert. 1993. *Deutsche Syntax – generativ: Vorstudien zur Theorie einer projektiven Grammatik* (Tübinger Beiträge zur Linguistik 325). Tübingen: Gunter Narr Verlag.
- Haider, Hubert. 1999. The license to license: Structural case plus economy yields Burzio’s Generalization. In Eric Reuland (ed.), *Arguments and case: Explaining Burzio’s Generalization* (Linguistik Aktuell/Linguistics Today 34), 31–55. Amsterdam: John Benjamins Publishing Co.
- Haider, Hubert. 2010. *The syntax of German* (Cambridge Syntax Guides). Cambridge: Cambridge University Press. DOI: 10.1017/CB09780511845314.
- Haider, Hubert. 2020. VO/OV-base ordering. In Michael T. Putnam & B. Richard Page (eds.), *Cambridge handbook of Germanic linguistics* (Cambridge Handbooks in Language and Linguistics 33), 339–364. Cambridge, UK: Cambridge University Press. DOI: 10.1017/9781108378291.016.
- Haider, Hubert. 2021a. A null theory of scrambling. *Zeitschrift für Sprachwissenschaft* 39(3), 375–405. DOI: 10.1515/zfs-2020-2019.
- Haider, Hubert. 2021b. *Passivierte Verbalkomplexe – Passivized verbal clusters*. <https://ling.auf.net/lingbuzz/005050>.
- Hauser, Marc D., Noam Chomsky & W. Tecumseh Fitch. 2002. The faculty of language: What is it, who has it, and how did it evolve? *Science* 298(5598), 1569–1579. DOI: 10.1126/science.298.5598.1569.
- Heinz, Wolfgang & Johannes Matiassek. 1994. Argument structure and case assignment in German. In John Nerbonne, Klaus Netter & Carl Pollard (eds.), *German in Head-Driven Phrase Structure Grammar* (CSLI Lecture Notes 46), 199–236. Stanford, CA: CSLI Publications.
- Hinrichs, Erhard W. & Tsuneko Nakazawa. 1994. Linearizing AUXs in German verbal complexes. In John Nerbonne, Klaus Netter & Carl Pollard (eds.), *German in Head-Driven Phrase Structure Grammar* (CSLI Lecture Notes 46), 11–38. Stanford, CA: CSLI Publications.
- Höhle, Tilman N. 1978. *Lexikalische Syntax: Die Aktiv-Passiv-Relation und andere Infinitkonstruktionen im Deutschen* (Linguistische Arbeiten 67). Tübingen: Max Niemeyer Verlag. DOI: 10.1515/9783111345444.
- Höhle, Tilman N. 1982. Explikationen für „normale Betonung“ und „normale Wortstellung“. In Werner Abraham (ed.), *Satzglieder im Deutschen – Vorschläge zur syntaktischen, semantischen und pragmatischen Fundierung* (Studien zur deutschen Grammatik 15), 75–153. Tübingen: Gunter Narr Verlag. Republished as Explikationen für „normale Betonung“ und „normale Wortstellung“. In Stefan Müller, Marga Reis & Frank Richter (eds.), *Beiträge zur deutschen Grammatik: Gesammelte Schriften von Tilman N. Höhle*, 2nd edn. (Classics in Linguistics 5), 107–191. Berlin: Language Science Press, 2019. DOI: 10.5281/zenodo.2588383.
- Höhle, Tilman N. 1997. Vorangestellte Verben und Komplementierer sind eine natürliche Klasse. In Christa Dürscheid, Karl Heinz Ramers & Monika Schwarz (eds.), *Sprache im Fokus: Festschrift für Heinz Vater zum 65. Geburtstag*, 107–120. Tübingen: Max Niemeyer Verlag. Reprint as: Vorangestellte Verben und Komplementierer sind eine natürliche Klasse. In

- Stefan Müller, Marga Reis & Frank Richter (eds.), *Beiträge zur deutschen Grammatik: Gesammelte Schriften von Tilman N. Höhle*, 2nd edn. (Classics in Linguistics 5), 417–433. Berlin: Language Science Press, 2019. DOI: 10.5281/zenodo.2588383.
- Höhle, Tilman N. 2019. Topologische Felder. In Stefan Müller, Marga Reis & Frank Richter (eds.), *Beiträge zur deutschen Grammatik: Gesammelte Schriften von Tilman N. Höhle*, 2nd edn. (Classics in Linguistics 5), 7–89. First circulated as draft in 1983. Berlin: Language Science Press. DOI: 10.5281/zenodo.2588383.
- Jackendoff, Ray. 1997. *The architecture of the language faculty* (Linguistic Inquiry Monographs 28). Cambridge, MA: MIT Press.
- Jackendoff, Ray. 2007. A parallel architecture perspective on language processing. *Brain Research* 1146. 2–22. DOI: 10.1016/j.brainres.2006.08.111.
- Jackendoff, Ray. 2011. Alternative minimalist visions of language. In Robert D. Borsley & Kersti Börjars (eds.), *Non-transformational syntax: Formal and explicit models of grammar: A guide to current models*, 268–296. Oxford: Wiley-Blackwell. DOI: 10.1002/9781444395037.ch7.
- Jacobson, Pauline. 1987. Phrase structure, grammatical relations, and discontinuous constituents. In Geoffrey J. Huck & Almerindo E. Ojeda (eds.), *Discontinuous constituency* (Syntax and Semantics 20), 27–69. New York, NY: Academic Press.
- Kayne, Richard S. 1994. *The antisymmetry of syntax* (Linguistic Inquiry Monographs 25). Cambridge, MA: MIT Press.
- Kim, Jong-Bok. 2016. *The syntactic structures of Korean: A Construction Grammar perspective*. Cambridge, UK: Cambridge University Press. DOI: 10.1017/CB09781316217405.
- Kiss, Tibor. 1995. *Infinite Komplementation: Neue Studien zum deutschen Verbum infinitum* (Linguistische Arbeiten 333). Tübingen: Max Niemeyer Verlag. DOI: 10.1515/9783110934670.
- Kiss, Tibor. 2001. Configurational and relational scope determination in German. In W. Detmar Meurers & Tibor Kiss (eds.), *Constraint-based approaches to Germanic syntax* (Studies in Constraint-Based Lexicalism 7), 141–175. Stanford, CA: CSLI Publications.
- Kiss, Tibor & Birgit Wesche. 1991. Verb order and head movement. In Otthein Herzog & Claus-Rainer Rollinger (eds.), *Text understanding in LILOG* (Lecture Notes in Artificial Intelligence 546), 216–240. Berlin: Springer-Verlag. DOI: 10.1007/3-540-54594-8_63.
- Kuhn, Jonas. 2007. Interfaces in constraint-based theories of grammar. In Gillian Ramchand & Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces* (Oxford Handbooks in Linguistics), 613–650. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199247455.013.0020.
- Laenzlinger, Christoph. 2004. A feature-based theory of adverb syntax. In Jennifer R. Austin, Stefan Engelberg & Gisa Rauh (eds.), *Adverbials: The interplay between meaning, context, and syntactic structure* (Linguistik Aktuell/Linguistics Today 70), 205–252. Amsterdam: John Benjamins Publishing Co. DOI: 10.1075/la.70.081ae.
- Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19(3). 335–391.
- Lenerz, Jürgen. 1977. *Zur Abfolge nominaler Satzglieder im Deutschen* (Studien zur deutschen Grammatik 5). Tübingen: Gunter Narr Verlag.

- Lohnstein, Horst. 2014. Artenvielfalt in freier Wildbahn: Generative Grammatik. In Jörg Hagemann & Sven Staffeldt (eds.), *Syntaxtheorien: Analysen im Vergleich* (Stauffenburg Einführungen 28), 165–185. Tübingen: Stauffenburg Verlag.
- Manning, Christopher D. & Ivan A. Sag. 1998. Argument structure, valance, and binding. *Nordic Journal of Linguistics* 21(2). 107–144. DOI: 10.1017/S0332586500004236.
- Marslen-Wilson, William D. 1975. Sentence perception as an interactive parallel process. *Science* 189(4198). 226–228. DOI: 10.1126/science.189.4198.226.
- Masloch, Simon, Johanna Marie Poppek & Tibor Kiss. 2024. Not so peculiar after all: On the normal position of arguments of German experiencer-object verbs. *Glossa: a journal of general linguistics* 1(9). 1–37. DOI: 10.16995/glossa.10150.
- McCloskey, James. 2011. Resumptive pronouns, \bar{A} -binding, and levels of representation in Irish. In Alain Rouveret (ed.), *Resumptive pronouns at the interfaces* (Language Faculty and Beyond 5), 65–119. Amsterdam: John Benjamins Publishing Co. DOI: 10.1075/lfab.5.02mcc. Reprint from: Resumptive pronouns, \bar{A} -binding, and levels of representation in Irish. In Randall Hendrick (ed.), *The syntax of the modern celtic languages* (Syntax and Semantics 23), 199–248. New York, NY: Academic Press, 1990. DOI: 10.1163/9789004373228_008.
- Meurers, Walt Detmar. 2000. *Lexical generalizations in the syntax of German non-finite constructions*. Arbeitspapiere des SFB 340 No.145. Tübingen: Universität Tübingen. <http://purl.org/dm/papers/diss.html> (2 February, 2021).
- Müller, Stefan. 1999. *Deutsche Syntax deklarativ: Head-Driven Phrase Structure Grammar für das Deutsche* (Linguistische Arbeiten 394). Tübingen: Max Niemeyer Verlag. DOI: 10.1515/9783110915990.
- Müller, Stefan. 2002. *Complex predicates: Verbal complexes, resultative constructions, and particle verbs in German* (Studies in Constraint-Based Lexicalism 13). Stanford, CA: CSLI Publications.
- Müller, Stefan. 2003. Object-to-subject-raising and lexical rule: An analysis of the German passive. In Stefan Müller (ed.), *Proceedings of the 10th International Conference on Head-Driven Phrase Structure Grammar, Michigan State University*, 278–297. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2003.16.
- Müller, Stefan. 2005. Zur Analyse der deutschen Satzstruktur. *Linguistische Berichte* 201. 3–39.
- Müller, Stefan. 2007. *Head-Driven Phrase Structure Grammar: Eine Einführung*. 1st edn. (Stauffenburg Einführungen 17). Tübingen: Stauffenburg Verlag.
- Müller, Stefan. 2013. Unifying everything: Some remarks on Simpler Syntax, Construction Grammar, Minimalism and HPSG. *Language* 89(4). 920–950. DOI: 10.1353/lan.2013.0061.
- Müller, Stefan. 2016. *Grammatical theory: From Transformational Grammar to constraint-based approaches*. 1st edn. (Textbooks in Language Sciences 1). Berlin: Language Science Press. DOI: 10.17169/langsci.b25.167.
- Müller, Stefan. 2019. Complex predicates: Structure, potential structure and underspecification. *Linguistic Issues in Language Technology* 17(3). 1–8. DOI: 10.33011/liilt.v17i.1423.

- Müller, Stefan. 2021a. Anaphoric binding. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook* (Empirically Oriented Theoretical Morphology and Syntax 9), 889–944. Berlin: Language Science Press. DOI: 10.5281/zenodo.5599858.
- Müller, Stefan. 2021b. Constituent order. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook* (Empirically Oriented Theoretical Morphology and Syntax 9), 369–417. Berlin: Language Science Press. DOI: 10.5281/zenodo.5599836.
- Müller, Stefan. 2023a. *German clause structure: An analysis with special consideration of so-called multiple fronting* (Empirically Oriented Theoretical Morphology and Syntax). Berlin: Revise and resubmit Language Science Press.
- Müller, Stefan. 2023b. *Germanic syntax: A constraint-based view* (Textbooks in Language Sciences 12). Berlin: Language Science Press. DOI: 10.5281/zenodo.7733033.
- Müller, Stefan. 2023c. *Grammatical theory: From Transformational Grammar to constraint-based approaches*. 5th edn. (Textbooks in Language Sciences 1). Berlin: Language Science Press. DOI: 10.5281/zenodo.7376662.
- Müller, Stefan, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.). 2024. *Head-Driven Phrase Structure Grammar: The handbook*. 2nd edn. (Empirically Oriented Theoretical Morphology and Syntax 9). Berlin: Language Science Press. DOI: 10.5281/zenodo.13637708.
- Müller, Stefan & Bjarne Ørnsnes. 2011. Positional expletives in Danish, German, and Yiddish. In Stefan Müller (ed.), *Proceedings of the 18th International Conference on Head-Driven Phrase Structure Grammar, University of Washington*, 167–187. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2011.10.
- Neeleman, Ad & Hans van de Koot. 2008. Dutch scrambling and the nature of discourse templates. *The Journal of Comparative Germanic Linguistics* 11(2). 137–189. DOI: 10.1007/s10828-008-9018-0.
- Nerbonne, John. 1986. A phrase-structure grammar for German passives. *Linguistics* 24(5). 907–938.
- Oppenrieder, Wilhelm. 1991. *Von Subjekten, Sätzen und Subjektsätzen* (Linguistische Arbeiten 241). Tübingen: Max Niemeyer Verlag. DOI: 10.1515/9783111356426.
- Paul, Hermann. 1919. *Deutsche Grammatik. Teil IV: Syntax*, vol. 3. 2nd unchanged edition 1968, Tübingen: Max Niemeyer Verlag. Halle an der Saale: Max Niemeyer Verlag. DOI: 10.1515/9783110929805.
- Perlmutter, David M. 1978. Impersonal passives and the Unaccusative Hypothesis. In Jeri J. Jaeger, Anthony C. Woodbury, Farrell Ackerman, Christine Chiarello, Orin D. Gensler, John Kingston, Eve E. Sweetser, Henry Thomson & Kenneth W. Whistler (eds.), *Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society*, 157–189. Berkeley: Berkeley Linguistic Society. <https://escholarship.org/uc/item/73h0s91v> (5 December, 2021).
- Pollard, Carl J. 1996. On head non-movement. In Harry Bunt & Arthur van Horck (eds.), *Discontinuous constituency* (Natural Language Processing 6),

- 279–305. Veröffentlichte Version eines Ms. von 1990. Berlin: Mouton de Gruyter. DOI: 10.1515/9783110873467.279.
- Pollard, Carl & Ivan A. Sag. 1994. *Head-Driven Phrase Structure Grammar* (Studies in Contemporary Linguistics 4). Chicago, IL: The University of Chicago Press.
- Pullum, Geoffrey K. & Barbara C. Scholz. 2002. Empirical assessment of stimulus poverty arguments. *The Linguistic Review* 19(1–2). 9–50. DOI: 10.1515/tlir.19.1-2.9.
- Reape, Mike. 1994. Domain union and word order variation in German. In John Nerbonne, Klaus Netter & Carl Pollard (eds.), *German in Head-Driven Phrase Structure Grammar* (CSLI Lecture Notes 46), 151–198. Stanford, CA: CSLI Publications.
- Reinhart, Tanya. 1976. *The syntactic domain of anaphora*. Cambridge, MA: MIT. (Doctoral dissertation). <http://dspace.mit.edu/handle/1721.1/16400> (10 February, 2021).
- Reis, Marga. 1982. Zum Subjektbegriff im Deutschen. In Werner Abraham (ed.), *Satzglieder im Deutschen – Vorschläge zur syntaktischen, semantischen und pragmatischen Fundierung* (Studien zur deutschen Grammatik 15), 171–211. Tübingen: Gunter Narr Verlag.
- Reis, Marga & Wolfgang Sternefeld. 2004. Review of Susanne Wurmbrand: Infinitives. Restructuring and Clause Structure. *Linguistics* 42(2). 469–508. DOI: 10.1515/ling.2004.015.
- Rizzi, Luigi. 1990. Speculations on verb-second. In Joan Mascaró & Marina Nespor (eds.), *Grammar in progress: GLOW essays for Henk van Riemsdijk* (Studies in Generative Grammar 36), 375–386. Dordrecht: Foris Publications. DOI: 10.1515/9783110867848.375.
- Ross, John Robert. 1967. *Constraints on variables in syntax*. Cambridge, MA: MIT. (Doctoral dissertation). Reproduced by the Indiana University Linguistics Club and later published as *Infinite syntax!* (Language and Being 5). Norwood, NJ: Ablex Publishing Corporation, 1986.
- Sag, Ivan A. 1997. English relative clause constructions. *Journal of Linguistics* 33(2). 431–483. DOI: 10.1017/S002222679700652X.
- Sag, Ivan A. 2007. Remarks on locality. In Stefan Müller (ed.), *Proceedings of the 14th International Conference on Head-Driven Phrase Structure Grammar, Stanford Department of Linguistics and CSLI's LinGO Lab*, 394–414. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2007.23.
- Salzmann, Martin. 2025. Word order in the German middle field: Scrambling. In *The Oxford Encyclopedia of Germanic Linguistics*. Oxford, UK: Oxford University Press.
- Scholz, Barbara C. & Geoffrey K. Pullum. 2002. Searching for arguments to support linguistic nativism. *The Linguistic Review* 19(1–2). 185–223. DOI: 10.1515/tlir.19.1-2.185.
- Song, Sanghoun. 2017. *Modeling information structure in a cross-linguistic perspective* (Topics at the Grammar-Discourse Interface 1). Berlin: Language Science Press. DOI: 10.5281/zenodo.818365.
- Stabler, Edward P. 2011. Computational perspectives on Minimalism. In Cedric Boeckx (ed.), *The Oxford handbook of linguistic Minimalism* (Oxford Handbooks in Linguistics), 616–641. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199549368.013.0027.

- Steedman, Mark. 2000. *The syntactic process* (Language, Speech, and Communication 24). Cambridge, MA: MIT Press.
- Sternefeld, Wolfgang. 2006. *Syntax: Eine morphologisch motivierte generative Beschreibung des Deutschen* (Stauffenburg Linguistik 31). Tübingen: Stauffenburg Verlag.
- Struckmeier, Volker. 2017. Against information structure heads: a relational analysis of German scrambling. *Glossa: a journal of general linguistics* 2(1). 1–29. DOI: 10.5334/gjgl.56.
- Tanenhaus, Michael K., Michael J. Spivey-Knowlton, Kathleen M. Eberhard & Julie C. Sedivy. 1996. Using eye movements to study spoken language comprehension: Evidence for visually mediated incremental interpretation. In Toshio Inui & James L. McClelland (eds.), *Information integration in perception and communication* (Attention and Performance XVI), 457–478. Cambridge, MA: MIT Press. DOI: 10.7551/mitpress/1479.003.0029.
- Thráinsson, Höskuldur. 2007. *The syntax of Icelandic* (Cambridge Syntax Guides). Cambridge, UK: Cambridge University Press. DOI: 10.1017/CB09780511619441.
- Torr, John. 2019. *Wide-coverage statistical parsing with Minimalist Grammars*. Edinburgh University. (Doctoral dissertation). <http://hdl.handle.net/1842/36215> (1 February, 2020).
- Torr, John & Edward P. Stabler. 2016. Coordination in Minimalist Grammars: Excorporation and across the board (head) movement. In David Chiang & Alexander Koller (eds.), *Proceedings of the 12th International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+12)*, 1–17. Düsseldorf. <https://www.aclweb.org/anthology/W16-3301> (10 February, 2021).
- Van Eynde, Frank. 2019. Clustering and stranding in Dutch. *Linguistics* 57(5). 1025–1071. DOI: 10.1515/ling-2019-0023.
- Vikner, Sten. 1995. *Verb movement and expletive subjects in the Germanic languages* (Oxford Studies in Comparative Syntax). Oxford: Oxford University Press.
- Wasow, Thomas. 2024. Processing. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook*, 2nd edn. (Empirically Oriented Theoretical Morphology and Syntax 9), 1153–1180. Berlin: Language Science Press. DOI: 10.5281/zenodo.13644940.
- Webelhuth, Gert. 1995. X-bar Theory and Case Theory. In Gert Webelhuth (ed.), *Government and Binding Theory and the Minimalist Program: Principles and Parameters in syntactic theory* (Generative Syntax 1), 15–95. Oxford: Blackwell Publishers Ltd.
- Webelhuth, Gert. 2022. C-command constraints in German: A corpus-based investigation. *Zeitschrift für Sprachwissenschaft* 41(2). 339–392. DOI: 10.1515/zfs-2022-2001.
- Wechsler, Stephen. 1999. HPSG, GB, and the Balinese bind. In Gert Webelhuth, Jean-Pierre Koenig & Andreas Kathol (eds.), *Lexical and constructional aspects of linguistic explanation* (Studies in Constraint-Based Lexicalism 1), 179–195. Stanford, CA: CSLI Publications.
- Wechsler, Stephen & I. Wayan Arka. 1998. Syntactic ergativity in Balinese: An argument structure based theory. *Natural Language & Linguistic Theory* 16(2). 387–441. DOI: 10.1023/A:1005920831550.

- Wegener, Heide. 1985. *Der Dativ im heutigen Deutsch* (Studien zur deutschen Grammatik 28). Tübingen: Gunter Narr Verlag.
- Williams, Edwin. 1978. Across-the-board rule application. *Linguistic Inquiry* 9(1). 31–43.
- Williams, Edwin. 2003. *Representation theory* (Current Studies in Linguistics 39). Cambridge, MA: MIT Press.
- Wurmbrand, Susanne. 2003a. *Infinitives: Restructuring and clause structure* (Studies in Generative Grammar 55). Berlin: Mouton de Gruyter. DOI: 10.1515/9783110908329.
- Wurmbrand, Susanne. 2003b. *Long passive (corpus search results)*. Ms. University of Connecticut.
- Zaenen, Annie, Joan Maling & Höskuldur Thráinsson. 1985. Case and grammatical functions: The Icelandic passive. *Natural Language & Linguistic Theory* 3(4). 441–483. DOI: 10.1007/BF00133285.