PHRASE STRUCTURE DIRECTIONALITY:

HAVING A FEW CHOICES

by

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ABSTRACT OF THE DISSERTATION

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The thesis claims that the linear organization of specifier, head and complement in a phrase and throughout a syntactic tree is determined by a conflict between general violable constraints on X-bar-structure. The adopted framework is Optimality Theory (cf. Prince & Smolensky 1993; in syntax, cf. Grimshaw 1997). The proposed constraint system explains why phrase structure directionality is mostly uniform and why only some non-uniform cases exist, while other logically possible kinds of mixed directionality are unattested.

Central to the dissertation is the idea that head-initial oriented languages have a greater structural conflict to resolve inside their lexical projections than head-final languages: The combination of a general preference for [head - complement]-order and for a left-peripheral specifier bars the lexical head from surfacing at an edge of the phrase. The combination of a general preference for [complement - head]-order and for a left-peripheral specifier still allows alignment at one edge. This greater conflict can be resolved in different ways, which leads to slightly more variation among head-initial oriented languages: Not only do we find uniform SVO-languages, but we also find VOS-languages, VSO-languages and head-initial oriented languages with a head-final verb phrase. On the primary examples of the Mayan VOS-language Tzotzil, the 'strict' VSO-language Yosondúa Mixtec, and the 'mixed-headed' languages German and Persian, I show that mixed directionality is not arbitrary in its ways of deviating from uniformity. The proposed system derives various implicational universals capturing the persistently systematic nature of phrase structure directionality. The predictions made about the verbal domain have systematic correlations in the domain of all other categories.

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"*Jedes Bild ist ein bis zur äussersten Grenze
vorangetriebenes Scheitern*"
Joseph Fassbender, 1903 - 1974

Chapter 1 – Introduction

This thesis claims that the linear organization of specifier, head and complement in a phrase and throughout a syntactic tree is determined by a conflict between general violable constraints on X-bar-structure. This will explain why phrase structure directionality is mostly uniform and why some non-uniform cases exist. I will show that mixed directionality is not arbitrary in its ways of deviating from uniformity. The proposed system derives various implicational universals capturing the persistently systematic nature of phrase structure directionality, and it will also explain why other kinds of mixed directionality do not emerge.

The framework adopted is Optimality Theory (cf. Prince & Smolensky 1993; in syntax, cf. Grimshaw 1997). I will feature six core constraints which formalize the following structural restrictions:

(i)   A head precedes its complement. (HEAD LEFT; introduced in chapter 2).

(ii)   A head follows its complement. (HEAD RIGHT; introduced in chapter 2).

(iii)   Of two non-terminal sister nodes, the one that is part of the extended projection line follows. (- Specifiers, phrasal adjuncts, complex functional heads precede their sister nodes; BRANCHING RIGHT; introduced in chapter 2).

(iv)   A lexical head surfaces at an edge of LexP. (LEX HEAD EDGE; introduced in chapter 2).

(v)   An XP which is part of a clause has a specifier. (GENERALIZED SUBJECT; introduced in chapter 2).

(vi)   A case assigning head is syntactically adjacent to a lexical head which governs all of the case assignees. (CASE LEX; introduced in chapter 3).

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The conflict between these constraints and its resulting factorial typology will predict the existence of more than one underlying directionality pattern, at the same time restricting the possible choices to *a few* in number. Why is this desirable?

First, considering the typological work on basic word order, we see that a high percentage of the world's natural languages show uniform phrase-directionality across different categories (cf. Greenberg 1963, 1966, Dryer 1992, Hawkins 1988). For example, in a uniformly head-final language, the head always appears at the end of the phrase, no matter whether we look at a verb phrase, noun phrase, adpositional phrase etc. See in (1) how in Japanese, the head-final pattern which leads to 'object - verb'-order is mandatory in phrases of other categories as well:

(1)   Japanese ((a, b) cf. Tsujimura 1996:292, 172; (c, d) cf. Fukui 1993:413):

    a.   Taroo-ga [kuruma-o]$_O$ katta$_V$.

            Taroo-*nom*   car-*acc*   bought

            "Taro bought a/the car."

    b.   Taroo-ga [[Hanako-ga   oisii   susi-o   tukutta] -to$_C$] itta

            Taro-*nom*   Hanako-*nom* delicious sushi-*acc*   made   COMP   said

            "Taro said that Hanako made delicious sushi."

    c.   [New York] -de$_P$ d.   [New York -de -no] koogi$_N$

            New   York   in   New York   in   NM   lecture

            "in New York"   "lecture in New York"   NM = nominal marker

In contrast, a uniform SVO-grammar such as English mirrors the Japanese pattens in the sense that not only does the verb precede the object, but heads of other categories also precede a dependent phrase which would be followed by the head in Japanese:

(2)   English:

    a.   Alex writes$_V$ [a thesis about small turtles]$_O$.

    b.   He said [that$_C$ [she should explore the desert]].

c.   about_P [small turtles]   d.   a dissertation_N [on phrases]

Now, assuming a Principles & Parameter-Theory (cf. Chomsky 1981, 1995), we can explain the phenomenon of uniform phrase structure directionality, and the frequency with which it emerges, by saying that all languages share the same hierarchical organization of phrase structure, and a general parameter determines the head-directionality of all categories at once. That is, a language chooses either the [head - complement]-value, which results in a head-initial language such as English, or it decides on the [complement - head]-value, resulting in a head-final language such as Japanese. In Optimality Theory, this analysis has been re-interpreted by attributing the typological variation to the resolution of a conflict between category neutral universal alignment constraints (cf. Grimshaw 1997; for alignment constraints in phonology, McCarthy & Prince 1993). While the constraint HEAD LEFT demands a head-initial pattern, HEAD RIGHT calls for a head-final one. A language specific ranking HEAD RIGHT >> HEAD LEFT results in a grammar which favors head-finality cross-categorically. The opposite ranking HEAD LEFT >> HEAD RIGHT causes the opposite orientation.

The idea of a general head-parameter, and with it the idea that both [head - complement] and [complement - head] are proper underlying orders, has been challenged by the proposal of the Linear Correspondence Axiom (LCA; cf. Kayne 1994). If we assume the LCA, then only [adjunct/specifier [head - complement]] is a possible underlying form, and every diverging surface variation is derived by leftward movement.

Since Kayne made his proposal, a lot of attention has been given to the LCA. Not only does the axiom seem to offer a strong generalization, which is that all languages share the same underlying form, it furthermore explains the frequency of left-peripheral specifiers (and phrasal adjuncts) as opposed to specifiers that align on the right of their sister node. This preference is apparent in both uniform SVO- and uniform SOV-grammars, as the subjects, evidently in specifier positions, precede their sister constituents yielding a basic 'subject-initial' order.

The LCA, according to Kayne, is an unviolable principle of Universal Grammar. Therefore, it prohibits any underlying [complement - head]-directionality. Thus, clear cases of strictly uniform head-final-languages cannot be analyzed as simple mirror-images of strictly

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uniform [head - complement]-languages. Instead, head-finality must be derived by movement: Only if for each category, a particular trigger motivates the appropriate leftward movement, can a language like Japanese emerge. Kayne himself doesn't necessarily assume that movement must be 'triggered' by a particular feature (cf. Chomsky 1995), but keep in mind that, in order to derive a head-final pattern in an LCA-based theory, *some* cause, not necessarily a feature, must be distinguished to ensure that movement always applies. This cause cannot be left random, since if movement does not always happen, we do not obtain a head-final pattern but one that is sometimes head-final, sometimes head-initial. This does not, however, necessarily exclude the possibility of a cross-categorical movement trigger. That is, in order to re-capture the cross-categorical uniformity, one could, for example, suspect the existence of a general trigger of leftward 'complement-movement'. Just as a general parameter on head/complement-ordering decides on the directionality for all categories at once, so would a general movement trigger which targets more than one category.

This thesis proposes another, new, approach to the question of how the order between specifier, head and complement is determined and to the phenomenon of cross-categorical uniformity. It is a solution which further develops Grimshaw 1997's idea of general, *violable* constraints on alignment, but also acknowledges the original insight of the LCA that Universal Grammar strives for a partly asymmetric phrase structure. The reason for pursuing a new solution lies behind what we can learn from the occurrence of grammars with mixed phrase structure directionality. At first sight, these non-uniform cases appear to challenge the idea that universal grammar only includes category-neutral parameters, or category-neutral alignment constraints, or maximally general movement triggers. Let me introduce three key examples of mixed word order: the SOV/SVO-language German which shares its kind of mixed directionality with other Germanic OV-languages, with Persian, and Latin, then the VOS-language Tzotzil which gives us a typical example of the directionality in VOS-languages in general, and lastly, the VSO-language Yosondúa Mixtec which represents the most common variant of VSO (cf. database in Julien 2000:475-496, Julien 2002: Appendix 2, 330-356).

First, consider German. Taken at face value, the head in German neither always precedes nor always follows its complement. Rather, there seems to be a contrast between the verb phrase, in which the verb comes at the end, and other categories such as nouns, adpositions, determiners

and complementizers, all of which precede their respective complements. See some examples in (3) below. (3a) gives a subordinated clause, with the complementizer *dass* in clause initial position; meanwhile the main verb follows the subject and the object, and is itself only followed by the finite auxiliary. In (3b), we have a PP with the adposition in initial position, and in (c), the noun is to the left of its complement:

(3)   German:

a.   ..., **dass$_C$** [[die Gräfin]$_S$ [den Butler]$_O$ **küssen$_V$ wird$_{Aux}$**]

                    that   the countess   the   butler   kiss   will

        "..., that the countess will kiss the butler."

b.   **unter$_P$** [dem Tisch]   c.   das **Buch$_N$** [über Planeten]

        under   the   table   the   book   about planets

        "under the table"   "the book about planets"

Hence, the German noun phrase and also PP and CP pattern with English, whereas the verb phrase patterns with what we have seen for Japanese in (1). Many linguists have analyzed the German verb phrase as being underlyingly head-final (see, for example, Bach 1962, Bierwisch 1963, Reis 1974, 1985, Koster 1975, Thiersch 1978, den Besten 1977, 1989, Haider 1986; more recently in particular Haider 2000, also Vikner 2001:ch.3.); but since the proposal of the LCA, many others have re-analyzed German as being a uniform [head - complement] -grammar plus appropriate movement operations in/out of the verb phrase (see, for example, Zwart 1993, Zwart 1997, Hoekstra 1997, Hinterhölzl 2000, Taraldsen 2000, Koopman & Szabolcsi 2000).

Consider next the Mayan VOS- language Tzotzil. Aissen 1987, 1992, 1996 has analyzed Tzotzil as a grammar which cross-categorically projects the head to the left of its complement. More interestingly, it has left-peripheral functional specifiers but right-peripheral lexical specifiers. Thus, the language's basic order 'verb - object - subject' is attributed to a verb phrase directionality in which the specifier follows its sister node inside VP. Functional specifiers, on the other hand precede their sister nodes, capturing the fact that, for example, *wh*-phrases and focus-phrases surface left of the verb phrase. This contrast is illustrated in (4), with the subject *li vinike* 'the man' in (4a) in final position, and the *wh*-phrase *buch'u* 'who' in (b), as well as the

focus-phrase *vaj* 'tortilla' in (c), in clause-initial position:

(4)   Tzotzil (cf. Aissen 1996:450,451):

    a.   **I-s-pas$_V$ [mantal]$_O$ [li vinik-e]$_S$.**

        Asp-A3-do   order   the man-ENC

        "The man gave the order."

    b.   **[Buch'u]**$_{wh\text{-}S}$ s-pas$_V$ [mantal]$_O$?

                who   A3-do   order

        "Who is giving the order?"

    c   **[Vaj]**$_{foc\text{-}O}$ no la s-k'an$_V$ s-ve'$_V$ [li Xun-e]$_S$.

        tortilla   CL CL A3-want   A3-eat   the Xun-ENC

        "It's only tortilla that Xun wants to eat."

As a third paradigm case, consider the Mixtecan language Yosondúa Mixtec. Yosondúa Mixtec also consistently projects the head left of its complement. In addition, the verb precedes the subject as well as the object. Thus, the verb appears left of a specifier on the surface, yielding a basic order 'verb - subject - object'. Unlike the well-studied Celtic languages (cf., for example, Chung & McCloskey 1987, Koopman & Sportiche 1991, McCloskey 1991, 1996, 1997), 'V - S - O'-order in Mixtec is particularly consistent. Yosondúa Mixtec never switches to an 'S - V - O'-order, not even in the presence of a higher finite verb which picks up the tense information. This is shown in (5a) below, with the 'V - S - O'-sequence preceded by a finite modal. Notwithstanding this, however, it is not impossible for phrases to occur at the left-periphery of the clause, as, for example, *wh*-phrases are fronted into either a functional specifier or an adjoined position (see (5b)):

(5)   Yosondúa Mixtec (data cf. Farris 1992:29, 36):

    a.   **Kúã**$_{Modal}$ sáh~$_V$ d~$_S$ Nnʂĩã$_O$.

        POT:be:possible POT:do   he   work

        "He can work."

b.   [N~ã chaa]$_{S\text{-}wh}$ ni   xahan$_V$ [xíín ní]?

       what   man   COM COM:go   with   you:RES

       "Which man went with you?"

What do these mixed word order cases tell us about the factors that determine word order in general?

First of all, no matter which theory of phrase structure directionality we believe in, in order to account for the emergence of mixed patterns, the theory must involve more components than just those that predict uniformity. Then, is the challenge *just* a matter of which structures the mixed word order cases exactly correspond to? The more general question is what the possibility of mixed cases tells us about the universal principles that frequently produce uniform cases, alongside with a few non-uniform ones. Now, think about it in terms of the LCA: there should be no doubt that each of the above cases could be analyzed on the grounds of an LCA-based theory. Just as English and Japanese corresponded to a syntactic tree with solely [spec [head - complement]] -directionality, so would German, Tzotzil and Yosondúa Mixtec. The difference between them becomes a difference in terms of what moves to the left. As noted, German has been so analyzed, and VOS-languages such as Malagasy have been as well (see, for example, Pearson 2000).

The point here is not that the mixed patterns of German or Tzotzil couldn't be derived by a fair amount of leftward movement, the point is: which mixed pattern couldn't? That is, the price of such a solution is the serious potential of over-generalization. This is a danger which is just as vivid as in any account that randomly allows for more freedom in the underlying directionality. That the latter approach easily over-generalizes is quite obvious. Just take the set of four categories {N, V, A, P}, and assume that for each category, an independent parameter determines whether the head precedes or follow its complement. This alone gives us a typology of 16 different types, 14 of them have mixed head directionality, and only two types in which all categories agree with respect to either [head - complement] or [complement - head]-order. This typology will evidently include mostly unattested types, and moreover, due to the much higher number of mixed cases, the approach makes the occurrence of a language with uniform word order a mere 'accident'. But what is even worse is the fact that any account which uses category

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specific parameters or the like entirely fails to recognize any systematic aspect to the phenomenon of mixed directionality. This is also a threat to any LCA-based theory. Consider the following key question:

(i)   Why do we find only certain kinds of mixed directionality cases and not some others which are logically just as possible?

For example, given that we find, on the surface, both strictly uniform head-initial and head-final languages, why don't we find a mirror image of the German kind of non-uniformity? 'Reverse-German' would be a grammar in which the verb precedes the object in the basic order, but, at the same time, functional heads such as complementizers systematically occur in a right-peripheral position. Logically, such a language is perfectly possible. 'Reverse-German' could correspond to a grammar with left-peripheral lexical heads but right-peripheral functional heads. Likewise, if we think within an LCA-based theory, 'Reverse-German' can still be derived. Above, we noted that a uniform head-final language could be the result of a rather general movement trigger which shifts any complement to the left. Considering German, such a general device is not suitable, since, while there is a basic 'O - V'-order in subordinated clauses, complementizers nevertheless are left of their IP-complement. Consequently, in order to account for the difference between Japanese and German, we must distinguish a specific trigger for 'IP-to- Spec, CP'-movement, which is active in Japanese but not in German. Once, we introduce such a trigger, we can not exclude the possibility that the trigger is active in some grammar X, which has on the surface 'V - O'-order.

Significantly, though, looking at the broad typology, we find a clear contrast. According to Dryer 1992:102, while (surface) OV-languages with sentence-initial complementizers exist, VO-languages with sentence-final complementizers do not. Hence, a 'Reverse-German'-grammar appears to be unattested. Why is that?

Similarly, imagine the case of an 'Anti-Tzotzil'-grammar. 'Anti-Tzotzil' would be a grammar in which the subject precedes a 'V - O'- (or even an 'O - V') -sequence in the basic order, but at the same time, any *wh*-, focus- and topic-phrase occurs at the right-periphery of the clause. It is quite unlikely that 'Anti-Tzotzil' exists. See here, for example, Gundel 1988:231

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who observes that within a sample of 30 languages (compared in an attempt at broad genetic and regional representation; cf. p.232, fn.1), none has right-peripheral topic phrases. As well, see Sadock & Zwicky 1985:185, who note that "interrogative proforms (- *wh*-phrases) are often found in focus or topic position, which for many languages is sentence-initial position", or they occur "in the same position as a non-interrogative form". The empirical option of a systematic right-dislocation of *wh*-phrases is however not mentioned. Bach 1971 already noted the typological absence of this option. Once more, why is that? From a logical perspective, we can easily think of a syntactic tree which corresponds to 'Anti-Tzotzil'. This is either one in which the *wh*-/focus-/topic-phrase is in a left-peripheral specifier but the corresponding complement is systematically shifted to an even higher specifier. Or, it is a syntactic tree which simply combines left-peripheral lexical specifiers with right-peripheral functional specifiers (thus, the perfect mirror image of Aissen's Tzotzil analysis).

It is the objective of this thesis to strive for a theory of phrase structure directionality which minimizes the danger of over-generalization, and as such, aims for a system that allows for a *restricted* set of possible patterns.

Rather than adopting an 'everything is derived'-solution or category-specific ordering parameters or the like, this thesis proposes a system that is set in the framework of Optimality Theory, and constitutes a further development of the system of syntactic alignment constraints proposed by Grimshaw 1997, 2001. No order of two syntactic sister nodes will be excluded axiomatically. This means that, for example, both [head - complement] and [complement - head] is a possible underlying form, and so are both left-peripheral and right-peripheral specifiers. Instead, the key is to recognize a conflict between *general but violable constraints* on the ordering of syntactic nodes. This will open a window that will enable us to avoid over-generalization: the system's factorial typology consists of only a restricted set of types, only these are predicted to emerge empirically. In this set, we will not only find grammars with uniform phrase structure directionality, but also *a few* cases of mixed directionality. Over the course of the thesis, we will repeatedly see that mixed phrase structure directionality is systematic and far from random. Among many other typological predictions, the proposed system will derive the following two generalizations:

(6)   Only languages with a head-final verb phrase, i.e. underlying OV-languages, can show

        non-uniform head/complement orders across different categories.

(7)   Only languages with a head-initial verb phrase, i.e. underlying VO-languages, can have

        right-peripheral lexical specifiers.

Given (6) and (7), the system predicts a particular kind of asymmetry in the emergence of

syntactic structure. The system allows grammars that generate trees with either systematically

left-peripheral or systematically right-peripheral heads, and it allows a clause structure that

combines left-peripheral functional heads over right-peripheral lexical heads (as given in

German and alike). But it does exclude the opposite combination, it excludes 'Reverse German'.

In parallel, while the system allows right-peripheral lexical specifiers, it excludes right-

peripheral functional specifiers, such that a grammar like Tzotzil is accounted for, but 'Anti-

Tzotzil' is predicted to be impossible. Both (6) and (7) together furthermore entail that a

grammar can deviate from an elsewhere preferred directionality only along one dimension, either

with respect to head/complement-order or with respect to specifier directionality.

        The thesis is structured as follows: Chapter 2 introduces the core system and discusses

the factorial typology it derives. This chapter focuses on the domain of the verb phrase; at the

same time, it outlines on a more general level which kinds of directionality patterns the system

includes and excludes and how this is achieved.

        Chapter 3 extends the focus on the verb phrase by taking the inflectional layer into active

consideration, and the question of how it influences the possible options in basic word order. The

chapter adds one additional constraint to the proposed set. This will accomplish an explanation

for the apparent impossibility of languages with basic 'T - S - V - O'-order (T corresponding to

an independent tense or aspect morpheme). Overall, chapter 3 demonstrates in which ways the

constraints on directionality also determine both verb- and subject movement into the inflectional

layer.

        Chapter 4 shifts the focus from the verbal to the nominal domain. It shows how the

extended system, without any additional assumptions, correctly accounts for typological

variation in the order of a noun and a possessor genitive phrase that correlates with a grammar's

basic 'V - O'- or 'O - V'-order. We will see that the system explains why SVO-languages can have either a pre-nominal or post-nominal genitive, whereas VSO- and VOS-languages always have a post-nominal genitive, and SOV-languages mostly have a pre-nominal genitive. Beyond this, the system will derive the implicational universal: 'SVO-languages that have verb movement into the inflectional layer have a post-nominal genitive'.

Chapter 5 discusses both adjective phrases and adpositional phrases, with a focus on the word order in German. The chapter addresses the possibility of non-uniform directionality *within* a particular category and distinguishes a few reasons why this can occur.

Finally, chapter 6 returns to the domain of verb phrases and clauses, illustrating how the system, without any additions, captures the possibility of another kind of mixed directionality, observable in the Kru languages of Africa (cf. Koopman 1984).

Chapter 7 gives a conclusion. An appendix is added with the complete factorial typology derived by the six proposed constraints.

Chapter 2 – The lexical layer: Giving it an Edge

This chapter defines and illustrates the main concepts of a system which has three crucial properties. First, the system maintains the idea that languages can be uniformly head-initial or head-final; that is, both [head - complement] and [complement - head] are proper orderings, and can be the one-and-only choice of a particular language. Second, the system predicts the occurrence of *a few* language types with mixed phrase directionality, all of which can be shown to be attested. Third, the system *ex*cludes certain mixed patterns which are logically possible but do not seem to occur in natural language.

While we draw a conceptual outline of how both uniformity and restricted non-uniformity are grounded in the interaction of universal but violable constraints on X-bar-structure, the special focus will be on what I'd like to propose as one of the main factors causing non-uniformity: a constraint that I call LEX(ICAL) HEAD EDGE. It forces **lexical heads to surface at the edge of their local phrases**, that is, **closer to the edge than any complement or specifier.**

Crucially, LEX HEAD EDGE demands this edge alignment without specifying one particular edge. Both a left-peripheral and a right-peripheral orientation are equally satisfactory to this constraint. However, any configuration, in which a lexical head surfaces *between* specifier and complement, or surfaces outside its lexical domain (in a functional projection), violates LEX HEAD EDGE. It is likewise essential that the preference of edge alignment does not target functional but *lexical* heads, that is (following Baker 2003), verbs (V^0, v_v^0), nouns (N^0) and adjectives (A^0). This will introduce a particular pressure on lexical projections which can lead to certain mixed directionality patterns, depending on the ranking of the entire set of constraints introduced below. The mixed patterns contrast the order within FP with the order in LexP, as such revealing an essential difference between the two phrase types. 'Marked' directionality is possible in LexP, but FP is preferably the domain in which the grammar's unmarked 'elsewhere' ordering emerges.

Based on LEX HEAD EDGE, we can identify a set of distinct language types with mixed word order as driven by the same cause, which is the pressure of having lexical heads at the edge

of the phrase. All languages share the characteristic of preferring the configuration
[spec [head - comp]] in other environments, and the mixed patterns are the result of answering
the needs of LEX HEAD EDGE in different ways. We will recognize three major choices:

(A)   The 'right-peripheral specifier'-choice satisfies edge alignment by pushing lexical
specifiers from left to right, deciding on a [[head complement] spec]-configuration, as
opposed to the otherwise preferred [spec [head complement]]. This will give us VOS-
languages like the Mayan ones (primary example: Tzotzil), which have right-peripheral
lexical specifiers but left-peripheral functional specifiers.

(B)   The 'head movement'-choice meets edge alignment by jumping the head over a specifier,
such that the configuration includes an additional lexical projection without a specifier:
[head [spec [t_{head} complement]]]. This will give us 'strict' VSO-languages like the
Mixtecan ones (primary example: Yosundúa Mixtec). These languages always show
VSO-order, independent of the higher functional context and the presence of other verbs
besides the main verb.

(C)   The 'right-peripheral head'-choice meets edge alignment by forcing a head behind its
complement, deciding on a head-final [spec [complement head]]-configuration instead of
the elsewhere preferred [spec [head comp]]. This will give us mixed SOV- languages like
a subset of the Germanic ones (primary example: German), and also languages like
Persian, which project head-initial functional layers above a head-final verbal phrase.

At a later stage (chapter 3 and 4), we will see how LEX HEAD EDGE can help us to gain new
insights into the systematic nature of lexical head movement and how it is possible to draw a
correlation between lexical head movement in the verbal and the nominal domain.

Altogether, the proposal of LEX HEAD EDGE is the main theme of this chapter, since it
instantiates a crucial example for the idea brought forward above that a certain amount of
variation in phrase structure is real, permitting even some non-uniform cases. However, this does
not lead to the conclusion that the grammatical principles responsible for this variation target
only these non-uniform cases, rather than being universal principles. Instead, it points to the
conclusion that phrase structure variation is the result of the violable status of the constraints

involved. Recognizing the possible interactions of LEX HEAD EDGE with other general constraints, we see a concrete example of how one single factor can disturb structural uniformity in several ways, without allowing over-generalizations to enter by the back door. On the contrary, the same factor will help us to understand why some alternative types of non-uniformity do not occur. In this way, LEX HEAD EDGE enables us to recognize that *non*-uniformity is still systematically driven rather than random.

In this chapter, I start in section 2.1 with outlining the minimal axiomatic assumptions that we have to make at this point. I then define five constraints in section 2.2. These include HEAD LEFT, HEAD RIGHT and a GENERALIZED SUBJECT constraint, which all follow the work of Grimshaw (1997, 2001). The fourth is LEX HEAD EDGE, and the fifth I will call BRANCHING RIGHT. The proposal of BRANCHING RIGHT draws on Haider's Branching Constraint (BC; Haider 1993, 2000), and it is doubtlessly inspired by Kayne 1994's point on the relevance of asymmetry in directionality. BRANCHING RIGHT introduces a preference for left/right-asymmetries concerning the directionality of specifiers, phrasal adjuncts and complex functional heads. All these must align left-peripherally in order to obey BRANCHING RIGHT.

Having defined the basic set of constraints, which will stay with us in the further chapters, sections 2.3 to 2.6 work through the general typology predicted by re-ranking the members of this set. Finally, section 2.7 discusses which types the typology excludes, and section 2.8 compares the proposal to some alternatives. The entire discussion of this chapter focuses on the clausal domain, but even more particularly on VP. Chapter 3 will extend the 'clausal focus' by considering the inflectional layer's influence on basic word order.

One last point worth mentioning in advance: chapter 6 will later reveal that BRANCHING RIGHT can build up pressure as well, leading to an additional kind of mixed directionality pattern, one in which complex functional heads involving head-to-head-adjunction precede their complements, while simple heads follow. (The pattern is exemplified by languages like Vata and Gbadi, following the description of Koopman 1984.) The current chapter focuses on the mixed patterns introduced by pressure of LEX HEAD EDGE; at the same time it demonstrates how a principle on the asymmetric nature of syntactic structure, in this system BRANCHING RIGHT, can gain explanatory force if it is understood as a violable constraint.

2.1   X-bar-Structure and Extended Projections

The two fundamental axioms of the system explored below are first, binary X-bar-Structure and second, the concept of Extended Projection. Before I discuss them briefly, I'd like to add one short comment on the choice of the first axiom.

Relying on X-bar-Structure as a primitive notion might be considered disputable in light of the fact that X-bar-Structure could be *derived* by the LCA (Linear Correspondence Axiom; cf. Kayne 1994) which makes it therefore obsolete. All that seems required is the assumption of the LCA as an inviolable principle. However, as noted in the introductory chapter, the possible downside of taking the LCA as absolute is that we have to justify a significantly larger derivational apparatus, in order to account for all kinds of typological variations which de facto exist. As we said then, this wouldn't necessarily qualify as an objection except for the fact that it opens up a back door for over-generalization. Now, the current challenge for us is to aim for a slightly more surface-oriented analysis of basic word order variation. It is then a necessary requirement to allow for a less restricted underlying form. In this respect, X-bar-Structure seems like the best available template to work with: it allows adjuncts to occur freely, it allows co-occurrence of phrasal adjuncts and specifiers, multiple head-to-head-adjunction, and most crucially, it doesn't include any restrains on directionality.

It is also worthwhile mentioning that, beyond deciding on X-bar-Theory, the above point contra absolute principles is ultimately a more general one. We want to investigate how far we can reach with a system of violable, interacting constraints, which implies that rather little should be given on an absolute level. Consequently, we should prefer an axiomatic base which is the least restricted. Still, the position taken here is that a bare minimum of hierarchical organization *must* be axiomatic, and that X-bar-Theory offers a good working-hypothesis precisely because it defines such hierarchical organization without restricting syntactic structure much further.

With these motives made clear, our investigation starts by building on some of the basic assumptions made by Grimshaw 1997:376 in her application of Optimality Theory to syntax: 'GEN incorporates a minimal X-bar-Theory'. To spell out a concrete working hypothesis, I will follow Stowell 1981's original version of X-bar-Theory, and thence break it down into three in-violable sub-axioms:

(1) (i) Every maximal X^0 projects an intermediate phrase level X', then a maximal
phrase level XP.

XP
ǀ
X' (ii) A head must not be the mother node of a projection.
ǀ (iii) Branching of syntactic structure is no more than binary.
X^0

In (1), we have three propositions which have to be satisfied by every possible well-formed syntactic representation. The restricting effects are:

First, given (i) (with a maximal head understood as a head whose mother node is not a head), syntactic heads always project a two-leveled phrase, unless they are adjoined to some other head. Consequently, a plain X^0 can never occur in complement- or specifier position of another head, nor can it directly adjoin to another projection, and neither can a plain $[_{X'} \, .. \, X^0 \, ..]$-projection.[1]

The second clause (ii) gives us the effect that a projection, which includes both X' and XP, can never adjoin to a head; the third restriction in (iii) is self-explanatory.

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[1] This still leaves the structural option that two heads might 'co-project' a phrase; the possibility of such 'hydras' was explicitly claimed by Baker 1989. Note that (1) also doesn't say anything about the impossibility of projections that lack a head entirely (due to universal quantification over heads as opposed to quantification over projections). That this is legitimate was explicitly argued by Grimshaw 1997:408. See however also rejections of this view in Bakoviv 1995:§1.2, 1998:38; in parallel, Vikner 2001:159 only allows for the possibility of "XP with completely empty X^0".

At this point, I follow Grimshaw and refrain from prohibiting head-less XPs entirely, primarily in order to restrict GEN as little as possible. I take it however as considerably difficult to distinguish the 'actual reality' of a projection without *any* head, or even with a *completely empty* head. First, how do we seriously empirically differentiate between an *absent* head and an *abstract* head? Second, conceptually, if we think of a phrase as being, by definition, the projection of a head, then this should imply that the 'projecting' entity indeed exists, let it alone be to determine whether the head is LexP or FP, or which FP etc..

As a side remark, notice that the impossibility of adjoining heads to projections (which here falls out of (i)) does not follow under an absolute assumption of the LCA. Neither is the impossibility of adjoining projections to heads (here given by (ii)) fully derived. Equally, the LCA, like X-bar-Theory, allows for the possibility of head-less projections. For the relevant discussion and proofs, see appendix B. I mention this, in order to clarify that a claim 'LCA derives X-bar-Theory' should not be taken as a guarantee that the LCA in fact restricts pure dominance relations; a minimal amount of stipulation is still needed either way.

Now, (1) does not establish any restrictions on the relation of dominance and linear ordering. This is exactly what we want from the axiomatic base. That is, given solely X-bar-Theory, complement and specifier, which can (but do not need to) be contained in XP, can be ordered relative to the head both ways. Furthermore, where

(a), nothing rules out YP-adjunction to XP (or to X'),

(b), head-adjunction to X^0 is a possible option (cf. Baker 1988), and

(c), specifier and adjuncts can freely co-occur,[2]

then, nothing in GEN determines the linear ordering of the corresponding terminals.

Let us briefly introduce the second axiom: Besides binary X-bar-Structure, we also want to assume the theory of Extended Projections (*ep*), following Grimshaw 1991, 2000 (see also Haider 1988, van Riemsdjik 1990), and Grimshaw 1997's application of the concept to Optimality Theory. The relevant definitions are given in (2):

(2)   Concept of Extended Projection (*ep*):

(a)   Perfect projection (cf. Grimshaw 1991:3):=

x is the perfect head of *y*, and *y* is a perfect projection of *x iff*:

(i) *y* dominates *x*;

(ii) *y* and *x* share all categorial features;

(iii) all nodes intervening between *x* and *y* share all categorial features;

(iv) the F value of *y* is the same as the F value of *x*.

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[2]While not explicitly explored in the current project, there might furthermore exist the option of 'multiple specifiers'; cf. Chomsky 1995:355ff. (1) does not rule this out either.

(b)   Extended projection (cf. Grimshaw 1991:3):=

x is the extended head of y, and y is an extended projection of x *iff*:

(i) y dominates x;

(ii) y and x share all categorial features;

(iii) all nodes intervening between x and y share all categorial features;

(iv) if x and y are not in the same perfect projection, the F value of y is higher than the F value of x.

Following Grimshaw 1997, syntactic candidates are extended projections such that functional categories do not select lexical heads, but on the contrary, they are dependent on them. Lexical heads provide the 'base' for any phrase and build functional projections as their extensions.

The basic distinction between the *perfect* and an *extended* projection of a lexical head is important to be aware of. We have said above that a phrase XP is minimally the maximal projection of a head X^0 (with X' between X^0 and XP). Now, take X^0 to be a lexical head V^0, then X' = V' and XP = VP. Both V' and VP are *perfect* projections of V^0. If V^0 builds another VP-shell, by simple recursion of V^0, (cf. Larson 1988) then any corresponding higher V' and VP is also a perfect projection of the bottom lexical head projecting it. In distinction to this, when we generate a functional projection above VP, say TP, this TP is certainly a perfect projection of T^0. But TP does not count as a perfect projection of V^0, but as an *extended* projection thereof (V^0 being an *extended* head of TP).

That said, there is a further refinement to add. Acknowledging recent theories on the *layered* structure of VP (which assume, at the minimum, that all transitive verbs split into v and V; cf. Hale & Keyser 1993, Chomsky 1995:315, Kratzer 1993, 1996, Chomsky 1999, Baker 2003:79), this conception is merged with the concept of Extended Projection as follows: Every transitive (and unergative) verb corresponds to a V^0 which extends into v^0, with V assigning the object-2-role(s) (such as THEME) and v assigning the subject-2-role (such as AGENT). Furthermore, V *lexicalizes* v^0 by substitution. That is, minimally, we have the following syntactic structure (with random directionality):

(3)   Transitive active verbs:[3]

$$vP$$

AGENT$_{Subj}$ v'

v_v^0 VP

THEME$_{Obj}$ V'

t_V PP/GOAL$_{Obj}$
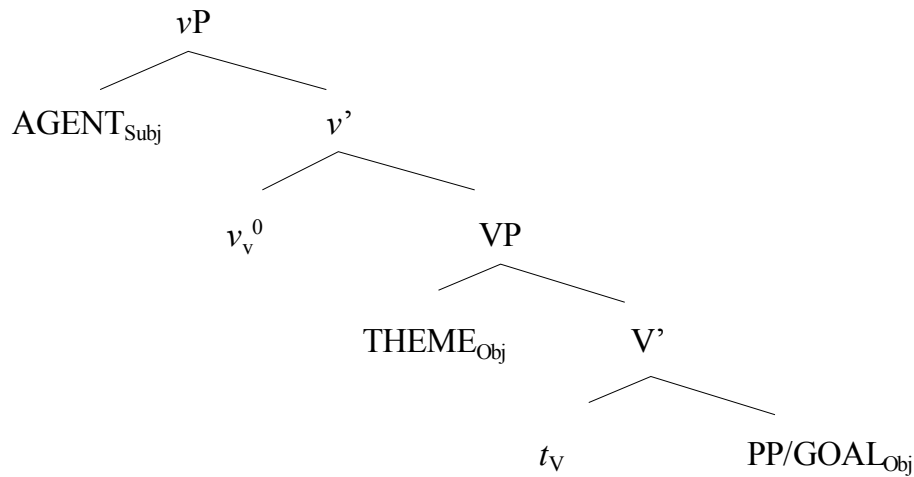
Here, vP is a perfect projection of v^0 and an extended projection of the bottom V^0, just as any higher FP is an extended projection of V^0. At the same time, since V^0 in fact substitutes into, and as such lexicalizes v, therefore, v_v^0 ultimately is a lexical head. Thus, vP is a perfect *lexical* projection of v^0.

While (3) shows the official structure we want to assume, for most parts of this thesis, we will simplify and write instead of (3): [$_{vP}$ Subject [$_{v'}$ v^0 Object]]. That is, we interpret the object as the direct complement of v^0, and ignore that, zooming in on vP, the object is in fact contained in VP, VP being the de facto complement of v^0.

Lastly, on the topic of syntactic linking, the theta-hierarchy suggested in (3) is the one assumed by Baker 2003:79, and is adopted here as a working hypothesis. That is, it is imperative that the syntactic linking of arguments obeys a thematic hierarchy (cf. Larson 1988). However, we want to be somewhat lenient with respect to both the exact positioning of particular arguments, and the language- specific hierarchy between, particularly, object-2-roles. That is, for now, we can assume that the AGENT-subject argument is always base generated in Spec, vP, following the 'subject-in-VP'-hypothesis (cf. Zagona 1982, Koruda 1988, Koopman & Sportiche

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[3]For the discussion of intransitive (unergative and unaccusative) verbs, see section 5.3.

1991), but we will come back to this point in chapter 3. Furthermore, with respect to the hierarchy between THEME and GOAL, I leave it open whether particular grammars alternatively allow for a 'GOAL > THEME' hierarchy.[4]

Altogether, the theory of Extended Projections and binary X-bar-Theory, as well as the assumptions on syntactic linking, all this restricts the organization of phrases purely hierarchically. Neither one says anything about how sister nodes and their corresponding terminals should be mapped onto a linear order. How, then, does a language decide on a particular ordering of two sister nodes? My answer is by constraint ranking. Let us turn to the next section, in which we will define and briefly discuss all the relevant constraints at stake.

2.2   Determining linear order

Once more, we start by following Grimshaw 1997 in her assumption that a general preference towards the linear order of head and complement in any given XP of a language is determined by the relative ranking of HEAD LEFT and HEAD RIGHT.

2.2.1   HEAD LEFT and HEAD RIGHT

The two head alignment constraints are category-neutral. This means that once a language has ranked the pair, it either favors a [head - complement]-order across the board, obtained by the ranking HEAD LEFT >> HEAD RIGHT, or a [complement - head]-order, via the ranking HEAD RIGHT >> HEAD LEFT. The preference holds for any XP, regardless of its category.

The definitions of HEAD LEFT and HEAD RIGHT are given in (4) and (5). Note that they differ from the ones originally proposed by Grimshaw 1997:374, 407. An assumption of the original versions would lead to a slightly different overall typology (see below, section 2.5).[5]

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[4]This acknowledges in particular the situation in German, for which there is a considerable debate as to whether the THEME is always linked above the GOAL (cf. Müller 1995, 1999:779), or whether, for most verbs, in accordance with the unmarked surface order (cf. Lenerz 1977), the THEME is below the GOAL (cf. Büring 1992, 1996:3f). See also Haider & Rosengren 1998:14f for the articulated view that the syntactic argument linking varies with the choice of the verb. See more on German dative arguments in section 5.3.

[5]See as well Grimshaw 2001a:2, 3, for a more recent proposal of yet other definitions of general alignment

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(4)   HEAD LEFT:=

     • categories X^0:) ″ mother node *y* such that the right edge of X^0 and the right edge of *y*
coincide.

(5)   HEAD RIGHT:=

     • categories X^0:) ″ mother node *y* such that the left edge of X^0 and the left edge of *y*
coincide.

> **Mother node** $=_{def}$ immediately dominating node
>
> **On evaluation**: HEAD LEFT is violated for every head such that there exists at least one mother node and the head aligns at the right edge of this mother node. HEAD RIGHT is violated for every head such that there exists at least one mother node and the head aligns at the left edge of this mother node.
>
> Both HEAD LEFT and HEAD RIGHT are evaluated on *all* syntactic heads, including abstract heads and head copies (= traces). Likewise, an intervening complement can rescue a head alignment violation even if the complement is a copy of a moved complement (i.e., a trace).

The definitions in (4) and (5) are negative: HEAD LEFT and HEAD RIGHT cause left- vs. right-orientation by penalizing a configuration in which a head aligns with the *opposite* side of its mother node. For example, in order to obey HEAD LEFT, a head must *not* align at the right edge of any mother node. This can only be accomplished if X^0 has a complement on its right side and thus aligns to the left of the complement, coinciding with the left edge of its X'-mother-node. Obviously, that same configuration violates HEAD RIGHT, which can only be satisfied by the reverse linear order. However, aligning the head right of the complement, hence, at the right

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constraints. Furthermore compare the distinct definitions and axiomatic assumptions in Vikner 2001:143-145.

     Vikner 2001, in addition, proposes an alternative Optimality theoretic way to extend the set of alignment constraints, in order to account for the mixed directionality of the Germanic SOV-languages (see here also footnote 9 below). On the typological differences between Vikner's and the current proposal, see section 2.6 (and also 3.7).

edge of the X'-mother-node, causes again violation of HEAD LEFT:[6]

(6)   Violating HEAD LEFT or HEAD RIGHT:

	HEAD LEFT	HEAD RIGHT
a. $[_{XP} [_{X'} X^0 \text{ YP}]]$		*
b. $[_{XP} [_{X'} \text{YP } X^0]]$	*	
c. $[_{XP} [_{X'} X^0]]$	*	*

Note in (6) that a candidate like (c), a projection which contains no complement such that the head aligns with both sides of X', is, under the negative definition of HEAD LEFT/RIGHT, in fact worse than both a [head - complement]- and a [complement - head]-configuration. In consequence, we get a certain 'obligatory complement'-effect coming along with the presence of a head. When considering any syntactic head, it is in general more harmonic to add a complement to this head than to have a non-branching structure. Obviously, if the input doesn't provide any other phrase that qualifies as a possible complement, we have to live without it. But if another phrase is available, linking it into complement position is better for head alignment than linking it, for example, into specifier position, or adjoining it. Therefore, with respect to the head, the complement position becomes 'the least marked' one; filling of specifier- or adjunct-positions will only be considered *if* the complement position is already filled, or if some other (higher ranked) constraint (or axiom) forces linking into another position first.[7]

      Thinking in terms of thematic linking (recall (3)), this also implies the following with respect to the base VP. If there is no independent restriction that V must to link its THEME into

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[6]The negative conception of HEAD LEFT and HEAD RIGHT as in (4) and (5) turns them into categorical markedness constraints. That is, violation is not gradient: HEAD LEFT/RIGHT is violated once and for all for a given head, as soon as there exists one mother node such that the barred alignment holds. On the notion of gradient violation as opposed to categorical, see Prince & Smolensky 1993:29.

[7]Compare here also Chomsky 1995:345ff for a parallel result in a minimalist framework (there, the complement is merged first to the head, before any specifier).

its specifier, then in absence of a PP (or a GOAL), then the dynamics of HEAD LEFT/RIGHT will cause the THEME-argument to be base generated in the complement of V^0.[8]

Finally, I remind the reader that the current definitions rely on the axiomatic assumption made under 2.1, (1.iii.), namely that syntactic structure must be binary. Consequently, it is impossible for a head to obey both HEAD LEFT and HEAD RIGHT at the same time. As soon as a head is present in the syntactic structure, it has to align with at least one side of its mother node, thus, violating at least either HEAD LEFT or HEAD RIGHT. Furthermore, keep in mind that nothing in HEAD LEFT nor HEAD RIGHT tells us anything about the directionality of other phrases in the projection if they are positioned outside the constituent consisting of a head and its complement.

2.2.2   LEX HEAD EDGE

Given just HEAD LEFT and HEAD RIGHT, then, the expectation is that a language makes a uniform decision on how it orders head and complement: it either has only [head - complement]-configurations, by HEAD LEFT >> HEAD RIGHT, or only [complement - head], by HEAD RIGHT >> HEAD LEFT. What factors, then, can lead to deviation from these general preferences? The first complicating factor is LEXICAL HEAD EDGE:[9]

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[8]From there, the object might certainly move to Spec, VP, as we introduce below a constraint which imposes the need of a specifier in any verbal projection. This does not concern us at this point, but it is relevant in the analysis of unaccusatives. See section 5.3.

[9]For phonological constraints on 'edges', see, for example, Bickmore 1999:128 who proposes ALIGN(H, E, S, E). The constraint aligns an edge of an output High Tone Span with an edge of the stem. Similar to LEX HEAD EDGE, ALIGN (H, E, S, E) is satisfied when a High Tone Span is aligned to either edge of the stem. See also the phonological EDGE-ANCHOR$_{BR}$ constraint proposed by Nelson 1999, 2003. Furthermore, see morpho-syntactic edge constraints in Anderson 1996, 2000, Legendre 1996, 2001.

Vikner 2001 proposes a PREDICATE RIGHT constraint which shares some of the effects imposed by LEX HEAD EDGE; for a comparison, see section 2.6 below.

(7)   LEX(ICAL) HEAD EDGE:=

• pronounced positions " ^{0} of a lexical category " :

" LexP, LexP is a perfect projection of a lexical head Lex^0, such that an edge of " and an edge of LexP coincide.

On evaluation: LEX HEAD EDGE is a 'positive' categorical constraint. It is violated once and for all for every pronounced position of a lexical head that does not coincide with an edge of some perfect lexical maximal projection. Proper edge alignment can be blocked by any syntactic terminal, including abstract elements such as copies (= traces).
Lexical heads/categories: {verb, noun, adjective}; cf. Baker 2003

LEXICAL HEAD EDGE introduces a special harmony burden on lexical heads. In order to obey LEX HEAD EDGE, a lexical head should not only be pronounced within a lexical projection, that is, within a perfect projection of a lexical head, but furthermore, it should align at an edge of the perfect LexP. Two aspects are relevant to note.

First, LEX HEAD EDGE is about pronounced positions. Thus, if a lexical head moves, the abstract copy is not evaluated on its edge status, only the head of the chain is. Hence, one might immediately recognize that moving a lexical head could be a strategy to accomplish proper edge alignment. We have to keep in mind, though, that, when looking at the surrounding context, a copy/trace, like any other syntactic terminal, can still hinder a lexical head from being at the edge. Furthermore, movement into a higher functional projection will not help under any circumstances. On the contrary, it will cause a violation of LEX HEAD EDGE which is independent of directionality, simply because the lexical head won't find any perfect lexical projection for alignment to begin with (only an extended functional one).

However, a lexical head can move within the lexical layer of its *ep* without losing the chance of LEX HEAD EDGE satisfaction. For example, the substitution of V^0 into v^0 yields a lexical head v_v^0, whose perfect maximal projection is vP. Thus, if the verb surfaces at the edge of lexical vP, this satisfies LEX HEAD EDGE. As a matter of fact, lexicalized v is itself a lexical category and as such input for LEX HEAD EDGE. Similarly, the extension of the lexical layer by creation of an additional VP- or vP-shell does not destroy the possibility of LEX HEAD EDGE obedience. Altogether, as long as a lexical head is within *some* lexical shell on the surface, the

potential to satisfy LEX HEAD EDGE exists. Ultimate success depends on directionality. In FP, the same potential does not exist, and hence, LEX HEAD EDGE is categorically unable to have any directionality impact on a functional projection.

Second, besides being more restricted than HEAD LEFT and HEAD RIGHT regarding its domain of application (HEAD LEFT/RIGHT quantify over all heads, including lexical, functional and the copies/traces thereof), LEX HEAD EDGE is also more general with respect to directionality. LEX HEAD EDGE demands alignment at an unspecified edge of a perfect maximal projection. Consequently, alignment at either the left edge or the right edge of LexP is equally able to satisfy it.

Let us have a closer look at the impact of LEX HEAD EDGE on a lexical head inside a perfect lexical projection. Take a structure where $" = v_v$, LexP $= v$P. First of all, in a vP which contains nothing but the lexical head v^0 and its complement, LEX HEAD EDGE can be satisfied by both $[_{vP} [_{v'} v^0$ complement$]]$ and $[_{vP} [_{v'}$ complement $v^0]]$. The lexical head does not only align with an edge of its immediate mother node v' but also with an edge of vP.

But what happens if the lexical head has a specifier as well as a complement? Looking at vP, we precisely expect the subject to be base-generated in Spec, vP. Now, Spec, vP is not a daughter of v' but, by definition, is a daughter of vP. Since LEX HEAD EDGE requires alignment at a LexP-node, the specifier is a potential threat. To see this, consider (8), which shows all four logical possibilities of aligning v^0, its complement and its specifier in vP. Two of the possibilities do not violate LEX HEAD EDGE, the other two do:
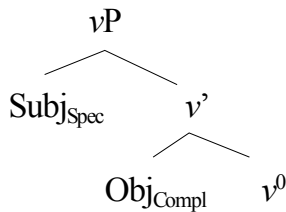
(8)   **a. [spec [complement - head]]**   **b. [spec [head - complement]]**
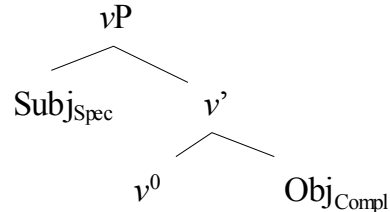
              violation of HEAD LEFT   violation of HEAD RIGHT and LEX HEAD EDGE

c. **[[complement - head] spec]**

vP
  v'   Subj$_{\text{Spec}}$
  Obj$_{\text{Compl}}$ v^0
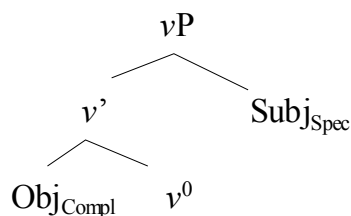
violation of HEAD LEFT and LEX HEAD EDGE

d. **[[head - complement] spec]**

vP
  v'   Subj$_{\text{Spec}}$
  v^0 Obj$_{\text{Compl}}$
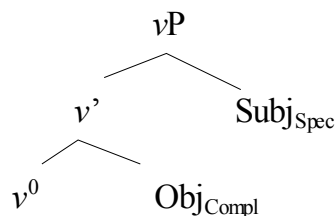
violation of HEAD RIGHT

(8a) and (8c) both align the head to the right of its complement, and therefore violate HEAD LEFT but not HEAD RIGHT. But only (a) aligns the specifier to the left of v' and as such avoids violation of LEX HEAD EDGE, as the head aligns with the edge of vP

We see the reverse situation in (8b) and (8d). Both (8b) and (8d) align the head to the left of its complement, thus violating HEAD RIGHT and satisfying HEAD LEFT. But only (d) does not violate LEX HEAD EDGE, because it aligns the specifier right-peripherally such that v^0 aligns with an edge of vP (this time the left edge). We see that, because of LEX HEAD EDGE, the head-peripheral XPs do better than the head-medial XPs when LEX HEAD EDGE enters the set of constraints.

Let us pause here for a second and think of the possible interactions of LEX HEAD EDGE and HEAD LEFT, HEAD RIGHT, and the relevance of specifiers therein. Hypothetically, if the directionality of specifiers was free, then accepting LEX HEAD EDGE as a relevant factor, we would expect that a language with the HEAD LEFT >> HEAD RIGHT-ranking aligns a lexical specifier right-peripherally, and a language with HEAD RIGHT >> HEAD LEFT-ranking chooses left-peripheral specifier alignment. The result is two head-peripheral lexical XPs, each one obeying both the higher ranked constraint of the pair HEAD LEFT/RIGHT and LEX HEAD EDGE. But the reasoning is still incomplete, despite the possibility that it might ultimately prove itself correct for a subset of languages (as I will claim below). Considering the high percentage of both uniform 'S - O - V' and 'S - V - O'-word orders among the world's languages, it seems that natural languages prefer *left*-peripheral specifiers. Or, to put it in more general terms, languages tend to prefer left-peripheral alignment of elements that are hierarchically higher than others. In fact, this general tendency is even visible in mixed word order cases such as those mentioned

above. Accounting for this tendency, is a crucial job for the system to accomplish.

Before settling on an actual constraint that implements this 'anti-symmetry', we must recognize that a special request for left-peripheral specifiers does not conflict with the demands of LEX HEAD EDGE in languages with HEAD RIGHT >> HEAD LEFT-ranking. Such languages prefer complement *and* specifier on the left of the head anyway, in order to achieve proper edge alignment along with obedience to (the higher ranked) HEAD RIGHT.

However, in a HEAD LEFT >> HEAD RIGHT language, the specifier becomes a threat. If the specifier prefers to align left-peripherally but at the same time the head is to the left of its complement, then the result, a head-medial lexical XP, violates LEX HEAD EDGE. Assume for a moment that it is most important to obey LEX HEAD EDGE. (I will claim that this is the case in head-initial grammars with a particular kind of mixed word order, although not in ordinary SVO-languages). Under a ranking HEAD LEFT >> HEAD RIGHT, we have three structural ways of resolving the conflict. Take again *v*P as our lexical XP:

(A)   We can ignore the preference for left-peripheral specifiers and choose right-peripheral alignment of them instead. That results in $[_{vP} [_{v'} v^0$ complement] spec]- order. This way, we obey LEX HEAD EDGE, and we maintain the [head - complement]-order preferred by HEAD LEFT >> HEAD RIGHT. Call this the **'right-peripheral specifier'-choice**. With the object in complement position, and the subject in the specifier, then, if the subject ultimately stays inside the lexical layer, the 'right-peripheral specifier'-choice yields a 'verb - object - subject'-order, in short **VOS**.

(B)   We can extend the lexical domain, by moving the head out of a [spec [head - comp]]-configuration and creating an additional VP-shell that does not have a specifier, resulting in $[_{vP} [_{v'} v^0 [_{vP}$ spec $[_{v'} t_V$ complement]]]]. The lexical head can then surface at the left edge of this higher lexical projection and the lower *v*P can be a head-medial XP with a left-peripheral specifier, thereby avoiding violation of LEX HEAD EDGE. Call this the **'head movement'-choice**. With the object in complement position, and the subject in the specifier, then, if the subject ultimately stays in situ as well, the 'head movement'-choice yields a 'verb - subject - object'-order, in short **VSO**.

(C)   We can ignore the preference for [head - complement] and choose
        [$_{vP}$ spec [$_{v'}$ complement v^0]] instead. Then, we can align the specifier left-peripherally and
        still obey LEX HEAD EDGE. Call this the **'right-peripheral head'-choice**.
        With the object in complement position, and the subject in the specifier, then if the verb
        indeed does not leave the lexical layer, the 'right-peripheral head'-choice yields a
        'subject - object - verb'-order, in short **SOV**.

Only the 'right-peripheral head'-choice in (C) violates HEAD LEFT, in a language which
elsewhere obeys HEAD LEFT. But what do (A) and (B) violate that makes them non-optimal in
some languages? Let us now introduce two further constraints, one which is violated in the
'right-peripheral head' choice, the other in the 'head movement'-choice. We will then have all
the tools together in order to derive (A), (B) and (C) as three choices that create three *mixed*
word order types. The claim is that (A) gives us the structural key to analyze VOS-languages
such as the Mayan ones (see section 2.3), (B) does so for (strict) VSO-languages such as the
Mixtecan (see 2.4), and (C) does so for 'underlying' SOV-grammars such as the Germanic OV-
languages, and Persian (see 2.5). Significantly, the overall approach not only reveals how three
mixed patterns are anything but arbitrary in their ways of being a non-uniform grammar, it also
ties the three mixed cases together as being driven by the same cause: the affinity of lexical
heads to surface at their local phrase edges.

2.2.3   BRANCHING RIGHT

Let us first address 'anti-symmetry'. In (10) below, I present the definition of a constraint
BRANCHING RIGHT which is inspired by the conception of the LCA, and which draws heavily on
the Branching Constraint (BC), as proposed by Haider 1993, 1997a, 2000:47. The choice of
identifying a slightly different cause for anti-symmetry is driven by the internal logic of the
system. Only the current formulation of BRANCHING RIGHT (or better, any functionally
equivalent formulation yielding the same violation profile) gives the factorial typology that
comprises exactly those mixed and uniform types I claim to be empirically desirable.
Specifically, the internal logic of the system demands an 'anti-symmetry'-constraint which
targets in particular the directionality of specifiers and adjuncts, but, at the same time, gives

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potential freedom to the linear order of head and complement.[10]

Therefore, we must think, on a purely structural level, what a specifier and a phrasal adjunct might have in common that is distinct to a complement. All three constitute phrases, and as phrases, they are equal with respect to their internal make up: they are projections that dominate other syntactic nodes. The separation between specifiers and adjuncts on the one hand and complements on the other concerns their local syntactic context. A specifier is, in terms of structural X'-hierarchy, a 'higher-order'-entity in the sense that the specifier's sister node dominates other syntactic nodes as well. That is, the sister node is a *projection* (X'). The same holds for a phrasal adjunct. Here, the sister node is also a projection, XP (or X'). But the sister of a complement is *not* a projection, it is a head.

Now, syntactic branching is about an either left- or right- oriented alignment of a mother and a sister node. Therefore, if it is about acknowledging that 'higher-order'-entities have a preference for being attached at the *left*-periphery, then we have to recognize a general restriction on *right*-branching that targets the triple of two sister nodes, each one dominating other syntactic nodes, and their mother node in the following way. The restriction is that the right edge of the mother node has to align with the right edge of the one sister that *shares* the same head with the mother node. Take for illustration once more the specifier:[11]

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[10]In this way, the set of structures that pass on BRANCHING RIGHT overlaps more closely with that allowed by the BC (in part, BRANCHING RIGHT is just a more explicit formulation of what the BC says). But there is the non-trivial difference that the BC acknowledges only right-peripheral lexical *root* heads, and neither right-peripheral *extended functional* heads nor right-peripheral *extended* lexical heads (cf. Haider 2000:48). Therefore, the BC does not allow any SOV-language to correspond to a structure involving Larsonian shells, or a vP-layer (see Haider 2000:49f who makes precisely a distinction between a VP-shell structure being present in SVO-grammars but not in SOV). Likewise, the BC is incompatible with the possibility of a uniform SOV-language having, for example, a right-peripheral T-head with movement into it. Overall, we have to keep in mind that neither the BC nor the LCA is a *violable* constraint, as BRANCHING RIGHT is.

A violable constraint that allows exactly the same set of structures as the BC is SPINE-RIGHT, proposed by Sells 2001:114ff. See here the discussion on Morimoto 2002 in section 2.8 below. Morimoto builds on Sells' system, and the concerns pointed out in 2.8 apply to both approaches.

[11]I assume that X'-, or XP-nodes never count as heads themselves; only X^0 is a head. See section 6.1 for

(9)

XP   ← mother node: **the head of XP is X^0**

YP$_{Spec}$ X'   ← **sister nodes**, each one a **projection**:

                                 the head of YP is Y^0 ; **the head of X' is X^0**
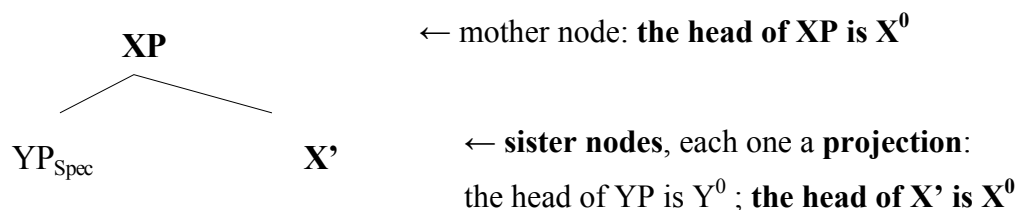
         ◦   Right-alignment of nodes that **share heads**

In the triple of nodes (i) Spec, XP (= YP), (ii) its sister X' and (iii) the mother XP, X' and XP share the same head, but XP and YP do not. If the right edge of XP and the right of X' align, then the specifier ends up in a left-peripheral position. Abstracting away from particular nodes, the logic of this 'branching rightwards' which targets triples of nodes, each one of them dominating further nodes, defines BRANCHING RIGHT:

(10)   BRANCHING RIGHT:=

        • sister nodes *x*, *y* such that neither *x* nor *y* is a syntactic terminal, *x* and *y*'s mother node *z* and *x* are both projections of the same head w^0:

        the right edge of *x* and the right edge of *z* must coincide.

'Syntactic terminal' is understood as a node that does not dominate anything other than the actual phonological terminal. Thus, given X-bar-theory, all syntactic terminals are X^0-categories.

       The effect of BRANCHING RIGHT then is as follows. First, BRANCHING RIGHT can only come into play if we are looking at two sister nodes that are both hierarchically high enough. This means that they *both* have to dominate more than just a phonological terminal (we are quantifying over two sister nodes, where neither one is a syntactic terminal). Consequently, BRANCHING RIGHT does not say anything about the linear order of a simple head and its

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discussion.

complement: neither a [head - complement] nor a [complement - head]-configuration violates BRANCHING RIGHT.[12]

The same does not hold for sister nodes such that one is a specifier, or an adjunct. For a concrete illustration, compare the two tree structures of (11a) and (11b):

(11)   a. No violation of BRANCHING RIGHT: b. Two violations of BRANCHING RIGHT:
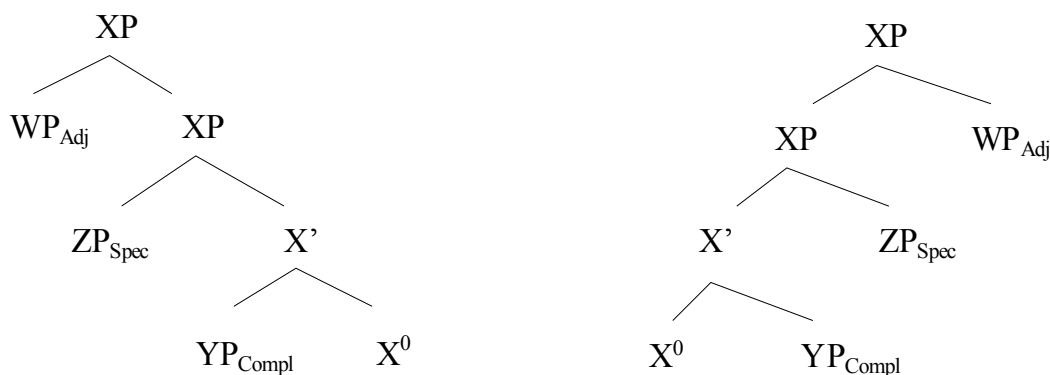
In both trees, the two XP-nodes and the X-bar-node are all projections of the same head X^0. Their corresponding sisters WP and ZP, however, do not share their heads with their corresponding mothers. Take first the adjunct WP, which is a sister of the lower XP-segment in both (11a) and (11b). Both WP and the lower XP-segment are projections, thus neither is a syntactic terminal; the mother is the higher XP-segment. Now, this mother and the lower XP-segment are both projections of the same head X^0. WP does not share its head with the mother XP; still, WP is not a syntactic terminal. Therefore, in order to obey BRANCHING RIGHT, the right edges of the two XP-segments must coincide, such that WP ends up in a left-peripheral position. But this only holds in (a). Hence, the linear order of the adjunct and the lower XP-segment obeys BRANCHING RIGHT in (11a) but violates it in (11b).

In parallel, ZP, the specifier of XP in both (a) and (b), is a sister of X'. Neither X' nor ZP is a syntactic terminal, and X' shares its head X^0 with the mother node XP, while ZP does not.

_____

[12]It will be crucial later on that the same is not necessarily true for all *complex* heads. See chapter 6.

Hence, BRANCHING RIGHT demands right alignment of X' and XP, which is only satisfied in (11a). (11b), on the other hand, once more violates BRANCHING RIGHT, this time with respect to the linear order of the specifier and its X'-sister node.

Finally, in both (a) and (b), one of the sister nodes YP and X^0 *is* a syntactic terminal, namely X^0. Therefore, even if YP and the mother node X' are projections of the same head, BRANCHING RIGHT does not apply. (YP and X' are projections of the same head if XP and YP are in fact projections within a larger extended projection. Take, for example, YP = vP, XP = TP. Then vP and TP are both extended projections, and thus projections, of the base head V).[13]

Altogether, we see that BRANCHING RIGHT penalizes both right-peripheral specifiers and adjuncts, favoring a left-peripheral orientation. This prohibition is independent of the ranking of HEAD LEFT and HEAD RIGHT, and indifferent towards the category we are looking at.

Finally, notice that in proposing BRANCHING RIGHT, I furthermore make the claim that a 'mirror'-constraint BRANCHING LEFT does *not* exist. This might come as a surprise and we could ask ourselves why there isn't a symmetric pair just as there is a symmetric pair of HEAD LEFT and HEAD RIGHT. However, keep in mind that the assumption that alignment constraints always come in symmetric pairs is ultimately a stipulation, with no more inherent validity than my claim that there is no 'BRANCHING LEFT'. We could try to hide this stipulation by formulating a slightly different definition of BRANCHING RIGHT, which talks about which sister node must precede or follow in certain structural contexts. But the stipulation wouldn't really be taken away, since we could still ask us why there isn't a 'mirror'-constraint which requires a particular sister node to 'follow' instead of 'precede'. Notice also that this stipulation carries over to any 'anti-symmetry'-principle, like the Branching Constraint ("Projection-internal branching nodes on the (extended) projection line *follow* their sister-nodes"; cf. Haider 2000:47) and the LCA ("If a

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[13]A last remark: 'Under normal circumstances', whenever we find two sister nodes such that both are projections, one of the two sisters *shares* its head with the mutual mother, but the other does *not*. The only exception could be a projection of the form $[_{XP} [_{X'} X^0][_{X'} X^0]]$, which is 'co-projected' by two heads, an option we hypothetically admitted for GEN in footnote 1. Note that such a structure violates BRANCHING RIGHT for the left X'-node. In order to fully satisfy BRANCHING RIGHT, both X'-nodes should align at the right edge of the mother node XP, because both share a head with XP and both have a sister which is not a syntactic terminal.

node " asymmetrically c-commands a node $, then " must *precede* $.”), where we could ask why the definition says explicitly 'follow' or 'precede' and not the contrary.[14]

In the greater scheme, I see the proposal of the set of constraints {BRANCHING RIGHT, HEAD LEFT, HEAD RIGHT} as a response to the *empirical* asymmetry that, I claim, can be observed in natural languages in some quarters of syntactic structure but not in others (see also Haider 2000:64 for a similar point of view). If syntactic structure is indeed partly but not entirely symmetric, then the explanatory system should reflect this openly rather than idealizing it away.

Now that we have a formulation of BRANCHING RIGHT, let us go back to the discussion which started its introduction. Then, we were looking for two factors, one that can bar the configuration introduced in (A) above, $[_{vP} [_{v'} v^0 \text{ complement}] \text{ spec}]$, the other that can block $[_{vP} [_{v'} v^0 [_{vP} \text{ spec} [_{v'} t_V \text{ complement}]]]]$, introduced in (B). Both were discussed as possible choices to satisfy LEX HEAD EDGE without violating HEAD LEFT at the same time. Obviously, it is BRANCHING RIGHT which penalizes the first configuration, that is, the 'right-peripheral specifier'-choice.

Keep in mind that BRANCHING RIGHT not only penalizes right-peripheral verbal or lexical specifiers, but, more generally, any right-peripheral specifier and any right-peripheral adjunct.

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[14]Kayne 1994:36-37 claims that the LCA's choice of mapping asymmetric c-command onto *precedence* rather than a successor-relation is *not* a stipulation. A crucial part of the argument is the association of a string of terminals with a string of time slots, and the pairing of each time slot with the substring of terminals produced up to that time. With a substring of terminals 'abcdz' so mapped onto a set of substrings 'a, ab, abc, abcd, abcdz', it is crucially only *a* which precedes every terminal in every substring, whereas *z* does not follow every terminal in every substring.

Notice however that this part of the argument rests on the *perspective onto the terminals* produced up to a particular time slot. Alternatively, we could decide to pair a time slot with the substring of terminals produced up to this time, but looking backwards, thus ordering always the *most recent* terminal first, in which case the mapping becomes 'a, ba, cba, dcba, zdcba'. *a* now follows every terminal in every substring, whereas *z* does not precede every terminal in every substring.

We could also not defend the priority of 'precede' nor 'follow' by relating it to time if we simply chose a *direct* mapping of terminals onto the time slot of production: here, we would get 'abcdz' in which case *a* would precede *and z* would follow all other terminals. Therefore, I think that any judgement on the priority of 'left' or 'right', 'precede' or 'follow', or on the apparent 'asymmetry of time' (Kayne 1994:38) ultimately depends on the initial stipulations we make

However, it is the *lexical specifier* which can become a particular threat for obedience of Lᴇx Hᴇᴀᴅ Eᴅɢᴇ. Hence, we can already foresee that a language which ends up violating Bʀᴀɴᴄʜɪɴɢ Rɪɢʜᴛ in order to succeed on Lᴇx Hᴇᴀᴅ Eᴅɢᴇ *must* come out as a mixed word order type, which accepts a lexical specifier but not necessarily any other specifier or any adjunct to follow a sister node. As we will see below, this is precisely what we observe in the case of Mayan VOS.

In order to discuss the complete picture, we still have to ask what exactly the (B)-configuration, $[_{vP} [_{v'} v^0 [_{vP} \text{spec} [_{v'} t_V \text{complement}]]]]$ violates. We just learned that the 'right-peripheral specifier'-choice (A) violates Bʀᴀɴᴄʜɪɴɢ Rɪɢʜᴛ (while neither (B) nor (C) does so), and we already know that the 'right-peripheral head'-choice (C) violates Hᴇᴀᴅ Lᴇꜰᴛ (and neither (A) nor (B) does). But, then, is there anything less harmonic in the 'head movement'-choice, compared with the two alternatives?

2.2.4 Gᴇɴᴇʀᴀʟɪᴢᴇᴅ Sᴜʙᴊᴇᴄᴛ

First of all, if all three configurations are possible conflict resolutions, that is, if there is typological variation between (A), (B) and (C), then, the fact that
$[_{vP} [_{v'} v^0 [_{vP} \text{spec} [_{v'} t_V \text{complement}]]]]$ incurs more Hᴇᴀᴅ Rɪɢʜᴛ violations than both opponents is not strong enough. (12) below compares all three structures on the basis of the constraints introduced so far. Keep in mind that we are talking about different choices that obey Lᴇx Hᴇᴀᴅ Eᴅɢᴇ in a Hᴇᴀᴅ Lᴇꜰᴛ >> Hᴇᴀᴅ Rɪɢʜᴛ -languages. (The table does not show this, in order to reflect that we are only comparing violation profiles.):

(12)   Candidate (c) could not win:

	Lᴇx Hᴇᴀᴅ Eᴅɢᴇ	Bʀᴀɴᴄʜ Rɪɢʜᴛ	Hᴇᴀᴅ Lᴇꜰᴛ	Hᴇᴀᴅ Rɪɢʜᴛ
a. $[_{vP} [_{v'} v^0 \text{ complement }] \text{ spec}]$		*		*
b. $[_{vP} [_{v'} v^0 [_{vP} \text{spec} [_{v'} t_V \text{ complement }]]]]$				**
c. $[_{vP} \text{spec} [_{v'} \text{complement } v^0]]$			*	

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in order to defend this judgment.

We see that, while the 'right-peripheral specifier'-candidate (a) violates BRANCHING RIGHT once and HEAD RIGHT once, the 'head movement'-candidate (b) violates HEAD RIGHT twice (one violation for the copy/trace of *v* in the lower *v*P, one for the pronounced position in the higher *v*P), and the 'right-peripheral head'-candidate (c) violates HEAD LEFT once.

Now, in a grammar with the ranking HEAD LEFT >> **HEAD RIGHT** >> **BRANCHING RIGHT**, the 'right-peripheral specifier'-choice (a) would be the optimal resolution of avoiding a LEX HEAD EDGE-violation in *v*P. On the other hand, ranking **BRANCHING RIGHT**, HEAD LEFT >> **HEAD RIGHT**, a language would choose the 'head movement'-candidate (b). But the 'right-peripheral head'-candidate (c) could never win against the 'head movement'-choice, unless we re-rank HEAD RIGHT and HEAD LEFT. But this would yield a grammar that prefers [complement - head]-configurations everywhere, not only in *v*P.

Is there anything else that marks the 'head movement'-choice as less harmonic? Notice that candidate (b) does not project a specifier in the higher *v*P. Grimshaw 2001a:3 proposes a constraint OBLIGATORY SPEC, which demands that every projection must have a specifier. OBLIGATORY SPEC reflects the idea of generalizing another constraint, SUBJECT. SUBJECT was proposed by Grimshaw 1997:390 as an Optimality-theoretic variant of the EPP ('Extended Projection Principle'; cf. Chomsky 1981), both of which force one specific specifier to be filled, namely one within clauses. (13) proposes a GENERALIZED SUBJECT constraint, which falls somewhere between OBLIGATORY SPEC and SUBJECT and ties the relevant aspects of both the EPP and the 'VP-internal-subject'-hypothesis (cf. Zagona 1982, Kuroda 1988, Koopman & Sportiche 1991) into one constraint. GENERALIZED SUBJECT requests that *every clausal* projection must have a specifier:

(13)   GENERALIZED SUBJECT:=

   • XP, XP is a projection of a head which projects a clause: ″ Spec, XP.

   Clause:=*def* Extended Projection projected by ″, ″ $ {V, Pred}.

   In an extended projection, every (functional and lexical) projection is a(n extended) projection of the projecting root head. Then, GENERALIZED SUBJECT is violated once for every XP in *ep* of ″ that has no specifier.[15]

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[15]See section 5.1 for the explanatory background of why, exclusively, an *ep* projected by either a verb or a Pred-

GENERALIZED SUBJECT incorporates both an empirical and a conceptual claim. On the empirical side, in order to capture more accurately the mixed and uniform types at stake, an empirical difference between verbal and nominal extended projections must be included in the constraint system. This concerns in particular the 'mixed SOV'-pattern instantiated in grammars like German, which, as we will see below, projects a head-final VP/*v*P but a head-initial NP.

The conceptual claim is that one key factor involved in the puzzle of why a grammar's directionality can differ in VP and NP is the necessity vs. optionality of projecting a specifier and, as such, creating a (potential) 'subject'. The *urge* to have a subject is present in the verbal domain but not in the nominal domain. Why? Verbs but not nouns are 'clause feeders', in the sense that only verbs provide the lexical base for a clause. It is this clause which is in crucial demand of a subject, given that a clause constitutes the predication of a subject. Nouns and their extended projections do not face that same demand. GENERALIZED SUBJECT, then, instantiates the general requirement to create potential subjects in clausal extended projections, while remaining mute in any other context.

GENERALIZED SUBJECT is fairly abstract in its definition of 'subject'. That is, the constraint is not about demanding a nominative case-marked subject or an argument with a specific subject-2-role. Rather, GENERALIZED SUBJECT is about creating *syntactic positions* – i.e. specifiers –, which can become, or provide grammatical subjects. It is precisely because of this structural abstractness that GEN SUBJECT is able to have a general impact on directionality.

Let us return to our triplet of choices to obey LEX HEAD EDGE in a HEAD LEFT >> HEAD RIGHT -grammar to see what GENERALIZED SUBJECT has to say about these configurations. Needless to say, GENERALIZED SUBJECT is violated in the 'head movement'-configuration, but not in the 'right-peripheral specifier'- nor in the 'right-peripheral head'-candidate. Furthermore, we should keep the following in mind. The 'head movement'-choice, which now becomes, in clauses, the product of violating GENERALIZED SUBJECT in order to obey LEX HEAD EDGE, is solely a matter of VP-structure. It does not concern the functional projections of a clause; here,

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head constitutes a clause (category of Pred, cf. Bowers 1993, 2001, Baker 2003). For now, we can simply take for granted that all verbal extended projections constitute clauses. Thus, each projection in a verbal extended projection must have a specifier, or else GEN SUBJECT is violated.

the existence of a specifier does better on GENERALIZED SUBJECT without harming LEX HEAD EDGE. Therefore, if nothing else is said (see more on this point in chapter 3), then a clausal functional head that has a specifier is more harmonic than a functional head that has none, and consequently, clausal functional heads become the preferred targets for specifier movement/filling. Importantly, this even holds in a language which is willing to violate GENERALIZED SUBJECT for LEX HEAD EDGE. As a matter of fact, the claim to be brought forward below is that the VSO Mixtecan languages allow for a configuration [$_{FP}$ spec [$_{F'}$ F^0 comp]], without any need of moving out the functional head (see section 2.4).

Finally, as suggested above, we have to watch out for possible differences in directionality, between VP on the one hand and non-clausal lexical projections on the other. Since GENERALIZED SUBJECT exclusively refers to clauses, the 'head movement'-choice won't violate GENERALIZED SUBJECT in a non-clausal domain. This means that we cannot expect the 'right-peripheral head'-choice to win in such a non-clausal context (recall table (12)). Rather, we should expect that HEAD LEFT >> HEAD RIGHT -languages, which decide on the 'right-peripheral head'-configuration as their best conflict resolution, nevertheless switch to the 'head movement'-choice in all contexts in which GENERALIZED SUBJECT is mute. This will be the essential key to understand the non-uniform word order of grammars such as German and Persian, which seem to be curiously 'idiosyncratic' by singling out primarily VP/vP as the exception of [head -complement] ordering.

Altogether, adding GENERALIZED SUBJECT to the set of constraints, such that we get {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCHING RIGHT, GEN SUBJECT}, we are ready to predict a typology which comprises uniform phrase structure types with a restricted set of non-uniform cases. The following sections, 2.3 to 2.6, will present this typology.

The sections 2.3 to 2.5 discuss the predicted mixed word order types, which are mixed because they implement either the 'right-peripheral specifier'-, the 'head movement'- or the 'right-peripheral head'-choice. Besides understanding exactly which rankings derive these types, what these types' core distinctive properties are and how the rankings accomplish their derivation, we want to also immediately point out the empirical adequacy of these claims. Each mixed type is introduced on the grounds of one primary concrete example – Tzotzil, Yosundùa Mixtec, and German (furthermore Persian). We will continue to use these grammars as

illustrative cases beyond this chapter. In the sections below, we will focus on certain key properties, as well as on why their basic word order suggests the particular *v*P-internal structure proposed here.

The mixed cases in place, we proceed in section 2.6 by asking which other grammars are predicted by a re-ranking of the constraints. We will find two further types, 'uniform [spec [head - complement]]' and 'uniform [spec [complement - head]]', the former supplying the structure for a uniform SVO-grammar, the latter for a uniform SOV-language.

2.3   The 'right-peripheral specifier'-choice and VOS

First, why is it at all sensible to categorize a VOS-language as a grammar with 'mixed' word order? Let us illustrate the answer, already sketched in the introductory chapter, in greater detail. Therefore, let us consider the Mayan language Tzotzil.

2.3.1   Tzotzil

As described by Aissen 1987, 1992, 1996, Tzotzil is a Mayan language of Mexico with the basic word order 'verb - object - subject' (VOS). See a transitive declarative clause in (14):

(14)   Tzotzil (cf. Aissen 1996:450):

    I-s- pas$_V$ mantal$_O$ [li vinik-e]$_S$.
    CP-A3-do   order   the man-ENC
    "The man gave the order."

The [head - complement]-directionality suggested by the VO-order is uniformly maintained throughout the grammar. For example, adpositions are *pre*positions in Tzotzil, meaning that they always precede their complement. (Tzotzil has very few adpositions of which the most common and least specified semantically is *ta*. *ta* is used to express all sorts of relations such as spatial or temporal location or instrumentality).[16]

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[16]Note in the examples in (15) that Tzotzil is a *pro-drop* language. Both subject and object (non-emphatic) personal pronouns can be left un-pronounced (cf. Aissen 1987:2). Back in (14), we should also notice that within the subject noun phrase, the determiner precedes the noun. In a DP-analysis following Abney 1987, this means that D^0

(15)   Tzotzil (cf. Aissen 1996:468):

a.   I-kom   [**ta** s-na]   b.   I-s-tuch' [**ta** machita]

   cp-remain P   A3-house   cp-A3-cut   P   machete

   "He remained at his house."   "S/he cut it with a machete."

Likewise, both main clause and embedded *yes/no*-questions are introduced by the Q-particle *mi*, assumed by Aissen 1996:450 to occupy C^0, which then precedes its complement. Aissen 1996:451 furthermore reports that declarative CP-complements are generally introduced by the particle *ti*, evidently a complementizer in left-peripheral C^0. One example of an imbedded interrogative is given in (16). (Notice in (16) also the sentence initial negation marker *mu* (cf. Aissen 1987:13), which could be a head in pre-complement position).

(16)   Tzotzil (cf. Aissen 1996:451):

Mu j-na'   **mi** ch-i-sut   tal.

NEG A1-know Q   icp-B1-return DIR

"I don't know if I am coming back."

But if Tzotzil is very strict with respect to its [head - complement]-preference, then where does the aspect of mixed directionality come in? As Aissen 1996:451 observes, the grammar has *right*-peripheral *lexical* specifiers, but *left*-peripheral *functional* specifiers. That is, the basic VOS-order can be straightforwardly explained by analyzing Tzotzil as a grammar with [[head - complement] specifier]-directionality in the verb phrase, implying that the subject surfaces inside the lexical projection (cf. Aissen 1992:46, 1996:449). The point though is that this right-orientation does not carry over beyond LexP, Spec. For example, *wh*-phrases must be fronted into a clause initial position, as such suggesting that they either move to a left-peripheral CP, Spec (cf. Aissen 1992:46, 1996: 451), or, at least, into a left-peripheral adjunct position. The pattern is shown in (17a). (17b) illustrates that the same holds for focused phrases:

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precedes its NP-complement. See more on the internal make-up of Tzotzil noun phrases in chapter 4.

(17) a. Tzotzil (cf. Aissen 1996:451):   b. Tzotzil (cf. Aissen 1996:49):

Buch'u$_{S\text{-}wh}$ s-pas$_V$ mantal$_O$?   Pero chobtik$_{O\text{-}f}$ tztz'un$_V$ un.

  who   A3-do   order   but   corn   A3-plant ENC

"Who is giving the order?"   "But it was corn he was planting."

Therefore, VOS Tzotzil does not seem too different from a uniform [spec [head - comp]] -
grammar which surfaces with a basic order 'S - V - O'. Only the specifier of the verb phrase
takes an unexpected orientation.

      Lastly, we should be aware that Tzotzil shares the above directionality contrast with other
VOS-languages. That is, while VOS-grammars are usually quite strict with respect to the
generation of [head - complement], the right-peripheral orientation of the subject is not mirrored
in a parallel right-peripheral alignment of functional specifiers or adjuncts. See, for example, in
(18a) how the basic word order 'verb - object - subject' of the western Austronesian language
Malagasy is paired with a pre-verbal adverb in a left-peripheral adjunct position. Then, in (18b),
we see that Malagasy, just as Tzotzil, fronts *wh*-phrases. In Malagasy, localization of the *wh*-
phrase in Spec, CP is even more suggestive, since it is generally followed by the focus particle
no, which occupies C^0:

(18) a. Malagasy (cf. Rackowski & Travis 2000:122):

Efa   nanasa$_V$ lamba$_O$ Rakoto$_S$.

already   PAST.AT.wash   clothes   Rakoto

"Rakoto has already washed clothes."

    b. Malagasy (cf. Rackowski & Travis 2000:130):

Iza$_{S\text{-}wh}$ **no**   mividy$_V$ [ny vary]$_O$ [ho an' ny ankizy]$_{IO}$

who   FOC   PRES.AT.buy   DET rice   for ACC DET children

"Who bought the rice for the children?"

With these data in mind, let us see how the current system captures them. Under the assumption
that a VOS-language indeed leaves the subject inside the lexical layer in basic declaratives (see
chapter 3 for the derivation of this syntactic feature), then, the surface order is the result of

choosing the 'right-peripheral specifier'-choice (A) as the optimal resolution in the general constraint conflict of HEAD LEFT/RIGHT, LEX HEAD EDGE, BRANCHING RIGHT and GENERALIZED SUBJECT. But under what conditions exactly is this the case?

2.3.2 Deriving VOS

Let us recapitulate here what the 'right-peripheral specifier'- choice is all about. It is the result of obeying LEX HEAD EDGE in a HEAD LEFT >> HEAD RIGHT -language, at the cost of violating BRANCHING RIGHT. (19) provides another look at the configuration:

(19)   The 'right-peripheral specifier'-choice:

```
                        LexP
                       /    \
                    Lex'      Spec
                   /    \
                Lex⁰     Compl
```
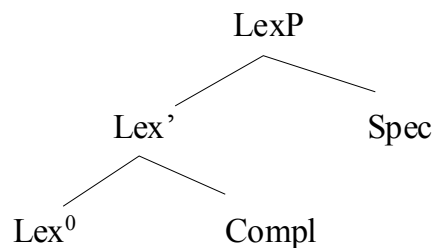
       No violation of LEX HEAD EDGE, HEAD LEFT, GENERALIZED SUBJECT
       One violation of BRANCHING RIGHT (for the right-peripheral orientation of Spec, LexP)
       One violation of HEAD RIGHT (for the left-peripheral orientation of Lex^0)

While violating BRANCHING RIGHT, the 'right-peripheral specifier'-choice in (19) fully obeys not only LEX HEAD EDGE, but also GENERALIZED SUBJECT. HEAD RIGHT is violated once. Now, the configuration is the best choice if and only if it is the optimal conflict resolution. This happens in two possible ranking scenarios:

First, the 'right-peripheral specifier'-choice is optimal if not only the violation of LEX HEAD EDGE but also of both HEAD LEFT and GENERALIZED SUBJECT is more costly than the violation of BRANCHING RIGHT. Second, recall from tableau (12) above that the 'right peripheral specifier'-choice not only avoids violation of GENERALIZED SUBJECT and HEAD LEFT but also incurs *less* violations of HEAD RIGHT than the 'head movement'-choice does (the latter involves a second projection with a second head evaluated on HEAD LEFT/RIGHT). Therefore, choosing the

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'right-peripheral specifier'- over the 'head movement'-configuration (and all other competitors) could also be due to ranking HEAD RIGHT higher than BRANCHING RIGHT.

Altogether, the reasoning implies that the 'right-peripheral specifier'-choice is optimal in a language with one of the following rankings. The claim is that a VOS-grammar such as Tzotzil is the outcome of one such ranking:[17]

(20) Type A – VOS, Tzotzil:

    (i)   LEX HEAD EDGE, HEAD LEFT, GEN SUBJECT >> BRANCHING RIGHT   &
             HEAD LEFT >> HEAD RIGHT

    (ii)   LEX HEAD EDGE, HEAD LEFT, HEAD RIGHT >> BRANCHING RIGHT   &
             HEAD LEFT >> HEAD RIGHT; with GEN SUBJECT ranked anywhere

For a demonstration, let us look at a competition on the directionality of vP. Recall the four logical possibilities of structuring vP (shown in (8)), as well as the structural choices of obeying LEX HEAD EDGE which we have discussed in the previous section 2.2. The tableaux in (21.i) and (21.ii) below show how the [$_{vP}$ [$_{v'}$ v^0 complement] spec]-configuration becomes the optimal structure. This is either by low ranking of both BRANCHING RIGHT and HEAD RIGHT (cf. 21.i), or *despite* low ranking of GENERALIZED SUBJECT *if* HEAD RIGHT is still in an appropriately higher ranking position (cf. 21.ii). In both cases, with the object in complement position, and the subject surfacing in right-peripheral Spec, vP, the outcome is a basic order 'verb - object - subject'.

First, one general comment on the tableaux: Keep in mind, here and below, that we are mostly ignoring that in all candidates, the object is de facto contained in a root VP-shell which is the actual complement of v^0. As such, all candidates ultimately have one more HEAD RIGHT, or HEAD LEFT violation, depending on whether the V^0-copy/trace is left or right of its complement.

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[17]A comma between two constraints means that the constraints can be ranked either way without changing the choices on which candidate wins a competition.

In this respect, the total sum of logical possibilities to rank a certain set of constraints (here, we have five constraints, hence, we get 5! = 120 distinct possibilities) can collapse into (many) less distinct syntactic types if several ranking possibilities still yield the same grammar (likewise, also (i) and (ii) in (13) yield the same grammar).

This additional violation cannot alter any decision on optimality, as shown in the tableaux (since one such violation is unavoidable across possible candidates). I have omitted it for better readability. The simplification also illustrates that the system's factorial typology of mixed and uniform basic word order typology is *not* contingent upon the theoretical choice of assuming a *v*P-VP-layered structure and generating the subject in Spec, *v*P rather than in Spec, VP. Beyond that, once more for better accessibility, the tableaux in (21) and below show only those candidates relevant to the current discussion. Further candidates which could never win a competition independent of the set's ranking will be separately discussed in section 2.4. Finally, keep in mind that in this chapter, we are ignoring the inflectional layer in the equation of basic word order. We will get to the reason why the subject does not move into IP in VOS-grammars in chapter 3. Then, let us look at the competition:

(21) Mayan Tzotzil (data cf. Aissen 1996:450):

I-s-[$_{vP}$ [$_{v'}$ pas$_v$ mantal] [li vinik-e]$_{Spec}$].

CP-A3- do   order   the man-ENC

"The man gave the order."

(i) 'Optimal VOS' by low ranking of both BRANCHING RIGHT and HEAD RIGHT:

	LEX HD EDGE	HD LEFT	GEN SUBJECT	BRANCH RIGHT	HEAD RIGHT
⌐ a. [$_{vP}$ [$_{v'}$ v^0 object] subject]: VOS				*	*
b. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ subject [$_{v'}$ t_V object]]]]: VSO			*!		**
c. [$_{vP}$ subject [$_{v'}$ object v^0]]: SOV		*!			
d. [$_{vP}$ subject [$_{v'}$ v^0 object]]: SVO	*!				*
e. [$_{FP}$ [$_{F'}$ v^0- F^0 [$_{vP}$ subj [$_{v'}$ t_V obj]]]]	*!		*		**

(ii) 'Optimal VOS' by sufficiently high ranking of HEAD RIGHT:

	LEX HD EDGE	HD LEFT	HEAD RIGHT	BRANCH RIGHT	GEN SUBJECT
L a. [$_{vP}$ [$_{v'}$ v^0 object] subject]: VOS			*	*	
b. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ subject [$_v$ t_V object]]]]: VSO			**!		*
c. [$_{vP}$ subject [$_{v'}$ object v^0]]: SOV		*!			
d. [$_{vP}$ subject [$_{v'}$ v^0 object]]: SVO	*!		*		
e. [$_{FP}$ [$_{F'}$ v^0- F^0 [$_{vP}$ subj [$_{v'}$ t_V obj]]]]	*!		***		*

The tableaux in (21) not only demonstrate that, under a type A -ranking, the 'right-peripheral specifier'-candidate (a) wins over both the 'head movement'-candidate (b) and the 'right-peripheral head'-candidate (c); we also see that the winner (a) beats the head-medial configuration (d), since (d) violates LEX HEAD EDGE. If we force the head to be at left of its complement, by HEAD LEFT >> HEAD RIGHT, then aligning the vP-specifier left of its sister violates LEX HD EDGE.

The tableaux in (21) include one other candidate, (e), in order to draw attention to an additional issue early on. Candidate (e) is a structure in which the lexical head v^0 has moved into a functional projection. The candidate loses, not only due to its GENERALIZED SUBJECT violation in combination with additional HEAD RIGHT violations,[18] but furthermore, because it violates LEX HEAD EDGE. The latter is the case despite the fact that, in absence of a functional specifier, the v^0-F^0-complex is at the edge of FP. The point is precisely that it doesn't matter for LEX HEAD EDGE, where in FP the verbal head surfaces. Recalling the exact definition of LEX HEAD EDGE, the constraint can only be obeyed by edge alignment with a *perfect* maximal projection of a *lexical* head. FP cannot satisfy these requirements per se. Now, (e) seems to do fatally worse than all its competitors in (21). However, it would be quite premature to infer that movement of a lexical head into a functional projection is never a possibility and couldn't be forced by additional constraints (any such additional constraint would bring (e) and related candidates back

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[18]See chapter 3 for why the candidate has two (instead of just one) more HEAD RIGHT violations.

into the competition). As already suggested above, we will come back to this issue in chapter 3, when we discuss the inflectional layer. At this point, we just want to explicitly acknowledge the fact that satisfaction of LEX HEAD EDGE can only be accomplished inside the lexical domain itself. That said, we can infer and preview that any clause with 'basic VOS'-order must be a clause in which not only the subject is in a vP-internal base position (a right-peripheral specifier), but also the verbal head is inside that same vP.[19]

More generally, we can infer that a language with a ranking that favors satisfaction of LEX HEAD EDGE will try to resist lexical-head movement into a functional projection.

Now, how does a type A-ranking manage to derive a grammar with the particular kind of mixed directionality we have depicted above? That is, why exactly are lexical specifiers the only phrases (besides complements) that can be on the right of their sisters. Why are functional specifiers and, in general, adjuncts always on the left side? The answer is already at hand: we just highlighted that LEX HEAD EDGE is only relevant inside a lexical XP. Consequently, the directionality of both the lexical specifier and the complement has an impact on the satisfaction of LEX HEAD EDGE, but no adjunct or functional specifier has. In a type A-language, this means that the choice of violating BRANCHING RIGHT for the sake of LEX HEAD EDGE becomes irrelevant in the functional domain, and in turn, satisfaction of BRANCHING RIGHT is possible. That is, in all contexts in which LEX HEAD EDGE is mute, BRANCHING RIGHT directs the alignment. This is one of the essential aspects of an Optimality theoretic framework: lower ranked constraints are never completely 'silent', but rather co-determine grammatical structure whenever the context allows it. Consider first a demonstration on XP-adjuncts, which picks up the Malagasy example we have seen in (18a) above. In the structure in (22), the pre-verbal adverb is adjoined to vP, but the ultimate adjunction site is not essential to the point at stake. What is crucial is rather the optimality of the left- as opposed to a right-peripheral orientation. At the same time, we have to recognize that the left-periphery is even optimal if a phrase adjoins to

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[19]In a scenario in which the subject has moved out of vP and the verb remains inside that vP, the trace of the subject will still align right-peripherally in type A, in order to ensure satisfaction of LEX HEAD EDGE. This is the aspect that a trace of a lexical head is not evaluated on LEX HEAD EDGE, but *surrounding* traces nevertheless *hinder* a lexical head from surfacing at an edge of its perfect maximal projection (see 2.2, and there, the introduction of LEX HEAD EDGE).

lexical vP:

(22)   Malagasy (cf. Rackowski & Travis 2000:122):

[$_{vP}$ efa [$_{vP}$ nanasa$_v$ lamba$_O$ Rakoto$_S$]]
  already   PAST.AT.wash clothes   Rakoto
"Rakoto has already washed clothes."

(i)-ranking of type A – Phrases adjoined to vP or any other XP align left-peripherally:

	LEX HEAD EDGE	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	HEAD RIGHT
☞ a. [$_{vP}$ Adj [$_{vP}$ [$_{v'}$ v^0 object] subject]				*	*
b. [$_{vP}$ [$_{vP}$ [$_{v'}$ v^0 object] subject] Adj]				**!	*

(ii)-ranking of type A – Phrases adjoined to vP or any other XP align left-peripherally:

	LEX HEAD EDGE	HEAD LEFT	HEAD RIGHT	BRANCH RIGHT	GEN SUBJECT
☞ a. [$_{vP}$ Adj [$_{vP}$ [$_{v'}$ v^0 object] subject]			*	*	
b. [$_{vP}$ [$_{vP}$ [$_{v'}$ v^0 object] subject] Adj]			*	**!	

In (22), candidate (a) adjoins an XP left-peripherally to vP, candidate (b) chooses a right-peripheral orientation. Both (a) and (b) share the [$_{vP}$ [$_{v'}$ v^0 complement] spec]-order, which, we know, is the optimal vP-internal organization for type A. Both (a) and (b) satisfy LEX HEAD EDGE. To see why, recall the exact definition of LEX HEAD EDGE. It is satisfied as long as lexical v^0 aligns at an edge of a perfect vP. This is the case in both (a) and (b): v^0 aligns with the left edge of the smaller vP node, regardless of the fact that XP-adjunction creates a *second* larger vP-node. Proper edge alignment holds, even if we are taking into account that the two vP-nodes are two segments of the same maximal projection such that, being precise, we have to take them as one 'inseparable' unit. The verbal head v^0 aligns with an edge of this unit. Compare the adjunction configuration with a thick wall: we would evaluate the alignment of that wall with some element without considering how thick the wall is and what kind of pipes might be pressed

inside it. Of course, it is certainly still a stipulation to define proper edge alignment in the above way. As a matter of fact, *any* definition is a kind of stipulation. The comparison only reveals that there is a natural way to think about the formulation put forward here.

If the presence and location of the XP-adjunct has no impact on the violation profile of LEX HEAD EDGE, it still does matter for BRANCHING RIGHT. As we have seen in the previous section, any right-peripheral adjunction violates BRANCHING RIGHT. Henceforth, candidate (a) wins over (b) in (22); neither one violates LEX HEAD EDGE, but (b) violates BRANCHING RIGHT, and (a) does not.

The same logic – violation of BRANCHING RIGHT is accepted if it prevents violation of LEX HEAD EDGE but not otherwise – determines the left-peripheral orientation of any XP that is a functional specifier. We always have the same conflict. In (23), we see the *wh*-question from (17a). The structure with the *wh*-phrase in Spec, CP (and an abstract C^0)[20] follows Aissen 1996. That the specifier precedes its C'-sister, despite the fact that we are looking at a VOS-grammar, is explained by the general influence of BRANCHING RIGHT and the silence of LEX HD EDGE:

(23) Mayan Tzotzil (cf. Aissen 1996:451):

[$_{CP}$ Buch'u C^0 [$_{IP}$ s-pas$_v$ mantal]]?

who   A3-do   order

"Who is giving the order?"

Functional specifiers are on the left of their sister nodes ((i)-ranking; (ii)-ranking same output):

	LEX HEAD EDGE	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	HEAD RIGHT
☞ a. [$_{CP}$ Wh-spec [$_{C'}$ C^0 IP]]					*
b. [$_{CP}$ [$_{C'}$ C^0 IP] Wh-spec]				*!	*

One additional factor is worthwhile to point out: The dynamics of BRANCHING RIGHT and LEX HEAD EDGE not only predict that any phrasal adjunct above *v*P and any *functional* specifier

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[20]Aissen 1996:449-452 implicitly, though not explicitly, suggests that C^0 is abstract in Tzotzil *wh*-questions.

preferably precedes its sister node; they also predict that, in a transitive structure in which the verb is in v^0, and as such has left the root VP, the lexical specifier of this root VP does not align right-, but rather left-peripherally. Obviously, where the lexical head surfaces at an edge of perfect lexical vP, there is no need for the lower lexical shell to adjust the position of its specifier. Since LEX HEAD EDGE is already satisfied, BRANCHING RIGHT can once more determine the directionality. What does this mean in terms of word order? It means that if we have two object arguments linked into VP, then, the one in Spec, VP, usually the THEME, is expected to precede the one in complement position, cf. [$_{vP}$ v_v^0 [$_{VP}$ object$_{THEME}$ t_V object$_{GOAL}$/PP] subject]. This gives us 'verb - direct object - indirect object - subject' word order:

(24) a. Tzotzil (cf. Aissen 1987:105):

7i- j- meltzan-be$_V$ [j- p'ej na]$_O$ [li Xun-e]$_{IO}$.

cp A1 make-*io*   one *nc* house the Xun-*cl*

"I made a house for Xun."

b. Malagasy (cf. Guilfoyle, Hung & Travis 1992:380):

manasa$_V$ [ny lamba]$_O$ [amin'ny savony]$_{IO}$ [ny zazavavy]$_S$.

AT.wash   the clothes   with the   soap   the girl

"The girl washes the clothes with the soap."

As illustrated in (24), both Tzotzil and Malagasy confirm this expectation (note that in Tzotzil the addition of a second object argument requires the occurrence of the suffix *-be* on the verb; for more details on ditransitives, see Aissen 1987:ch.7). Nevertheless, we have to take the observed facts with a grain of caution. This is because we introduced the linking hierarchy as a working hypothesis, conceding that grammars might differ with respect to the hierarchical mapping of their objects (either across the board or depending on context). If they do differ in this way, then the system predicts that surface order will be reversed. For this reason, we won't dive deeper into this issue, as it would ultimately take us too far away from our primary concerns. But it is important to be aware of the prediction, since it opens an interesting terrain for further research.[21]

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[21]Just one example: Malagasy shares with other Austronesian languages the possibility of a particular kind of

Altogether, let us conclude this section by summarizing what we have derived so far. The rankings of type A generate a grammar with the following core properties. The claim is that these properties match those of VOS-languages such as Tzotzil and Malagasy, which have a mixed, but *systematically* mixed, word order:

(25)   Core properties of type A:

   i.   Every projection has a [head - complement]-order.

   ii.   A *lexical* head that surfaces inside a lexical shell has a *right*-peripheral specifier if that specifier exists.

   > Basic 'V - O - S'-order corresponds to a *v*P containing both the verb in head position and the subject in a right-peripheral specifier position.

   iii.   Any *v*P (and VP) preferably has a specifier (possibly a copy/trace).

   iv.   Phrases that are adjoined to a lexical XP or to any functional projection align *left*-peripherally.

   v.   Functional specifiers align *left*-peripherally.

2.4   The 'head movement'-choice and strict VSO

Let us start this section by introducing one empirical example of a strict VSO-language, to illustrate what I mean by 'strict' and, furthermore, how the aspect of mixed directionality plays a role in VSO-languages. Consider therefore Yosondúa Mixtec.

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passive formation (depending on a morphological change on the verb). Here, a THEME or also an oblique can be promoted to take the subject position. Meanwhile, the AGENT is not suppressed but rather demoted to the position of the THEME (yielding in Malagasy either a 'verb - AGENT - oblique - THEME$_{Subj}$'-, or a 'verb - AGENT - THEME - oblique$_{Subj}$' -order).

One could explore whether such passive formation is in fact rooted in a change of linking hierarchy, meaning that the promoted argument is base generated in Spec, *v*P, whereas the AGENT has to take the next highest linking position, Spec, VP. Beyond accounting for the distinct word order, the localization of the demoted AGENT into a position which c-commands V^0's complement would explain that the AGENT still maintains certain subject properties such as reflexivization and control. See Guilfoyle, Hung & Travis 1992 for an analysis which entirely matches the hierarchy and directionality of the structures envisaged here, with the only difference that Guilfoyle, Hung & Travis identify the right-peripheral specifier hosting the subject as Spec, IP, and not Spec, *v*P as in my proposal.

2.4.1   Yosondúa Mixtec

Following the description of Farris 1992, Yosondúa Mixtec is a Mixtecan language with the
basic word order 'verb - subject - object' (VSO). See a declarative transitive clause in (26):

(26)   Yosondúa Mixtec (cf. Farris 1992:10):

shíkó$_V$ ñ~$_S$ nãni$_O$

CON:sell   she   corn

"She is selling corn."

Since Koopman & Sportiche 1991, who elaborated upon Chung & McCloskey 1987 on Irish and
Welsh, much generative work has been done in order to establish that VSO-languages are 'SVO-
grammars in disguise' (see in particular McCloskey 1991, 1996; McCloskey 1997 for an
overview). That is, the 'V - S - O' -surface order is a result of leftward verb movement, out of a
verb phrase with [spec$_S$ [head$_V$ - complement$_O$]]-order: 'V$_i$ - S - t_i - O'.

        Now, the first thing to notice about Yosondúa Mixtec is that the grammar is truly strict
with respect to the preference of a [head - complement]-order. For example, adpositions are
necessarily prepositions:

(27)   Yosondúa Mixtec (data cf. Farris 1992:10):

xáhnja$_V$ ná$_S$ ndãku$_O$ [**xíín**$_P$ d~]

CON:cut   I:RES   firewood   with   him

"I am cutting firewood with him."

Likewise, embedded declarative clauses are introduced by the complementizer *x~* and embedded
yes/no-questions by the complementizer *nú*, suggesting that C^0 precedes its complement. Two
examples are given in (28a) and (b); in (b), we should further notice the negation marker *tu*,
which could be, once more, a head in pre-complement position:

(28)   a.   Yosondúa Mixtec (cf. Farris 1992:29):

        kánúú   **x~**   k§ŋ§ŋ   d~

        CON:be:important   that   POT:go   he

        "It is important that he goes."

        b.   Yosondúa Mixtec (cf. Farris 1992:42):

        tu   xín§   ná   **nú**   k§ŋ§ŋ   d~

        NEG CON:know   I:RES   if   POT:go   he

        "I don't know if he will go."

Now, what is 'strict' about Yosondúa Mixtec? The point is that VSO-languages like Yosondúa

Mixtec never depart from the VSO-order in declarative clauses, no matter what the higher

functional context is.

        We have to review here the standard view about the Celtic type of VSO: The leftward

verb movement which yields the V-first pattern targets the functional Infl-head. Evidence for this

comes from complex verb constructions, in which the tense is picked up by an auxiliary,

resulting in an 'Aux - S - V - O'- surface order. Crucially, Yosondúa Mixtec does not allow such

a configuration. On the contrary, in complex verb constructions, the surface order is still

'V_1 - $V_{2\text{-main}}$ - S - O'. The following shows two examples, one with a clause initial modal, the

other with a finite directional (Yosondúa Mixtec has many such directionals, which are reduced

forms of motion verbs (Farris 1992:52)):[22]

(29)   Yosondúa Mixtec (data cf. Farris 1992:29, 53):

        a.   Kúã   sáh~$_V$ d~$_S$ Nn§ã$_O$.   b.   Kw~n k§ŋin$_V$ d~$_S$ nãni$_O$.

                POT:be:possible POT:do he   work   INC:go POT:take   he   corn

                "He can work."   "He has gone to get corn."

_____

[22]See chapter 3 for further evidence that 'Yosondúa Mixtec VSO' cannot be the outcome of verb-to-I^0

movement.

Yosondúa Mixtec is not the only VSO-language which shares this kind of strictness. Another example is Greek, for which Alexiadou 1999:53 claims that its 'Aux - V - S - O'-orders are the result of leftward V$_{participle}$-movement happening *below* AgrSP/TP (= IP):[23]

(30)   Greek (Alexiadou 1999:51):

An **ehun**$_{Aux}$ idhi **mathi**$_V$ kala [i Kokini]$_S$ [to sistima tus]$_O$.
if   have   already learnt   well the-Reds-nom   the system cl-gen-pl
"If the Reds have already learnt their system well..."

In chapter 3, we will see that the Mixtecan kind of strict 'verb - subject - object'-order, which is indifferent to the representation of the Infl-node, appears to be rather common, while, potentially surprising, the Celtic type is particularly rare. Therefore, it might very well be the case that most VSO-languages can be grouped under the type exemplified here by Yosondúa Mixtec

This pattern is straightforwardly explained by correlating it to the 'head movement'-choice mentioned above. That is, the 'VSO'-order is still recognized as the outcome of leftward verb movement out of a verb phrase with [spec [head - complement]]-directionality. But the target of the movement is, like the source, a lexical projection, and the movement is driven by purely structural needs: to align the lexical head at an edge of a perfect LexP.

It is important to be aware that these structural needs do not extend into the functional layer, and that this is empirically desirable as well. Here, we get to the point of why we want to talk about 'mixed' directionality in a strict VSO-grammar. The following illustrates that, despite the fact that the verb apparently dislikes to surface under the roof of a lexical specifier hosting the subject, there is no reluctance for higher left-peripheral adjuncts or functional specifiers to occur. No head has 'jumped over' the adverb *xa* 'already' in (31); and (32) exemplifies that *wh*-phrases must be fronted in Yosondúa Mixtec into a clause-initial position, which is not preceded

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[23]Greek shows 'S - V - O'- and 'V - O - S'-orders alongside with (strict) 'V - S - O'. Alexiadou 1999:49, following Alexiadou 1994, 1996, Alexiadou & Anagnostopoulou 1995, 1998, identifies 'SVO' to be the result of left dislocation, the subject here in fact being a topic which sits in a specifier of a Topic phrase above IP. Similarly, 'VOS' is recognized as the result of leftward object movement serving informational needs (that is, a non-focal object is forced to move out of the focus domain; cf. Alexiadou 1999:59).

by any complementizer head.

(31) Yosondúa Mixtec (cf. Farris 1992:56):

Xa   yáxí_V   d~_S   ndǩ~_O.

  already CON:eat he   banana

  "He is already eating a banana."

(32) Yosondúa Mixtec (cf. Farris 1992:36):

[N~ã chaa]_{S-wh} ni xahan_V [xíín ní]?

  what man   COM COM:go   with you:RES

  "Which man went with you?"

Altogether, I propose that Yosondúa Mixtec is the outcome of a grammar which systematically applies the 'head movement'-choice in verbal extended projections. But under exactly what conditions does the 'head movement'-choice become the optimal configuration?

2.4.2 Deriving strict VSO

The 'head movement'-choice is the choice of obeying LEX HEAD EDGE through violation of HEAD RIGHT and, in a clause, GENERALIZED SUBJECT. Therefore, it is the choice of a grammar which prefers [head - complement] over [complement - head] (by HEAD LEFT >> HEAD RIGHT). Second, the grammar must prefer to satisfy LEX HEAD EDGE. Third, it must be willing to violate both GENERALIZED SUBJECT and HEAD RIGHT, but neither HEAD LEFT nor BRANCHING RIGHT, for satisfaction of LEX HEAD EDGE. Such a grammar will break up any [_{LexP1} spec [_{Lex'} Lex^0 complement]]-configuration by moving the lexical head out and creating a second lexical projection, LexP2, above LexP1, in order to allow the lexical head to align with an edge of its lexical domain. LexP2, then, necessarily lacks a specifier or nothing is gained with respect to alignment. The complete configuration is shown in (33).

(33)   The 'head movement'-choice:

LexP2
|
Lex'
/   \
Lex^0 LexP1
▲   /   \
         Spec   Lex'
                    /   \
                   t Compl
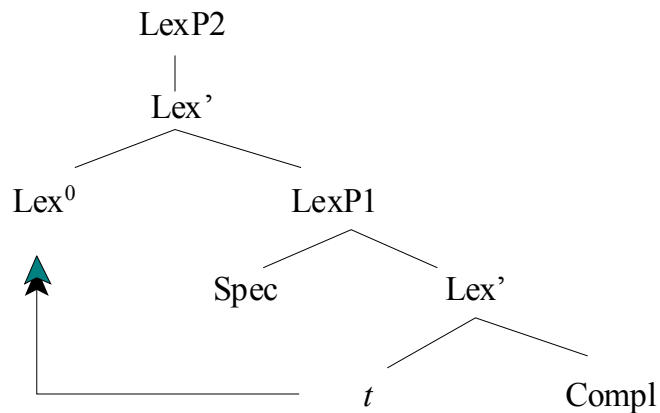
No violation of LEX HEAD EDGE, HEAD LEFT, BRANCHING RIGHT

Two violations of HEAD RIGHT (for the left-peripheral orientation of Lex^0 and its copy)

One violation of GEN SUBJECT in clauses (for the missing Spec, LexP2)

Given what we just said, the 'head movement'-choice is always optimal if and only if a language has a ranking that matches one of the options given in (34) below. That is, the triple LEX HEAD EDGE, HEAD LEFT and BRANCHING RIGHT must be ranked above both HEAD RIGHT and GENERALIZED SUBJECT. The claim is that Yosondúa Mixtec, and any language with the same 'strict' version of VSO, has one of these rankings:

(34)   Type B – strict VSO, Yosondúa Mixtec:

LEX HEAD EDGE, BRANCHING RIGHT, HEAD LEFT >> HEAD RIGHT, GENERALIZED SUBJECT

The surface 'verb - subject - object'-order is strict in type B, since the ranking never allows a verb to surface between its specifier and its complement, hence, between subject and object. Instead, the main verb always moves to the left, across the subject-specifier, yielding VSO. Given the current reasoning, the main verb does *not* raise in order to fulfill the needs of some (functional) target position, but rather to satisfy the desire to align at an edge of its lexical domain. That is why the movement systematically happens regardless of what else is contained

in the clause.[24]

To get a grasp on the ranking dynamics, let us look again at a *v*P-competition, this time under the type B ranking. The tableau in (35) shows how the promotion of BRANCHING RIGHT to a higher ranking position changes the output choice and elects the 'head movement'-candidate (b) as optimal. Keep in mind that we are presently ignoring the inflectional layer, and assuming that, in strict VSO-grammars, neither the verb nor the subject moves into IP (chapter 3 will explain why this is the case).

(35)   Yosondúa Mixtec (data cf. Farris 1992:29):

Kúã   [*v*P [*v'* sáh~*v* [*v*P d~ [*v'* *t*V Nnᶴ{ã]]]].
POT:be:possible POT:do   he   work
"He can work."

'Optimal strict VSO' by low ranking of both GEN SUBJECT and HEAD RIGHT:

	LEX HD EDGE	HD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
a. [*v*P [*v'* *v*⁰ object] subject]: VOS			*!		*
☞ b. [*v*P [*v'* *v*⁰ [*v*P subject [*v'* *t*V object]]]]: VSO				*	**
c. [*v*P subject [*v'* object *v*⁰]]: SOV		*!			
d. [*v*P subject [*v'* *v*⁰ object]]: SVO	*!				*
e. [FP [F' *v*⁰-F⁰ [*v*P subject [*v'* *t*V object]]]]	*!			*	**

If we compare candidates (b) and (e), we see that the system really interprets the Mixtecan kind of VSO as due to a verb movement that takes place inside the lexical layer. Moving the verb into a functional projection isn't of much help if the motivation is to be at an edge of perfect LexP.

---

[24]The verb movement is predicted to happen even if the subject has actually left its base position. This is due to the fact that surrounding traces still hinder a lexical head from proper edge alignment (recall again the introduction of LEX HEAD EDGE in section 2.2). The projection of a second *v*P would only become obsolete if the verb completely left *v*P, moving into some higher functional projection.

Thus, (b) beats (e), since (e) incurs a violation of LEX HD EDGE that (b) does not share.

Besides making sure that the 'head movement'-choice is optimal inside the lexical layer, the type B grammar also accounts for the fact that XP-adjuncts can and do precede a lexical or functional head, and so do functional specifiers. This is another consequence of the fact that LEX HEAD EDGE is mute outside LexP. Therefore, just as the 'right-peripheral specifier'-choice of type A could only win inside a lexical projection, so the 'head movement'-choice of type B can only succeed inside that same domain.

We see in (36) the situation for a single functional head that has a specifier, which satisfies GENERALIZED SUBJECT without violating LEX HEAD EDGE. Consequently, the need for head movement vanishes, and so does the optimality of the 'head movement'-choice. On the contrary, transforming $[_{FP1}$ spec $[_{F'}$ F^0 compl]] into $[_{FP2}$ $[_{F'}$ F^0 $[_{FP1}$ spec $[_{F'}$ t_F comp]]]] costs an additional HEAD RIGHT violation plus a violation of GENERALIZED SUBJECT with no compensating advantages. In tableau (36), it is the head-medial FP, candidate (a), which wins over candidate (b) with functional head movement. As an illustration, recall the Mixtecan *wh*-question seen in (32) above, repeated here as (37):

(36)   No 'head movement'-choice in the functional domain:

	LEX HEAD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
☞ a. $[_{FP1}$ spec $[_{F'}$ F^0 compl]]					*
b. $[_{FP2}$ $[_{F'}$ F^0 $[_{FP1}$ spec $[_{F'}$ t_F comp]]]]				*!	**(!)

(37)   Yosondúa Mixtec (cf. Farris 1992:36):

[N~ã chaa]$_{S\text{-}wh}$ **ni**   xahan$_V$ t_S [xíín ní]?

  what man   COM COM:go   with you:RES

  "Which man went with you?"

Attention should be given to the aspect particle *ni* (expressing completive aspect) in (37), which intervenes between the verb and the fronted *wh*-phrase. In chapter 3, *ni* will be recognized as a head occupying T^0. This entails that the *wh*-phrase must be at least as high as Spec, TP. It could

also be adjoined to TP, or it could be located in Spec, CP. In the latter scenario, it could be the case that the T-head has in fact moved to C^0. All these interpretations of the data are compatible with the current classification of Yosondúa Mixtec as a type B -grammar. Given (36), we do not expect any functional head to cross the *wh*-phrase, yielding something like '*ni - N~ã chaa ...'.

Furthermore, be aware that the general preference for unbroken Spec-head-configurations in functional projections remains unchanged even if FP contained a lexical head as a result of movement and head-to-head-adjunction of Lex^0. We cannot exclude the possibility that further, higher ranked, constraints force the movement of a lexical head into a functional projection. In such a situation, of two candidates, one, (a), with FP1 only, [FP1 spec [F' Lex^0+F^0 comp]], the other, (b), with FP1 plus FP2, [FP2 [F' Lex^0+F^0 [FP1 spec [F' t_F comp]]]], *both* (a) and (b) violate LEX HEAD EDGE. The point is once more that a lexical head can never satisfy LEX HEAD EDGE inside a functional projection, given that FP is not a perfect projection of a lexical head. Hence, even if the complex head Lex^0+F^0 aligns at an edge of FP (which it does in (b)), LEX HEAD EDGE is still violated. At the same time, only (b), which contains the specifier-less FP2, violates GENERALIZED SUBJECT, and, (b) incurs an additional HEAD RIGHT violation inside FP2 to boot.[25] Altogether, (b), representing the 'head movement'-choice, is less harmonic than (a). This is shown in tableau (38), with '+ Lex move' representing a hypothetical constraint that forces the movement of the lexical head into FP1. Correspondingly, a candidate (c) which avoids the movement is kicked out of the competition, and the ultimate winner is (a):

(38)   No 'head movement'-choice in the functional domain, even if a lexical head is involved:

	+ Lex move	LEX HEAD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
L a. [FP1 spec [F' Lex^0- F^0 compl]]		*				**
b. [FP2 [F' Lex^0-F^0 [FP1 spec [F' t_F comp]]]]		*			*!	**(!)*
c. [FP1 spec [F' F^0 compl]]	*!					*

---

[25]See chapter 3 for the details of how HEAD RIGHT violations accumulate.

We have seen that a functional specifier does not need to be crossed by the corresponding functional head, whether or not that head has a lexical head adjoined to it. We have also already discussed in the previous section that phrases can adjoin to VP/*v*P or higher without any distinctive impact on LEX HEAD EDGE. Consequently, in type B-languages, XP-adjuncts are not an occasion for the 'head movement'-choice either. Then, data of the kind seen in (31), with an adverb preceding a plain 'V - S - O'-sequence, could perfectly well be cases of *v*P-adjunction. Tableau (39) shows how simple adjunction (in (a)) wins over an 'additional head movement'-application (candidate (b)):

(39)   No head movement in order to cross an XP-adjunct:

	LEX HEAD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
L a. [$_{vP2}$ Adj [$_{vP2}$ v^0 vP$_1$]]				*	*
b. [$_{vP3}$ [$_{v'}$ v^0 [$_{vP2}$ Adj [$_{vP2}$ t_V vP$_1$]]				**!	**(!)

Summarizing this section, we have derived the following core properties of type B. This makes it possible to explain the emergence of a basic strict VSO- order in languages like Yosondúa Mixtec:

(40)   Core properties of type B:

     i.   Every projection has a [head - complement]-order.

     ii.   Under the assumption that the subject is base generated in a *v*P-internal specifier position, the corresponding verbal head always crosses the specifier and surfaces in an additional *v*P, projected above the original one.

           Basic 'V - S - O'-order corresponds to two *v*Ps: the lower one contains the subject (remaining in situ), followed by the verb copy, followed by the object; the higher one contains the raised verb followed by the *v*P-complement.

     iii.   VSO is strict, since movement of the main verb happens independently of the co-presence of further (auxiliary/modal) verbs, or functional heads.

     iv.   Specifiers, both lexical and functional, align left-peripherally.

     v.   Adjuncts align left-peripherally.

vi. Whereas the main verb obligatorily moves to the left of the subject's base position, it does not cross any functional specifier, nor any adjunct. Likewise, functional heads do not move to the left of their specifiers without additional independent motivation.

2.5 The 'right-peripheral head'-choice and SOV despite preference for [head - comp]

As a last mixed type with a default preference for [head - complement]-order, let us discuss how an SOV-language can be a grammar with mixed directionality. Consider first the Germanic language German.

2.5.1 German

German, in many respects, can be described as a grammar that prefers a [head - complement]-order (for a complete comparison of the basis word order in German and six other Germanic languages, see, for example, Webelhuth 1992:ch.2). For example, as illustrated in (41), adpositions are *pre*positions. In (42), we see that nouns can take PP-complements, which then have to follow the nominal head. In both (41) and (42), notice that the determiner is in pre-nominal position. In a DP-analysis following Abney 1987, this indicates that D^0, hosting the determiner, is left of its NP-complement:[26]

(41) German:

    a.   **unter$_P$** dem Druck   b.   **mit$_P$** der Welt

        under   the   pressure   with   the   world

        "under the pressure"   "with the world"

(42) German:

     die **Angst$_N$** [$_{PP}$ vor dem Krieg]

     the   fear   before   the   war

     "the fear of the war"

---

[26]German has a few postpositions. See section 5.4 for discussion thereof. See more on noun phrases in chapter 4. On adjectives, see sections 5.1-5.2.

Furthermore, complementizers, such as the declarative *dass* 'that' or the causative *weil* 'because, since', precede the clause, indicating that they are to the left of their complements:

(43)   German:

    ..., **weil**_C [er nicht glauben wollte], **dass**_C [es schlecht ausgehen wird].

       since   he not   believe wanted   that   it bad   end   will

    "... since he didn't want to believe that it will end badly."

Then, there is the phenomenon of Verb Second, which German shares with all other Germanic languages except English. We will discuss Verb Second in section 3.5.2; at this point we just want to be aware that, in all main clauses, the finite verb surfaces in second position, following an arbitrary constituent:

(44)   German:

    a.   Leider_{Adv}   **hat**_{V-F}   [er nicht über die Konsequenzen nachgedacht].

       unfortunately have-PRESENT he   not   about the consequences   thought

       "Unfortunately, he hasn't thought about the consequences."

    b.   [Die Gräfin]_S **verehrte**_{V-F}   [.. [den Butler]_O ..]

       the countess admire-PAST   the   butler

       "The countess admired the butler."

While there is still a dispute in the generative literature on what the target projection of Verb Second is, we can probably say that there is a consensus with respect to the following claim: a Verb Second structure is the result of *moving* the finite verb into a *functional* projection, the phrase in initial position occupying the specifier thereof. This assumption of a derived position goes back to Bach 1962, Bierwisch 1963, Klima 1975, Koster 1975, den Besten 1977, Thiersch 1978. Koster, den Besten and Thiersch identified the target projection as CP, based on the fact that, in most Verb Second languages (see Vikner 1995 for the exceptions of Icelandic and Yiddish), Verb Second never occurs under a complementizer, but only in root clauses in which

the complementizer is absent.[27] The fact that is relevant at present is that the functional head targeted by the verb movement whatever it is likewise precedes its complement.

Then, where is the aspect of mixed directionality? It concerns the position of the verb in all non-Verb Second contexts: the verb surfaces on the *right* of the object, which itself follows the subject. We thus get a basic order 'subject - object - verb'; for the object to follow the verb is ungrammatical. Some of the verb-finality is already visible in the subordinated clauses in (43), with the finite verb following the infinitive, and in (44a), with the main verb participle following the PP. Here is an embedded declarative transitive clause:

(45)   German:

    a.   ..., dass [der Butler]$_S$ [die Gräfin]$_O$ küsste$_V$.

        that   the butler   the countess   kissed

        "... that the butler kissed the countess."

    b.   *..., dass [der Butler]$_S$ küsste$_V$ [die Gräfin]$_O$.

Taken at face value, the OV-order suggests that, in the syntactic structure of sentences such as in (45), the verbal head follows its complement, disregarding the otherwise preferred [head - complement]-order. This is precisely the analysis adopted here, with the verbal head surfacing in a head-final VP/*v*P in all non-Verb Second contexts.[28]

Given the overwhelming body of generative work on German (and the Germanic languages), one comment is in order. The assumption that the verb phrase is head-final in German has a long tradition, see for example Bach 1962, Bierwisch 1963:34ff, Bartsch & Vennemann 1972, Esau 1973, Klima 1975, Koster 1975, den Besten 1977, Thiersch 1978, Reis 1985, Haider 1986, Grewendorf 1988, Webelhuth 1992, Vikner 1995, Büring 1996, Müller 1999, to name only a few. Nevertheless, since Kayne 1994 proposed the idea of anti-symmetry,

---

[27]German has five coordinating conjunctions (*aber* 'but', *denn* 'because (of)', *oder* 'or', *sondern* 'but on the contrary', *und* 'and'), which connect two main clauses such that each one has Verb Second.

[28]On the exact structural integration of the finite auxiliary (and modal), see section 3.5.

followed by the 're-analysis' of the Germanic languages by, for example, Zwart 1993, Zwart 1997, Hoekstra 1997, Hinterhölzl 2000, Koopman & Szabolcsi 2000, it is not so uncontroversial anymore to assume a [complement - head] -order in the German VP. At the same time, there is still a strong party in defense of the earlier view, see in particular Haider 1993, 2000, Haider & Rosengren 1998, Büring & Hartmann 1997a, b, Vikner 2001, Morimoto 2002, Bobaljik 2002a.

The current goal is not to prove that a [head - complement]-analysis can by no means be the correct approach to the German verb phrase, or that a [complement - head]- analysis is. Rather, the goal is to *explain* the possibility of a head-final directionality in combination with a preference for the reverse elsewhere. That is, the goal is to provide the theoretical grounds to understand why this particular kind of directionality *is* a valid option granted by universal grammar (while others are not). The overall proposal as such offers a new conceptual justification of the standpoint that the German verb phrase is head final. As noted in the introductory chapter, the point is not so much that we couldn't derive grammars like German and Tzotzil within a purely LCA-based approach. The point is that we are then still left with the question of why universal typology includes precisely these kinds, but not other logically possible alternatives.

That said, I will, at this point (see also the discussion in section 5.1) address one aspect of the discussion. As Hinterhölzl 2000:§2.3 observes, a strong argument in favor of a [head - complement] -analysis for German is the fact that manner adverbs such as *sorgfältig* 'carefully', *genau* 'exactly', *gut* 'well', *schlecht* 'badly', in many contexts, intervene between the (definite or indefinite) object and the verb. Under the assumption that manner adverbs have to be adjoined to VP, this indicates that the object must have left its VP-internal base position in any case, so the assumption of a post-verbal base position is empirically harmless:

(45)   German (cf. Hinterhölzl 2000:304):

    a.   ..., weil Hans$_S$ [das Buch/ein Buch]$_O$ **sorgfältig** gelesen$_V$ hat$_{Aux}$

            since Hans   the book / a   book   carefully   read   has

          "... since Hans has read the book/a book carefully."

    b. $^{??}$..., weil Hans$_S$ **sorgfältig** [das Buch/ein Buch]$_O$ gelesen$_V$ hat$_{Aux}$

At the same time, Hinterhölzl admits in footnote 3 that (b) in fact yields a perfectly grammatical sentence, but it has a different interpretation ("it was careful of Hans to read the book"). Note in the following example that we can obtain a distinction between a generic and an existential reading of the bare plural *Bücher* 'books', by placing the adverb either in a pre- or post-object position:

(45) German:

    a.   ..., weil Lola$_S$ Akten$_O$ **sorgfältig** liest$_V$.

        since Lola   files   carefully   reads   GENERIC reading

        "... since with respect to files, Lola reads them carefully."

    b.   ..., weil Lola$_S$ **sorgfältig** Akten$_O$ liest$_V$.

        since Lola   carefully   files   reads   EXISTENTIAL reading

        "... since Lola is reading files carefully."

We will come back to the distinction between existential and generic readings in section 3.5.1 (with specific discussion of Diesing 1992). At the moment, we want to emphasize that the object *can* surface after the manner adverb. It is just that there is a potential to impose meaning differences on the distinct ordering. Furthermore, as pointed out by Hinterhölzl himself, in idiomatic expressions, the object strongly *prefers* to follow the manner adverb; see an example in (46). The same holds for directional PP-complements (which are here assumed to be linked below a THEME-object; cf. (3) in 2.1); this is illustrated in (47) (other PP-complements can either follow or precede, without meaning differences):

(46) German:

    a.   ..., weil er$_S$ ihr diesmal sehr **sorgfältig** einen Bären$_O$ aufgebunden$_V$ hat$_{Aux}$

        since he her this-time very carefully   a   bear   tied-on   has

        "... since he has fooled her very carefully this time."

    b.   *..., weil er$_S$ ihr diesmal einen Bären$_O$ sehr **sorgfältig** aufgebunden$_V$ hat$_{Aux}$

(47)   German:

    a.   ..., weil sie$_S$ **schnell** [$_{PP}$ auf den Stuhl] gestiegen$_V$ ist.$_{Aux}$

              since she   fast   on   the   chair   climbed   is

              "... since she climbed on the chair fast."

    b.   *..., weil sie$_S$ [$_{PP}$ auf den Stuhl] **schnell** gestiegen$_V$ ist.$_{Aux}$.[29]

Now, Hinterhölzl explains the different orders by distinguishing multiple landing sites for the objects and PPs: [$_{TP}$ T^0 [specifics [*oft* [Neg [Focus [AgrNom [AgrDat [AgrAcc [*manner adverb* [$_{PredP}$ Pred^0 [$_{VP}$ V^0 ....]]]]]]]]]]] (cf. Hinterhölzl 2000:309, 311; with PredP the landing site for idiomatic expressions and directional PPs). While this is certainly a valid approach, there seems to be a much simpler solution, which, over the course of this dissertation, will find further support (see in particular the discussion in chapter 3, 3.5.1, as well as in chapter 4 on the distribution of adjectives in noun phrases). This solution is, following Haider & Rosengren 1998:55, to allow (a), adverbs to be adjoined to either VP or V-bar (as well as *v*P or *v*-bar), and to allow (b), for a potentially *variable* adjunction site for particular adverbs.

        Such variability seems empirically suitable for German especially in light of examples like the following. In (48a) and (b), the bare plural object *Fragen* 'questions' is squeezed between the two manner adverbs *gut* 'well' and *schnell* 'fast'. In (a), it is *gut* that leads the sequence, while in (b), it is *schnell*. There is no way to derive both clauses without allowing *gut* and *schnell* to take two different positions in the syntax:

(48)   German:

    a.   ..., weil Lola$_S$ **gut** Fragen$_O$ **schnell** beantwortet$_V$.

              since Lola   well questions fast   answers

              "... since Lola does it well to answer questions fast."

---

[29]The current order is in fact also possible if *schnell* is stressed. We can then obtain a contrastive reading, in a context like "she climbed on the chair FAST – not slowly".

b.   ..., weil Lola$_S$ **schnell** Fragen$_O$ **gut** beantwortet$_V$.

            since Lola   fast   questions well answers

        "... since Lola is fast in answering questions well."

I wish to highlight that giving adverbs the freedom to either adjoin to an XP- or to an X-bar-node, and to furthermore allow one grammar to exploit both options, is more than just a convenient way to open the door for a simpler structure. We have to keep in mind that adverbs have syntactically quite a different status than arguments. Only the latter are governed by the thematic hierarchy, which can force two arguments into a particular relative order at least in terms of base generation. There is no such pressure between an argument and an adverb. Two different kinds of adverbs might be bound by an *adverbial* hierarchy (cf. Cinque 1993, 1999), such that, for example, manner adverbs cross-linguistically occur low in the syntactic tree, but it is an independent question of whether grammars in fact enforce a particular way of syntactically representing this hierarchy and whether they tie a specific adverb cross-linguistically to one particular position. Recognizing that adverbs do not participate in thematic linking, one might rather expect that grammars allow for some greater leeway in this domain. This opens a door to inducing meaning distinctions (by different scope relations) in the most economic way, without burdening the syntax with an extra movement operation.[30]

      Returning to head-final verb phrases with an otherwise [head - complement]-grammar, German (and some of its Germanic siblings) is not the only language that shows this kind of mixed directionality. Another example is Persian based on the structural description by Karimi 1994, Ghomeshi 1996, 1997. Here, the contrast of the (surface) head orientation is even more obvious than it is in German, since Persian has no Verb Second. (49) illustrates the basic 'subject - object - verb'-order of declarative transitive clauses. (50) gives a first glance at the elsewhere preferred left-orientation of X^0: adpositions are prepositions (cf. (50a)), and

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[30]Be aware that the general left-orientation of the adverbs across different contexts follows from the strength of BRANCHING RIGHT. See more on this below. On the point that adverbs are not forced into a unique base position by thematic hierarchy or alike, see also Ernst 2002 who likewise adopts the hypothesis that adverbs can have multiple base positions and who proposes a theory of adverbial distribution which correctly predicts the possible positions of any adverbial (with a given interpretation) in any given sentence.

complementizers such as the declarative *ke* 'that' precede their complement (cf. (b)).

(49) Persian (cf. Karimi 1994:50):

man$_S$ ketâb-o$_O$ mixunam$_V$.

I book-râ read

"I read the book."

(50) Persian (cf. Karimi 1994:50, 52):

a. man$_S$ [$_{PP}$ **bâ** sâsân] raqsidam$_V$ b. ... **ke** [sepide$_S$ pirhan$_O$ xarid$_V$].

I with Sasan dance that Sepide shirt bought

"I dance with Sasan" "... that Sepide bought shirts."

Let us then investigate how the system explains the possibility of a grammar which projects a [complement - head]-order inside the lexical verb phrase but [head - complement] elsewhere. The claim is that in all contexts in which the verb does not leave the lexical layer (see chapter 3 for derivation of this aspect in all clauses in Persian, in all non-Verb Second contexts in German), 'S - O - V'-order is the result of electing the 'right-peripheral head'-choice as the optimal resolution in the conflict of HEAD LEFT/RIGHT, LEX HEAD EDGE, BRANCHING RIGHT and GENERALIZED SUBJECT. Under exactly which rankings, then, is the 'right-peripheral head'-choice the optimal one?

2.5.2 How heads can be final in the verb phrase alone

The 'right-peripheral head' choice is the choice of satisfying LEX HEAD EDGE by projecting a lexical head on the right of both complement and specifier. In a [$_{LexP}$ [complement Lex^0]]-configuration, the specifier can be aligned left-peripherally, and the entire lexical projection still obeys LEX HEAD EDGE. For LEX HEAD EDGE, it doesn't matter if the head is at the left or the right edge of LexP, as long as it surfaces at *some* edge. The only harmonic disadvantage of the structure is that it violates HEAD LEFT, which makes it a marked choice in a language with HEAD LEFT >> HEAD RIGHT-ranking. Any such grammar would usually prefer to obey HEAD LEFT rather than HEAD RIGHT. Thus, it would usually prefer to have the head left of its complement. Let us have another look at the 'right-peripheral head'-choice whose harmonic advantage is the

accomplishment of obeying LEX HEAD EDGE, BRANCHING RIGHT, GENERALIZED SUBJECT and HEAD RIGHT all at once:

(51)   The 'right-peripheral head'-choice:
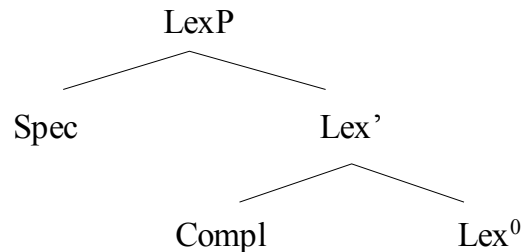
```
                    LexP
                   /    \
               Spec      Lex'
                        /    \
                    Compl     Lex⁰
```

No violation of LEX HEAD EDGE, BRANCHING RIGHT, GEN SUBJECT, HEAD RIGHT
One violation of HEAD LEFT (for the right-peripheral orientation of Lex^0)

If a language ranks HEAD LEFT >> HEAD RIGHT, the only chance that it ever uses the 'right-peripheral head'-choice is to have not only LEX HEAD EDGE ranked above HEAD LEFT, but also GENERALIZED SUBJECT and BRANCHING RIGHT. The claim is that the mixed word order of SOV-languages such as German and Persian corresponds to a certain degree of underlying non-uniformity, caused by one of the following ranking-options:

(52)   Type C – SOV in a [head - complement]-oriented grammar, German, Persian:
        LEX HEAD EDGE, BRANCHING RIGHT, GENERALIZED SUBJECT >> HEAD LEFT   &
        HEAD LEFT >> HEAD RIGHT

Let us first see how the ranking derives the head-finality of *v*P. The tableau under (53) considers once more the competition, this time under a type C ranking. Here, the 'right-peripheral head'-candidate (c) for ordering *v*P wins over both the 'right-peripheral specifier'-candidate (a) and the 'head movement'-candidate (b). The shortcoming of (a) is its violation of BRANCHING RIGHT; (b), on the other hand, violates GENERALIZED SUBJECT. (d), the head-medial VP with left specifier and right complement, fails on LEX HEAD EDGE:

(53)   German:[31]

..., dass [$_{vP}$ [der Butler]$_S$ [$_{v'}$ [die Gräfin]$_O$ küsste$_v$]].

       that   the butler   the countess   kissed

"... that the butler kissed the countess."

'Optimal SOV' by ranking HEAD LEFT >> HEAD RIGHT below the rest:

	LEX HD EDGE	GEN SUBJECT	BRANCH RIGHT	HEAD LEFT	HEAD RIGHT
a. [$_{vP}$ [$_{v'}$ v^0 object] subject]: VOS			*!		*
b. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ subject [$_{v'}$ t_V object]]]]: VSO		*!			**
∟ c. [$_{vP}$ subject [$_{v'}$ object v^0]]: SOV				*	
d. [$_{vP}$ subject [$_{v'}$ v^0 object]]: SVO	*!				*
e. [$_{FP}$ [$_{F'}$ v^0-F^0 [$_{vP}$ subj [$_{v'}$ t_V obj]]]]	*!	*			**

We see that one crucial factor in causing the head-finality of the verb phrase is the existence of a specifier, here hosting the subject (or its copy/trace). The existence of this phrase is forced by the ranking of GENERALIZED SUBJECT. The point is that if it is less costly to violate HEAD LEFT than to dispense with the specifier, then there is no chance for the lexical head to escape the specifier by projecting an additional lexical shell and moving the verb to the left (i.e. the 'head movement'-choice). Given that BRANCHING RIGHT is also important to obey, there is also no chance to switch the specifier to the right. Consequently, there is only one way to obey LEX HEAD EDGE, that is, by switching the head directionality.

Let us pause here for a second, to emphasize the following. In a default transitive context, it is indeed the existence of the nominative (or ergative) case marked subject, carrier of the subject-2-role such as AGENT, which ensures, either by its surface occupation of the verb's

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[31]Even if one assumed that the subject *der Butler* has moved out of *v*P, the output would still be a head-final *v*P. Imperative is the assumption that any *v*P or VP contains at least a specifier-trace, in order to push the lexical head to the right edge (cf. the introduction of LEX HEAD EDGE in section 2.2). Keep in mind that we are presently ignoring the inflectional layer, which is discussed in chapter 3.

specifier, or by its movement through this specifier (leaving a copy/trace), the head-finality of the verb phrase. Note on the second option that even if the subject does not move into the inflectional layer, in complex verb constructions, it might move into the VP of a second verb, as such successively pushing both verbal heads to the right and yielding a clause final verb cluster (see section 3.5.2 for details).

Nevertheless, we have to keep in mind that it does not need to be the actual grammatical subject of the clause which causes a right-orientation of the clause's verbal head(s). GENERALIZED SUBJECT, as noted in its introduction, is not about a specific type of subject but rather it is about providing a *syntactic specifier position* regardless of what fills it. Imagine therefore a context without a subject-2-role, or a VP without any *v*P-layer, and the VP contains nothing but an object in complement position. The pressure of GENERALIZED SUBJECT will force this object to move into the specifier, as such ensuring satisfaction of the constraint. This yields head-finality as long as the verb doesn't leave that VP.

GENERALIZED SUBJECT is literally *general*, meaning that it cares only about the provision of a position for a subject, i.e. a specifier, but is little concerned about the actual content of that specifier. It is precisely for that reason that VPs in type C can be head-final even in the absence of a nominative/ ergative case marked subject or in the absence of an argument with a subject-2-role. On some level, GENERALIZED SUBJECT is about the prioritization of the subject over the object. That is, we have recognized before that, by the strength of HEAD LEFT and HEAD RIGHT, single arguments are linked into complement position. So, in terms of head alignment it is better to create an object position first, before creating any specifier. GENERALIZED SUBJECT however pushes in the opposite direction. Here, it is better to create a specifier, hence a subject position, regardless of whether there is a complement or not.

This result is by no means that puzzling: Arguments carrying an object-2-role sometimes indeed become surface subjects. The most common case that comes to mind are unaccusatives with the THEME argument receiving nominative case; see section 5.3 for discussion. In German, we even find cases in which a dative-case-marked object steps up to be the thematically highest argument in the clause such that we might call it the grammatical subject (see 5.3 for discussion as well).

Finally, I wish to point out that there might be one potential problem with the above reasoning, which concerns the analysis of impersonal passives in German. Impersonal passives constitute a subset of passive configurations, in which an unergative verb is passivized, resulting in the suppression of the external argument much as in transitive passives. But since the verb is unergative, there is no internal argument, meaning that, at least overtly, no arguments are present. Nevertheless, the auxiliary *werden* 'will', which is obligatory in passives in general, as the *be*-auxiliary is in English passives, surfaces in the final position in its projection. Now, in chapter 3, we will see that the German finite auxiliary in fact occupies a clause-final T-head in non-Verb Second contexts. But significantly, *werden* cannot be equated with T in all contexts. For example, in present perfect tense, T is occupied by an additional finite auxiliary, and *werden*, in participle form, is still obligatory and final in its projection. That is, we get the surface order 'main-V-past participle - worden$_{participle}$ - T'. This is illustrated in (54b). Note here also that the past participle form of *werden* occurring in passive constructions differs from the past participle form occurring elsewhere: the former is just *worden*, elsewhere, we get *geworden*, with the *ge*-prefix, which is obligatory in all other formations of past participle throughout the grammar. (54a) shows a simple past example, with 'main-V-past participle - (finite form of) *werden*':

(54)   German:

    a.   ..., weil hier geraucht wurde.

          since here smoked   will-PASSIVE-PAST

        "..., since one smoked here."

    b.   ..., weil hier geraucht worden   ist.

          since here smoked   will-PASSIVE-PART is

        "..., since one has smoked here."

Hence the question is, what is the projection of *worden* and what is in its specifier? I will leave the question for further research, for the following reasons. First, there is something irregular happening in the morphology of the *werden* passive participle; second, passive configurations are the only verbal constructions in German in which there is the possibility of having, on the surface, not even one single argument present. Elsewhere, German is particularly strict in the

necessity of putting up at least one argument. Even 'weather' verbs, which seemingly thematically lack a 2-role, and can, as such, appear in many languages completely 'stripped' in the syntax, require an expletive in German. Compare German in (55) with the 'argument-less' verb from Icelandic in (56).

(55)   German:

    a.   ..., weil **es** regnet.   b.   *...., weil regnet.

            since it rains

            "..., since it rains."

(56)   Icelandic (cf. Bondre-Beil 1994:70):

Rignði?

 rains

"Does it rain?"

Similarly, intransitive active verbs might allow for a semantically vacant expletive subject. Significantly, though, this expletive cannot be dropped:

(57)   German:

    a.   ..., weil **es** hier duftet.   b.   ..., weil **es** juckt.

            since it here   smell-good   since it itches

            "..., since it smells good here."   "..., since it itches."

    a'.   *...., weil hier duftet.   b'.   *...., weil juckt.

(58)   German:

*..., weil **es** geraucht wurde.

       since it   smoked   will-PASSIVE-PAST

"..., since one smoked here."

As illustrated in (58), surprisingly, in passives, that same expletive is impossible to add, even if there is no 'overt' argument. This might indicate that there is in fact an abstract thematic position

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already present, which corresponds to a suppressed external argument, and which, as such, not only bans the insertion of the thematically empty expletive but also pushes the *werden*- verbal head to the right (see here also Baker, Johnson & Roberts 1989 on the syntactic presence of the suppressed external role cross-linguistically). It is important to be aware in this respect that, in active contexts, as soon as a thematically non-empty (nominative case marked) argument is present, then it is likewise impossible to add an expletive. Expletive – associate-constructions are possible in German only in the main clause and seem therefore contingent upon the (contextually- dependent) availability of a particular *functional* specifier (see 3.5.1, 3.5.2 for discussion). Thus, there is an apparent difference in German between, on the one hand, the use of a thematically empty purely 'functional' expletive *es*, and on the other, a thematically empty 'lexical' expletive *es*. The latter comes to the rescue if no argument is present to fill the specifier of the *lexical* verb phrase, and only then, in order to satisfy GENERALIZED SUBJECT in that domain. Since there is more to be understood about the syntax of passive as such, I take this as an indication that the construction at stake does not necessarily undermine the current proposal on German's VP-head-finality; rather, my proposal might offer a tool for further research to advance the understanding of passives in general.[32]

Let us go back to the consequences of a type C ranking. What else does it determine besides the head-finality of the verb phrase if the verb surfaces therein? First, consider once more BRANCHING RIGHT: given that BRANCHING RIGHT is not violated in order to satisfy LEX HEAD EDGE, not only lexical specifiers but also functional ones should preferably precede their sister nodes, as should phrasal adjuncts. This, then explains, why, in German, the Verb Second specifier aligns left-peripherally; and why, recalling the examples seen in (45)-(48), adverbs adjoin on the left, whether to the *v*P-node or lower down inside the verb phrase. On the latter possibility, the assumption that German allows adjunction at a *v*- or V-bar node is compatible with the associated ranking. Be aware that not only a lexical specifier but also a *v*P-internal

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[32]One possible line of approach could be, for example, to investigate whether the *v*P-shell is in fact still projected in German passives, only that (a), *werden* lexicalizes v^0 (instead of the root verb; see Bowers 2002:210 for *be*-insertion into Pred^0 (- Bower's equivalent to v^0)), and (b), the specifier is filled by some kind of abstract copy/trace of the suppressed external role.

adjunct can be a threat for LEX HEAD EDGE, if it hinders a lexical head from surfacing at an edge of a perfect lexical projection. In a head-final verb phrase though, in which the verbal head aligns at the right edge, no threat arises, neither from a specifier nor from an internal adjunct, as long as they both align left-peripherally, which they do in German.

Furthermore, both of our examples of a type C language, German and Persian, are scrambling languages. If scrambling is movement (cf., for example, Büring 1996:5, Haider & Rosengren 1998:5, Müller 1999:780 for German; Ghomeshi 1997:148 for Persian), then it is movement to the *left*. Given the strength of BRANCHING RIGHT, this is clearly expected, since leftward movement results in a left-peripheral adjunct (or specifier), which obeys BRANCHING RIGHT, as opposed to rightward movement. Given BRANCHING RIGHT, leftward scrambling is expected to be the default.[33]

But, now, how exactly does a type C ranking derive the occurrence of the particular kind of mixed head directionality we have discussed above? Looking at the higher functional projections in a clause, why do they have [head - complement]-order, where this linear organization is independent of the presence or absence of an adjoined lexical head?

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[33]This doesn't mean BRANCHING RIGHT couldn't be violated in a grammar like type C; it still could if an independent higher ranked constraint forces right-alignment. Evidently, this is the case in German extraposition. See Büring & Hartmann 1997a, b for convincing arguments from binding relations that extraposition of clauses is movement to the right, adjoining the clause to the right of I-bar, IP or higher.

In terms of pure word order, the strongest indication that clauses are not base-generated in a right peripheral complement position comes from 'doubly embedded' clauses containing complex verb constructions. In (i) below, the deeper embedded *dass*-clause must follow the last, finite, verb of the embedded *weil*-clause and does not align at the right of the corresponding main verb *überzeugt* 'convinced':

(i)   ..., [weil sie ihn hoffentlich **überzeugt haben wird**] [dass Nebensätze nicht basisgeneriert sind].

           since she him hopefully convinced have will   that sub-clauses not base-generated are

         "... since, hopefully, she will have convinced him that subordinated clauses aren't base generated."

(i')   *..., [weil sie ihn hoffentlich **überzeugt** [dass Nebensätze nicht basisgeneriert sind] **haben wird**].

See more remarks on extraposition in chapter 3 (3.5), chapter 5 and chapter 6.

See first how a head-medial FP with a single functional head wins over the head-final alternative. The reason why type C switches from the 'right-peripheral head'-choice to a [head - complement]-configuration is the same as type A's and type B's reason for not switching specifiers or moving heads in functional projections. LEX HEAD EDGE is vacuously satisfied in an FP projected by a simple functional head, and therefore, there is no motive to violate HEAD LEFT, BRANCHING RIGHT, or GENERALIZED SUBJECT. Consequently, type C chooses to violate the lower ranked HEAD RIGHT instead, and the head-medial FP wins:

(59)　'Head-medial' wins over the 'right-peripheral head'-choice in FP:

	LEX HEAD EDGE	GEN SUBJECT	BRANCH RIGHT	HEAD LEFT	HEAD RIGHT
L a. [$_{FP}$ spec [$_{F'}$ F^0 compl]]					*
b. [$_{FP}$ spec [$_{F'}$ compl F^0]]				*!	

This choice for [head - complement] instead of [complement - head] remains unaltered in any context that has forced a lexical head to move into the functional projection. As we know by now, LEX HEAD EDGE can never be satisfied inside FP. Thus, if an additional constraint conflict compels a lexical head to surface inside FP, LEX HEAD EDGE is unable to have any impact on the directionality. In chapter 3 (3.5.2), we will discuss German Verb Second as one such context. At present, we just want to recognize that, whichever functional projection the lexical head moves into and whichever cause may drive Verb Second, the target FP is expected to have [head - complement]- order, regardless of the presence of a lexical item inside its head. The point is that both directionalities violate LEX HEAD EDGE, and thus, HEAD LEFT takes over and makes the decision. On the following German example, notice furthermore that an un-pronounced copy of the verb precedes its complement. Since the un-pronounced copy does not violate LEX HEAD EDGE, here too, HEAD LEFT >> HEAD RIGHT determines the order. (On 'separable prefixes', which one might take as evidence that a verbal copy follows its complement, see section 5.4).

(60)   German:

[FP [Die Gräfin]S verehrte$_{v\text{-}F}$ [$_{vP}$ tS tV [den Butler]O]]
        the countess   admire-PAST   the   butler
    "The countess admired the butler."

No 'right-peripheral head'-choice in FP, even if a lexical head is involved:

	LEX HEAD EDGE	GEN SUBJ	BRANCH RIGHT	HEAD LEFT	HEAD RIGHT
⌐ a. [$_{FP}$ spec [$_{F'}$ Lex^0- F^0 complement]]	*				*
b. [$_{FP}$ spec [$_{F'}$ complement Lex^0- F^0]]	*			*!	

Hence, type C makes a systematic cut between the lexical and the functional domain, just as type A does. In type A, the cut concerns the directionality of the specifier: a lexical projection that contains its head has a right specifier, but functional projections consistently have left specifiers, no matter what the head contains. Type C makes a parallel cut concerning the directionality of the head: lexical heads surfacing in their lexical domain are on the right of their complement, but functional heads are on the left, independent of what else is adjoined to them. Notice that type A, which allows an ordering variation for the specifier, consistently projects left-peripheral heads. Type C, on the other hand, accepting an ordering variation for the head, has systematically left-peripheral specifiers. Both types pick *one* domain of variation, leaving the other domain 'uniform'. We will soon come back to this point, in section 2.5, where we will discuss the system's derivation of impossible patterns.

Altogether, recognize that the introduction of LEX HEAD EDGE really imposes a certain bi-directional connection onto type C, a connection between V surfacing inside VP, and V following its complement. Satisfaction of LEX HEAD EDGE involves being inside its own lexical domain. Consequently, the fine print of the system is not so much that type C-VPs are head-final, but rather that (a), a verbal head (and in general a lexical head) which follows its complement must be inside vP/VP (LexP); and (b), a verbal head which precedes its complement must be outside vP/VP, in a functional projection.

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Finally, be aware that just as any FP of a verbal extended projection is expected to have [head - complement]-order in type C, so will any FP in a non-clausal extended projection. This is why type-C languages have prepositions, left-peripheral determiner heads and so on (see more on German adpositions in section 5.4). In addition, we will see in chapter 4 why even the *lexical* noun phrase has consistently [head - complement]- order. As one might suspect, the reason lies in the fact that nominal extended projections do not constitute clauses, and thus, even if Spec, NP is possible, it is not demanded by any structural constraint; that is, GENERALIZED SUBJECT is silent. As a result, a type C-grammar is able to escape a head-medial NP by leftward noun movement, and there will be no motivation for the 'right-peripheral head'-choice inside NP. For more on German adjectival extended projections, and whether they constitute clauses, see sections 5.1-5.2.

In general, the ultimate prediction is that type C allows for right-peripheral lexical heads in clauses, but non-clausal lexical heads precede their complement. We can summarize the core properties of type C as follows. Once again, the claim is that these properties are essential for causing the mixed word order visible in languages like German and Persian:

(61)   Core properties of type C:
   i.   Specifiers and adjuncts align left-peripherally.
   ii.   Any *v*P (and VP) has a specifier (possibly a copy/trace).
   iii.   In clausal projections: a lexical head which surfaces inside a lexical shell *follows* its complement; we have [complement - head]-order.
           Basic 'S - O - V', then, corresponds to a head-final *v*P containing the verb in a head position which is right of its complement.
   iv.   A verbal head which surfaces in a position that *precedes* the corresponding complement is inside a *functional* projection.
   v.   Non-clausal lexical projections have [head - complement]-order.
   vi.   Functional projections have [head - complement]-order.

We have now discussed all three *mixed* types predicted by the system, and we have recognized that they all share the same crucial involvement of LEX HEAD EDGE, only in different ways. Let

us next see how the system derives grammars with cross-categorical uniformity.

2.6   Predicting cross-categorical uniformity

One of the main objectives we set in the beginning was the following. We wanted to explain the possibility of a *restricted* set of mixed word order cases *without* losing the account of languages that order their phrases uniformly across different categories. Aiming for a restricted overall typology has not only the advantage of avoiding the derivation of too many unattested patterns; it also matches more accurately the fact that a high percentage of the world's natural languages do have uniform directionality (cf. Greenberg 1963, 1966, Dryer 1992, Hawkins 1988). The more distinct types a typology includes, the more the existence of a uniform language becomes an accident. This should make us start wondering if our theory could possibly be right, given that there are so many languages that pattern in these ways.

Now, the outlined objective had a sub-clause: following the early parameter-approach (cf. Chomsky 1981) and its Optimality theoretic development (cf. Grimshaw 1997, 2001), the system should predict two kinds of uniform languages, that is, a uniform '[spec [head - complement]]'- grammar, and a uniform '[spec [complement - head]]'-grammar. Acknowledging a pair, instead of just one possible underlying form '[spec [head - complement]]', has the advantage of allowing us to analyze uniform 'subject - verb - object'- (SVO) languages (such as, English, French, Mainland Scandinavian...) and uniform 'subject - object - verb'- (SOV) languages (such as Japanese, Korean, Turkish, Basque....) as simple mirror images of each other within X'- projections. We can say that they differ in only one structural respect, the order of head and complement.[34]

Let us see how the system succeeds in predicting these two language types. We are aiming for a type D language which prefers a [spec [head - complement]]-directionality in both the lexical and the functional domain; and a type E language which favors a

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[34]We don't need to find *several* different movement triggers in order to derive the complete surface order that classifies a uniform SOV-language (e.g. a trigger for remnant VP-movement, for IP-movement to CP, Spec, for noun-movement or remnant NP-movement, for NP-movement to PP, Spec etc.). Recall that this opens a backdoor for over-generalization. It furthermore adds back on explanatory baggage one might wanted to avoid through the assumption that there exists only one possible underlying form.

[spec [complement - head]]-order for both the lexical and the functional domain. Notice that both types not only share the aspect that they are uniform with respect to the order of head and complement. This, actually, is also true for the two mixed types A and B. The uniform types furthermore share a uniform treatment of specifiers (and adjuncts), which are preferably on the left of their sister nodes in both grammars. They also both lack systematic fronting of the verb past the subject.

Significantly, the system {LEX HEAD EDGE, GENERALIZED SUBJECT, BRANCHING RIGHT, HEAD LEFT, HEAD RIGHT} shows a particular contrast in how to derive type D vs. type E, which has an impact on the totality of types predicted. This desirably minimizes the options, as we will prove shortly in the next section (2.7). Let us think first about type D.

2.6.1   Uniform SVO

Type D will generally favor [head - complement]-orders if and only if HEAD LEFT >> HEAD RIGHT. Furthermore, going back to the *v*P-competition, we must ensure that the *head-medial v*P, with left specifier and right complement, is more harmonic than each of the three choices that would yield a grammar with mixed word order. That is, we want the [$_{vP}$ spec [v^0 complement]]-configuration to win over the 'right-peripheral specifier'-choice, the 'head movement'- and the 'right-peripheral head'-choice:

(62)   The 'uniform [spec [head - complement]]'-choice:

```
                    LexP
                   /    \
                Spec     Lex'
                        /    \
                     Lex⁰     Compl
```
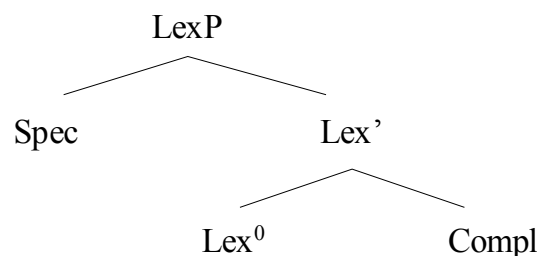
No violation of BRANCHING RIGHT, GEN SUBJECT, HEAD LEFT
One violation of HEAD RIGHT (for the left-peripheral orientation of Lex^0)
One violation of LEX HEAD EDGE (for the missing edge alignment of Lex^0)

If type D prefers a head-medial configuration inside *v*P, it will do so anywhere else as well, in contexts which violate LEX HEAD EDGE, and in those that do not. The result is a uniform SVO-language. Altogether, then, the claim is that languages like English have one of the ranking options given in (63). The triple {GEN SUBJECT, BRANCH RIGHT, HEAD LEFT} must be ranked above LEX HEAD EDGE, and HEAD LEFT must be ranked above HEAD RIGHT:

(63)   Type D – Uniform SVO, English:
         HEAD LEFT, BRANCHING RIGHT, GENERALIZED SUBJECT >> LEX HEAD EDGE   &
         HEAD LEFT >> HEAD RIGHT

For a brief demonstration, compare the two tableaux in (64) and (65) below. First, regarding the *v*P-competition in (64), it is now candidate (d), the head-medial *v*P with left specifier and right complement, which beats the three competitors (a), (b) and (c), despite the fact that (d) has a shortcoming with respect to LEX HEAD EDGE. The 'right-peripheral specifier'-candidate (a) fails on BRANCHING RIGHT, the 'head movement'-candidate (b) loses over GENERALIZED SUBJECT, and the 'right peripheral head'-choice (c) goes under due to its HEAD LEFT violation.

 Furthermore, as insinuated in the English example English will be recognized as an SVO-grammar which moves the subject into the inflectional layer, but not the verb (see chapter 3). Despite the fact that the verb thus surfaces inside a lexical projection, the [spec [head - complement]]-directionality is maintained:

(64)   English:
             ..., that [the butler]$_S$ [$_{vP}$ t_{Subj} cherishes$_v$ [the countess]$_O$].

'Optimal SVO' by ranking LEX HEAD EDGE low:

	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	LEX HD EDGE	HEAD RIGHT
a. [$_{vP}$ [$_{v'}$ v^0 object] subject]: VOS			*!		*
b. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ subject [$_{v'}$ t_V object]]]]: VSO		*!			**
c. [$_{vP}$ subject [$_{v'}$ object v^0]]: SOV	*!				
☞ d. [$_{vP}$ subject [$_{v'}$ v^0 object]]: SVO				*	*

Similarly, any FP-competition, such as the one in (65), picks the head-medial configuration (d), over the 'right-peripheral specifier'-candidate (a), the 'head movement'-candidate (b), and the 'right-peripheral head'-choice (c). (a), (b), (c) all fail for the same individual reasons as they did inside vP:

(65)   English:

[$_{CP}$ What have$_{Aux-C}$ [you done...]]?

[spec [head - complement]] *also* wins in FP:[35]

	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	LEX HD EDGE	HEAD RIGHT
a. [$_{FP}$ [$_{F'}$ F^0 complement] spec]			*!		*
b. [$_{FP2}$ [$_{F'}$ F^0 [$_{FP1}$ spec [$_{F'}$ t_F comp]]]]		*!			**
c. [$_{FP}$ spec [$_{F'}$ complement F^0]]	*!				
☞ d. [$_{FP}$ spec [$_{F'}$ F^0 complement]]					*

---

[35]If a lexical head is forced to adjoin to the functional head (considering the data example, one could for example argue that the English auxiliary has the status of a lexical head; though see chapter 3), then, the winning candidate would have an additional LEX HEAD EDGE -violation. This wouldn't change the optimal choice.

Let us recapitulate what we have seen in the previous sections. *Outside* the lexical domain, type A generally gives up on the 'right-peripheral specifier'-choice, type B does so for the 'head movement'-choice, and type C for the 'right-peripheral head'-choice. Putting it all together, we can conclude the following. Concerning the directionality outside the lexical domain, not only do all three mixed types share one structural favorite, but they select the structure which is favored by type D all along. All four types, A, B, C and D, select head-medial FPs with left specifiers and right complements, all of them generally prefer left-peripheral adjuncts, and only inside the lexical domain do they disagree with respect to their optimal choices. All four types also coincide with respect to the ranking HEAD LEFT >> HEAD RIGHT. It is in this sense, that we can identify the lexical domain as the domain in which marked word order patterns can emerge. The functional domain, on the other hand, is the domain of unmarked directionality.

2.6.2 Uniform SOV

Finally, what about uniform SOV-languages and type E? Here, we see a preference for [complement - head]-orders not only inside *v*P, but everywhere. Obviously, such a general favoritism is given if and only if HEAD RIGHT >> HEAD LEFT. Consider the following LexP, which matches the 'right-peripheral head'-choice of type C:

(66)   The 'uniform [spec [complement - head]]'-choice = the 'right-peripheral head'-choice:
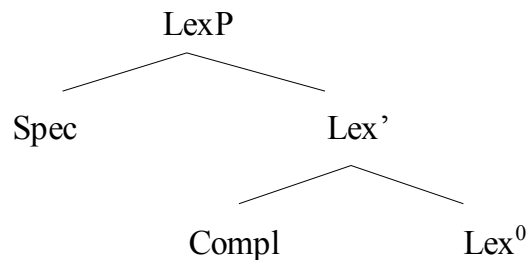
```
                        LexP
                      /      \
                  Spec        Lex'
                             /    \
                         Compl     Lex⁰
```

No violation of LEX HEAD EDGE, BRANCHING RIGHT, GEN SUBJECT, HEAD RIGHT
One violation of HEAD LEFT (for the right-peripheral orientation of Lex^0)

Choosing a configuration in which the lexical head is on the right of its complement *and* the specifier is on the left of its sister clearly satisfies HEAD RIGHT. However, aligning the specifier on the other side would also satisfy HEAD RIGHT, as long as we do not change the relative order of head and complement. Nevertheless, the key point is that the specifier's left-peripheral alignment not only guarantees satisfaction of HEAD RIGHT, but furthermore it enables obedience to BRANCHING RIGHT, GENERALIZED SUBJECT and LEX HEAD EDGE all together. The same would not be the case for a right-peripheral alignment of the specifier. Not only would this violate BRANCHING RIGHT, but also LEX HEAD EDGE (given that the head is on the right of its complement). Finally, if LEX HEAD EDGE is already satisfied in (66), there is no reason to move the head out of the configuration into a specifier-less lexical projection and risk a GENERALIZED SUBJECT violation. What we see here is that any grammar with HEAD RIGHT >> HEAD LEFT -ranking has an easy ride with respect to satisfaction of all three additional constraints that are in the system so far. As long as type E aligns specifier and adjuncts left-peripherally, it is in the best position to combine its preferred head-orientation with obedience to BRANCHING RIGHT, GENERALIZED SUBJECT *and* LEX HEAD EDGE. Therefore, given the current set of constraints, the prediction is that a type E with HEAD RIGHT >> HEAD LEFT ranking prefers [complement head]-orders everywhere and aligns specifiers and adjuncts left-peripherally everywhere, regardless of the ranking of BRANCHING RIGHT, LEX HEAD EDGE and GENERALIZED SUBJECT. The claim, then, is that a uniform SOV-language such as Japanese (or Turkish, Korean etc.) is given as soon as the ranking is HEAD RIGHT >> HEAD LEFT.[36]

(67)   Type E – Uniform SOV, Japanese:
       HEAD RIGHT >> HEAD LEFT;
        with **BRANCHING RIGHT, GENERALIZED SUBJECT, LEX HEAD EDGE ranked anywhere**

For a short demonstration, consider the tableau in (68) below which shows a *v*P-competition under the type E-ranking. We see that the optimal candidate is (c), the 'right-peripheral head'-

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[36]Here, I abstract away from the fact that, under a more exact reading of BRANCHING RIGHT, its ranking *is* distinctive in a HEAD RIGHT >> HEAD LEFT -grammar. This will lead to the derivation of yet another mixed type (once we introduced one further constraint, CASE LEX, in chapter 3). See chapter 6.

choice; (c) only violates HEAD LEFT but neither BRANCHING RIGHT nor GENERALIZED SUBJECT nor LEX HEAD EDGE (the example is provided by Koichi Nishitani).

(68)   Japanese :[37]

[$_{vP}$ Watashi-wa$_S$ [$_{NP}$ [$_{PP}$ ku-koozoo -ni-kansuru$_P$] sotsugyoo-rombun-wo$_N$]$_O$ **kaku$_v$**]

      I   phrase structure   about   graduate-essay   write

      "I write a thesis about phrase structure."

'Optimal SOV' by ranking HEAD RIGHT >> HEAD LEFT:

	HEAD RIGHT	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	LEX HD EDGE
a. [$_{vP}$ [$_{v'}$ v^0 object] subject]: VOS	*!		*		
b. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ subject [$_{v'}$ t_V object]]]]: VSO	*!*			*	
☞ c. [$_{vP}$ subject [$_{v'}$ object v^0]]: SOV		*			
d. [$_{vP}$ subject [$_{v'}$ v^0 object]]: SVO	*!				*

Type E picks the same winner as type C did. The only difference is that type E will make the [complement - head]-choice in any other XP as well, on the basis of HEAD RIGHT >> HEAD LEFT. Thus, uniform SOV-languages like Japanese not only have a head-final verb phrase, but, for example, adpositions are post-positions and nouns follow their (PP-)complement, as illustrated in the object argument in the Japanese example in (68).

      Furthermore, if XP contains a specifier or an adjunct, type E will align that specifier or adjunct left-peripherally. For type E, inside *and* outside the lexical domain, right-peripheral alignment incurs a violation of BRANCHING RIGHT without harmonizing the structure in any other way (that is, to be precise, not concerning the current set of constraints). Consequently, left-peripheral alignment is optimal.

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[37]On the Japanese example, once more, keep in mind that we are currently ignoring the inflectional layer.

Finally, compare the ranking of type D and type E. We have seen that both uniform types differ from each other only with respect to the order of head and complement, while sharing their linear organization of specifiers and adjuncts. This asymmetric aspect of the system is due to the singleness of BRANCHING RIGHT, which has no opposite correspondent like HEAD LEFT has in HEAD RIGHT. Now, importantly, the existence of LEX HEAD EDGE, in combination with BRANCHING RIGHT, HEAD LEFT and HEAD RIGHT imposes a particular structural pressure on any HEAD LEFT >> HEAD RIGHT -grammar, but it doesn't do so in a HEAD RIGHT >> HEAD LEFT -language. The central point, then, is that, in the absence of equivalent power over a HEAD RIGHT >> HEAD LEFT -constellation, LEX HEAD EDGE -re-ranking does *not* create any additional mixed word order type. This, together with the overall architecture of the system – which allows only the most *minimal* ways of resolving the conflict infected by LEX HD EDGE – results in the system's exclusion of further, unattested, mixed types. Let us now demonstrate this point more systematically.

2.7   What is excluded

Let us recapitulate for a moment the general characteristics of the uniform and mixed word order cases that the system predicts, focusing on verbal extended projections (= clauses):

(69)   The proposed system allows:

   i.   Uniform [spec [complement - head]]-directionality (type E – uniform SOV)

   ii.   Uniform [spec [head - complement]]-directionality (type D – uniform SVO)

   iii.   Grammars which project in a clause *right*-peripheral *lexical* heads and *left*-peripheral *functional* heads; specifiers and adjuncts are always on the left
             (type C – Germanic OV, Persian...)

   iv.   Grammars with *right*-peripheral specs in *lexical* projections and *left*-peripheral specs in *functional* projections; heads, and adjuncts, are always on the left
             (type A – VOS, Tzotzil, Malagasy...)

   v.   Grammars that systematically move lexical heads to the *left* of a left-peripheral lexical spec; heads, specifiers and adjuncts are always on the left
             (type B – VSO, Mixtecan, Greek...)

Logically, and if our objective were to seek symmetry, we could easily extend this typology by adding several 'mirror'-types to the list.

For a start, we could expect a type 'anti-C' with left-peripheral lexical heads and right-peripheral functional heads. From a linguistic perspective, such a type seems extremely odd. Besides Kaynians, who won't even accept the possibility of a right-peripheral lexical head, some analyses axiomatically assume that, while the linear orientation of lexical heads might be variable, the directionality of functional heads is not; rather, functional heads are universally on the left of their complements. See for example Kiparsky 1996:169, or Vikner 2001:143; Sells 2001:114ff derives this universal left-orientation of F by the Optimality theoretic system of alignment constraints he proposes. The current proposal makes a stand *for* the possibility of right-peripheral functional heads. I claim that there is a most adequate line via which to allow them: right-peripheral functional heads are possible if and only if they are projected *above* right-peripheral lexical heads. Left-peripheral functional heads, on the other hand, are possible above both left- and right-peripheral lexical heads. A system so designed can explain the possibility of uniform SOV-languages with right-peripheral functional heads, as well as the occurrence of German-type languages. It also captures Dryer 1992:102's observation that (surface)OV-languages with sentence-initial complementizers exist, but VO-languages with sentence-final complementizers apparently do not. See in this respect also Holmberg 2000, who argues for the need of a system that excludes grammars with left-peripheral lexical but right-peripheral functional heads.[38]

The proposed system predicts the lack of a type 'anti-C'. If it did exist, 'anti-C' would be a grammar which projects functional heads systematically on the right of their complement.

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[38]Homberg, however, differs from the current proposal by accounting for the generalization "if a phrase " is head-initial, then the phrase $ immediately dominating " is head-initial. If " is head-final, $ can be head-final or head-initial". This generalization still does not seem to be absolutely accurate, since it excludes grammars of the Kru-kind, in which $Infl^0$ precedes but C^0 follows its complement (cf. Koopman 1984. This is acknowledged by Holmberg 2000:150, fn.17 himself. See here also chapter 6, which supports Koopman's description). The generalization accounted for by the current system makes the occurrence of right-peripheral functional heads contingent upon the head-finality of the corresponding lexical base. This is true also in the Kru languages, in which the verb phrase is head-final. See chapter 6 for the derivation of the Kru languages by the current system (after adding CASE LEX to the constraint set).

Given the set at hand, {LEX HEAD EDGE, BRANCHING RIGHT, GENERALIZED SUBJECT, HEAD LEFT, HEAD RIGHT}, we can get this outcome only through ranking HEAD RIGHT >> HEAD LEFT. Once we do this, the default is a preference for right-peripheral heads in general, including lexical heads. Now, the only constraint in the set that introduces a further kind of 'directionality pressure' to the lexical domain is LEX HEAD EDGE. Imagine we wanted type 'anti-C' to satisfy LEX HEAD EDGE through aligning lexical heads on the left of their complements. Then, inside the verb phrase, type 'anti-C' must violate either BRANCHING RIGHT or GENERALIZED SUBJECT. This is because the only way to align the verb at the left edge of *v*P is to either switch the specifier to the right (in violation of BRANCHING RIGHT), or to have no specifier (in violation of GENERALIZED SUBJECT). But even if we ranked one or both constraints below all other constraints in the set, we won't succeed in making such a candidate a winner in type 'anti-C'.

The point is that type 'anti-C' must be a HEAD RIGHT >> HEAD LEFT -grammar, in order to ensure right-peripheral functional heads. As such, there is always a more optimal candidate, namely the 'right-peripheral head'-choice, which can satisfy *all* constraints but HEAD LEFT. The problem is that any possible competitor which satisfies LEX HEAD EDGE due to a [head - complement]-order not only violates either BRANCHING RIGHT or GENERALIZED SUBJECT: such a competitor also violates HEAD RIGHT.

(70)   **No way to pick a candidate with head-initial lexical projections if HEAD RIGHT >> HEAD LEFT:**

	LEX HD EDGE	HEAD RIGHT	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT
☞ a. [vP [v' v⁰ complement] spec]		*!			*
☞ b. [vP [v' v⁰ [vP spec [v' t_V comp]]]]		*!*		*	
L c. [vP spec [v' complement v⁰]]			*		
☞ d. [vP spec [v' v⁰ complement]]	*!	*			
☞ e. [vP __ [v' v⁰ complement]]		*!		*	

Aiming for a type 'anti-C', we cannot give up on HEAD RIGHT >> HEAD LEFT, since the system offers no other way of ensuring that functional heads are systematically on the right. But

assuming HEAD RIGHT >> HEAD LEFT, there is still no way to get to 'anti-C'. No matter how we rank the constraints, all that we get is type D.[39]

Importantly, this style of reasoning also means that the system does not allow any 'mixed' types which combine a VOS-lexical base, or a strict VSO-lexical base, with a functional layer that has only right-peripheral functional heads. Any type that systematically chooses a [head - complement]-order in the lexical domain, must choose a [head - complement]-order in the functional domain as well, and any type that systematically elects head-final FPs must project head-final LexPs as well. The only bi-polar head-combination that the system allows is a head-final LexP below an FP with [head - complement]-order.

The system also desirably predicts the absence of a mixed word order type that would be the reverse of type A. Why don't we expect a type 'reverse-A' which combines *left*-peripheral *lexical* with exclusively *right*-peripheral *functional* specifiers? Why couldn't there be a language that has a verb phrase with [spec [head - comp]]-order, but aligns all structurally 'higher' phrases (*wh*-phrases, topic, focus) systematically at the *right* periphery? Given the proposed system, we obtain an explanation, based on the interaction of LEX HEAD EDGE and BRANCHING RIGHT.

The impact of BRANCHING RIGHT makes a right-peripheral specifier more marked than the opposite linear orientation. Consequently, given the existence of a better choice, that is, left-peripheral alignment, there is no way to force a specifier onto the right, unless the system contains another harmonic reason to do so. The current constraint set includes only one such cause, LEX HEAD EDGE. But as we have seen many times before, LEX HEAD EDGE applies exclusively to the lexical domain. Hence, given the right ranking, the system can produce right-peripheral lexical specifiers but not right-peripheral functional ones. Therefore, the combination of left lexical and right functional specifiers is out. Indeed, any type that has *only* right-peripheral specifiers is predicted to be impossible as well.

The system furthermore does not include any variant of type B. Type B yields, through leftward head movement out of a [spec [*v* - complement]]-configuration, a strict VSO-order on

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[39]The additional mixed type introduced in chapter 6 (which captures grammars such as the Kru) has a HEAD RIGHT >> HEAD LEFT -ranking, but it is likewise a type that combines right-peripheral lexical heads with left-peripheral functional heads and not vice versa.

the surface. Why is that the only kind of 'head movement'-choice? First, there is no way of obtaining optimality of a *right*ward head movement out of a head-medial *v*P. Obviously, having the lexical head at the right edge of *v*P would likewise satisfy LEX HEAD EDGE, LEX HEAD EDGE being the reason why head movement takes place. Nevertheless, the corresponding candidate is fatally beaten by the alternative which applies leftward head movement. See in tableau (71) how candidate (b), the 'rightward head movement'-choice, fails on its HEAD LEFT violation, not shared by the winner (a):

(71)   No chance for a 'rightward head movement'-choice:

	LEX HEAD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
☞ a. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ spec [$_{v'}$ t_V comp]]]]				*	**
; b. [$_{vP}$ [$_{v'}$[$_{vP}$ spec [$_{v'}$ t_V comp]] v^0]]		*!		*	*

The above tableau evaluates its winner under a type B-ranking. But note that candidate (b) could never win, no matter how we rank the current set of constraints. The same holds for a structure (c), which would result by rightward head movement out of a head-final *v*P. Nor could any attempt (d) of satisfying LEX HEAD EDGE by moving the head to the left of a head-final *v*P ever be optimal. The reason is that all variants of the one 'head movement'-choice which wins under a type B-ranking have a lethal competitor that throws them out no matter what. This is shown in the table in (72) ((72) is not a tableau, because the constraints are not ranked.). It is the 'right-peripheral head'-choice, here represented by candidate (a), which manages to satisfy LEX HEAD EDGE with only one HEAD LEFT violation. All the alternative head movement-structures shown in table (72) share this violation *and* have further violation marks. Consequently, they can never win; under the appropriate ranking, it will be (a) that wins. Elsewhere, (a) will still be able to block the others; if (a) violates too many constraints to win, then certainly, any *worse* alternative will as well. (If one candidate blocks another candidate in such a way that the latter can never win, no matter how one ranks a set of constraints, this is called 'Harmonic Bounding'; see Prince & Smolensky 1993:176ff.):

(72)   No other 'head movement'-choices besides the one that wins in type B

	LEX HEAD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
) a. [$_{vP}$ spec [$_{v'}$ complement v^0]]		*			
; b. [$_{vP}$ [$_{v'}$ [$_{vP}$ spec [$_{v'}$ t_V comp]] v^0]]		*		*	*
; c. [$_{vP}$ [$_{v'}$ [$_{vP}$ spec [$_{v'}$ comp t_V]] v^0]]		**		*	
; d. [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ spec [$_{v'}$ comp t_V]]]]		*		*	*
original 'head movement'-choice: [$_{vP}$ [$_{v'}$ v^0 [$_{vP}$ spec [$_{v'}$ t_V comp]]]]				*	**

The only head movement-structure that can win against the 'right-peripheral head'-choice is the original one which does not violate HEAD LEFT at all. It is the winner under a type B-ranking.

We should also be aware of the broader generality of the point just made. Comparing, for example, candidate (a) and (c) in (72) above, we see that any combination of 'strategies' to obey LEX HEAD EDGE, – (c) has *v* already aligned with an edge of the lower *v*P but still moves *v* at the edge of the higher *v*P –, must be less harmonic than one of the choices instantiated by type A, B and C. What we can note here in general is that A, B, and C are the only mixed word order types produced by the impact of LEX HEAD EDGE, because they are the *minimal* ways of obtaining edge alignment in a HEAD LEFT >> HEAD RIGHT -grammar within this framework of assumptions. Together with the fact that a HEAD RIGHT >> HEAD LEFT -grammar can satisfy LEX HEAD EDGE without producing any mixed directionality, the result is a typology which includes only a very restricted set of non-uniform grammars.

There is another benefit to the typology of the proposed system. What about a type that prefers [[comp - head] spec]-configurations, either generally or only in the lexical domain? Such a type would yield the basic word order 'object - verb - subject' (OVS). Now, basic OVS-languages are extremely rare (cf. Dryer 1992:125). There are only a few attested (cf. Derbyshire & Pullum 1981), the most famous of which is Hixkaryana (cf. Derbyshire 1979). Hixkaryana's most common variant order is, however, SOV (cf. Derbyshire 1985:97), and the grammar has throughout a "strongly OV character" (cf. Derbyshire 1985:110). Therefore, it would be a

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positive feature for the system to exclude this as a basic order as well. Let us see why it does:

Outside the lexical domain, it is clearly BRANCHING RIGHT which bans right-peripheral specifiers, even in type A. Type A accepts a right specifier only in LexP. However, once a system allows for that possibility, even if it is in a particular domain, why should it obligatorily pair this with a [head - complement]-order? The explanation within the current system is that right-peripheral specifiers are solely acceptable on the grounds of achieving obedience to LEX HEAD EDGE. Head-medial LexPs do not accomplish this per se, be it with 'spec - head - comp'- or with 'comp - head - spec'-order. A lexical projection that corresponds to an 'SVO'-order still has a chance to succeed, under a type D-ranking. The $[_{vP}$ [object v^0] subject]- configuration, in contrast, has no chance, given that it can be blocked by the 'right-peripheral head'-choice under *any* ranking. See the table in (73):

(73)   The 'right-peripheral head'-choice harmonically bounds an 'OVS'-base:

	HEAD RIGHT	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	LEX HEAD EDGE
a. $[_{vP}[_{v'} v^0$ object] subject]: VOS	*		*		
; b. $[_{vP}[_{v'}$ object v^0] subject]: OVS		*	*		*
) c. $[_{vP}$ subject $[_{v'}$ object v^0]]: SOV		*			
d. $[_{vP}$ subject $[_{v'} v^0$ object]]: SVO	*				*

If $[_{vP}$ [object v^0] subject] is never optimal, this means that the system knows only one head-medial XP: X^0 between a *left* specifier and a *right* complement. The result is the claim that any 'object - verb - subject'-surface order is derived; there is no underlying form for it, such as there is for 'SVO', 'SOV' and 'VOS'.

Altogether, the highlights of the system's restrictiveness are summarized in (74):

(74)   The proposed system desirably excludes:

   i.   Uniform and non-uniform [[complement - head] spec]-directionality

           (Surface 'OVS' must be derived and cannot correspond to a [$_{vP}$ [object v^0] subject]-base.)

   ii.   Uniform [[head - complement] spec]-directionality

           (Surface 'VOS' can correspond to an underlying form, but can only be the basic order of a language

           with mixed directionality.)

   iii.   Grammars with *left*-peripheral *lexical* heads below *right*-peripheral *functional*

           heads (No 'anti-German'; and right-peripheral functional heads must be projected above right-

           peripheral lexical heads.)

   iv.   Grammars with *left*-peripheral *lexical* specs and *right*-peripheral *functional* specs

           (No 'reverse-Tzotzil'; a right-peripheral specifier must be a lexical one)

   v.   'Strict VSO' has no variant

           (No 'Mixtecan' without systematic [head - comp]-order and there is no mirror-type '[SO *t*] V]')

2.8   Comparing the current system with alternatives

Before we move on to chapter 3, it is crucial to recognize the key role of LEX HEAD EDGE in the
explanation of the mixed word order cases at stake. So far, we have seen that LEX HEAD EDGE
does the job. However, one might legitimately wonder how *necessary* its introduction is, and if
some alternative couldn't have achieved the same outcome. For reasons of space, it is obviously
not possible to discuss *all* the different options that are logically possible (not even all those that
I have tried to consider before deciding on the current proposal...), but it is worthwhile to discuss
a few well-chosen alternatives.

       First, if we want to account for the possibility of languages with left-peripheral functional
heads but right-peripheral lexical heads (the 'German SOV-kind', type C), suppose we replaced
LEX HEAD EDGE by a pair of constraints LEX HEAD RIGHT and LEX HEAD LEFT. We leave the
residual set as proposed, and define LEX HEAD RIGHT/LEFT such that to obey them, a lexical
head must right-/ left-align with LexP. We could then derive the directionality of type C in
clauses by ranking LEX HEAD RIGHT >> HEAD LEFT >> HEAD RIGHT, LEX HEAD LEFT. HEAD LEFT >>
HEAD RIGHT guarantees the preference for left-peripheral functional heads, and the ranking of
LEX HEAD RIGHT ensures the right-orientation in the lexical base. The overall typology would

still include the types with uniform head directionality, now dependent on the ranking of the two pairs LEX HEAD LEFT/RIGHT, HEAD LEFT/RIGHT. We would still have a window in order to derive the mixed types A (Mayan VOS) and B (Mixtecan VSO), by bringing in BRANCHING RIGHT and GENERALIZED SUBJECT.

The problem with such an approach is the following. It easily predicts not only a type C language but also a type 'anti-C' language. Type 'anti-C' comes as the result of ranking LEX HEAD LEFT >> HEAD RIGHT >> HEAD LEFT, LEX HEAD RIGHT. We then get a preference of *right*-peripheral functional heads, by HEAD RIGHT >> HEAD LEFT. At the same time, lexical heads would be *left*-peripheral, due to LEX HEAD LEFT >> HEAD RIGHT.

Furthermore, type 'anti-C' would actually split into two subtypes depending on the ranking of GENERALIZED SUBJECT and BRANCHING RIGHT. This is true as long as LEX HEAD LEFT is violated in the presence of a left-peripheral lexical specifier, which we want in order to derive type A and type B. Basically, the overall typology would include two 'sisters' of type A and B, which only differ from their siblings by having *right*-peripheral functional heads instead of left ones. Type A's sister would combine a VOS -base order with right functional heads, and Type B's sister would be a strict VSO-language with functional heads likewise on the right side.[40]

In the above scenario, there would be two ways to eliminate type 'anti-C'. One possibility would be to stipulate that functional heads are universally (ergo, by GEN) on the left of their complements. This solution seems simple, but it has the immediate consequence that we no longer can analyze uniform SOV-languages as having right-peripheral functional heads. We must then introduce additional mechanisms in order to derive (for example) 'SOV - C^0'-surface.

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[40]Type A's sister results by ranking GEN SUBJECT, LEX HEAD LEFT >> HEAD RIGHT >> HEAD LEFT, LEX HEAD RIGHT, BRANCHING RIGHT; type B's sister by BRANCHING RIGHT, LEX HEAD LEFT >> HEAD RIGHT >> HEAD LEFT, LEX HEAD RIGHT, GEN SUBJECT.

A further note: If we defined LEX HEAD LEFT in a way that it is *not* violated by a left specifier (but only by a [complement - Lex^0]-order), we would lose the ability to derive type A and type B, without gaining much instead. The ranking LEX HEAD LEFT >> HEAD RIGHT >> HEAD LEFT, LEX HEAD RIGHT would still derive a type which combines left lexical with right functional heads. The only difference is that it would be a grammar with 'SVO' inside *v*P.

This could again problematically extend the typology: any movement operation that can shift an 'SOV'-constituent in front of a complementizer can potentially do so with an 'VSO'-, 'VOS'- or 'SVO'-constituent as well. (Recall that cf. Dryer 1992:102, there are no verb-initial languages with clause-final complementizers.). We have to back up those mechanisms with additional mechanisms to rule out the problematic cases.

The other possibility would be to suspend LEX HEAD LEFT, arguing that there is just a single LEX HEAD RIGHT constraint, in parallel to my claim of a single BRANCHING RIGHT constraint. Here we face the following problems. First, the ranking LEX HEAD RIGHT >> HEAD LEFT >> HEAD RIGHT correctly explains the directionality in the verbal extended projections of the Germanic SOV-languages. However, it wrongly predicts that, for example, nouns should follow all their arguments as well. We could accommodate this by making LEX HEAD RIGHT one degree more specific, for example, by replacing it with a PREDICATE HEAD RIGHT constraint. This is basically the route taken by Vikner 2001:145. His PREDICATE RIGHT doesn't go all the way down to referring to specific categories, but it comes close quantifying over heads that are 'predicates'. It is based on the assumption that the lexical pie can be split into two halves, the predicates, that is, verbs and adjectives, on the one side and the non-predicates, nouns and prepositions, on the other. Ranking PREDICATE RIGHT >> HEAD LEFT >> HEAD RIGHT forces underlying head-finality of both VP and AP; NP and PP have [head - complement]-order, since their directionality is determined by HEAD LEFT >> HEAD RIGHT only.

As an 'in depth'-analysis of Germanic SOV, an approach based on a PREDICATE RIGHT constraint definitely has some advantages;[41] as we have pointed out above (section 2.3.3), the current proposal requires a certain amount of abstractness in order to cover all the data without any exceptions. That is, we have to grant the assumption that every German VP/*v*P which contains a verb on the surface has a specifier. This specifier may be abstract at times (– especially in the case of impersonal passives). A PREDICATE RIGHT -approach has easier time on some of these language-internal details.

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[41]Even if, at least in German, AP is only *in part* systematically head-final on the surface. This differs from the situation in *v*P. See sections 5.1 – 5.2.

On the other hand, looking at the 'bigger picture', trading LEX HEAD EDGE for PREDICATE RIGHT, we would crucially lose the account of both VOS-languages and strict VSO-languages. Since PREDICATE RIGHT cannot be satisfied by aligning the lexical head on the left, neither a right-peripheral specifier nor leftward movement of a lexical head could possibly harmonize a structure. Consequently, both type A and type B either disappear from the typology, or they have to be the outcome of other conflicts between further, not independently motivated, constraints.

Now, one might argue that losing a unified cause for all three mixed word order cases at stake is primarily a conceptual flaw; it doesn't hurt in terms of 'typological promise', as long as we can come up with an alternative explanation for the occurrence of both 'VOS' and 'strict VSO'. In favor of LEX HEAD EDGE, this isn't all that easy. The main obstacle is an adequate derivation of what it means to be 'basic VOS': the Mayan languages and Malagasy not only have a basic VOS-surface order, but they also have a *mixed* word order. That is, functional specifiers, and adjuncts, are on the left. The current proposal makes the mixed directionality an essential part of the analysis and an essential part of type A.

Consider next the alignment system proposed by Grimshaw 2001a, which assumes a triple of {SPECIFIER LEFT, HEAD LEFT, COMPLEMENT LEFT}, each one lacking a polar opposite constraint. HEAD LEFT, in opposition to the definition chosen by the current proposal, is violated by the presence of a specifier, and all three constraints are gradient (cf. Grimshaw 2001a:5)[42]. This system not only derives uniform SVO- and uniform SOV-languages, it furthermore derives VOS, by ranking HEAD LEFT >> COMPLEMENT LEFT >> SPECIFIER LEFT. However, just as SVO and SOV are expected to have uniform directionality, so is VOS. What we get here is a grammar that not only has right-peripheral lexical specifiers but *consistently* has right-peripheral specifiers. This is not the VOS-pattern encountered in the empirical typology: *wh*-phrases, focus- and topic-phrases do not follow their complement, but rather precede it. Consequently, we need some additional factor(s) in order to make a difference between uniform and mixed

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[42]In footnote 2, Grimshaw 2001a:5 notes that the gradient interpretation is not required if head alignment is relative to X-bar rather than to XP. However, only if the constraints are gradient is a [[X^0 complement] spec]-grammar included in the factorial typology.

directionality, in order to capture which kind of 'mixed' structures are possible and which are not.

One side remark: The prediction of a uniform VOS-type is still maintained if we merely added LEX HEAD EDGE to Grimshaw's triple {SPECIFIER LEFT, HEAD LEFT, COMPLEMENT LEFT}, or, alternatively, if we tried to combine LEX HEAD EDGE with HEAD LEFT, HEAD RIGHT as they were originally defined in Grimshaw 1997:374. As long as HEAD LEFT is violated by the presence of a specifier, ranking HEAD LEFT higher than the other constraints (more generally, ranking it higher than *whichever* constraint forces left-peripheral specifiers) will have the outcome of a uniform VOS-language. (The same holds for the prediction of a uniform OVS-type; see below.) It is mainly for that reason that the current proposal has adapted an alternative definition of HEAD LEFT and HEAD RIGHT.

The above prediction of allowing 'uniform VOS' is also shared by the Optimality theoretic system proposed by Morimoto 2002, who adopts Broadwell 2001, 2002, in a development of Sells 2001. Here, we find the slimmed down set of three alignment constraints HEAD LEFT ("every projecting X^0 is left of its immediate constituent"), SPEC LEFT ("specifier of XP is leftmost in XP"), and BRANCHING UNIFORMITY ("directionality of X and all of its extended heads and their projections must be uniform") (cf. Morimoto 2002:24). BRANCHING UNIFORMITY is unviolated in either a head-final grammar which is fully right-branching (meaning that it has only left-peripheral specifiers and adjuncts), or in a head-initial grammar which is fully left-branching (meaning that is has only right-peripheral specifiers and adjuncts). Now, Morimoto's factorial typology includes a VOS structure, by HEAD LEFT >> BRANCHING UNIFORMITY >> SPEC LEFT (cf. Morimoto 2002:27), but significantly, it is once more a grammar which aligns specifier and adjuncts right-peripherally across the board. Morimoto acknowledges this problem in footnote 26, referring to discourse constraints such as TOPIC-LEFT, FOCUS-LEFT etc. to overcome the shortcoming. But the more fundamental problem is the one that concerns factorial typology. Ranking the discourse constraints on top of the VOS-ranking, we might be able to derive Tzotzil or Malagasy, but we still predict the *possibility* of 'uniform VOS'-languages, as a result of ranking the discourse constraints below BRANCHING UNIFORMITY.[43]

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[43]Morimoto's system furthermore does not allow any head-final grammar to project functional heads in the

But the problem is how could we push only the lexical specifier to the right without using LEX HEAD EDGE? Recall that the assumption of a LEX HEAD LEFT constraint is problematic, due to its questionable typological impact. We have discussed this just above. So, what about the possibility of a LEX SPEC RIGHT constraint?

We could combine a constraint that specifically asks for a right-peripheral lexical specifier with the set {HEAD LEFT, HEAD RIGHT, BRANCHING RIGHT, PREDICATE RIGHT} (definitions of HEAD RIGHT/LEFT as in the current proposal). The ranking **LEX SPEC RIGHT >> BRANCHING RIGHT; HEAD LEFT >> HEAD RIGHT, PREDICATE RIGHT** manages to derive the mixed directionality of type A. Type C could be captured by ranking **LEX HEAD RIGHT >> HEAD LEFT >> HEAD RIGHT; BRANCHING RIGHT >> LEX SPEC RIGHT**. Only type B would be left uncovered, but, importantly, no re-ranking would yield a type 'anti-C' with left-peripheral lexical but right-peripheral functional heads. Unfortunately, we still do not achieve the same restrictedness as we do with LEX HEAD EDGE. LEX SPEC RIGHT perturbs the overall typology in yet another way.

Recall that LEX HEAD EDGE not only predicts type A, and thus allows [[head - complement] spec] in LexP, it also *excludes* [[complement - head] spec] as an underlying basic form, be it inside or outside the lexical domain. This corresponds to the empirical contrast between a moderate frequency of VOS-languages and the extreme rareness of OVS. Now, replacing LEX HEAD EDGE by LEX SPEC RIGHT (plus PREDICATE RIGHT), we are unable to predict this contrast. On the contrary, the overall typology would include *three* types. On the one hand, it would include type A, as desired. But on the other hand, it would also

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syntax, neither right-peripheral *nor* left-peripheral ones (cf. Morimoto 2002:27). That is, any SOV-pattern must correspond to a syntactic structure with just one "single right-headed V^0 at the bottom". Here is why this is eventually a shortcoming as well: First, as in fact featured by Morimoto, tense, aspect and complementizers must be affixal in any uniform SOV-language, inserted under the V^0-node together with the verb. See chapter 3 for reasons against such approach (see also chapter 6 for examples of *non*-affixal complementizers in SOV-languages).

Second, in order to derive a grammar like German (which is classified by Morimoto 2002:27 as a head-final grammar as well), left-peripheral functional heads must be forced by additional constraints. Morimoto 2002:29, for example, proposes a Verb Second constraint "the inflected verb must be in second position in main clauses, and it occupies a functional head position". Even with this addition, we still need at least a constraint to derive the directionality of the complementizer and of prepositions. Beyond that, there is the fact that German noun phrases are not head-final, a fact which is impossible to derive with Morimoto's system.

contain *two* variants of what we could call a 'basic OVS'-language. First, the ranking Lᴇx Sᴘᴇᴄ Rɪɢʜᴛ, Pʀᴇᴅɪᴄᴀᴛᴇ Rɪɢʜᴛ >> Hᴇᴀᴅ Lᴇꜰᴛ, Bʀᴀɴᴄʜɪɴɢ Rɪɢʜᴛ >> Hᴇᴀᴅ Rɪɢʜᴛ would give us a type which prefers [spec [head - comp]] inside functional projections, but [[comp - head] spec] inside the lexical, verbal domain. This is basically a parallel to the Mayan-VOS-directionality, but with 'OVS' inside *v*P. Second, the ranking Lᴇx Sᴘᴇᴄ Rɪɢʜᴛ, Hᴇᴀᴅ Rɪɢʜᴛ >> Hᴇᴀᴅ Lᴇꜰᴛ, Pʀᴇᴅɪᴄᴀᴛᴇ Rɪɢʜᴛ, Bʀᴀɴᴄʜɪɴɢ Rɪɢʜᴛ leads us to expect that a language could also generally favor right-peripheral heads (lexical and functional) *and* combine this with a preference for [[comp - head] spec] inside LexP. This is a uniformly head-final language, but with 'OVS' inside *v*P. In total, the typology would include more OVS-types than VOS-types, contrary to the empirical facts.[44]

Finally, notice that we have avoided any appeal to alignment constraints that are truly category-specific. One should be aware that any account based on a set of category-specific constraints would result in a possible explosion of different mixed word order types. Considering only the set of four categories {N, V, A, P}, and assuming a pair of X-Hᴇᴀᴅ Lᴇꜰᴛ, X-Hᴇᴀᴅ Rɪɢʜᴛ for each of them, already gives us a typology of 14 different types with mixed head directionality, plus only two in which all categories agree with respect to either [head - comp] or [comp - head]-order. Thus, on this view, un-supplemented by extrinsic constraints (cf. Hawkins 1988), mixed word order languages should be statistically common, and uniform languages rare. But the opposite is closer to the truth. Moreover, due to the much higher number of mixed cases, it degrades the occurrence of a language with uniform word order to a mere 'accident'. What is even worse is the fact that any such approach entirely misses the recognition of any systematic aspect in the phenomenon of mixed directionality.

In summary, this discussion has hopefully shown that it is far from easy to find a simple replacement for Lᴇx Hᴇᴀᴅ Eᴅɢᴇ, and to still maintain the same typological results.

Therefore, the essential outcome of this section is the following. The recognition of Lᴇx Hᴇᴀᴅ Eᴅɢᴇ is important because it notices an additional demand on directionality in the *lexical*

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[44]To further elaborate upon the side remark on Grimshaw 2001a made above: Just as a system that combines Lᴇx Hᴇᴀᴅ Eᴅɢᴇ with Grimshaw's triple {Sᴘᴇᴄ Lᴇꜰᴛ, Hᴇᴀᴅ Lᴇꜰᴛ, Cᴏᴍᴘʟ Lᴇꜰᴛ} cannot exclude a *uniform* VOS-type, so it can also not exclude the derivation of a *uniform* OVS-language which might be even more controversial. Ranking Cᴏᴍᴘʟᴇᴍᴇɴᴛ Lᴇꜰᴛ >> Hᴇᴀᴅ Lᴇꜰᴛ above the other constraints, we get a type that prefers [[complement - head] spec] across all categories, including the functional domain.

domain. This brings in a certain amount of specificity, just enough to open up for an approach to mixed word order, which is still general enough to recognize how systematic the phenomenon is.

The current system draws a clear cut between the functional and the lexical domain. If a grammar has mixed directionality, then it is necessarily the lexical layer in which a marked pattern emerges. The functional layer tends to be the domain of unmarked directionality. On the other hand, not just any kind of logically possible marked pattern is an option. While there are in principle two unmarked orderings, 'spec - head - complement' and 'spec - complement - head', still, there are systematic limitations regarding which kind of marked pattern each unmarked one can be combined with.

Another important aspect of the LEX HEAD EDGE proposal is the fact that it targets *edges*. We have seen that, as soon as one operates with lexical alignment, if one considers constraints which target a specific side of the phrase, *left* or *right*, the predicted typology substantially changes, and not for the better.

Thus, we can conclude: If we recognize the concept of *edges* as relevant in the *lexical* domain of syntax, we benefit. Only then are we able to produce the typology we have introduced in this chapter, a typology of basic phrase directionality which is promising with respect to both its scope and its restrictedness.

This chapter has introduced a system of phrase structure directionality which allows, besides uniform basic word order types, the occurrence of a few non-uniform cases. All of them are systematic in their non-uniformity. Focusing on variation in directionality of the underlying form, the main theme was the proposed main cause of this variation, the constraint LEX HEAD EDGE.

The focus of the chapters 3 and 4 will be the variation of systematic movement out of the lexical layer. Beyond extending the established constraint set {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCHING RIGHT, GENERALIZED SUBJECT} by adding one new constraint, both chapters will demonstrate that none of the constraints stops the influence on directionality. Rather each constraint furthermore co-determines the distribution of systematic movement of 'lexical base'-material. As such, we see how grammatical principles that come in the shape of general, conflicting and violable constraints are usually 'multi-functional', since they can have an impact on a grammar in more than one way.

Chapter 3 – The inflectional layer: Let's move

In the previous chapter, we have seen that LEX HEAD EDGE has a distinctive impact on the directionality of phrase structure. In this chapter, we will learn that the constraint furthermore has an impact on verb movement and subject movement out of the lexical layer. The reason is because it is by definition impossible to obey LEX HEAD EDGE if the verb surfaces inside a functional projection. In chapter 2, we recognized that in terms of directionality, this has a neutralizing effect. Even if the verb, a lexical head, happens to surface in FP, the directionality of this FP will be determined by the other alignment constraints, regardless of LEX HEAD EDGE's ranking position. For example, in a LEX HEAD EDGE >> HEAD LEFT >> HEAD RIGHT-grammar, FP is expected to have $[_{FP}$ (spec) [Lex^0+F^0 - complement]]- order, regardless of the presence of Lex^0 in FP and the possible presence of a left-peripheral specifier, even though the grammar is potentially willing to alter the directionality inside LexP. The point is that LEX HEAD EDGE can only be obeyed inside the lexical layer in any case, so there is no longer advantage to twisting the directionality once a lexical head has left that domain. But now, this exclusiveness of the lexical layer as a domain for possible LEX HEAD EDGE obedience has a second effect: If LEX HEAD EDGE is violated as soon as a lexical head surfaces in FP, a grammar that is eager to obey LEX HEAD EDGE will be eager to *resist* verb movement into FP.

Therefore, the second lesson to learn about LEX HEAD EDGE is the following. The constraint constitutes an *opposing* force to any constraint that motivates lexical head movement into the functional layer. Say for instance constraint X demands verb movement into FP. Then if LEX HEAD EDGE is ranked above X, and moreover, the grammar in question is willing and able to obey LEX HEAD EDGE inside the verb phrase (as in grammars of type A, B and C), then the prediction is that the grammar lacks verb movement into FP (or, at least the verb won't move because of constraint X). In general, thus, LEX HEAD EDGE is not only responsible for causing specific cases of mixed word order; it also has the side effect of blocking lexical head movement in a particular context.

This chapter will investigate one such context. Since Klima & Belugi 1966, Jackendoff 1972, Emonds 1978, and Pollock 1989, abundant generative work has been done in order to

establish that there is an inflectional layer (- IP), which is projected above the verb phrase and consists of one or more functional projections. In the discussion of basic word order, the consideration of this inflectional layer and the question of how it affects the typological variation cannot be missed. Rather, it is by now a natural question to ask whether and how a language's basic word is altered by systematic verb- and/or subject-movement into IP.

Significantly, we will see that not only LEX HEAD EDGE but all the constraints introduced in chapter 2 are actively involved in the determination of *both* IP's directionality and movement into it. This involvement is lastly independent of the question of which assumptions one makes about the particular make-up of the Infl-node. But before we can discuss a concrete scenario, we must first determine more precisely what we mean by 'inflectional layer'.

Therefore, this chapter starts in section 3.1 by asking a theoretical question, which motivates the particular conceptual perspective on IP implemented here. This question is: granted the minimal existence of an autonomous inflectional projection TP, which encodes tense/aspectual information (cf. Chomsky 1995:349ff), then, why do we not find any 'Free Tense/aspect-morpheme - S - V - O'-languages? (*AuxSVO cf. Baker 2002). A driving task of this chapter is to answer the question, and with it to promote a closer consideration of what the independency vs. dependency of tense/aspect elements on lexical verbs can tell us about the distribution of the functional projections associated with them. As such, beyond illustrating in a concrete case how each constraint in the set {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCH RIGHT, GEN SUBJECT} manipulates movement into an extended functional projection, this chapter aims to provide a solution for a puzzle not yet solved.

The puzzle's answer lies behind the proposal of one additional constraint to be added to the set. It is a constraint I call CASE LEX, which brings together ideas of how (structural) case can be assigned by a functional head (e.g. nominative by T, cf. Chomsky 1995:277, 368, Chomsky 1999) and the role of a lexical head therein. Section 3.2 introduces CASE LEX and furthermore sketches the overall typological results of this larger constraint set.

The rest of the chapter then demonstrates these results in greater detail: First, we will see how directional variants of 'Tense/aspect - S - V - O' *are* possible in [head - complement]-oriented languages precisely *if* they have mixed directionality of the kinds derived in chapter 2. This is worked through in sections 3.3, 3.4 and 3.5. Furthermore, 3.5 includes a longer excursus

on German, which discusses the considerable controversy concerning the directionality and content of the grammar's inflectional layer. Then, section 3.6 explains exactly why 'Tense/aspect - S - V - O' as such is an impossible basic word order pattern. The last section, 3.7, compares my view on the inflectional layer with one alternative Optimality theoretic approach, the one of Vikner 2001.

3.1   Do we need to assume an inflectional layer?

In generative grammar, the assumption of an inflectional layer above VP has become a powerful tool in order to account for various, more subtle and less subtle, typological variations. Considering the huge body of work, it might seem preposterous and naive to even pose the question that concerns us here. Even the most minimal approaches (see some references below), which argue for the absence of an inflectional layer, do not entertain the universal non-existence thereof. Rather it has been put forward as a language-specific, and potentially context-dependent, view, in which functional projections in general can be present or not. (For a context-dependent view, see, for example, Grimshaw 1997, on English. For the language specific absence of IP, see, for example: in German and the Germanic OV-languages, Reuland 1990 (pro I/V merger), Weerman 1989, Haider 1993, Ackema, Neeleman & Weerman 1993; in Old English, van Gelderen 1993, Kiparsky 1996 (pro I/V merger); in V-final languages, Cho & Sells 1995, Sells 1995, 2001, Morimoto 2002; in Zapotec, Broadwell 2001.)

That being said, and without intending to challenge the fundamentals of an inflectional layer as such, I will nevertheless alert the reader to the following conceptual question.

3.1.1   The *TSVO–puzzle

Assume that inflectional information, meaning tense, agreement, number etc., is indeed encoded in autonomous functional heads which project above a lexical base. We might say that these functional heads are in a sense dependent on the lexical head which projects the corresponding extended projection, but even then, we have to admit that they are autonomous in the sense that they *are* syntactic heads heading FP. Why, then, does this functional information so often surface in form of *inflection* on the lexical head?

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(i)   If tense/aspect (and agreement) is functional information, genuinely associated with functional projections, why do languages seem to be forced to have or bring this information maximally close to a lexical head?

We cannot easily see the favoritism for some kind of proximity in verb-peripheral types, but it becomes empirically visible in SVO-languages:

In uniform SOV-languages, the preference of a [spec [complement - head]]-configuration in both VP and IP (TP, AgrP) grants proximity between V and I without further ado: no specifier or complement ever intervenes between the lexical and the inflectional functional heads. Intriguingly, then, the identification of functional heads as bound morphemes (cf. Baker 1988) or abstract elements that must be checked (cf. Chomsky 1993, 1995), and vice versa, is less straightforward. As such, we find, for example, Yoon 1994:252, 253 who argues, based on Korean coordination patterns, that Korean's verbal inflection consists of "independent formatives" that are "syntactically separate from the verb" and combine with verb roots "by phrasal affixation", requiring neither checking nor attachment through movement, and being "fundamentally akin to clitization (Yoon & Yoon 1990; Yoon 1993)". The "phrasal affix" is base generated as a right-peripheral head of an independent IP (Yoon 1994:256):[1]

(1)   Korean (Yoon 1994:253):

John-i   ecey   pap-ul   mek-**ess**-ta
John-NOM yesterday meal-ACC eat-Past-Decl
"John ate the meal yesterday."

Considering the uncertainty surrounding the identification of auxiliaries as lexical heads, that is, verbs, one might also acknowledge the theoretical possibility that at least in some languages, verbs, when used as auxiliaries, lose their status as lexical verbs and become functional heads. I

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[1]Note that Yoon's claim is incompatible with Morimoto 2002:27 who argues, following Cho & Sells 1995, Sells 1995, that Korean lacks a syntactic Infl-head altogether. Yoon's footnote 1 is worth mentioning at this point, as he claims therein that "in addition to Korean, Japanese, Turkish and West Greenlandic (Sadock 1991) offer similar evidence of atomicity".

propose below that this is the case if the auxiliary directly substitutes into the inflectional head, instead of adjoining to it. In such a scenario, we would expect that any motivation to move V^0 to F_{aux}^0 disappears. At the same time, we have to note that any $SOVF_{aux}$ pattern would still guarantee the closeness of the functional tense/aspect-head to a lexical head, the main verb. See the following Persian example from Ghomeshi 1997, in which the (simple past) tense/aspect-information is carried by a finite, morphologically independent auxiliary which follows the non-finite main verb:

(2)　　Persian (Ghomeshi 1997:139):

　　　hame-ye mˇallem-â ye shâgerd-i-ro　mˇarefi **kard-and**

　　　all+EZ　　teacher+pl　one　student+indef+râ　introduce　did+3plS

　　　"Every teacher introduced a student"

Conversely, many VSO- and VOS-languages have tense- or aspect-particles which do not even attach to the verb. The 'verb-first'-syntax still guarantees the closeness of the functional and lexical heads. Aissen 1996:450, for example, notes that VOS Tzotzil expresses incompletive aspect by the particle *ta*, which she assumes to occupy I^0 alone:[2]

(3)　　Tzotzil (Aissen 1987:189):

　　　Ta x-nupun -ik xa 7ox xchi7uk s-malal　　ti tzeb 7une

　　　icp　　marry　pl　cl　cl　with　　A3 husband　the girl cls

　　　"The girl had nearly married her [future] husband."

Likewise, in the VSO-language Niuean, Massam 2001:155 recognizes independent tense/aspect particles such as *ne*, expressing past tense (in 4a), or *ko*, expressing present tense (4b); and Woolford 1991:511 observes (based on Chung 1984) that Chamorro realizes future tense by *pära*,

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[2]Aissen 1992:48 furthermore reports that "many Mayan [VOS] languages have aspectual particles that precede the clause and are morphologically separate from it".

which forms a separate word and does not combine with the adjacent verb (in 5):[3]

(4)   Niuean (Massam 2001:155):

a.   **Ne** kai e Sione e tau talo aki e huki.   b.   **Ko** e tele e Sione a Sefa.

        Pst   eat Erg Sione Abs Pl taro with Abs fork   Pres   kick   Erg Sione Abs Sefa

        "Sione ate the taros with a fork."   "Sione is kicking Sefa."

(5)   Chamorro (Woolford 1991:511; cf. Chung 1984 (4c)):

a.   **Pära** u-fattu   i médiku agupa .

        FUT   3SG-arrive the doctor   tomorrow

        "The doctor will arrive tomorrow."

In SVO-languages, however, proximity is not given naturally, at least not when we consider the possibility that subjects are base generated in the specifier of VP, or more precisely *v*P (i.e. the 'VP-internal-subject'-hypothesis, cf. Zagona 1982, Koruda 1988, Koopman & Sportiche 1991).

    Nevertheless, despite the possibility that independent tense/aspect particles might be especially common in SVO-languages (cf, Baker (pc)), considering the basic surface word order, they seem to necessarily intervene between the subject and the verb. See for example English in (6), for which Chomsky 1957, Roberts 1993 (among others) have argued that *will*, expressing future tense, is an atomic Infl-particle. See also the African language Edo in (7), with the independent auxiliary particle *ghá* (future tense; Agheyisi 1990) intervening between the subject and the main verb:

(6)   English:
        She **will** call you tomorrow.

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[3]Thinking of the more familiar interpretation of basic VSO, which assumes this word order to be the result of V-movement *into* IP (V adjoining to I), Woolford 1991:511-512 comments that it is unclear how head-to-head movement could produce a pattern that includes an independent tense particle. Keep in mind that such a problem disappears, once we consider the possibility that (many) VSO-languages are the result of VP-internal V-movement, where V lands in an additional VP *below* the inflectional head (see below, section 3.3).

(7)   Edo (Baker & Stewart 1999:18):

     Òzó **ghá** hàé íghó   nè Úyì.

     Ozo FUT pay money to Uyi

     "Ozo will pay money to Uyi.."

We can certainly analyze these and parallel cases by assuming that the subject surfaces in the specifier of the inflectional head, and as such has left its VP-internal base position (= *v*P, Spec), which would intervene between V (in v^0) and the tense particle (in I^0).[4]

     But the question important is, why should this *always* be the case? Just imagine an SVO-language which systematically inserts free tense particles or auxiliaries into the corresponding functional head. If the language simultaneously rejected subject movement into the inflectional layer, or across the tense-head, the result would be a grammar with the basic surface order 'T - S - V - O'/'Aux - S - V - O' (= 'T SVO').[5]

     Significantly, observed by Baker 2002:324, who relies on a large survey taken by Julien 2000, 2002, of "530 languages, representing 280 distinct genera drawn from every linguistic area" (Baker 2002:323), languages with a basic 'T/Aux S V O'-order do *not* exist. Tense or aspect elements that could be identified as 'free formatives' are apparently only possible in basic patterns in which the subject does not intervene between T and V; that is, of the form
(a) 'S $T_{[-aff]}$ V O', (b) '$T_{[-aff]}$ V O S', (c) '$T_{[-aff]}$ V S O', (d) 'S O V $T_{[-aff]}$', and marginally
(e) 'S $T_{[-aff]}$ O V'.[6]

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[4]Note that adverbs *can* intervene between the particle and the main verb (in both English and Edo). This might, on the one hand, support the idea that the subject is outside *v*P, under the assumption that the adverb indeed adjoins to *v*P. But more importantly, it suggests that it is really the subject, or better its *specifier* base position, which is intolerable as an intervener.

[5]On notation: Here and below, I take **T as an abbreviation that subsumes both tense and aspect elements**, (and perhaps also **mood**).

[6]As examples of the pattern in (e), we find in Julien's database e.g. the African language Bor, the Southern Cushitic language Dahalo, Eastern Cushitic Arbore, and the New Guinea language Koita.

It should be highlighted that we cannot accommodate the lack of 'TSVO'-languages by simply stipulating that *some* tenses/aspects 'have to' be encoded as affixes. Baker actually focuses on the fact that there is also no language which prefers the basic order 'S - V+T$_{[+aff]}$ - O' in cases in which T is an affix, but at the same time 'Aux/T - S - V - O' in clauses that contain a tense particle/auxiliary. Mysteriously enough, '*Aux* - S - V - O' is not an impossible pattern per se. Several Celtic languages prefer an 'Aux - S - V - O'-order in the presence of an auxiliary. Nevertheless, they happen to pair this with basic 'V+T - S - O'-order in the absence of an auxiliary, not with 'S - V - O' (cf. Chung & McCloskey 1987, Koopman & Sportiche 1991, among many others).

One remark on the Celtic 'non-strict' VSO pattern of 'Aux - S - V - O'/ 'V+T - S - O' is in order. The type appears to be in fact a rather rare variant, much in contrast to the attention it has received in the generative literature. Looking through Julien's database (Julien 2000:475-496, 2002: Appendix 2, 330-356), the Celtic languages are, as a matter of fact, the only such listed cases. Much more common seems to be the 'strict VSO'-type which we have illustrated with Yosondúa Mixtec in chapter 2, and of which we will see more below. Here, the 'VSO'-pattern is maintained independent of the particular constitution of T. That is, T may be an affix or a free tense particle or an auxiliary, but the basic order is still 'V - S - O'.

Now, as Baker shows us, the absence of a combination 'S V+T$_{[+aff]}$ O' and 'Aux/T$_{[+particle]}$ SVO' can be identified as the absence of SVO-grammars that lack *both* overt verb movement and overt subject movement into the inflectional layer. His explanation thereof (Baker 2002:325ff) makes an argument for both the 'building theory' of morphology (cf. Baker 1988) and 'syntactic merger' (cf. Marantz 1984, Bobaljik 1994): Overt verb movement is word-building, in the sense that T^0 contains an affix, rather than abstract information, to which V^0 adjoins via 'upward' syntactic head movement. Absence of overt verb movement is merging, the affix stays in T^0 in the syntax and merges with the verbal root at PF. Since syntactic merger is impossible across an intervening specifier containing the overt subject, absence of verb movement is only possible if the subject leaves VP in the overt syntax.

Baker's explanation still leaves one question unanswered because it relies on the axiom that T and V *must* come together at least in some cases. But why shouldn't a language systematically fill T^0 with free morphemes (or, alternatively with auxiliaries)? If T^0 were a

functional head containing complementizer-like elements, then neither syntactic movement nor PF-merger (nor any overt or covert checking relation) would be necessary to begin with. The result would be a 'T SVO'-language. Given the assumption of an inflectional functional layer, from a logical point of view, a 'T SVO'-language is perfectly reasonable. It would be an SVO-grammar that lacks both subject- and verb-movement into the inflectional layer, and *as such*, it would prefer 'T$_{[+particle]}$ - S - V - O' in single-verb clauses, and possibly 'Aux - S - V - O' in other tense/aspect-configurations.[7] Therefore, we must still wonder:

(ii)   If inflectional information is necessarily encoded in functional heads, why isn't there any 'T SVO'-language?

One possible answer is the following. Syntactic approaches that assume an inflectional functional layer on top of a verbal one, the latter including the base position of the subject, can successfully account for typological variations that would be left unexplained otherwise. As such, the explanatory gain justifies the means, and the fact that we do not find 'free standing' functional tense heads is simply an accident.

I do agree on the point of explanatory success. Moreover, we will see below that assuming that there is at least one *obligatory* inflectional head (T^0) can be part of an approach to the problem at stake. Nevertheless, it is worthwhile to emphasize that declaring the absence of a 'T SVO-type' to be a mere accident doesn't really solve the problem, since it undermines the conceptual strength of the theory. The systematic exclusion of a 'T SVO'-language is particularly important for any theory which argues that the choice between overt verb movement and absence thereof is based on 'economy'-considerations (cf. Minimalist Program, Chomsky 1995; likewise Optimality Theory, see below). What could possibly be less costly than the projection of an independent functional tense head, which neither requires overt movement nor merging, nor lowering (cf. Chomsky 1957), nor covert movement at LF (cf. Chomsky 1993), nor movement of features only (cf. Robert 1998), nor establishment of any 'direct AGREE-relation' (cf. Chomsky

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[7] Depending on how the grammar is restricted with respect to the base generation/treatment of auxiliaries, it could also pair 'T$_{[+part]}$ - S - V - O'-orders with 'T$_{[+part]}$ - Aux - S - V - O', or even with 'T$_{[+part]}$ - S - Aux - V - O'.

1999)? If we believe that economy plays a crucial role in how natural grammars are designed, then it is worthwhile to find a way to exclude the type.

What does Optimality Theory have to say? As pointed to above, the system proposed by Grimshaw 1997:382 identifies the absence of V-to-I -movement, in a finite clause that contains only a single main verb, as an absence of IP altogether. That is, in an SVO-language like English, the lack of overt verb movement is the result of attaching the inflection to the verb root in the lexicon, such that in the syntactic structure, there is no need to project IP, and the clause corresponds to a verbal extended projection which is just a 'bare' VP. At first, this seems the perfect tool in order to avoid a 'T SVO'-type. Thinking in terms of economy, and the fact that every additional projection leads to Alignment violations (a point highlighted in Grimshaw 2001a:12ff), a bare VP seems clearly more economical than an IP, even if that IP consists of nothing but a morphologically independent head. However, this is only half of the picture. In Optimality Theory, which is an economy based theory par excellence, every structural choice is more or less economical, depending on constraint rankings. As such, combining the verb and its inflection outside the syntactic component incurs, in Grimshaw's system, a violation of NO MORPHOLOGY (Grimshaw 1997:382; see also Ackema & Neeleman 2001 for further elaboration of this idea). The corresponding counter-constraint is NO LEX MOVE (Grimshaw 1997:374, 385ff), which is violated whenever the projection of IP forces raising of the lexical verb to pick up the inflection. Similarly to Baker 2002, the reasoning here relies on the assumption that the information encoded in the inflection and the lexical verb have to be united. Systematically inserting independent formatives into I^0 would avoid *both* the violation of NO MORPHOLOGY and NO LEX MOVE. It is still true that a bare VP violates the Alignment constraints less than $[I^0 [VP]]$ does, the latter incurring one additional HEAD RIGHT violation. But in Optimality Theory, this means that a ranking NO MORPHOLOGY >> HEAD RIGHT would yield a grammar that favors an 'independent' inflectional layer in the way described. Ensuring the proper ranking to block subject movement (in Grimshaw's 1997 system, NO MORPHOLOGY, HEAD LEFT >> SUBJECT, HEAD RIGHT)[8], we are back to predicting that a 'T SVO'-type should exist.

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[8]We must have NO MORPHOLOGY >> SUBJECT, since a bare VP would not incur any SUBJECT violation; see Grimshaw 1997:390. Subject movement, in the presence of I, can be blocked by HEAD LEFT ranking, since the presence of a

What about Vikner's 2001 OT system, which is especially designed in order to account for the absence vs. presence of overt verb movement into the inflectional layer, directly linking it to the morphological strength of agreement (person)? As shown in section 3.7 below, while Vikner, without any explicit discussion thereof, in fact succeeds in excluding the possibility of a 'T SVO'-type, the approach 'throws out the baby with the bath water': it bans the option of free T elements in V-in-situ-languages in general. Unfortunately, then, this cannot be the ultimate solution either, given that free tense/aspect particles *do* exist, most visibly in 'S TVO'-languages which seem to lack verb movement, but have the subject surface outside VP.

3.1.2   Towards a solution: Relevance of Case

At this point, in order to look for the right solution to the problem at stake, we should remind ourselves of the chance and challenge that lies beneath an Optimality theoretic framework. Asking about the impossibility of 'T SVO'-grammars, we should be especially unsatisfied with answers of the form: 'The lexicon, and in turn the input, just dictates that the tense morphemes come in the form of affixes which have to be attached to a verb'. First of all, we already know that SOV-, VOS- or SOV-grammars do allow tense morphemes that seem to be syntactically free. The mystery is that in SVO-languages, there seems to be a reluctance to have independent tense elements, *unless* they can intervene between S and V on the syntactic surface. Thus, the syntactic configuration seems to be crucially involved, and relying on the lexicon as a decision maker would be missing the point and giving in to the 'accident' approach criticized above. Second of all, Optimality Theory, in its strongest conception, should not be dictated by the lexicon, but vice versa. Its ultimate success would be to help us understand what can be contained in the lexicon (cf. 'Optimization of the lexicon' and 'Richness of the Base', Prince & Smolensky 1993:ch. 9, 9.3). In the case at stake, it should explain *why* in certain languages the choice of a free tense morpheme cannot be made, and thus *why* the corresponding lexicon contains only affixes.

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left-peripheral specifier here violates HEAD LEFT; see Grimshaw 1997:407.

(Altogether, a T$_{part}$SVO-candidate would violate 1<SUBJECT, 1<HEAD LEFT, 2<HEAD RIGHT; an ST$_{part}$VO-candidate 2<HEAD LEFT, 2<HEAD RIGHT; an SV$_{Taff}$O-candidate 1<NO MORPHOLOGY, 1<HEAD LEFT, 1<HEAD RIGHT.)

Now, as Optimality Theory is intrinsically economic, the only way to exclude a type 'TSVO' universally is to construct a constraint system that harmonically bounds the corresponding configuration. The system proposed in chapter 2 accomplishes this *if* we add one additional constraint to it. Furthermore, we actually must not assume an absence, or even a potential absence, of the inflectional layer, but the opposite:

(8)   Axiom: In finite clauses (verbal extended projections), at least one inflectional functional projection is necessarily projected, which is TP.
        T^0 can contain tense as well as aspectual and mood information.[9]

The insight that it is T that is of crucial importance among the inflectional categories follows Chomsky 1995:355, who assumes even more radically that there is *just* T and no Agr within the syntactic set of categories.[10]

Let us pause here to clarify our motivation for the assumption that TP is always projected. The reason is not the distribution of adverbs. Certainly, there is the point that (for example) in English single-verb clauses that contain an adverb such as *often*, the basic order is not 'Adv - S - V - O' but 'S - Adv - V - O'. *If* the adverb must be adjoined to VP, then this indicates that the subject must be outside VP, and thus, in a functional specifier such as Spec, TP. However, there is a considerable weakness to this reasoning, given that it loses its force as soon as one allows adjunction of the adverb to V-bar (as, for example, suggested by Grimshaw 1997:382 (fn.6); see

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[9]I take **'finite'** here and below as an abbreviation for **a positive specification of T, with respect to either tense, aspect or mood, depending on which category the language expresses**. See Bok-Bennema 1991:192ff for Inuit as an example which primarily expresses only mood (instead of tense/aspect; Bok-Bennema locates mood under I^0).

This leaves open the question on whether in non-finite verbal extended projections, TP is, could or must be projected. If it is, then T^0 should contain a zero-specification (or 'minus'-), accounting for the absence of tense/aspectual/mood information.

[10]Without definitely rejecting the (general or language specific) possibility of syntactic Agr-projections, the current investigation does not explore the option of systematically integrating them. The technical difficulty is that we need to limit the structural complexity in order to be able to completely oversee the system's typological predictions.

also Williams 1994). This holds even more so in the light of my overall investigation, which repeatedly foregrounds the strong possibility that, on a cross-linguistic level, (particular) adverbs are not necessarily limited to one specific syntactic position.[11]

Taking this perspective, then we cannot decisively exclude that English *often* is adjoined to V-bar. This means that there is no ground for justifying the presence of TP, in English or in any other grammar without verb movement but with 'S - Adv - V/O'-order, by the sole recourse to adverb placement. Then, what is the motivation behind (8)?

The point is that if TP is always projected, then this allows for the following interpretation. The presence of TP together with the absence of verb movement enables the lexicon to feed T^0 with independent formatives, and *not* the other way around.

This reasoning implies that the syntax has a selective impact on what can be in the lexicon – here, by providing a general functional position for T, which in turn does not absolutely determine, but does narrow down the possibilities of T's morphological shape. If the language does not move the verb to T in the syntax, then in consequence, free T-particle can emerge in the grammar. If, on the other hand, the verb systematically moves to T, then T must be purely affixal. Crucially, this selective impact of the syntax on the morphology is contingent on the fact that T^0 is indeed always present, at least in those languages that morphologically reflect tense or aspect (or mood). Note that this condition *is* satisfied for the examples cited above, which have been argued to lack an inflectional projection. English expresses tense morphologically even in simple verb clauses. Zapotec does not express tense, but does express aspect (Broadwell 2001:198). German expresses both tense and aspect. Japanese and Korean express tense, and so on.

Then, how can we link the possible choice of T's morphological form to syntactic configuration? The key is to combine and only slightly modify assumptions which were made independently. On the one hand, Chomsky 1995:277, 368; 1999:39 assumes that one role of the functional head T (if [+ finite]) is to assign, or to check, structural subject case, that is, nominative case in 'nominative-accusative'-systems. On the other hand, Chomsky also considered in earlier work (in which he still took Agr to be in the set of syntactic categories) that nominative case is

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[11]Recall the discussion of German adverbs in chapter 2, and see thereon 3.5 below (also corresponding discussions in chapter 5 and 6). See in chapter 4 the point on the typological distribution of adjectives in noun phrases.

checked by the "[Agr$_S$, T] amalgam" (Chomsky 1995: 121), thus, that two distinct syntactic heads actually share the work.

In addition to this, recall that we noticed some kind of locality-condition concerning tense and a lexical head: T apparently wants to be close to the verb on the syntactic surface. So far, generative research has interpreted this preference in light of the axiomatic assumption that T is an affix. Consider as an alternative the following:

(9)   Finite T wants to be close to the verb, because finite T, being a *functional* head, but at the same time a *case assigner*, relies on support from a second head, which is a *lexical* head (V or *v*).

This is the basic backbone of the hypothesis we want to explore below. As such, the fact that languages move *v* to T such that T must be an affix (or an abstract head), or that they choose a configuration which is so local that T has the opportunity to merge with *v* (V) if it is an affix, this becomes a *consequence* of the grammatical functions T and *v* have to supply. This means that the status of T as either optionally or necessarily an affix *follows* from the need to move or to be close, rather than the other way around. (Thus, it is not the case that the need to move and or to be close follows from T's status as an affix or an entity that has to be checked.). I would like to highlight that the system won't solve the entire puzzle concerning the determination of T's form, but it narrows the possible solutions. Leaving aside the option that, in a language with overt verb movement, T could contain either an affix or an abstract head, it predicts that now because the language prefers movement, the lexicon can not contain free tense morphemes. On the other hand, the system forecasts that in a language without overt verb movement, the lexicon can contain all three options, abstract T, affix T, as well as T as a free formative, without saying that it must necessarily make use of each of them. Also keep in mind that the system will predict the absence of a type 'T SVO', independent of the question how T^0 would be filled. Altogether, the system recognizes a partial impact of both syntactic configuration and syntactic movement on morphology .[12]

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[12]I leave it open whether in the case of non-phrasal, 'true' affixes (= affixes that do *not* constitute an independent

Now, granting that finite T is a case assigner, why and how exactly should it be supported by a lexical head? And, does only T need such support?

3.2 Case assignment calls for lexical support: the CASE LEX constraint

My proposal is that case assigners in general need a 'helping' lexical head. Put more formally, 'a case assigner f must be syntactically adjacent to a lexical head which governs all of f's case assignees'. This restriction is instantiated by the constraint CASE LEX, which we want to add to the set established in chapter 2:

(10)   CASE LEX:=

- case assigner f in ep: $\forall$ lexical head g in ep, g is syntactically adjacent to f, such that
- case assignee $c(f)$, g ep-governs $c(f)$.

ep = extended projection

***ep*-government** $=_{def}$ x ep-governs y if and only if x m-command y and x and y are minimally contained in the same extended projection.

α *m*-commands β if and only if all maximal projections dominating β also dominate α.

(As such, a head *m*-commands its c-command domain, plus its specifier).

Syntactic adjacency of two syntactic heads x and y $=_{def}$ x and y are syntactically adjacent if and only if no specifier or complement intervenes between x and y.

CASE LEX, by quantifying over case assigners in general, puts pressure not only on a functional assigner, but on a lexical assigner as well. In both circumstances, any case assignee in question must be lexically ep-governed, in order to satisfy CASE LEX. Clearly, for all instances in which the case assigner is lexical itself, it will be 'self-supporting', meaning that it doesn't need external help. Despite this, a lexical head must still ep-govern its case assignee(s), or else CASE LEX is violated. By definition, ep-government is granted at the upper bound up to the lexical head's specifier but not higher, and at the lower bound, down to any c-commanded syntactic argument

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syntactic head in way claimed by Yoon 1994 for Korean), either (a), T^0 actually contains the affix and T and V combine by movement (cf. Baker 1988) or merger (the latter cf. Marantz 1984, Bobaljik 1994), or (b), T^0 is abstract and as such checked against the 'verb + affix'- complex in V^0 (cf. Chomsky 1993).

position of the extended projection the lexical head is a part of. Since that any element is necessarily adjacent to itself, a lexical head always counts as its own supporter, the question being only whether it *ep*-governs the case assignee(s).

In contrast, if the case assigner is functional, then in order to satisfy CASE LEX it must make sure that it is syntactically adjacent to a lexical head which *ep*-governs its assignee(s). Consider the case assigner finite T. The constraint imposes two kinds of threats in this case.

First, CASE LEX is violated whenever the case assignee of T is in Spec, TP (or more generally, whenever *some* case assignee is in Spec, TP) and *v* (or V) has not adjoined to T but remains in a lower projection from which *m*-command is impossible. Here, whichever head in fact assigns case to the subject, it will ultimately fail on CASE LEX since there is no lexical head (syntactically adjacent or not to the original assigner) that *ep*-governs the subject (see (11)).

(11)   CASE LEX is **violated**, with respect to the assignment of the subject's case, since there is no lexical head that *ep*-governs the subject:

a.
```
            TP
          /    \
       Subj     T'
              /     \
            T⁰       vP
                    /│\
                  ...v⁰..
```

b.
```
            TP
          /    \
       Subj     T'
              /     \
            vP       T⁰
           /│\
         ... v⁰..
```

Note that 'S T VO'-languages like English and Edo, which lack verb movement out of *v*P but let the subject surface in Spec, TP, correspond to the structure given in (11a), with T^0 and v^0 to the left of their complements. Thus, languages like Edo and English violate CASE LEX, despite the fact that, on the surface, T and *v* still happen to be adjacent, given that the subject is in Spec, TP. The configuration is of the form that it could allow for phonological merger (cf. Bobaljik 1994), if T is an affix. But crucially, since T is an independent head in the syntax, it also allows for the emergence of free tense/aspect particles.

Let me comment briefly on the notion of 'syntactic adjacency'. The concept of 'adjacency in syntax' is not a new one; only the context of use is new. So far, as alluded to above, syntactic

adjacency between v^0 and an *affixal* tense head has been noticed as a pre-requisite for merging the head and the affix phonologically; see for example Marantz1984, and in particular Bobaljik 1994, 2002a. It is Bobaljik's concept of 'adjacency' which is taken up here. Adjacency in his understanding draws an essential difference in the grammatical status of syntactic adjuncts on the one hand, and of syntactic 'arguments' (my terminology), such as specifier and complement, on the other. Despite the fact that phonological merger requires adjacency, and is thus blocked by an intervening overtly filled specifier, merger *is* possible across an intervening overtly filled adjunct (cf. Bobaljik 1994:2, 2002a:216f). I use the same notion of adjacency, but for me, syntactic adjacency is not about providing a configuration that makes phonological merger possible; rather it is about having v (or more generally a lexical head) syntactically close to the case assigner it supports. This opens up a new perspective as to *why* adjuncts do not block adjacency. What is required is to acknowledge the function at stake: the lexical head has to support a *case* assigning head, and only for this reason, the relation between the two should be local. If we take for granted that case can be assigned to specifier- or complement-positions, but not to adjuncts, then it makes sense that an intervening adjunct is irrelevant for the configuration that CASE LEX restricts: CASE LEX is about the optimal surface configuration of on the one hand, the case assigner and its lexical supporter, and on the other hand, the position(s) of the case assignee(s) that the assigner and the supporter target *together*. For the harmony of this case configuration, it matters how *local* the combination of the functional and the lexical head is. But since we are looking at a case configuration, it is only natural to expect that locality is measured on the grounds of case-relevant positions. This is why a syntactic argument, as a potential case position, can interrupt locality, but an intervening adjunct cannot.

This also brings us to the second kind of fatal threat for finite T: CASE LEX is also violated if T is not syntactically adjacent to v (or V). That is, even if the case assignee of T is in a lower vP-internal position such that it is *ep*-governed by v, but at the same time, a specifier or complement intervenes between T and v, then v does not qualify as a lexical helper. Only when syntactic adjacency is given is there the potential to satisfy CASE LEX on the behalf of finite T. One example is the following configuration:

(12)   'T SVO' violates CASE LEX – Both T and v *ep*-govern the subject (and the object) but T

and V are not syntactically adjacent:

```
                        TP
                        |
                        T'
                   ╱         ╲
                 T⁰           vP
                          ╱        ╲
                       Subj         v'
                                ╱       ╲
                              v⁰          Obj
```
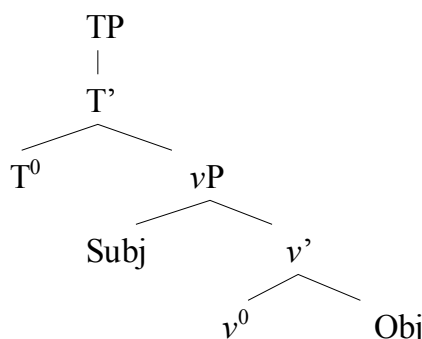
Note that the structure in (12) would correspond to a 'T SVO'-grammar, which seems empirically impossible. The extended system captures this. This is because, as we will see below, even though both configurations in (11) and (12) violate CASE LEX, (12) is harmonically bound, whereas (11) can win under the right ranking.

Now, in sum, the extended system makes the following typological predictions for the verbal domain:

(13)   Typological predictions for finite verbal extended projections:

The absence of both verb- and subject- movement into the inflectional layer, TP, is possible both in grammars that prefer a [head - complement]-directionality, and in those that prefer [complement - head]. However, in [head - complement]-languages, the lack of movement into TP goes precisely hand in hand with the *mixed* directionality of the language. That is, we can have:

i.   VOS-grammars that lack both verb- and subject-movement into TP.
        Type A-languages such as Mayan Tzotzil and Malagasy are '[TP __ T [vP VOS]]'-
        languages.[13]

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[13]On terminology: '__' indicates the absence of a position, here, the absence of Spec, TP.

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ii.   VSO-grammars that move the verb into an additional VP, but leave the subject in situ, and do not move into TP. Type B-languages such as Mixtecan are '[$_{TP}$ __ T [$_{vP}$ VSO]]'-languages.

iii.   Head-final VP-grammars of the 'Germanic' C-type include one variant that lacks both verb- and subject-movement into TP. Persian and German are analyzed as '[$_{TP}$ __ [$_{vP}$ SOV] T]'-languages, which have a head-final TP due to the pressure of CASE LEX.[14]

In uniform SOV-languages, the lack of both verb- and subject-movement into TP is possible as well (H'[$_{TP}$ __ [$_{vP}$ SOV] T]'). It is however *im*possible in uniform SVO-languages:

i.   In SVO-languages, the subject always surfaces in Spec, TP (or higher).

ii.   *'[$_{TP}$ __ T [$_{vP}$ SVO]]'.

iii.   A uniform SVO-grammar either moves both the verb and the subject into TP (French, Icelandic....); or:

iv.   At least the subject moves into Spec, TP (or is directly base generated therein) (English, Edo.....).

In general, the absence of verb movement into TP makes it possible for independent tense/aspects particles to occur. If a grammar prefers verb movement into TP (which is possible in both VO- and OV-grammars), then the tense/aspect-system is purely affixal.[15]

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[14]Be aware that the extended system, by predicting one variant with the preference for [head - comp], which allows for a right-peripheral *functional* head, does *not* undermine the generalization derived in chapter 2: Right-peripheral functional heads are still impossible above left-peripheral lexical heads. It is precisely the head-finality of *v*P which can pull the T-head to the right as well.

[15]Note that, working backwards, the occurrence of independent tense/aspect particles can provide a direct cue for a learning child, indicating that the language she/he is acquiring lacks verb movement into TP.

The following sections will now demonstrate these results using selected examples (for an overview of all possible types, and the ranking options that derive them, see Appendix A).

But before we go on, let me briefly summarize which assumptions the extended system takes as given. While all are basic, only some of them might deserve the label 'standard', whereas others might be more controversial (depending on conceptual taste). These assumptions need not be the result of super-ordinated constraints or part of GEN. Most likely, some or all of them are the outcome of independent constraint rankings. But for the current system to predict the typology that it does, we have to be able to take the following for granted cross-linguistically:

I -   On syntactic linking and the possible position of the subject-2-role:

In chapter 2 (2.1), I already outlined my assumptions on syntactic linking in verbal extended projections (with the lexical layer splitting into at least *v*P erected above VP in all transitive contexts). Following both Chomsky 1986b:3 with respect to the possibility that the 'external' argument is base generated in the specifier of IP and the 'subject-in-VP'-hypothesis (cf. Zagona 1982, Koruda 1988, Koopman & Sportiche 1991), I do not exclude either of the two structural options. That is, the subject-2-role, assigned by *v*, can be base generated either in Spec, *v*P or in Spec, TP.

II -   On Case:

Finite T is a case assigner (and as such is subject to CASE LEX).
Following Chomsky 1995:277, 368, 1999:39, in (nominative, accusative) (= (*nom*, *acc*)) case systems, finite T assigns nominative. Following Bok-Bennema & Groos 1984, Bok-Bennema 1991:202-219, in (ergative, absolutive) (= (*erg*, *abs*)) case systems, finite T assigns absolutive.[16]

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[16]Notice that attributing *nom*/*abs*-assignment to finite T (recall that I take 'finite' as an abbreviation for a positive tense- and/or aspect- (or mood-) specification) does not necessarily imply that this is the *only* possible assigner in this case. While this seems a quite robust generalization, there might exist exceptional cases in which *nom* (*abs*) is assigned by other means. See, for example, the infinitive in Portuguese which is inflected for subject agreement, as well as nominative possessors in Hungarian noun phrases (see chapter 4). There is also the fact that a noun phrase occurring in isolation (in a list, a citation etc.) carries nominative.

In the spirit of Chomsky 1986a, 1999:15 (fn.31), object arguments can be 'flagged' by means of their 2-role to receive an 'inherent' object case from V. As such, the argument cannot be targeted by a structural case (*nom*, *acc*; *erg*, *abs*). Furthermore, the Case-filter (cf. Vergnaud 1980, Chomsky 1980, Chomsky 1995:111) cannot be violated. That is, every phonetically realized noun phrase must be assigned (abstract) case.[17]

Then, in all transitive sentences: In (*nom, acc*) systems, T assigns nominative to *v*'s argument (the subject; which is the argument closest to T). In (*erg, abs*) systems, T assigns absolutive to V's (un-flagged) argument (the object).

As a working hypothesis, I assume that V assigns accusative to the object in (*nom*, *acc*)-systems, or ergative to the subject in (*erg*, *abs*)- systems. This assumption is not crucial for the concerns in this chapter; it merely gives us a way to talk about the assigner of the second structural case in each pair.[18]

This chapter keeps the focus on active transitive contexts. The identification of V as the assigner of accusative case finds its motivation in section 5.3. There I will also address intransitive clauses (both unaccusative and unergative), and touch upon passive.

During the discussion below, I will concentrate on (*nom, acc*)-systems and leave (*erg, abs*)-systems mostly out of the picture. Be aware, though, that the extended system's factorial typology is not affected by the distinction between the two case systems. That is, whether T assigns nominative to the subject or absolutive to the object, and whether the subject in turn receives its case either from T or from V (or *v*), particular rankings of the constraints still make the same predictions on whether the subject and/or the verb moves into TP. Since however the topic of ergative grammars is a rather complex one in itself, we will limit the illustration to (*nom, acc*)- systems in order to keep the discussion focused.

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[17]See here also Samek-Lodovici 1996:172 for the Optimality-theoretic assumption that the Case Filter is inviolable and "belongs to the filtering component of GEN".

[18]See, for example, Bok-Bennema & Groos 1984, Broekman & den Dikken 1988, Koopman 1988 for the assumption that ergative is assigned by V. Nevertheless, Bok-Bennema 1991:210ff (following Bittner 1988) recognizes I as the assigner of both *abs* and *erg* (where Bok-Bennema 1991:202 terms absolutive as nominative). Chomsky 1999:39 identifies *v* as the assigner of accusative.

III -   How case can be assigned, and what can be in Spec, TP:

Following Chomsky 1999:39 (see his AGREE relation), a 'long-distance'-configuration is generally an option for case assignment. This means that T (and the verb) can assign its case to a non-local specifier. I still assume that the configuration must be a [spec, head]-relation (see here also Chomsky 1995: 120, 173). That is, any structural case (*nom*, *acc*; *erg*, *abs*) must be assigned to a specifier position. The domain of possible (long-distance) case assignment is the *m*-command domain of T's base position (thus, everything in TP and lower), which equals the possible domain of 2-linking.[19]

Lastly, assume that Spec, TP is an intrinsic case position. That is, if it is projected at all, then it has to receive case. (This assumption might be bent in some grammars, but only by ranking of higher independent constraints.).

When an argument moves from the lexical layer to Spec, TP, it is most harmonic that the hierarchically highest argument moves; this is the subject, *v*'s argument, if present. (Be aware that Spec, TP is then not necessarily the target for T's case. For example, in a transitive clause of an (*erg, abs*) language, a subject in Spec, TP receives ergative; T assigns absolutive to the object.)[20]

Let us now explore the logic of the extended system, and how it governs the distribution of TP with respect to movement and directionality. I show first how, in [head - complement]-oriented languages, the lack of movement into TP is possible, but goes hand in hand with mixed directionality. Then I show why in uniform SVO-languages, *unlike* SOV-languages, the same movement into TP is *im*possible.

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[19]Assuming the possibility of 'long-distance'-relations seems in particular suitable under a conception of 'extended projections', in which all heads are tightly connected, constituting the projection of *one* projecting base head.

Furthermore, note on the requirement that case must be assigned to a specifier: For the object, if it is base generated in the complement of V in the absence of any other argument/PP, it has to move at least up to Spec, VP in order to receive *acc* (or *abs*).

[20]The default of 'the hierarchically highest argument moves' can be due to the impact of Parallel Movement (cf. Müller 2001:279), which bans the deconstruction of thematic linking unless overturned by higher ranked constraints: "If " c-commands $ at level L$_n$, then " c-commands $ at level L$_{n+1}$ (where " , $ are arguments)."

3.3 TP-structure in VOS and VSO languages

First let us ask how it is possible that we can find VOS- and VSO-languages in which neither the subject nor the verb moves into TP?

3.3.1 T-support without moving into TP

To begin with, recall that we derived in the previous chapter that not only a VSO- but also a VOS-grammar projects functional phrases with a [spec [head - complement]]-directionality. This applies to TP in particular. Consequently, if the subject moved into TP, then the final outcome would be a language with the basic surface order 'S - V - O'. As such, both VOS and VSO *must* be grammars that are, at least, not 'subject-in-Spec, TP'-languages (see a further comment on this logic with respect to VSO at the end of 3.3.2).

On the empirical side, note that Tzotzil, which has been our primary example of a VOS-grammar (type A), and Yosondúa Mixtec, the primary example for a strict VSO-grammar (type B), both have independent T-particles. This suggests, given the current reasoning, that they not only lack subject movement into TP, but also verb movement.

Regarding Tzotzil, we have already mentioned in 3.1 above (example (3)), that it expresses incompletive aspect by the particle *ta* (cf. Aissen 1996:450). It shares the occurrence of independent aspectual particles with many other Mayan VOS-languages (cf. Aissen 1992:48). In general, Tzotzil does not express tense but rather both aspect and mood. In the indicative, it distinguishes neutral, incompletive, completive and perfect aspect (cf. Aissen 1987:41f). Significantly, among the stock of affixes, we find not only suffixes but also prefixes. For example, completive aspect can be expressed by the prefix *7i-*:[21]

(14) Tzotzil (cf. Aissen 1987:1):

    7i- s- pet lok'el   7antz   ti t'ul -e.

    cp A3 carry away   women   the rabbit cl

    "The rabbit carried away the women."

---

[21]The choice for a specific affix within one aspectual class correlates with the choice for particular agreement affixes. See Aissen 1987:41ff for details.

It would not be surprising if the prefixes stem diachronically from independent particles which have turned into affixes over time, given the direct adjacency to the verb which is a potential attachment site. Altogether the basic order in Tzotzil is either 'T_{part} - V - O - S' or '$V+T_{aff}$ - O - S', where T_{aff} can be either a prefix or a suffix. As shown below, we will capture this by analyzing the Tzotzil clause as having a '[$_{TP}$ __ T [$_{vP}$ VOS]]'-structure, including a TP that hosts neither subject- nor verb movement. Furthermore, I will assume that, with respect to the affixes, at least the prefixes are base-generated directly in T^0, on a par with independent particles. In general, keep in mind that affixation, even suffixation, is in the current system not a decisive indication of verb-to-T-movement. PF-merger under adjacency also exists. But the occurrence of independent T-particles or 'phrasal affixes' does entail the *absence* of verb-to-T-movement. In this case, the grammar can still have affixal Ts, and in turn T^0 can contain the affix itself if the configuration allows for phonological merger as it does in Tzotzil.

Yosondúa Mixtec also has independent T-particles, as is commonly the case in VSO-grammars. Yosondúa Mixtec is, like Tzotzil, an aspect-oriented language. For example, the particle *ni* in (15) expresses completive aspect. Note here that completive aspect is also redundantly expressed on the verb, by the tone of the verb nucleus. If the tone unambiguously signals the aspect, then *ni* can optionally be dropped; otherwise it is obligatory (this depends on the choice of the verb; cf. Farris 1992:55):

(15)   Yosondúa Mixtec (cf. Farris 1992:55, 56):

    a.   **Ni**   yax§   d~ nd§k~

            COM COM:eat he banana

            "He ate bananas."

Below, we will further discuss complex verb constructions in Yosondúa Mixtec. It is crucial to be aware at this point that Yosondúa Mixtec's basic order is either 'T_{part} - V - S - O', or 'V_T - S - O', with V_T expressing aspectual information by the tone of the nucleus. That is, the grammar does not deviate from the VSO-order, regardless of the actual morphological representation of T, which can be independent. We will capture this by analyzing a '[$_{TP}$ __ T [$_{vP}$ VSO]]'-structure, meaning that the grammar lacks both subject- and verb movement

into TP. The VSO-order is the result of verb phrase-internal verb movement, *below* the inflectional layer, as we have already derived this in chapter 2.

From a theoretical perspective, notice that neither a '[$_{TP}$ __ T [$_{vP}$ VOS]]' nor a '[$_{TP}$ __ T [$_{vP}$ VSO]]' configuration violates the newly introduced constraint CASE LEX:

(16) Tzotzil (data cf. Aissen 1987:1):

[$_{TP}$ 7i-$_T$ [$_{vP}$ s- pet$_v$ 7antz ti t'ul -e]].

cp A3 carry women the rabbit cl

"The rabbit carried the women."
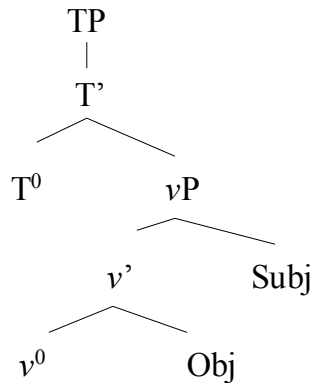
(17) Yosondúa Mixtec (data cf. Farris 1992:55):

[$_{TP}$ Ni$_T$ [$_{vP}$ yax§ d~ nd§k~]

COM COM:eat he banana

"He ate bananas."
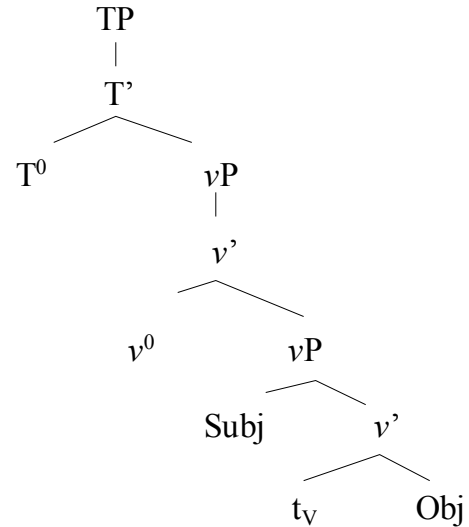
In both structures (16) and (17), the subject is in Spec, *v*P, which means that it is lexically *ep*-governed by *v*. At the same time, the lexical helper *v* is also clearly syntactically adjacent to T. In the present analysis, the adjacency in VOS-language is due to the right-peripheral orientation of the *v*P-subject-specifier (cf. (16)). In strict VSO, it is an effect of the verb creating an additional *v*P above the one containing the subject (cf. (17)). In terms of CASE LEX and its evaluation of T's case assignment, with T assigning nominative case to the subject (notice that this is a 'long-distance'-relation), it follows that CASE LEX is satisfied.[22]

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[22]Be aware that Tzotzil is an ergative language. While case marking on NPs is abstract, ergativity becomes evident through the grammar's agreement system (see Aissen 1987:2, 41ff for details). Thus, in Tzotzil, T in fact assigns absolutive case to the object. Nevertheless, from the point of view of CASE LEX, this doesn't matter much. In order to satisfy the constraint, T still needs help from lexical *v*. Since adjacent *v* *ep*-governs also the object in (16) (as it does in

The more general claim is that TPs in VOS-languages correspond to the structure in (16), whereas in VSO-languages (of the Mixtecan type), a TP looks like (17). Then, in order to precisely understand how each becomes the optimal choice, we must know more than just that CASE LEX is unviolated. We must also know the possible alternative structures, and furthermore, how (16) and (17) are doing on the other constraints in the current set.

Consider first VOS. In chapter 2, we saw that in VP, a VOS-grammar prefers to obey GENERALIZED SUBJECT, which ultimately caused the right-peripheral orientation of the specifier. Now, (16) violates GENERALIZED SUBJECT in TP, given that Spec, TP is not projected. Considering the entire violation profile, (17) violates 3 < HEAD RIGHT and 2 < GENERALIZED SUBJECT (for absent Spec, TP and absent Spec, vP); and (16) violates 2 < HEAD RIGHT, 1< BRANCHING RIGHT, *and* 1 < GENERALIZED SUBJECT. How is it possible that (16) can win?

Let us look a little closer at those alternatives one might think could beat the structure which is optimal in VOS. On the one hand, there is the option of moving only the subject into Spec, TP; on the other hand, there is the option of moving both the subject and the verb into TP:

(18) a. Moving the subject only: b. Moving both the subject and the verb:
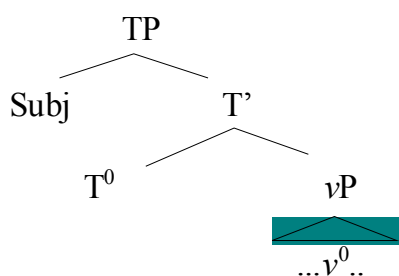
  ◦   Violation of CASE LEX   ◦   Violation of LEX HEAD EDGE;
                       additional violation of HEAD RIGHT

```
        TP                                    TP
       /  \                                  /  \
    Subj   T'                             Subj   T'
          /  \                                  /  \
        T⁰    vP                              T⁰    vP
            [.....]                          /  \   / \
             ..v⁰..                        v⁰   T⁰  ..tᵥ..
```

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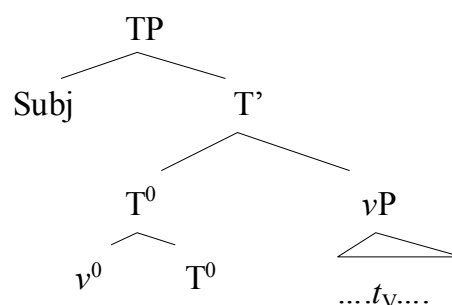
(17)), therefore both configurations obey CASE LEX on T's case assignment, even if that is absolute. Furthermore, if V (in v^0; or v itself) assigns ergative to the subject, CASE LEX is also satisfied with respect to this case assigner; as said, v_v *ep*-governs the subject in both (16) and (17). Also, keep in mind generally that the object is in fact contained inside VP, which is the actual complement of v^0. Inside VP, the object must be in Spec, VP to receive accusative or absolutive case.

As we have already seen in the previous section, moving just the subject into TP violates CASE LEX, regardless of which head is ultimately the case assigner. With T assigning *nom* to the subject, T violates CASE LEX, since one of its assignees remains lexically un-governed. On a more general level, whichever head assigns case to the subject in Spec, TP, as long as T gets no lexical reinforcement, this case assigner will fail on CASE LEX because lexical *ep*-government of the assignee is missing. Consequently, (16) can beat (18a) if the grammar, beyond being keen to satisfy GEN SUBJECT, is even more concerned about *not* violating CASE LEX.

Though, what about (18b)? Moving not only the subject but also the verb into TP provides lexical *ep*-government for the subject in Spec, TP. Furthermore, since *v* adjoins to T, the two heads are clearly syntactically adjacent. Therefore, (18b) does not violate CASE LEX with respect to subject case assignment.

Nevertheless, (18b) has a disadvantage: it violates LEX HEAD EDGE. The general point is that any lexical head which leaves the lexical domain necessarily violates LEX HEAD EDGE, regardless of word order. For v_v to satisfy the constraint, v_v must surface at the edge of one of its perfect projections, thus, at the edge of *v*P. TP does not qualify as such. Then, if the verb moves to T, LEX HEAD EDGE will be violated, whether Spec, TP exists or not, and whether we have a [head - complement] or a [complement - head]-order. Consequently, (18b) is less harmonic than (16) on behalf of LEX HEAD EDGE: while (18b) violates it, (16) does not. In general, ranking LEX HEAD EDGE appropriately high enough, the constraint can become responsible not only for changing the directionality inside LexP, it can also block lexical head movement into FP, including verb movement into TP.

It is worth recognizing that (18b) has a second shortcoming, which could make the configuration lose. Not only does it violate LEX HEAD EDGE, it furthermore violates HEAD RIGHT twice in TP, as opposed to (18a), which incurs only one HEAD RIGHT violation in TP. Let us briefly review the definitions of HEAD RIGHT and HEAD LEFT, in order to see why head-to-head-adjunction accumulates additional violations.

(19) On constraint evaluation – adjoining Y^0 to X^0 creates an additional HEAD RIGHT
(or HEAD LEFT) violation:

HEAD LEFT:=
- categories X^0:) ″ mother node y such that the right edge of X^0 and the right edge of y coincide.

HEAD RIGHT:=
- categories X^0:) ″ mother node y such that the left edge of X^0 and the left edge of y coincide.

The point is that HEAD LEFT/RIGHT quantifies over every category X^0, prohibiting the existence of a *mother node* such that the wrong kind of alignment holds. Now, in a configuration in which another head Y^0 adjoins to X^0, not only does X^0 (now being constituted by two segments) have a mother node in X', for which left- alignment will cause a violation of HEAD RIGHT (right-alignment a violation of HEAD LEFT), but also the adjoined head Y^0 has a mother node in X^0, such that Y^0 necessarily aligns with one edge of this mother node (the other edge aligning with the second lower segment of X^0). Consequently, any complex head-adjunction configuration causes additional alignment violations, one for each adjoining head.[23]

Hence, moving v to T does not only mean that we have to give up on LEX HEAD EDGE, it also implies that we have to pay more on HEAD RIGHT (or HEAD LEFT, if T is final). Which violation will count more for a VOS-grammar? Recall that we recognized basic 'V - O - S'-order as a pattern that arises precisely because the grammar in question wants to obey LEX HEAD EDGE. For this reason only, it is willing to push the vP-specifier to the right, accepting the violation of BRANCHING RIGHT. But if LEX HEAD EDGE is the reason for a right-peripheral specifier, then moving v into TP must be unacceptable due to LEX HD EDGE. Otherwise, the entire configuration would finally end up with the violation which should be avoided by Spec, vP on the right.

Putting these pieces together, what we have now learned is the following. Basic VOS-languages are not only languages that want to obey LEX HEAD EDGE, they are also languages which are not willing to tolerate violation of CASE LEX. As such, '$[_{TP}$ __ T $[_{vP}$ VOS$]]$' is optimal

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[23]Three technical remarks: (a) The two segments constituting X^0 are evaluated as one head with respect to HEAD LEFT/RIGHT, since the constraints quantify over categories, not over segments. (b) The system predicts that Y^0 should adjoin to the left of a left-peripheral head, but to the right of a right-peripheral head. (c) Substitution of one head into another does not cause any additional violations, since no complex head configuration is created (V-to-v-movement necessarily results in a single v-node: v^0 lexicalized by V). The same is true for a V-head (and a v-head) which moves inside the lexical layer in order to create further VP-shells.

if the ranking of all six constraints at stake is one of the following.[24]

(20)   Basic VOS = [TP __ T [vP VOS]]

HEAD LEFT, LEX HD EDGE, CASE LEX >> GEN SUBJECT >> BRANCH RIGHT, HEAD RIGHT

The tableau in (21) demonstrates a competition based on this constraint ranking. Note that the closest competitor for the VOS winner (e) is (d), that is, the '[TP __ T [vP VSO]]'-configuration. Both candidates violate neither LEX HEAD EDGE nor CASE LEX; (e) only wins over (d) since it has fewer GENERALIZED SUBJECT violations:

(21)   [TP __ T [vP VOS]] is optimal –

Comparison with relevant possible winners (all obey HEAD LEFT); '__' indicates the absence of a specifier:

	LEX HD EDGE	CASE LEX	GEN SUBJECT	BRANCHR	HEAD RIGHT
a. [TP subj T^0 [vP t_S v^0 object]]	*!	*			**
b. [TP subj T^0 [vP __ v^0 object]]		*!	*		**
c. [TP subj v^0-T^0 [vP t_S t_V object]]	*!				***
d. [TP __ T^0 [vP __ v^0 [vP subj t_V object]]]			**!		***
☞ e. [TP __ T^0 [vP v^0 object subject]]			*	*	**

It is also worthwhile to notice candidate (b). Candidate (b) ultimately loses, because, as explained above, it fails on CASE LEX. But we should be aware that (b) nonetheless manages to obey LEX HEAD EDGE. This holds despite the fact that (b) corresponds to neither of the three choices we have introduced in the previous chapter as ways of obeying LEX HEAD EDGE, in a grammar which prefers [head - complement]-directionality. The point is that, once we introduce the inflectional layer, and with it the possibility that the external argument could be base generated therein, we discover a fourth choice for satisfying LEX HEAD EDGE. This fourth and last choice does not alter

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[24]See Appendix A for one other ranking configuration, which leads to the same grammar.

the directionality of the preferred [spec [head - complement]] skeleton, and since it ultimately surfaces as an SVO-pattern, it might not be easy to distinguish empirically (for more on this point, see section 3.6). For now, it suffices to realize that the structure in (b) cannot beat '[$_{TP}$ __ T [$_{vP}$ VOS]]' due to the ranking of CASE LEX.

Turning now to the '[$_{TP}$ __ T [$_{vP}$ VSO]]'-structure, claimed as the optimal configuration in VSO-grammars of the Mixtecan type, it does not violate CASE LEX or LEX HEAD EDGE. Consequently, the logic of the emergence of VSO is basically the same as in VOS. Not only LEX HEAD EDGE, but also CASE LEX must be sufficiently high-ranked. The only difference is that BRANCHING RIGHT is high-ranked as well, crucially higher than GENERALIZED SUBJECT. That is, '[$_{TP}$ __ T [$_{vP}$ VSO]]' emerges under the ranking given in (22); the competition in (23) below demonstrates the win:[25]

(22)　Basic VSO = '[$_{TP}$ __ T [$_{vP}$ VSO]]'
　　　HEAD LEFT, CASE LEX, LEX HD EDGE, BRANCH RIGHT >> GEN SUBJECT, HEAD RIGHT

(23)　[$_{TP}$ __ T [$_{vP}$ VSO]] is optimal − Comparison with relevant possible winners (all obey HEAD LEFT):

	BRANCH RIGHT	CASE LEX	LEX HD EDGE	GEN SUBJ	HEAD RIGHT
a. [$_{TP}$ subj T^0 [$_{vP}$ t_S v^0 object]]		*!	*		**
b. [$_{TP}$ subj T^0 [$_{vP}$ __ v^0 object]]		*!		*	**
c. [$_{TP}$ subj v^0-T^0 [$_{vP}$ t_S t_V object]]			*!		***
☞ d. [$_{TP}$ __ T^0 [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]				**	***
e. [$_{TP}$ __ T^0 [$_{vP}$ v^0 object subject]]	*!			*	**

We see that the system produces both VOS- and VSO-languages in which neither the verb nor the subject moves into TP. Empirically, this is reflected by the fact that in both types, independent tense/aspect particles emerge quite frequently, as shown above. While this possibility might be

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[25]See appendix A for one other ranking configuration, which leads to the same grammar.

particularly puzzling for basic VSO if we analyze it exclusively as movement into the inflectional layer, it falls into place once we recognize the option of deriving VSO by VP-internal verb movement.

Finally, what about clauses which involve an auxiliary, or a modal? Let us go on a brief excursus, which discusses the system's treatment of auxiliaries/modals, in particular in grammars that lack verb movement to T. This is illustrated with a focus on the Mixtecan type.

3.3.2   Auxiliaries and modals in the absence of verb movement to T

To start, I assume that a 'modal + (non-finite) main verb'-configuration, in which the modal and the verb *share* the same subject, often count as just one clause, a single extended projection.[26] As such, the construction falls into the same class as a mono-clausal configuration 'auxiliary + $V_{past\ participle}$'. This gives us the basis to account for the following fact. VSO-languages of the Mixtecan type select the basic order 'modal - V - S - O'. See for example Yosundúa Mixtec in (24):[27]

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[26]The assumption that corresponding configurations are mono-clausal can also be found in Wurmbrand 2001. But see, for example, Julien 2001 for the opposite claim.

[27]Farris 1992:28 groups the construction under 'sentential complements', but then reports that "other subject complements optionally begin with the complementizer *x~*", "except for those occurring with *kāā* 'to be possible'". Furthermore, below, we will see that Yosondúa's ranking predicts a structure, in which the modal is directly substituted into T. Such an analysis finds support in the fact that the main verb nucleus reflects the specification of T by occurring obligatorily in potential aspect. This is thus on a par with the mono-clausal case of completive aspect in (15) above.

One further note in the background: The mono-clausal status does not extend to complex (infinitival) verb constructions, which not only involve two verbs but also two distinct subjects. Here it seems sensible to assume that the structure generally corresponds to two distinct extended projections/clauses. This then also means that the corresponding embedded infinitive clauses *could* show 'S - V - O'-order even under a 'strict'-VSO-ranking. Precisely when the subject has to receive case from outside the extended projection, such 'exceptional case marking' (cf. Bresnan 1970, Chomsky 1981) eventually requires stricter locality (i.e. forcing the subject into the top specifier of the embedded infinitive). Yosondúa Mixtec, however, does not seem to allow corresponding configurations in any case. Rather, non-co-referential subjects demand the presence of an intervening complementizer (Farris 1992:30ff), suggesting the subordination of a finite clause.

(24) Yosondúa Mixtec (Farris 1992:29):

Kúã **kahu** d~ tãtã

Con:be:possible pot:read   he paper

"He can read."

Yosundúa Mixtec does not have true auxiliaries, but see the example in (25) from Greek. As mentioned in chapter 2, Greek seems to belong to the same class of strict VSO as Mixtec, and indeed, we have the basic order 'auxiliary - V - S - O':

(25) Greek (Alexiadou 1999:51):

An **ehun** idhi **mathi** kala i Kokini   to sistima tus.

if   have already learnt well   the-Reds-nom the system cl-gen-pl

"If the Reds have already learnt their system well..."

Now, there is the question whether auxiliaries and likewise modals count as lexical heads. The answer has an impact on whether they are subject to LEX HEAD EDGE or not, and whether they can act as 'lexical helpers' for satisfaction of CASE LEX. The answer is far from obvious.

For example, van Riemsdijk 1998:11,12 categorizes both auxiliaries and modals as 'semi-lexical' heads, considering, among other things, their 'closed-class'-character. One might also think of the fact that, for example, in English, modals have a 'particle-like' character, never taking up agreement. The same is true for the future auxiliary *will*. Thus, we could claim them to be instances of a *functional* Infl-head; see, among others, Roberts 1993:245, 309ff who assumes that all English modals are directly inserted into T^0.

But then there is also the sense that auxiliaries and modals are still *verbs*. As such, at least auxiliaries have variants in which they act as main verbs, and both auxiliaries and modals potentially participate in derivational morphology.[28]

In order to acknowledge this ambiguous character, I will explore the following hypothesis. Auxiliaries and modals are not 'semi-lexical' heads, but they can be, in the syntactic

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[28]The same is never true for adpositions, which Baker 2003:305 considers as one piece of evidence that P is not a lexical category, but genuinely functional. See more on adpositions in section 5.4.

representation, *either* lexical *or* functional heads. The ultimate decision on this is made by constraint ranking. This can be worked out as follows.

Both auxiliaries and modals are heads of the category V, and as such, they originate as lexical heads. Nevertheless, they are 'hybrids' in the following way. They have a potential to lose their status as lexical heads if they are directly substituted under T^0. In this case, they ultimately project TP and thus become instantiations of T, so they count as functional heads. In order to maintain the lexical status even in a context in which the auxiliary/modal appears within an extended projection of another verb, it must *not* substitute into T^0. There are two ways this could happen: either the auxiliary/modal is base generated under VP (heading a separate VP-shell, erected above the main VP-*v*P), or it is directly adjoined to T^0. The adjunction structure is imperative to maintain lexical status, since only in a head-to-head-adjunction configuration, the lexical head is still a distinct syntactic entity, and does not become the projector of T itself.[29]

The auxiliary/modal can act as a 'lexical helper' for satisfaction of CASE LEX only if it maintains its lexical status; and only then it is evaluated on LEX HEAD EDGE. If, on the other hand, the auxiliary gives up its lexical status and substitutes into T^0, it cannot be input for LEX HEAD EDGE, but it can cause a violation of CASE LEX, just as T does, if the subject is in Spec, TP. Therefore, the ultimate decision of how to treat the auxiliary/modal in the syntactic mapping will be the decision of a particular constraint ranking.

With this conception in mind, let us go back to the example of strict VSO and Yosondúa Mixtec. Will this type treat a (finite) modal/auxiliary as a lexical head, or will it substitute the auxiliary/modal under T^0?

We know that the type doesn't want to violate CASE LEX. At the same time, the satisfaction of CASE LEX is already guaranteed, in strict VSO by *v*P-internal verb movement. Therefore, direct substitution of an auxiliary or modal under T^0 won't incur any violation of CASE LEX. On the other hand, maintaining the lexical status becomes too costly regardless of the exact structural solution. This is illustrated in the tableau in (26) below. See how candidate (c), which adjoins the auxiliary/modal directly to T^0, causes a fatal LEX HEAD EDGE violation, whereas (b) loses, not because it fails on the higher ranked constraints LEX HEAD EDGE and CASE LEX, but

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[29]See section 3.5.3 for an example of a 'multiple-auxiliary'-construction.

because base generation under VP adds additional violations of both HEAD RIGHT and GEN SUBJECT. Therefore, the optimal candidate (d) substitutes the auxiliary/modal under T^0, causing it to lose its lexical status:

(26)   Yosondúa Mixtec (data cf. Farris 1992:29):

[$_{TP}$ Kúã$_T$ [$_{vP}$ kahu$_v$ [$_{vP}$ d~ t_V tãtã]]]

CON:be:possible   pot:read   he   paper

"He can read."

The auxiliary/modal is best treated as a functional element, losing lexical status:

(relevant candidates – HEAD LEFT and BRANCHING RIGHT obeying:)

	CASE LEX	LEX HEAD EDGE	GEN SUBJECT	HEAD RIGHT
a. [$_{TP}$ __ T^0 [$_{VP}$ __aux^0 [$_{vP}$ subj v^0 object]]		*!	**	***
b. [$_{TP}$ __ T^0 [$_{VP}$ __aux^0 [$_{vP}$ __v^0 [$_{vP'}$ subj t_V obj]]]]			***!	****
c. [$_{TP}$ __ aux^0-T^0 [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]		*!	**	****
☞ d. [$_{TP}$ __ T$_{aux}$^{0} [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]			**	***

The above logic does not only apply to the strict VSO type. Parallel reasoning can be applied to the VOS-ranking, and as a matter of fact, to any grammar which lacks verb movement to T. The general outcome is that these grammars substitute a finite auxiliary or modal directly into T, at least, as long as no additional components are added to the theory. For strict VSO, we get the special effect that the ultimate structure is on a par with simple verb clauses, in the sense that the order of the main verb, S and O is still VSO. That is, we get 'auxiliary/modal - V - S - O', the correct result for languages of the Mixtecan type.

Before we close this section, candidate (a) of the tableau in (26), which corresponds to an 'T-Aux - S - V - O'-order, deserves a further comment: (a) does not violate CASE LEX since T has, in Aux, a lexical helper adjacent which *ep*-governs the subject. The adjacency also enables T and Aux to phonologically merge into a finite auxiliary. At the same time, the candidate violates LEX HEAD EDGE, since the main verb, while surfacing inside lexical *v*P does not align at an edge

thereof. The reason for why the structure should not be left unnoticed is that it could give us the basic order 'finite auxiliary - S - V - O'. The pattern is attested in the Celtic languages (in combination with a 'V_{fin} - S - O'-order in the absence of an auxiliary; recall 3.1).

Now, as we can infer from the tableau in (26), candidate (a) not only loses under the current ranking, but it is in fact harmonically bounded by the optimal candidate (as are all other candidates shown in (26)). The violation profile of (a) is identical to that of (d), but includes an additional violation of LEX HEAD EDGE. Therefore, given just the current constraints, (a) could never be a winner.[30]

The empirical consequence of this, on the larger scale, is that the system, without any additional assumptions, does not produce a Celtic type. This, however, is not necessarily a bad result, for two reasons. First, as noted in 3.1, the Celtic pattern is in fact surprisingly rare once we look at the broader typology; as a matter of fact, it is only attested by the Celtic languages themselves (cf. Julien 2000:475-496). The most common variant of VSO appears to be the one here described as 'strict VSO', which is produced by the system's factorial typology. The second reason is that McCloskey 1997:219 recently claimed (contrary to earlier work) that at least in Irish (and evidently also in Welsh), the subject actually does move out of VP and into the inflectional layer. Then, the VSO-order is derived by subsequent movement of the verb *through* an inflectional projection into a second higher FP (the lower inflectional projection contains the subject). If the structure is accurate, then there is a good chance that the Celtic grammars in fact fall, within the current system, under the class of SVO-languages plus verb movement into TP. Thus, they would correspond to an SVO-, not a VSO-type- ranking, and the surface 'V_{fin} - S - O'-order had to be derived by an additional constraint conflict (the driving force not being LEX HEAD EDGE; see in this respect also the discussion on Verb Second in section 3.5.3 below, as one example of verb movement beyond TP).[31]

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[30]Competitors which could win are not listed in (26), in order to keep the discussion easier to follow. We already know that VSO would not choose to raise the subject into a left-peripheral specifier of VP$_{aux}$ or TP, either to avoid LEX HEAD EDGE- or CASE LEX- violation.

[31]On the question of what the final target position of the verb movement is, one possibility is C. See Schafer 1995 for an analysis of systematic verb-to-I-to-C-movement in the Celtic VSO-language Breton. See McCloskey 1996 on the

Altogether, in this section, we have seen two examples of how in [head - complement]-oriented languages, the absence of both subject- and verb-movement into TP goes hand-in-hand with the mixed directionality of the languages. In other words, it is precisely those grammars, of which we have learned in chapter 2 that they deviate from a [$_{VP}$ spec [head - complement]]-directionality, which can fully reject movement into TP. The next section shows a further example, which goes a step beyond, not only not moving into TP and projecting a head-final VP, but pushing T to the right as well.

3.4   Emergence of a head-final TP in a [head - comp]-grammar

Consider the third mixed pattern derived in chapter 2, the [head - complement]-grammar with head-final verb phrase, exemplified by German and Persian: Can it lack both subject- and verb movement into TP as well? It can, but significantly, this goes hand-in-hand with not only a head-final verb phrase but a head-final TP in addition. Let us first discuss the example of Persian (on German, see section 3.5).

3.4.1   Right-peripheral V pulls T to the right

In (27) below, we see the TP structure, which I claim is optimal in Persian. Note on this that Persian does not deviate from the basic order 'S - O - V', regardless of the particular encoding of the tense/aspectual information. As illustrated in the example, the latter can be morphologically independent of the main verb, in which case it necessarily follows at the final end of the clause:

emergence of complementizers forming a phonological word with the following tense-element and the then following verb in Irish. However, McCloskey 1996 argues against an I-to-C-movement, in favor of a syntactic C-to-I-lowering.

(27)   Persian (data cf. Ghomeshi 1997:139):

[$_{TP}$ [$_{vP}$ hame-ye m⋆allem-â ye shâgerd-i-ro   m⋆arefi$_v$] **kard-and$_T$**]

      all+EZ   teacher+pl   one student+indef+râ introduce   did+3plS

"Every teacher introduced a student"
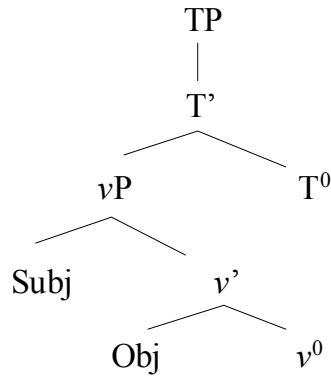
Recognize first that, in parallel to what we have seen in the last section, the configuration does not violate CASE LEX, despite the fact that the subject is in Spec, vP. The same reasoning that applied to (16) and (17) above, applies to (27) as well, since '[$_{TP}$ __ [$_{vP}$ SOV] T]' is the exact mirror image of '[$_{TP}$ __ T [$_{vP}$ VOS]]'. In particular, '[$_{TP}$ __ [$_{vP}$ SOV] T]' satisfies CASE LEX: T, which assigns nominative to the subject (or absolutive to the object), is adjacent to lexical v, which *ep-*governs the respective case assignee. Consequently, v_v (or V), *ep-*governs its own case assignee as well. The surprising aspect is that T^0, a functional head, is on the right of its VP-complement. Given that we are talking about a HEAD LEFT >> HEAD RIGHT grammar, we rather expect a TP with [head - complement]-order. However, consider the alternatives:

(28) a.[32]   No movement into TP,   b.   Moving only the subject;
           but T^0 is on the left: T^0 is on the left:
       °   Violation of CASE LEX   °   Violation of CASE LEX

```
         TP                                            TP
         |                                            /  \
         T'                                        Subj    T'
        /  \                                              /  \
      T⁰    vP                                          T⁰    vP
           /  \                                              /  \
        Subj   v'                                        t_subj  v'
              /  \                                              /  \
           Obj    v⁰                                         Obj    v⁰
```
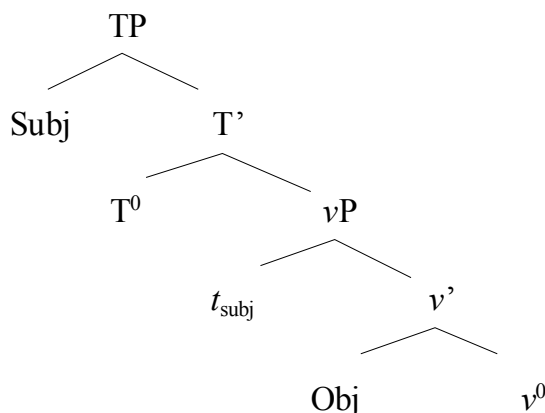
Having T^0 on the left of vP without moving v^0 to T^0, violates CASE LEX. Note that this is independent of the positioning of the subject. Even if the subject is in Spec, vP and as such is lexically *ep*-governed, (28a) violates CASE LEX with respect to T's case assignment. There does not exist a lexical head syntactically adjacent to T which governs T's case assignee. The only chance to avoid a CASE LEX violation without shifting T^0 to the right is to move v^0 into TP, adjoining it to T^0. However, this costs a violation of LEX HEAD EDGE.

Altogether, then, (27) is the optimal TP in a HEAD LEFT >> HEAD RIGHT grammar if not only LEX HEAD EDGE (and BRANCHING RIGHT) but also CASE LEX has the greatest priority among the constraints in question. Just as we have seen in VOS, satisfying CASE LEX must be even more important than GENERALIZED SUBJECT, even though GENERALIZED SUBJECT is strong enough to push the verbal head to the right:

(29)   Optimal '[$_{TP}$ __ [$_{vP}$ SOV] T]' in an otherwise [head - complement]-grammar:
        LEX HD EDGE, BRANCH RIGHT, CASE LEX >> GEN SUBJECT >> HEAD LEFT >> HD RIGHT

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[32]Note that the structure in (28a) does not correspond to a possible winner. That is, the extended system does not derive any type corresponding to the pattern. See appendix A for a summary of all types.

The tableau in (30) demonstrates the success of the head-final TP. Be aware that the emergence of a right-peripheral *functional* head in a primarily head-initial language is solely the effect of the head-final lexical projection underneath. That is, the extended system still does not produce cross-patterns with right-peripheral F^0 over left-peripheral Lex^0 (it only allows the reverse, left F^0 over right Lex^0).

(30)   Persian (data cf. Ghomeshi 1996:45):

     [$_{TP}$ [$_{vP}$ Jiân barâdar-e xod-râ did$_v$] T^0]

          Jian   brother   self-râ   saw+3Sg

     "Jian saw his own brother."

[$_{TP}$ __ [$_{vP}$ SOV] T] is optimal – Comparison with relevant possible winners (all obey BRANCH RIGHT):

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. [$_{TP}$ subj T^0 [$_{vP}$ t_S v^0 object]]	*!	*			**
b. [$_{TP}$ subj T^0 [$_{vP}$ __ v^0 object]]		*!	*		**
c. [$_{TP}$ subj v^0-T^0 [$_{vP}$ t_S t_V object]]	*!				***
d. [$_{TP}$ __ T^0 [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]			**!		***
L e. [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]			*	**	
f. [$_{TP}$ subj T^0 [$_{vP}$ t_S object v^0]]		*!		*	*

Furthermore, the ranking in (29), which predicts an absence of verb movement into TP, also derives a grammar which substitutes an auxiliary (or modal) directly into T^0. By the same logic that applied to VOS and VSO, the configuration in (27) satisfies CASE LEX, and this satisfaction is not compromised by substitution of the auxiliary/modal for T. Adjoining it to T or base generating it under VP will only lead to additional violations, avoided by the substitution-candidate. This is shown in tableau (31), which focuses on different VP-final candidates (we know already that the bottom *v*P is optimally head-final under the current ranking); each one is

trying out alternative treatments of the auxiliary:[33]

(31)   Persian (data cf. Ghomeshi 1997:139):

[$_{TP}$ [$_{vP}$ hame-ye m⋆allem-â ye shâgerd-i-ro   m⋆arefi$_v$] kard-and$_T$]

all+EZ   teacher+pl   one student+indef+râ introduce   did+3plS

"Every teacher introduced a student"

The grammar lacks verb movement to T.

Then, the auxiliary is best treated as a functional element, losing lexical status:

(relevant candidates – all obey BRANCHING RIGHT)

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. [$_{TP}$ subj aux^0-T^0 [$_{vP}$ t_S object v^0]]	*!			*	**
L b. [$_{TP}$ __ [$_{vP}$ subject object v^0] T$_{aux}$^{0}]			*	**	
c. [$_{TP}$ __ [$_{vP}$ subject object v^0] aux^0-T^0]	*!		*	***	
d. [$_{TP}$ subj T$_{aux}$^{0} [$_{vP}$ t_S object v^0]]		*!		*	*
e. [$_{TP}$ __ [$_{VP}$ __ aux^0 [$_{vP}$ subject object v^0]] T^0]			**!	**	*
f. [$_{TP}$ __ [$_{VP}$ subj [$_{vP}$ t_S object v^0] aux^0] T^0]			*	***!	

The classification of Persian as a '[$_{TP}$ __ [$_{vP}$ SOV] T]'-grammar is supported by the facts already illustrated. We find Persian examples of the form in (31), in which the tense information, in this case 'simple past' (see comment below), is expressed by an independent auxiliary, which bears the agreement morphology, and crucially follows the main verb at the final end of the clause. The construction is quite similar to English *do*-support, but unlike the latter, it is not syntactically 'triggered' by an intervening category such as negation.

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[33]For the discussion of a 'multiple-auxiliary'-construction, see the German type-mate in section 3.5.3.

It should be noted that the Persian tense/aspectual system is rather complicated, and the distinct functions are not easily transfer-able into equivalent tenses in, for example, European languages. Regarding this point, see a criticism offered by Windfuhr 1979:83ff, as well as his observation that while Persian is often classified as a tense system, it seems in fact to be an aspect system (Windfuhr 1979:86). This makes it difficult to evaluate the exact (semantic) function of the auxiliary in (31), and why an equivalent is not needed in the example in (30), both of which are translated by Ghomeshi as 'simple past'.[34]

Also note that the winner (b) in (31) and the winner (e) in (30) have the same violation profile, meaning that the system potentially allows for a variation of the current kind to occur. Nevertheless, we should suspect that the use of an auxiliary, which is not semantically/ functionally triggered, is restricted in other ways, as (for example) suggested by Grimshaw 1997:374, 386, through the constraint FULL INTERPRETATION (which bans the occurrence of semantically and functionally empty elements by requiring that lexico-semantic structure is parsed). Even if we assume that the Persian auxiliary in (31) is nothing more than a de facto spell-out of the T-information, on a par with T-particles, then there remains the question of why it is not needed in constructions like (30). (On English *do*-support, see also the brief discussion in section 3.6.2 below.)

Thus, there is definitely more to explore here which goes beyond the current focus. The central point for us in terms of syntactic representation and directionality is that a '[$_{TP}$ __ [$_{vP}$ SOV] T]'-analysis correctly captures the basic order variation. This includes alongside of 'S - O - V$_T$', the option 'S - O - V - T', with T constituting a syntactically independent 'auxiliary' head.[35]

However, what about the position of the subject? Does the Persian subject really surface in Spec, *v*P, as suggested by the current analysis? Given that Persian is a basic verb-final and a scrambling language, detecting this is not so simple. We can find a crucial piece of evidence in

[34]Ghomeshi 1996:155, 162 herself assumes the existence of a right-peripheral I-head in Persian, without commenting further on the issue.

[35]See furthermore in section 6.2 the general reasoning on why in basic SOVT-languages, morphologically independent T-particles emerge less frequently.

Ghomeshi 1997. It, however, requires us to interpret the data in a slightly different way than Ghomeshi herself does, who assumes that the subject is in Spec, IP, but then runs into a problem with this view later on. We have to take a short excursus in order to make this point.

3.4.2   Staying in situ – the Persian subject

Consider the Persian example in (32) below. It shows an instance of what Ghomeshi 1997 calls 'VP-level topicalization' in the case of a 'clitic binder construction'. The clause initial *-râ*-phrase *Jiân-o* is base generated in an VP-adjoined position and binds the clitic *sh* in the GOAL-PP. The point to be made in this section is that the subject *follows* the 'VP-level-topic' in the basic word order. This suggests that the subject remains in its *v*P-internal base position and does not move into TP.

(32)   Persian (cf. Ghomeshi 1997:160, fn 33):

Jiân-o *bijan* ketâb-o be-sh dâd

Jian+râ   Bijan book+râ   to-3Sg gave+3Sg

"As for Jian, Bijan gave the book to him."

Let us introduce the reasoning step by step. Ghomeshi 1997 discusses the morpheme *-râ*, and argues that *-râ* is an (oblique) case marker which appears on noun phrases. More precisely, it appears on indirect and direct objects, but also on adjunct-like noun phrases if they are "thematically licensed by being construed as a direct object" (Ghomeshi 1997:151). She further claims that the *-râ* appearance is tied to the satisfaction of a number of different properties "all correlating with high transitivity, such as definiteness, animacy or topic-hood" (Ghomeshi 1997:133).

Although I do not challenge any of the conclusions Ghomeshi draws with respect to the semantic properties an object noun phrase must have in order to be marked by *-râ*, her *syntactic* evidence that the corresponding phrases are necessarily in a higher position than direct objects lacking *-râ* is not absolutely decisive. As such, the claim to question is that *-râ*-phrases must be

adjoined to VP (or *v*P, in the current understanding of the lexical layer)[36]. Let us briefly review her argument.

On the one hand, *-râ*-phrases seem to be generally more free to be moved out of their VP-internal base position; for instance, there is a greater freedom to scramble (Ghomeshi 1997:147). On the other hand, with respect to the unmarked basic word order, an indefinite direct THEME object must follow an indirect GOAL object, whereas a direct object marked by *-râ* can precede the GOAL. Though Ghomeshi presents the data in the text reporting that the *-râ*-DP precedes the indirect object in the unmarked case, she then explicitly notes in footnote 23, citing Karimi 1989:200, fn11, that in the case of *-râ*, both options are equally fine. Following this, I will add this additional example ((a'.)) to her data, which are shown in (33):[37]

(33)   Persian (cf. Ghomeshi 1997:147):

    a.   Hasan-râ be ali moa'refi kard-am   a'.   Be ali Hasan-râ moa'refi kard-am

        Hasan+râ   to Ali introduce did+1Sg   to Ali Hasan+râ introduce did+1Sg

        "I introduced Hasan to Ali."   "I introduced Hasan to Ali."

    b.   Be ali yek âdam-e xub moa'refu jard-am

        to Ali one person+EZ good introduce did+1Sg

        "I introduced a good person to Ali."

All that the data decisively suggest is that *-râ*-phrases have a greater freedom to scramble, not that they *must* move, or that they must be adjoined to VP in all cases. Even an application of scrambling does not entail that a *-râ*-phrase is outside the verb phrase; see, for example, Haider & Rosengren 1998 for the option of VP-internal scrambling. (For Haider & Rosengren 1998:5, it is

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[36]In this sub-section, I will refer to *v*P also as VP, adjusting to Ghomeshi's analysis which does not focus upon VP-internal layering.

[37]Note on the examples in (33) (also below) that Persian is a *pro*-drop language, meaning that it can drop the subject. Following Ghomeshi 1997:155, I assume that the subject's original position (here Spec, *v*P) then contains *pro*.

crucial that scrambling changes the base generated order.).[38]

If -*râ* indeed marks the semantic 'topic-like' properties described by Ghomeshi, then its appearance might simply signal these properties directly in base position, as well as giving the corresponding phrase the ability to move away – a freedom which is not granted if an object is a genuine non-specific indefinite without any 'topic'-quality. That is, indeed taking Information structure into consideration, as Ghomeshi does, -*râ* might be precisely a way to mark the Information structure in a way that is potentially independent of syntactic movement/ scrambling. Furthermore, the fact that subjects can never be marked by -*râ* (Ghomeshi 1997:145) could simply be due to the fact that, on the one hand, -*râ*, being a(n oblique) case marker, marks inherent *objective* case (on a par with other inherent object cases, only this one is more tightly connected to Information structure than some); and on the other hand, subjects might be intrinsic topics, so that there is no need to make this explicit by morphological marking.

Where are we going with this? We need to make another loop to understand. The next point is that I do follow Ghomeshi's syntactic analysis of -*râ*-DPs which involve what Ghomeshi, following Karimi, calls a 'clitic binder construction' (cf. Ghomeshi 1997:152ff). As shown in (34)/(35), it is possible to have a -*râ*-DP co-referentially bind a second lower phrase, the latter functioning as either the object of a preposition or the possessor within another -*râ*- DP:

(34)   Persian (cf. Ghomeshi 1997:152):

Sepida-ro beh-**esh** goft-am

Sepide+râ   to+3Sg   told+1Sg

"As for Sepide, I told her."

(35)   Persian (cf. Ghomeshi 1997:153):

Otâq-ro dar-**esh-**o   bast-am

room+râ   door+3Sg+râ closed+1Sg

"As for the room, I closed its door."

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[38]Keep also in mind that in a theory in which the verb phrase has itself a layered structure, as is assumed here, there is more than one maximal VP-node which could be targeted by scrambling.

Ghomeshi argues that clitic binder constructions are instances of 'VP-level topicalization', meaning that the topmost -*râ*-phrase is actually base generated in a VP-adjoined position, in which it must be thematically licensed through the binding of a co-referential 2-marked nominal argument, a *pro* contained in the lower bound phrase. VP-level topicalization contrasts with topicalization at the IP-level, which is also licensed through clitic binding, but, crucially, does not involve -*râ* marking:

(36)   Persian (cf. Ghomeshi 1997:161):

ân **zan-i-ke**   darbâre-ash sohbat mi-kard-im: az xâne-**ash** radd mi-shod-am

that woman+indef+rel about+3Sg   talk   cont+did+1plSg from house+3Sg pass   cont+became+1Sg

"That woman that we were talking about, I passed by her house."

Obviously, if we don't follow Ghomeshi in her assumption that all -*râ* -phrases have to adjoin to VP (but only those that involve VP-level topicalization/co-referential clitic binding), one might ask the following: Why could the same base generation of a binding -*râ*-phrase not be construed at the IP- (here TP-) level? But recall that accepting Ghomeshi's interpretation of -*râ* as a *case* marker, this implies that the corresponding case, even if we say it is inherent and as such assigned at D-structure, must be assigned *within* the government domain of T, which we have assumed to be the domain of possible case assignment from the start. Correspondingly, the -*râ* phrase cannot be base generated above Spec, TP, whether in an adjoined position or in a topic- specifier.[39]

How is all this relevant in order to determine the surface position of the subject? The examples in (34) and (35) are cases in which the subject is abstract *pro*, which means that its position could be either Spec, TP or Spec, VP without any visible difference. Now, look at a VP-

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[39]From a more conservative perspective, Ghomeshi's claim is still a stretch, since, if -*râ*-marking is case marking, then the -*râ*-phrase, being adjoined to VP, is not in a proper syntactic argument position. However, since this is at the heart of Ghomeshi's analysis (cf. Ghomeshi 1997:156, 157), I will keep the proposed modifications to a minimum. It could lastly be true that inherent case marking is occasionally accepted in 'non-standard' configurations.

One interesting sub-point: -*râ*- case marking of a VP-adjunct violates CASE LEX, since the adjunct is not lexically *ep*-governed. Consequently, clitic binder constructions should be marked and only available if forced by constraints on Information structure/topic-hood.

level topicalization in a clause with an overt subject. The basic word order is the one we have seen in (32) above, here repeated in (37):

(37)   Persian (cf. Ghomeshi 1997:160, fn 33):

   Jiân-o *bijan* ketâb-o be-**sh**   dâd   '[VP-level topic]$_i$ - **S** - ... clitic$_i$'
   Jian+râ   Bijan   book+râ   to-3Sg   gave+3Sg
   "As for Jian, Bijan gave the book to him."

The subject does not precede the VP-level-topic but rather follows it. Hence, as Ghomeshi points out herself in footnote 33, the '[VP-level topic]$_i$ - **S** - ... clitic$_i$'-order challenges her analysis. Since she takes the subject to be in Spec, IP, she is forced to assume a not-otherwise motivated obligation to scramble the VP-topic to the top of IP, without providing any reason why this should hold.

However, once we arrange matters in a slightly different way, and recognize that *-râ* - phrases can appear within VP, but clitic *binding* involving *-râ* -phrases *is* VP-level topicalization, as argued by Ghomeshi, then the order '[VP-level topic]$_i$ - **S** - ... clitic$_i$' ceases to be problematic. This provides us with support for the claim at stake: Persian is a 'subject-in- Spec, *v*P'-language. The subject remains inside the lexical layer and does not move into the inflectional one.

Stepping back, Persian has revealed itself to be another example of a HEAD LEFT >> HEAD RIGHT- grammar which moves neither the verb nor the subject into TP, this time by electing '[$_{TP}$ __ [$_{vP}$ SOV] T]' as the optimal choice. Once more, the total absence of movement correlates with a kind of mixed directionality, which deviates from the elsewhere preferred 'default' within the (verbal) lexical layer.

At this point, one might wonder about the classification of the Germanic OV-languages, such as German. Does German lack both subject- and verb movement into TP as well, and as such, pushes T to the right of a head-final *v*P? In the following section, we will enter into a longer excursus on the analysis of the German inflectional layer, concerning both directionality and movement into this layer. This aims to acknowledge the difficulty as well some of the dispute that the German classification has faced in the past and still does. I return to the discussion of general typology in section 3.6.

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3.5   German, T^0-orientation and whether there is Spec, TP or not

Looking at German (and at the Germanic OV-languages in general), the basic word order, visible (only) in all subordinated clauses is '$C_{omplementizer}$ - S O V_{fin}', or '$C_{omplementizer}$ - S O V Aux_{fin}'. The verb-final pattern is likewise maintained in embedded *wh*-questions, in which just the *wh*-phrase but not the finite verb fronts:

(38)   German :

   a.   ..., dass$_C$ [der Butler die Gräfin   **küßte**].

            that   the butler$_{nom}$ the countess$_{acc}$ kiss-PAST

            "... that the butler kissed the countess."

   b.   ..., dass$_C$ [der Butler die Gräfin   **geküßt hat**].

            that   the butler$_{nom}$ the countess$_{acc}$ kissed   has

            "... that the butler has kissed the countess."

   c.   ..., wen$_i$ C [der Butler t_i **küßen kann**].

            whom   the butler$_{nom}$ kiss   can

            "... whom the butler can kiss."

The extended system derives two different TP-types, either one of them could in theory instantiate the appropriate underlying structure of the patterns below the projection of the complementizer: '[$_{TP}$ __ [$_{vP}$ SOV] T]' or '[$_{TP}$ S T [$_{vP}$ t_S OV]]'. To be highlighted up front, German will be analyzed (on a par with Persian) as '[$_{TP}$ __ [$_{vP}$ SOV] T]'. Nevertheless, be aware that the theoretical distinction between the two types is very subtle, and the alternative classification of German as '[$_{TP}$ S T [$_{vP}$ t_S OV]]' is not at all unreasonable.[40]

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[40]The following discussion implicitly takes the following for granted: In German Verb Second contexts (i.e. in main clauses), which show the derived order '(XP) **V$_{fin}$** S O', 'S **V$_{fin}$** O', or '(XP) **Aux$_{fin}$** S O V', 'S **Aux$_{fin}$** O V', the finite verb is either always in C^0 (this is the 'Symmetry hypothesis' on Verb Second; cf. Koster 1975, den Besten 1977, Thiersch 1978, Schwartz & Vikner 1989, Vikner 1995:39f, among many others); or it is at least always within a 'V2 target'-projection which is erected *above* IP (this is any version of the 'Asymmetry hypothesis', or 'Difference thesis' in which the Verb Second target may not be CP, but is nevertheless a projection above IP, e.g. a TopicP (cf. Müller &

Overall, a '[$_{TP}$ __ [$_{vP}$ SOV] T]'-analysis has two main advantages: the first one concerns head directionality, the second one the surface position of the subject. Let us discuss them in turn.

3.5.1   T-directionality in German

If German corresponds to a head-final TP (on top of a head-final vP), then this explains in a straightforward manner the fact that the finite verb, regardless of whether this is a main verb or an auxiliary, appears at the final end of the clause in all subordinated contexts in which no 'Verb Second'-movement applies. Recall from tableau (31) above that, if nothing else is added, then the system of constraints wants the type in question to substitute an (finite) auxiliary or modal directly into T. The auxiliary loses its lexical status in this environment and becomes an instantiation of T:

(39)   German :

    a.   ...weil [$_{TP}$ __ [$_{vP}$ hier ja doch [$_{vP}$ keiner Bescheid **weiss$_v$**] **T^0**].

           since   here indeed   noone   picture   knows

        "... since nobody has a clue here anyway."

    b.   ...weil [$_{TP}$ __ [$_{vP}$ hier ja doch [$_{vP}$ keiner Bescheid **gewußt$_v$**] **hat$_T$**].

           since   here indeed   noone   picture   known   has

        "... since nobody has had a clue here anyway."

Sternefeld 1993:485) or MoodP (cf. Lohnstein 2000)). TP-structures of Verb Second contexts will be discussed in 3.5.3.

Both kinds of hypotheses are in theory compatible with both a right-peripheral as well as a left-peripheral inflectional head. In contrast, if one embraces another particular version of the 'Asymmetry hypothesis', namely the idea that a subject-initial main clause is in fact an IP, not a CP (cf. e.g. Travis 1984, 1991:349f), then I^0 must be on the left of the verb phrase and cannot be right-peripheral.

For discussion of 'subordinated' clauses under so-called bridge verbs and those that alternate with *dass*- ('that')-complement-clauses, and the likelihood that these embedded V2-clauses are not complement-clauses but parentheses (and, as such, have independent status), see Lohnstein 2000:157 (following Reis 1995).

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c. ...weil [$_{TP}$ __ [$_{vP}$ sie ihre Dissertation **beenden$_v$**] **muß$_T$**].[41]

      since   she   her dissertation   finish   must

"... since she must finish her dissertation."

```
                    TP
                    |
                    T'
                   /  \
                 vP    T⁰
                /  \
             Subj   v'
                   /  \
                 Obj   v⁰
```
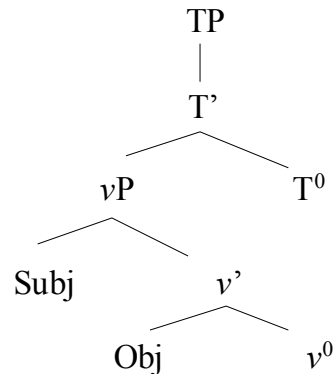
The recognition of a right-peripheral T-head revives the [$_{CP}$ (Spec) C [$_{IP}$ (Spec) [$_{VP}$ ... comp V] **I**] - analysis of German clause structure, which has been prominent at least in the past, eventually owing its attraction to the fact that it allows one to take the syntactic head-directionality simply at face value. Finality of I^0 was assumed by, among many others, Fanselow 1987b, Grewendorf 1988:193[42], v. Stechow & Sternefeld 1988:376, 380, Webelhuth 1992:73. It was in particular defended by Schwartz & Vikner 1989, Vikner & Schwartz 1991 and Vikner 1995:42, 152ff, though in this references it is explicitly paired with the idea that V^0 moves to I^0 in the syntax. Keep in mind that this is not the assumption here. Head-finality of TP is also still adopted in, for example, Mueller 1999:779 (in which he includes an additional 6P between VP and TP as target for weak pronoun movement; see the discussion on the 'Wackernagel' position in 3.5.2). See also Bobaljik 2002a:230ff who argues for the presence of a right-peripheral Infl-head in all Germanic

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[41]The assumption that both a finite auxiliary as well as a finite modal are base generated under T in German can also be found in Wurmbrand 2001:262ff, who observes that only under such base generation, an epistemic reading becomes available. (In addition, Wurmbrand assumes that any further non-finite auxiliary/modal is base generated under ModP, a functional modal phrase between TP and VP that can be iterated. This latter analysis has a structural parallel here as well, only, I will assume separate lexical VP-shells instead of ModP-shells; see the discussion in 3.5.3).

[42]But see Grewendorf's assumptions with respect to the distribution of auxiliaries below.

OV-languages (with the right-peripheral verbal head either moving to Infl in the syntax or merging with it at PF).[43]

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[43]Given that in the current analysis, there is no verb movement into head-final TP, the arguments against 'V-to-final-I'-*movement* presented by Haider 1993:62f, reporting Höhle 1991, do not apply. For a parallel rejection of syntactic movement, see also Kiparsky 1996:168 (cf. van Gelderen 1993, Reuland 1990).

Furthermore, see Vikner 1995:154-156 for a rejection of Haider 1993:60f, the latter arguing that the assumption of a final I-head is incompatible with the following contrast. While right-adjunction to a VP in topicalized position is possible, as in (i), it is nevertheless impossible to right-adjoin to a VP in base position *if* there is an auxiliary still following, as shown in (ii):

(i)   [[dem Freund t_i versprochen] [dass er kommt]$_i$] hat er nicht.

          the friend   promised   that he comes   has he not

(ii)   *..., weil er [[dem Freund t_i versprochen] [dass er kommt]$_i$] hat.

          since he   the   friend   promised   that he comes   has

(iii)   ..., weil er [dem Freund t_i versprochen] **hat** [dass er kommt]$_i$.

          since he   the   friend   promised   has that he comes

          "(since) he has (not) promised to the friend that he will come."

As pointed out by Vikner, indeed, the appropriate target of extraposition seems to depend on the *domain* in which the extraposition occurs. It is crucial to note that if we located the final finite auxiliary in (ii) and (iii) under VP, as opposed to T/I, this could not capture the contrast between (i) and (ii) in any better way. The opposition that the extraposed clause can occur on the right of the participle in (i), while not in (ii), would still remain.

An explanation for the generalization that extraposition must target a position higher than T'/I', – where it can target VP if VP is topicalized –, is provided by Büring & Hartmann's 1997a:72 proposal: "Finite sentences may not be governed by V or I". Given this filter (which is reminiscent of Stowell's 1981:146 Case Resistance principle), clauses have three options: They can be extraposed (to an adjunction site above T'), they can be topicalized alone, or they can be topicalized together with the verb (in which case we get extraposition to a (highest) VP, possible only in this domain). Note that Büring & Hartmann, who also accept the possibility of I being final in German, explicitly argue against an LCA-based approach to the distribution of extraposition, showing that an SOV-movement-analysis is better equipped to account for binding facts.

Now, this type of analysis has been challenged, and not only because of the recent influence of LCA-based-theories, but also due to another aspect: There is a serious difficulty in conceptually justifying a *right*-peripheral functional head in a grammar which elsewhere seems to allow only [F^0 - complement]-order. For this reason, Vikner 2001:21,143, for example, departs from his earlier view. Adopting, even more radically, the assumption that functional heads are universally to the left of their XP-sisters, Vikner locates T^0 (and $Pers^0$) in the Germanic OV-languages on the left of their head-final VP-complement as well. Note that, acknowledging the current system, we are not forced in this direction. The awkwardness of a head-final TP in Germanic OV vanishes, once the system actually explains why the inflectional head takes a position on an unexpected side, as the current one does. That is, my proposal provides the conceptual reason behind this marked ordering that was missing so far, by locating it in the pressure of how T best assigns its case. This reopens the door for positing structures that capture the data more directly.

Nevertheless, let us suppose for a moment that we want to follow Vikner's empirical evaluation of German. Vikner 2001:21 classifies all Germanic OV-languages, except Yiddish, as grammars that project a head-initial TP above a head-final VP and moreover lack systematic verb movement into the inflectional layer. He furthermore does not deviate from his earlier assumption (cf. Vikner 1995:84) that the subject leaves its base position in Spec, VP and moves into the inflectional layer.[44]

Keep in mind that extraposition, though by no means excluded by the current system, does violate BRANCHING RIGHT, and, as such, must be enforced by a (conspiracy of) higher ranked constraint(s). While this is not within the realm of this project, one line to explore could be the translation of Büring & Hartmann's filter into a constraint, which is violable and in conflict with BRANCHING RIGHT, since not all grammars extrapose clauses. Furthermore, as also pointed out by Büring & Hartmann 1997a:78, fn. 7, one might want to factor in the relevance of Truckenbrodt's 1994 prosodic condition. See more on extraposition in chapter 5 and 6. For more on the verbal complex, see below.

[44]Vikner does not explicitly re-enforce the claim, but the discussion in 2001:241, 253 suggests an unchanged perspective. That the nominative subject surfaces in Spec, IP in German was also assumed by Grewendorf 1988 and Webelhuth 1992:69 (among others). See furthermore Bobaljik & Jonas 1996:219f who split the inflectional layer into AgrSP, TP (and AgrOP), and take the German subject to be at least in Spec, TP on the surface.

Significantly, the current system derives a type that parallels Vikner's TP-structure. This is '[TP S T [vP tS OV]]'. We thus do have the alternative option of interpreting German accordingly, meaning that the example in (40) could correspond to the following tree and be the outcome of the constraint ranking given in (41) below:[45]

(40) German – ALTERNATIVE mapping:

..., weil [TP sie T^0 [vP t_{Subj} ihr Kissen liebt$_v$]]
   because   she   her pillow   loves
"..., because she loves her pillow."

```
                    TP
                   /  \
                Subj   T'
                      /  \
                    T⁰    vP
                         /  \
                    t_subj   v'
                            /  \
                          Obj   v⁰
```
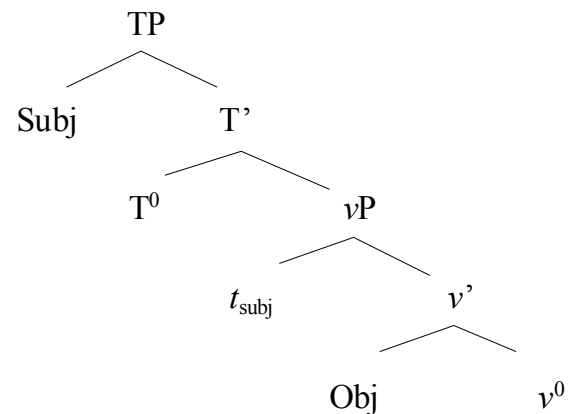
(41) (If T was systematically abstract) German **could** be –
Optimal '[TP S T [vP tS OV]]' in an otherwise [head - complement]-grammar:
LEX HD EDGE, BRANCH RIGHT, **GEN SUBJECT >> CASE LEX**, HEAD LEFT >> HD RIGHT

(42) German most probably **is** –
Optimal '[TP __ [vP SOV] T]' in an otherwise [head - complement]-grammar:
LEX HD EDGE, BRANCH RIGHT>> **CASE LEX >> GEN SUBJECT** >> HD LEFT >> HD RIGHT

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[45]Vikner 2001:21, ch.2 argues for systematic verb movement into a head-initial inflectional layer in *one* of the Germanic OV-languages, namely Yiddish. See appendix A for one last type among the group of HEAD LEFT >> HEAD RIGHT grammars with a head-final verb phrase: This type equals the structure in (40) but has in addition systematic V-to-T-movement. This provides a possible analysis for Yiddish (following Vikner's structural description thereof).

If we compare the ranking in (41) with the one in (42) ((42) being the Persian one which leads to optimality of '[TP __ [vP SOV] T]'), the difference between them is the ranking of GENERALIZED SUBJECT relative to CASE LEX. If a violation of GENERALIZED SUBJECT is less acceptable than a violation of CASE LEX, but at the same time verb movement into TP is out of the question due to LEX HEAD EDGE, then the grammar will prefer to move only the subject. Since in this scenario, the subject receives its case without a lexical *ep*-governor, the configuration violates CASE LEX, regardless of whether T and *v* are syntactically adjacent. Under a HEAD LEFT >> HEAD RIGHT ranking, then, T^0 is optimally on the left of its complement. The competition is demonstrated in the following tableaux:

(43)　　[TP S T [vP t_S OV]] is optimal − Comparison with relevant possible winners (BRANCH RIGHT - obeying):

	LEX HD EDGE	GEN SUBJ	CASE LEX	HEAD LEFT	HEAD RIGHT
a. [TP subj T^0 [vP t_S v^0 object]]	*!		*		**
b. [TP subj T^0 [vP __ v^0 object]]		*!	*		**
c. [TP subj v^0-T^0 [vP t_S t_V object]]	*!				***
d. [TP __ T^0 [vP __v^0 [vP subj t_V object]]]		*!*			***
e. [TP __ [vP subject object v^0] T^0]		*!		**	
L　f. [TP subj T^0 [vP t_S object v^0]]			*	*	*

[TP S [vP t_S O V] T] cannot win against [TP S T [vP t_S O V]], since HEAD LEFT is ranked above HEAD RIGHT:

	LEX HD EDGE	GEN SUBJ	CASE LEX	HEAD LEFT	HEAD RIGHT
a. [TP subj [vP t_S object v^0] T^0]			*	**!	
L　b. [TP subj T^0 [vP t_S object v^0]]			*	*	*

The second tableau illustrates clearly that the '[TP S [vP t_S OV] T]'-candidate cannot win against '[TP S T [vP t_S OV]]' if the ranking is HEAD LEFT >> HEAD RIGHT. (This does not mean that '[TP S [vP t_S OV] T]' is a fatal loser. It can be optimal under HEAD RIGHT >> HEAD LEFT; see

chapter 6 (6.2) for discussion.) An important aspect of the system to recognize here is that it instantiates a particular dependency between subject movement into the inflectional layer and directionality of the corresponding functional head, in a grammar with mixed directionality. This factor is significant particularly from the perspective of language change.

Think for a moment of the progression from a VP-head-final language into a uniform SVO-language. The system suggests an involvement of not only verb movement but also subject movement into TP. That is, it is the emergence of a ranking that favors subject movement which, as a consequence, pulls the inflectional head to the left. Once the grammar (due to a further ranking change) starts moving the verb into TP, 'V - O'-order emerges as well. Going backwards, there is also the opportunity to enforce the head-finality of the verb phrase, and with it 'O -V'-order. This happens via a ranking change which leads to suppression of subject movement, which pushes T to the right. As the discussion proceeds, we will see that German, in several respects, has properties of both types. In chapter 4, I will in fact claim that the modern language descends from a '[$_{TP}$ S T [$_{vP}$ t_S OV]]' -grammar present in Old/Middle High German. In a broader scheme then, we might keep in mind that the Germanic OV-languages are not only grammars that synchronically lie somehow between a uniform SVO and an SOV-language, but they can potentially be seen as diachronically changing from 'OV' to 'VO', and as they are on that path, they enforce either one of the patterns.

Let us take a brief further excursus on this dimension of language change. Kiparsky 1996:140 observes a particular asymmetry in syntactic change, namely that "OV base order is commonly replaced by VO, whereas the reverse development is quite rare". This seems well founded, at least within the history of the Indo European languages (Kiparsky 1996:141f). The full OV-to-VO shift has not only taken place for the Germanic VO-languages, that is, English, Mainland Scandinavian, Icelandic and Yiddish, but extends beyond that (Baltic, Slavic).

Now, while Kiparsky 1996:168f explores the possibility that the OV-source grammar has a final complex V/I-category,[46] he crucially takes the emergence of a left-peripheral I-head (*not* C) above a still head-final VP as the first step towards the change to VO. As we see here, the

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[46]Hence, instead of [$_{IP}$ ... [$_{VP}$ ... OV] I], he assumes [$_{I/VP}$ ... O V/I]. This goes together with his general assumption that separate F can only be left-peripheral.

current system provides an essential motivation for such an emergence of left T – by tying it to another one, the occurrence of systematic subject movement from Spec, vP to Spec, TP.

My claim that Modern German descends from an '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-type in Old/Middle High German, but is now '[$_{TP}$ __ [$_{vP}$ SOV] T]', does not challenge Kiparsky's empirical claim that there is a diachronic imbalance of tending to go from OV to VO and not vice versa. Both the source grammar and the target grammar *are* SOV with respect to VP-internal directionality. But the idea that T-finality got reinforced achieves a better understanding of the following empirical fact. While both the group of the Germanic VO-languages and the Germanic OV-languages were, in the Middle Ages, on the verge of switching from SOV to uniform SVO-grammars, German (and corresponding siblings) did *not* make the final transition. On the contrary, German rather re-enforced the 'S - O - V - Aux'-pattern in non-Verb-Second contexts within the early stage of New High German. Hawkins 1983:227 (and fn.14) notes "a significant increase in V + Aux structures" in Early New High German, placing both non-finite and finite forms consistently at the end of subordinated clauses. This happened despite the Verb Second phenomenon, through which the grammar was (and is) heavily exposed to verb movement and, thus, should have had a substantial trigger to motivate a full change to '... V - O'. The classification of Modern German as '[$_{TP}$ __ [$_{vP}$ SOV] T]', in recognition of a '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-source, helps us account for this potentially unexpected stability towards underlying 'OV'.

But let us go back to the possibility that even Modern German is an '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-grammar. Not yet considering the contrast in terms of subject localization, the analysis clearly requires the following additional assumption. On the one hand, T must always be abstract and independent tense particle must be absent. The latter is surely the case, but in the best scenario, we want to understand why; we however *also* want to know this under a '[$_{TP}$ __ [$_{vP}$ SOV] T]' - classification, and we will come back to this point in 3.5.3. On the other hand, the '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-analysis demands a distinct structural integration of auxiliaries and modals. Every auxiliary/modal, including the finite one, must be inserted under VP and cannot be directly substituted into T^0. The latter would yield the wrong order (recall the examples in (38) above). We could achieve this outcome by, for example, invoking a constraint such as V-in-V^0 which is violated "by every verb which is not inserted under V^0", as proposed by Vikner 2001:166, and ranking it at least above HEAD LEFT. But we have noted already that we can do without this

additional stipulation in the case of an '[$_{TP}$ __ [$_{vP}$ SOV] T]' -analysis.[47]

There is another point, which may demand recourse to a constraint like V-IN-V^0 in any case, even under a '[$_{TP}$ __ [$_{vP}$ SOV] T]'-classification. German finite auxiliaries and modals generally behave syntactically like main verbs, a fact which seems, at first sight, to justify Vikner's analogous treatment of the two groups. That is, as pointed out by Grewendorf 1988:218f, 305f (among others), German lacks the behavioral contrast between finite auxiliary/modal and finite main verb which can be observed in English. This suggests that only in English is the finite auxiliary/modal directly substituted into T (I).

We must keep in mind, though, that some of the tests Grewendorf relies on to show the missing contrast might be non-applicable to German for some other (not necessarily well understood) reasons. This concerns in particular the VP-deletion test. The original test goes like this. As we can see in (44a), in English, VP-deletion does not involve the finite modal. At the same time, the parallel is impossible in a coordination that involves only main verbs (cf. 44b); instead of stranding the main verb in the second conjunct, *do*-support is required (cf. 44c):

(44)   English:

a.   Lola can [$_{vP}$ t_S solve every math assignment], and Marilyn can e_{vP} too.

b.   *Lola solves every math assignment and Marilyn solves too.

c.   Lola T [$_{vP}$ t_S solves every math assignment], and Marilyn does e_{vP} too.

The data seem to neatly confirm that the modal is outside VP picking up the tense information in T, while the main verb is generally part of VP and does not raise into the inflectional layer. Consequently, in the case of VP-deletion without an auxiliary/modal, *do*-support is necessary in order to spell out the tense. There is no parallel in German. Stranding the finite modal is impossible, seemingly showing that it is part of VP, just as the main verb is:

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[47]Vikner 2001:177f, 183f assumes that in all Germanic OV-languages, auxiliaries and modals are all base generated under VP, each one taking a separate VP-shell. He accounts for this by his V-IN-V^0 constraint.

(45)   German:

    a.   *..., weil Lola jede Mathematikaufgabe lösen kann, und Marilyn auch kann.

                  since Lola every math assignment   solve can   and Marilyn too   can

    b.   *..., weil Lola jede Mathematikaufgabe löst, und Marilyn auch löst.

                  since Lola every math assignment   solves and Marilyn too   solves

    c.   ..., weil Lola jede Mathematikaufgabe lösen kann und Marilyn auch.

                  since Lola every math assignment   solve can   and Marilyn too

             "... since Lola can solve every math assignment and Marilyn too."

However, recall that the desired analysis of German is '[$_{TP}$ __ [$_{vP}$ SOV] T]'. This means that (45a) could be bad, not because the modal is in VP, but because German entirely lacks true VP-deletion, given that the subject is on the surface *part* of the constituent that be deleted under such a process. Alternatively, VP-deletion could be ruled out for entirely independent reasons.

    Certainly, a structure with the subject outside and the modal inside VP looks like a more appealing approach, since it also captures the fact that (45c) is possible. This would point towards the '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-analysis (and only leave open the question of why there is no equivalent of *do*-support). But it is not enough of an answer either. In main clauses, in which it is obvious that both the subject *and* the finite verb must have left VP (eventually occupying Spec, CP and C^0), VP-deletion is still unavailable:

(46)   German:

    a.   *Lola kann jede Mathematikaufgabe lösen und Marilyn kann auch.

               Lola   can   every math assignment   solve and Marilyn can   too

    b.   *Lola löst   jede Mathematikaufgabe und Marilyn löst auch.

               Lola solves every math assignment   and Marilyn solves too

    c.   Lola kann jede Mathematikaufgabe lösen und Marilyn auch.

               Lola   can   every math assignment   solve and Marilyn too

             "Lola can solve every math assignment and Marilyn too."

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Therefore, while there definitely is no contrast between (45a), (46a) and (45b), (46b), it is not clear whether this reveals anything about the actual position, or base generation of the finite auxiliary/modal in the subordinated context. Lastly, we should factor in that constructions like (45c, 46c), in which only one single phrase is stranded in the second conjunct, are possible in many languages, including in English, and the stranded phrase then doesn't have to be interpreted as the subject, but can also be an object or a PP. In that sense, it is doubtful that such constructions have anything to do with VP-deletion, and whether access to them is restricted by the language-specific surface content of the verb phrase.

Beyond doubt, both the German finite main verb and the finite auxiliary/modal have the same ability of moving to C^0. This holds for all Germanic Verb Second languages. No Verb Second grammar shows any contrast as, for example, English does. English lacks Verb Second, but in *wh*-contexts, it moves the finite auxiliary/modal to C^0. Nevertheless, it is unable to move the main verb, invoking once more *do*-support in simple verb clauses. We have to keep this in mind and will come back to it in 3.5.3, where I will suggest that the missing contrast is directly related to the Verb Second phenomenon.

So far, we have seen that the system offers two possible analysis of German in terms of T-directionality. It is not immediately evident, then, whether T is on the right or on the left of *v*P, and both localizations have been claimed in the literature. There are however some subtle explanatory advantages of a '[$_{TP}$ __ [$_{vP}$ SOV] T]' -classification, given on the one hand its greater structural simplicity, and on the other the understanding of the fact that German has (so far) resisted the diachronic change into a uniform SVO-grammar. Let us now discuss the positioning of the subject.

3.5.2   Where is the German subject?

The second main advantage of the '[$_{TP}$ __ [$_{vP}$ SOV] T]' -analysis is that it derives the subject's position to be in Spec, *v*P on the surface. This directly follows Haider's work, where he repeatedly defended the claim that the German subject is part of VP. See in particular Haider 1993:ch.6, where the lack of several subject-object asymmetries, the potential of including the subject in VP-topicalization (though more on this below), and the fact that the subject can be part of an idiom, are all explained by the absence of a need for the German subject to move into (or to

be in) an Infl-specifier. This is in contrast to, for example, English, in which the nominative subject is always in the inflectional layer and thus has less freedom.[48]

There is a contrast between German and Dutch in these respects. As pointed out by Haider 1993:188ff, the evidence for the claim that the Dutch subject is part of VP is less clear than it is for German, potentially implying that the Dutch subject is in Spec, IP (TP). This might suggest that, while German is '[$_{TP}$ __ [$_{vP}$ SOV] T]', Dutch is '[$_{TP}$ S T [$_{vP}$ t_S OV]]'.[49]

One corollary of this contrast is the distinct behavior of German vs. Dutch with respect to expletive constructions that involve an 'associate' nominative subject, including transitive expletive constructions (TECs). While Dutch allows TECs in both subordinated and main clauses, with the expletive seemingly occupying an inflectional specifier, German rejects TECs in the subordinated context altogether and tolerates the expletive only in the Verb Second target specifier. This opposition is illustrated in (47) vs. (48):

(47)   Dutch (data in (a) cf. Bobaljik & Jonas 1996:214; (b) cf. Haider 1993:195)

    a.   ... dat [$_{TP}$ **er** T [$_{vP}$ veel   mensen dat book gisteren   gekocht hebben]].

            that   there   many   people   the book yesterday   bought   have

            "... that many people bought the book yesterday."

    b.   Gisteren heeft$_i$ [$_{TP}$ **er** t_i [$_{vP}$ doch iemand Klaas verhaftet]]

           yesterday   has   there   PRT somebody Klaas   arrested

           "Yesterday, somebody arrested Klaas."

---

[48]Keep in mind that Haider's approach differs from the current one in that it rejects the existence of a German inflectional layer altogether. In section 3.1 above, we have noted the explanatory advantages for general typology of assuming that the inflectional layer cannot be absent.

[49]There is, however, a considerable uncertainty whether the Dutch *v*P is head-final, or whether Dutch has in fact already developed into an SVO-language with head-initial *v*P. This is because, on the one hand, Dutch optionally reverses a clause final verb cluster into an order that parallels the one observed in VO-languages (see Vikner 2001:66ff for data. Vikner 2001:87 still assumes Dutch to have a head-final VP. See 3.5.3 below on the rigidity in German.). On the other hand, PP-extraposition seems to be quite easily available in Dutch (see Zwart 1993:55f. See chapter 5, 5.1 for the true marginality in German.). I therefore hesitate to make any specific claim on the concrete specification of Dutch.

(48)   German:

    a.   *..., dass [$_{TP}$ **es** [$_{vP}$ jemand einen Apfel gegessen$_v$] hat$_T$]

                that   there   somebody a   apple   eaten   has

    b.   ..., dass [$_{TP}$ __ [$_{vP}$ jemand einen Apfel gegessen$_v$] hat$_T$]

                that   somebody a   apple   eaten   has

    c.   *Gestern hat **es** jemand einen Apfel gegessen.

              yesterday has there somebody a   apple   eaten

    d.   **Es** hat jemand einen Apfel gegessen.

              there has somebody a   apple   eaten

              "... (that) somebody has eaten an apple."

Haider interprets German's inability to license the expletive in the inflectional domain as a direct consequence of the missing specifier. Within the current system, analyzing German as '[$_{TP}$ __ [$_{vP}$ SOV] T]' means associating the grammar with the ranking LEX HD EDGE, BRANCH RIGHT>> CASE LEX >> GEN SUBJECT >> HD LEFT >> HD RIGHT. As such, (48a) must be ungrammatical, since it leads to violation of CASE LEX, a violation which can be avoided by omitting the expletive and violating the lower ranked GENERALIZED SUBJECT instead.

       Recall here that one of our initial assumptions was to recognize Spec, TP as an intrinsic case position, meaning that whenever it is realized, it has to receive case. Even if the expletive as such does not need to be case marked (cf. Chomsky 1995:288), and can enter into an A-chain with the lower associate in Spec, vP, and then transmitting the case down to the associate that is in need, T (in a (*nom, acc*) system) syntactically directs its case towards Spec, TP as soon as it exists and contains an XP that is not case marked. Thus, case is assigned to a lexically ungoverned position; hence the violation of CASE LEX:[50]

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[50]This presupposes that in an A-chain, case is always assigned to the head of the chain; cf. Chomsky 1995:116.

(49)   No chance for a TEC if it leads to violation of CASE LEX:

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
⌐ a. $[_{TP}$ __ $[_{vP}$ subject object $v^0]$ $T^0]$			*	**	
b. TEC: $[_{TP}$ Expl$_i$ T^0 $[_{vP}$ subject$_i$ object $v^0]]$		*!		*	*

One further remark on the grammaticality of (48d), as opposed to (48c): For Haider 1993:135, configurations like in (d) are good, and ones like (c) are bad, because German licenses in general at most one functional specifier, the one in the Verb Second target projection. For him, the expletive is taken to be directly base generated in this higher specifier. Such a view is not compatible with the idea that the expletive is cross-linguistically base-generated within the inflectional layer in any kind of 'expletive – associate'-construction.

For example, Vikner 1995:186 assumes that the expletive originates in Spec, IP, from where it (in some grammars) obligatorily raises to Spec, CP in the Verb Second context (the associate- noun phrase is taken to be in Spec, VP in TECs; cf. Vikner 1995:189f). Now, to assume such an obligatory raising might seem unnecessary as long as we only consider German. But there is the fact that Icelandic for example shows the same contrast as the one depicted in (48c) vs. (d) (cf. Vikner 1995:185), and still Icelandic allows TECs in the subordinated context (Vikner 1995:189). Even if we could explain this by making context- and/or language specific distinctions in the analysis of structural complexity, as soon as we allow the expletive to originate both in the inflectional layer and in the Verb Second target projection, we face the dilemma of why there isn't any language that uses two expletives at a time, one base generated in each specifier.

Therefore, we should stay open to the possibility that the expletive is, in any 'expletive – associate'-construction, in fact tied to base-generation within Spec, TP, meaning that the German access to the corresponding configurations in the Verb Second context (and only here) tells us something about the potential existence of this position exclusively in *this* context. I come back to this point in 3.5.3.[51]

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[51]Lastly, keep in mind that the existence of an inflectional specifier cannot yet be a sufficient condition to allow TECs. Many languages move the subject into TP (IP), but they still do not have TECs.

Now, given that the German subject is base generated in Spec, *v*P and doesn't need to move out, what about the possibility that it *optionally* raises into the inflectional layer? I will discuss two approaches, both of which have exploited the idea of syntactically optional subject movement in German. The first one concerns meaning differences of indefinite subjects which come along with distinct localization with respect to certain adverbs, the second one addresses the fact that a non-pronominal subject can either follow or precede weak pronouns.

Diesing 1992, building on Kratzer 1989, recognizes that bare plural subjects receive a generic or specific interpretation whenever they precede modal particles such as *ja doch* in German (see (50a)). However, they are interpreted existentially if they follow this element (cf. (50b)):

(50)   German (cf. Diesing 1992:368):

a.   ..., weil Kinder ja doch auf der Straße spielen.

since children PRT PRT on   the   street   play

"... since children play in the street."   GENERIC reading

On these 'sufficient conditions', see also Chomsky 1995:371ff, for whom TECs arise in a grammar that is able to license *two* TP-specifiers, linked into one (nominative) subject chain. (The precise proposal, put fourth in the Minimalist Program, is that (a), T must be strong, ensuring subject movement to Spec, TP *or* expletive insertion; and (b), T must be able to tolerate a single unforced violation of Procrastinate, enabling both subject movement *and* expletive insertion; see Chomsky 1995:375.) Thus, here both the expletive and the associate are in fact taken to surface within TP. One development of this line of reasoning can be found in Bobaljik & Jonas 1996, who maintain the claim of Agr-projections, and so locate the expletive in AgrSP, Spec, the associate in TP, Spec, and attribute the occurrence of TECs to the language specific availability of Spec, TP-licensing. While appealing, the classification of German as a general TEC language, and, in turn, the assumption that the German subject must surface at least in Spec, TP in *all* contexts (cf. Bobaljik & Jonas 1996:218ff), has to struggle with the empirical evidence for 'subject-in-VP' pointed out by Haider.

It is crucial to note that whether TECs are due to a grammar's ability of licensing two TP-specifiers at a time, or due to a potential split of TP into two projections, or simply due to the ability of licensing a particular case chain between expletive in Spec, TP and associate in Spec, *v*P, – in all these scenarios, tying the expletive in any 'expletive - associate'-construction to Spec, TP, then the concrete access to the TEC raises and falls with the grammar's willingness to project Spec, TP at all.

b. ..., weil ja doch Kinder auf der Straße spielen.

       since PRT PRT children on   the   street   play

       "... since there are children playing in the street."   EXISTENTIAL reading

Diesing explained this contrast by locating the subject in Spec, IP in pre- *ja doch* position, but in Spec, VP post- *ja doch*, the modal particle consistently marking the VP-border. The proposal, then, builds on Heim 1982, according to whom a clause's logical representation is a tripartite structure (Q~uantifier~ [restrictive clause] ″ [nuclear scope]) in which the third part constitutes the nuclear scope, that is, the domain of existential closure. Diesing argued for a direct mapping of the syntactic structure onto the semantic one, with the VP constituting the domain of existential closure. Arguing that subject movement from Spec, VP to Spec, IP is optional in German (cf. Diesing 1992:371), Diesing put forward the perspective that German is as such capable of expressing certain meaning differences via the absence vs. presence of movement in the syntax.

Recall here the discussion of the German verb phrase in chapter 2 (2. 3.3), where we already noted a similar change of meaning depending on whether an adverb is placed before a (bare plural) object or after it. Diesing 1992:369 herself acknowledges the fact that *any* position above/outside VP logically maps onto the restrictive clause, and recognizes scrambling as another way of moving an argument out of the nuclear scope.[52]

This raises the following question. If scrambling is another way of moving a DP out of the nuclear scope, and scrambling is frequently described as a syntactically optional movement, and the subject movement across the modal particle is syntactically optional, then why not say that the subject scrambles out of its Spec, VP base position rather than moving to Spec, IP?

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[52]Since Diesing's proposal, the 'split tree'-hypothesis has been explored in various ways. See, for example Lenerz 2001 for discussion, including his own application (cf. Lenerz 2001:258), which correlates the syntactic (logical) bifurcation of the clause with a specific understanding of background-focus structure. Once more, the tree is split at the VP-border: everything inside VP is F-part material, everything in CP, IP and anything scrambled constitutes B-part.

Lenerz' split formally differs from Diesing's in only one respect, but it is not insignificant: Scrambling, for Lenerz, targets adjunction to VP, but for Diesing, it is adjunction to IP. Consequently, Lenerz needs a more fine grained definition of where the B-part starts, disregarding elements that are 'neither included nor excluded' in VP.

But this is not the reasoning pursued here. Rather, in section 2.5.1, we have already pointed out the advantages of allowing variable adjunction position for certain adverbs, including the ability to adjoin inside VP/*v*P.[53]

Following Haider & Rosengren 1998:55, the potential of taking more than one syntactic position can be recognized as a direct consequence of the distinct syntactic status of an adverb as opposed to an argument that is bound by thematic structure. Furthermore, we suggested that this possibly (though not necessarily) induces meaning differences with respect to logical scope or background-focus structure. Therefore, following Haider 1993:231, there is an adequate alternative explanation of the contrast in (50). The distinct logical mapping is not due to the subject taking two different positions, but rather due to the modal particle being adjoined at different heights of the tree, signaling distinct 'cut-off'-points for the logical split into restrictive clause and nuclear scope.

The important point is the following. The claim that there is a mapping relationship between the syntactic tree and the logical representation is distinct from the claim that it is always and exclusively one particular VP-node which marks the beginning of the nuclear scope. The truth of the first claim does not necessarily entail the truth of the second. That is, we can acknowledge that there is at times a direct correspondence of the German syntactic tree and the logical (tripartite) form (and/or a background-focus partition), but we can still consider the node which marks the beginning of the nuclear scope to vary depending on context, and to possibly be overtly signaled by suitable adverbs.

It is significant that we don't (yet) have a concrete theory which explains why a particular syntactic node should exclusively act as the one that splits the tree. That is, why does it have to be VP (or *v*P), and not V-bar? In fact, the lack of such a theory enables Bobaljik & Jonas 1996:219 to identify the pre- *ja doch* subject position as Spec, AgrSP, the subject position post- *ja doch* as Spec, TP. Thus, for them, the tree is split at the TP-border, TP now marking the beginning of the nuclear scope. While this seems fine as far as it goes, it should make us wonder whether the ease of declaring another node means, in fact, that there is actually no single node that consistently

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[53]Keep in mind that the *v*P is structured in itself, splitting into at least two distinct shells, *v*P and VP (the latter containing the object). Therefore, adjoining an adverb inside *v*P does not necessarily entail adjunction to V-bar.

marks the splitting site.

The difficulty of finding the one-and-only node that correlates to the logical split point is intensified by the difficulty of tying a particular adverb to a particular syntactic position. We have already made this point for the object in 2.5.1, and the same holds for the subject as well. While it does seem that there exists a certain hierarchy among adverbs, there is still some considerable variability in adjunction sites. In the example in (51a), *ja doch* precedes the subject, *normalerweise* 'usually' follows. But, as demonstrated in (51b), the reverse is easily available too:

(51)   German:

    a.   ..., weil **ja doch** mein Bruder **normalerweise** auf der Straße spielt.

               since PRT PRT my   brother   usually   on the street   plays

    b.   ..., weil **normalerweise** mein Bruder **ja doch** auf der Straße spielt.

               since usually   my   brother PRT PRT on the street   plays

               "... since my brother usually plays on the street."

In both examples, the subject is squeezed between the two adverbs. Therefore, even if the subject has moved across *normalerweise* in (51a), and across *ja doch* in (51b), the other adverb in the corresponding pair must be adjoined to a distinct node. This shows that both adverbs have more than one possible syntactic position.

Next, consider (52a) vs. (52b), where the manner adverb *sorgfältig* 'carefully' either precedes or follows the subject. Unlike what we have seen in (50), *ja doch* starts off the sequence in both (52a) and (52b). Still, only in (b) is the reading existential; in (a), it is generic:

(52)   German:

    a.   ..., weil **ja doch** Akten **sorgfältig** gelesen werden.

                 since PRT PRT   files   carefully   read   are

                 "... since files are read carefully."   GENERIC reading

b. ..., weil hier **ja doch sorgfältig** Akten gelesen werden.

   since here PRT PRT   carefully   files   read   are

   "... since there are files being read carefully."   EXISTENTIAL reading

The data in (52) are significant because they cause a problem not only for Diesing but also for Bobaljik & Jonas. For Diesing, *ja doch* marks the VP-border, which in turn splits the tree into restrictive clause and nuclear scope. Consequently, both (a) and (b) should have an existential reading, but only (b) in fact does. On the other hand, for Bobaljik & Jonas 1996:218f, the manner adverb *sorgfältig* adjoins to VP, *ja doch* adjoins to TP, and TP is the 'cut off'-point. They too predict that once more, both clauses should be read existentially, the wrong result.[54]

   The dilemma in the end is this: In order to pin-point the one-and-only node that splits the tree, we rely on the diagnostics of adverb placement. But adverbs in German are not syntactically frozen in one particular position. Hence, they cannot signal any exclusive node. This is not at all a fatal result. Rather, once we realize that adverbs can take distinct positions, it is just a small step to the recognition that the grammar thus obtains an efficient and economic tool to prepare for the semantic/pragmatic mapping without the additional burden of syntactic movement. It can signal the split by adjoining the adverb either above or below the subject, instead of moving the subject.[55]

   Another reason to consider optional subject movement into IP in German has been put forward in the literature. This is the relative order of the subject and weak personal pronouns. As pointed out by Lenerz 1977, 1992, Müller 1999:789ff, Haider & Rosengren 1998:70ff (and many others), weak pronouns, first, obey a very strict order restriction in German, which is 'NOM - ACC - DAT'. They must also precede other (non-pronominal) object arguments

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[54](52b) is also a good counter-example against Bobaljik & Joans' claim that the subject is in all contexts at least in Spec, TP in German, – based on their own assumption that the manner adverb is adjoined to VP.

[55]This doesn't mean that movement could never be the tool to pull an argument out of the nuclear scope. Imagine a situation in which argument A must be syntactically linked above argument B (due to thematic hierarchy), but we want to map B into the restrictive clause and A into the nuclear scope. If tree splitting is indeed the right idea , then in this scenario, moving B across A, either overtly or on LF, is the only way to go.

(as well as PPs, which they would precede in any case).[56]

Now, Müller highlights the fact that the non-pronominal subject can either precede or follow weak pronouns, without making any distinction in terms of markedness between the two options. This relative freedom is illustrated in (53a) vs. (53b).[57]

(53)   German (cf. Mueller 1999:789, 792):

    a.   ..., dass **Fritz es** der Frau   wahrscheinlich zum Geburtstag schenken wird.

                that   Fritz$_{nom}$ it$_{acc}$ the woman$_{dat}$ probably   for   birthday   give   will

                "... that Fritz will give it to the woman probably on (her) birthday."

    b.   ..., dass **es Fritz** der Frau wahrscheinlich zum Geburtstag schenken wird.

(54a-d) shows that the same variability is not found with objects. In (a), we see that a dative noun phrase cannot precede the accusative pronoun, but rather must follow it (we must have 'ACC$_{Pron}$ - DAT' as in (53a, b)). This holds even though the unmarked order is 'DAT - ACC' in the case that both objects are non-pronominal (cf. 54b). Finally, (54c) vs. (d) demonstrate that the order between two object pronouns is fixed to 'ACC$_{Pron}$ - DAT$_{Pron}$' as well (if the subject were also pronominal, it would have to precede the sequence; thus 'NOM$_{Pron}$ - ACC$_{Pron}$ - DAT$_{Pron}$'):

(54)   German ((a) cf. Mueller 1999:792):

    a.   *..., dass Fritz **der Frau es** wahrscheinlich zum Geburtstag schenken wird.

                that   Fritz$_{nom}$ the woman$_{dat}$ it$_{acc}$ probably   for   birthday   give   will

    b.   .., dass Fritz **der Frau das Buch** wahrscheinlich zum Geburtstag schenken wird.

                that   Fritz$_{nom}$ the woman$_{dat}$ the book$_{acc}$ probably   for   birthday   give   will

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[56]Stressed pronouns pattern with full noun phrase arguments in their freedom to move or to not move.

[57]See however Haider & Rosengren 1998:73 (who take the subject to be in VP), who claim that the weak pronouns are "strongly preferred" at the left-periphery, hence in pre-subject position. Consulting my own native speaker

c.   ..., dass **es   ihr** Fritz wahrscheinlich zum Geburtstag schenken wird.

      that   it$_{acc}$ her$_{dat}$ Fritz$_{nom}$ probably   for   birthday   give   will

d.   *..., dass **ihr es** Fritz wahrscheinlich zum Geburtstag schenken wird.

Müller's interpretation of the data follows the idea that weak pronouns are tied to a fixed domain, traditionally called the 'Wackernagel' position. In the spirit of Johnson 1991 and Thiersch 1978 (Müller 1999:788), his analysis, set in Optimality Theory, proposes a constraint PRON CRIT (= 'pronoun criterion'), which forces the weak pronouns into a domain 6 at surface structure. This domain 6 is a projection 6P located between TP and VP (cf. Müller 1999:779).[58]

    The relevant aspect of Müller's approach is the way he accounts for the non-pronominal subject's freedom to either precede or follow the weak pronouns. The assumption is that subject movement from Spec, VP to Spec, TP is optional. Given that the pronouns have to move to Spec, 6P (in case there are more than one, the others adjoin to 6P; cf. Müller 1999:790), then, if the subject stays in situ, it follows the Wackernagel domain; if it moves to Spec, TP, it ends up in front. Müller achieves this optionality by a 'global tie' between an EPP-constraint (demanding the *nom* subject to move) and STAY (rejecting the move); cf. Müller 1999:788, 792.

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judgments, I agree with Müller that there is no significant difference between (53a) and (53b).

[58]Müller ensures the relative order among the weak pronouns by combining (a), the premise that the underlying base order is always for any argument set 'SUBJ (= NOM) - DIRECT O (= ACC) - INDIRECT O (= DAT)' (cf. Müller 1999:779), with (b), a constraint on parallel movement (PAR MOVE; cf. Müller 1989), which ensures that the raised pronouns will preserve their base order relation within 6P.

    See Haider & Rosengren 1998:71f for an independent argumentation against the premise in (a): If the order of weak pronouns reveals general base order, then the unmarked order 'DAT - ACC' of non-pronominal noun phrases must be the result of scrambling (as assumed by Müller 1999:779). Such a view is problematic once we take a side look at Dutch. In Dutch, we likewise find the unmarked order of 'NOM - DAT - ACC' with non-pronominal noun phrases. At the same time, unlike in German, scrambling of the direct object across either the indirect object or the subject is strictly prohibited (see also Haider & Rosegren 1998:61f). Nevertheless, weak pronouns must be ordered into 'NOM - ACC - DAT' as well. Hence, at least in Dutch, the pronoun sequence cannot reveal general base order, since Dutch lacks the (scrambling) mechanism to derive 'DAT - ACC' for the corresponding non-pronominal forms. For Haider & Rosengren, this suggests that in German as well, weak pronouns are exposed to an independent order restriction which can overwrite underlying thematic hierarchy.

Let us briefly pursue Müller's line of reasoning. We could follow Müller's proposal by stipulating a global constraint tie between CASE LEX and GEN SUBJECT. However, there is an empirical reason for being cautious with respect to Müller's judgment that weak pronoun placement reveals optional subject movement. There is also a conceptual reason for hesitating to account for the optionality, *if* it indeed holds, through the use of the concept of a 'global tie'.

On the empirical side, if Müller's view is correct, then the subject should have only two possibilities. That is, it can either precede the entire sequence of weak pronouns or it can follow the entire sequence. This is because the weak pronouns must all move to Spec, 6P (or adjoin to 6P), where they cluster together between Spec, TP and Spec, VP. Now, while there is a true tendency for the weak pronouns to cluster, nevertheless, we can construct examples in which a 'ACC$_{Pron}$ - subject - DAT$_{Pron}$'- sequence sounds pretty much as perfect as the corresponding versions without 'subject sandwiching':

(55)   German:

    a.   ..., weil **es** mein Vater   **ihr** auf keinen Fall vor Weihnachten verraten wollte.

           since it$_{acc}$ my   father$_{nom}$ her$_{dat}$ by no   means before Christmas   tell   wanted

           "... since by no means did my father want to tell it to her before Christmas."

    b.   ..., weil **ihn** Karla **euch** doch schon an ihrem Geburtstag vorgestellt hat.

           since him$_{acc}$ Karla$_{nom}$ you$_{dat}$ PRT already at her   birthday   introduced has

           "... since Karla introduced him to you already at her birthday."

According to Müller, examples as in (55) should be impossible.

Furthermore, given pure optionality of subject movement, as well as Müller's strong vote on a *general* 'NOM - ACC - DAT' base order (cf. Müller 1999:779), the nominative subject should always be able to either precede or follow weak pronouns, without any difference in terms of markedness. But this prediction is likewise not borne out. If the selecting verb in question is an unaccusative 'dative' verb, for which the unmarked base order is 'DAT - NOM', then the

nominative subject cannot precede a weak dative pronoun, but rather must follow.[59] This is shown in (56a) vs. (56b) below. The same holds for idioms which include a nominative subject, seemingly linking it into a lower case position as well. (56c) and (56d) give an example of a nominative subject that can only follow a weak accusative pronoun:

(56)　German:

    a.　　..., weil **ihm　ein Fehler**　　aufgefallen ist.

            since　him$_{dat}$　a　　mistake$_{nom}$　noticed　　　is

            "... , since he noticed a mistake."

    b.　　*..., weil **ein Fehler　ihm**　　aufgefallen ist.

    c.　　..., weil **ihn　der Schlag** getroffen hat.

            since　him$_{acc}$　the　stroke$_{nom}$　hit　　　has

            "... since he just stood gaping."

    d.　　*..., weil **der Schlag　ihn** getroffen hat.

If we acknowledge the facts in both (55) and (56), it is not at all clear anymore whether the subject moves optionally across the weak pronouns. Rather, it seems that there is more flexibility with respect to the domain the pronouns have to occur in, and this domain is dependent on context.

From a general typological perspective (cf. Schachter 1985:25), it is very common for pronouns to show distributional peculiarities. This includes both their internal relative ordering, which often does not coincide with the argument order instantiated otherwise, as well as their external localization within the clause, which frequently does not match the positioning of full noun phrases. This is especially true when weak pronouns have developed into clitics, which they commonly do. Thus, it should not surprise us if the apparent optionality occurring in weak pronoun placement in German has little do with the subject moving. Instead, we should expect

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[59] See section 5.3 for the claim that the dative phrase is indeed in a higher case position than the nominative 'subject'.

foremost that it has everything to do with the weak pronouns themselves, their domain of occurrence in fact being the one that has to be further explored.[60]

Even if subject movement was indeed optional in German, there is the controversy as to whether using a 'global constraint tie' is the proper theoretical way to derive this (see, for example, the criticism in Bakoviv & Keer 1998, Ackema & Neeleman 1998:482f, Vaux 2002).[61]

The main problem of the recourse to 'global ties' is that, on a more general level, it weakens the theory considerably, in a way that should not be underestimated. At the minimum, once we introduce the concept, we need a meta theory which tells us which constraints can be tied and which one cannot. Otherwise, we are in danger of overgeneralizing and of predicting very unlikely typologies (cf. also Bakoviv & Keer 1998:14). Imagine for example a grammar in which HEAD LEFT and HEAD RIGHT are tied. It would be a language that can optionally and thus randomly generate *both* [head - complement]- and [complement - head]- structures; an unattested and rather curious type. Furthermore, what about the option of three or more constraints tying,

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[60]On the question of how to define this domain, it seems best to withhold from any stipulation, and to leave the question for further research. The point is that, looking at the bigger picture, it seems highly desirable to aim for a theory which falls out of a broader typological investigation of both weak and clitic pronoun distribution, and which can relate them in a systematic way. This is an immense project in its own right, far beyond of what concerns us here. See Grimshaw 2001b for an Optimality theoretic proposal on how to derive the ordering among Romance clitic pronouns by morpho-syntactic alignment constraints. This might offer a basis for further cross-linguistic exploration.

[61]The concept of 'global tie' is not the "standard optimality-theoretic device to derive optionality" that Müller 1999:792 claims it to be; and it is crucially not part of the original theory proposed by Prince & Smolensky 1993. Müller cites Prince & Smolensky 1993:50, but Prince & Smolensky do not introduce the concept of a 'global tie'.

Optimality Theory as such recognizes 'ties' only on a descriptive level: For example, in a factorial typology of three constraints A, B, C, we could observe that both the ranking A >> B >> C and the ranking B >> A >> C, make the same optimal choices, meaning that they collapse into the same type. Classifying a language X as the corresponding type, we cannot know whether the grammar's actual ranking is A >> B >> C, or B >> A >> C. Hence, on a descriptive level, we can associate the type with the ranking A, B >> C, constraint A and B here being 'tied'. This does *not* mean that there exists an actual tie. As soon as A >> B >> C and B >> A >> C make distinct optimal choices, thus, as soon as two constraints in fact conflict on a structural matter, then, the factorial typology can only give back two distinct types, one associated with the ranking A >> B >> C, the other with B >> A >> C. See Grimshaw & Samek-Lodovici 1998:214ff on the importance of this conception in terms of explanatory power.

giving back more than just two optima?[62]

Stepping back, neither the empirical evidence from adverb- nor from weak pronoun-placement, seems ultimately decisive enough to convince us that subject movement from Spec, vP to Spec, TP must be optional in German. On that matter alone, it might be worthwhile to avoid the introduction of 'global ties' and with it the risk of jeopardizing the theory in a way we might not be able to successfully control.

In sum, we have seen so far that, while there is the theoretical option of casting German either as a '[$_{TP}$ __ [$_{vP}$ SOV] T]'- or a '[$_{TP}$ S T [$_{vP}$ t_S OV]]'- grammar, there are both synchronic and diachronic factors which suggest a '[$_{TP}$ __ [$_{vP}$ SOV] T]'-classification.

In the last sub-section on German, we want to come back to the question of why the language has no independent T-particles and how this might be related to the phenomenon of Verb Second. To keep in mind, this puzzle arises under both an '[$_{TP}$ __ [$_{vP}$ SOV] T]'- and an '[$_{TP}$ S T [$_{vP}$ t_S OV]]'- analysis, since in both cases, the grammar lacks verb movement into TP.[63]

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[62]Be aware though that Bakoviv & Keer's alternative proposal of how to derive optionality in OT, namely by a distinction of inputs and faithfulness thereto (see also Bakoviv & Keer 2001), is not easily applicable to the potential case of optional subject movement. This is because it is unclear how to distinguish more than one input here.

If further research revealed that subject movement is optional in German, then a more adequate approach could be to extrapolate upon the line of reasoning pursued by Ackema & Neeleman 1998:483 (following Kroch 1989). There, optionality is taken to be an effect of the *co*-occurrence of distinct grammars which belong to different varieties of registers of the language. Recall in this respect the claim that German is in fact descended from a '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-grammar. Looking at it from the perspective of language change, we might think of the possibility that both grammars, one electing '[$_{TP}$ __ [$_{vP}$ SOV] T]', the other '[$_{TP}$ S T [$_{vP}$ t_S OV]]' as optimal, are still simultaneously present in the 'head of one idiolect speaker'. This then causes the effect of 'optional subject movement'. (This idea is not so absurd, considering that any bilingual speaker must be in the mental possession of two grammars at a time.)

[63]One last general note on '[$_{TP}$ S T [$_{vP}$ t_S OV]]': 'Pure' cases of the corresponding type could be languages, in which 'S T$_{-aff}$ O V' does emerge. In section 3.1 above, we noted that Julien 2000's data base indeed attests the pattern. There is thus interesting space for further research to explore.

Lastly, keep in mind that in the potential scenario of an '[$_{TP}$ S T [$_{vP}$ t_S OV]]'-analysis, then in the case of a pure affix, T^0 must be abstract, and there is not much of a conceptual possibility that it contains the actual affix. This is because phonological merger, according to Bobaljik 1994, is impossible across (syntactic) arguments (though, there is still the

3.5.3 On the absence of T-particles and its connection to Verb Second

Recall first the overall logic of the current system. While in the presence of verb movement to T^0, the tense/aspect system must be purely affixal, in the absence thereof, it *can* include free tense/aspect particles. The system does not say that free tense particles have to occur in the absence of movement. Therefore, strictly speaking, the case of Germanic OV does not provide negative evidence. However, we might still wonder about the reason.

Intriguingly, the Germanic OV-languages are *not* languages that lack verb movement. While they might not move the verb into TP in embedded clauses, they do all have Verb Second. That is, in main clauses, all tenses participate in 'verb-*through*-T^0-to-C^0'-movement (or into whatever is the head of the Verb Second target projection). Consequently, for all tenses, there ultimately *is* verb movement into TP, and thence, the T-system should be purely affixal.

But extrapolating the reasoning from the inflectional layer into the higher Verb Second layer in the above way is only valid under the following premise. It must be indeed the finite *verb* which has to undergo Verb Second.

In light of the complexity of the problem, this is not the place to dive into the question of what ultimately drives the Verb Second movement; for a recent discussion of the literature and a new proposal which identifies the target projection as a mood/type phrase MP, see Lohnstein 2000. But there is one interesting aspect of the debate to contribute to here. The most familiar types of V2-analyses assume that the first cause thereof is the pressure to fill C^0 in the absence of a complementizer (going back to den Besten 1977, Koster 1975; see also Vikner 1995:41ff, and references therein). That is, in any main clause context, Verb Second movement is about filling an otherwise empty CP-layer (and otherwise empty C^0). This yields the pattern, in which the finite verb follows an arbitrary clause initial constituent XP in all independent declarative sentences (XP can be the subject):

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concept of 'affix hopping'; cf. Chomsky 1957, 1991: 421. Interestingly, with respect to German, the assumption of abstract T^0 in fact faces less problems with respect to Germanic 'irregular forms'. For example, German has many verbs for which a stem vowel change signals simple past tense (*er geht* 'he walks' vs. *er ging* 'he walked'). In these cases, it is not that easy to separate the affix from the stem.

(57)   Verb Second as filling CP:

[$_{CP}$ Spec   C^0 [................
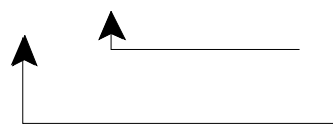
moving the finite verb

moving XP   — leads to the patterns:

(a)   Declarative:

(a.i)   XP   V$_{fin}$ - S O;   XP Aux$_{fin}$ - S V O   in Germanic VO languages

(a.ii)   XP   V$_{fin}$ - S O;   XP Aux$_{fin}$ - S O V   in Germanic OV languages

(XP can be any phrase (except certain particles), including S or O)

(b)   Interrogative:[64]

(b.i)   *wh*-XP V$_{fin}$ - ....   (c)   Imperative:

(b.ii)   V$_{fin}$ - ....   V$_{fin}$ - ....

I am not about to challenge this view. However, quite in parallel to the leading question of this chapter, there is the puzzle of why the pressure is not simply resolved by inserting an independent functional head instead of raising the finite verb.

One aspect we shouldn't forget in the equation is that many languages express distinctions between particular types/clausal moods not only in the subordinated clause by complementizer-like particles, but also in root clauses. For example, many grammars insert free Q-morphemes into C^0 in main clause questions (see Cheng 1991:18ff for an overview). Beyond that, we find languages that mark, once more in the main clause, further moods/types and the speaker's attitude by free morphemes. These particles seemingly occupy C^0, or alternatively a mood head, as well. This is, for example, true for Japanese:

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[64]In both interrogative *yes/no*-questions and imperative clauses, the finite verb occurs in clause initial position; it is not uncommon to still assume that an abstract operator is present in Spec, CP; see e.g. Vikner 1995:49 for discussion.

(58)   Japanese (data cf. Schachter 1985:58):

   a.   [$_{CP}$ __ [$_{TP}$ Kore wa hon desu] **ka**$_C$]]

                     this   TOP book   is   Q
           "Is this a book?"

   b.   [$_{CP}$ __ [$_{TP}$ Kore wa hon desu] **yo**$_C$]]

                     this   TOP book   is   STATEMENT
           "(I am telling you) this is a book."

One approach that explicitly recognized the relevance of the finite *verb* in the Verb Second
phenomenon was Taraldsen 1986 (see also Holmberg 1986), who based his analysis on an idea
originally proposed by Kayne 1982. Taraldsen 1986:16ff distinguished the verbal head from all
other categories by the following property:

(59)   Only V instantiates non-argument status.

Considering (59), the finite *verb* moving into the topmost head is understood as a function
granting the corresponding clause independent predicate status. With V in C^0, the corresponding
clause loses its capability of being an argument.

          It is not the intent here to promote the above claim as the actual cause of Verb Second.
The intent is rather to recall the relevance of a *predicate* head as one (sub-) factor within the
puzzle of what has to be in the Verb Second target projection and why.

          The merit of this with respect to the topic at hand is obvious. If Verb Second is also about
moving V into C^0 (or M^0), this immediately explains why it is not an option to fill C^0 by a free
morpheme, or to simply raise abstract T or to move a free tense/aspect particle. It explains why it
must be '*verb-through*-T-to C/M'-movement instead. Consequently, there emerges a sound
reason for German having a purely affixal tense/aspect system.

          Significantly, acknowledging the relevance of a verbal head in Verb Second, as opposed
to a functional one, immediately enables us to capture a second phenomenon, and connect it to the
absence of free tense particles. This is the fact that in all Verb Second languages, auxiliary and
modal verbs seem to behave like main verbs and there is nothing like *do*-support in the context of

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Verb Second.

Notice here that Vikner 2001:166f, 177f (for whom auxiliaries/modals only have predicate status, and thus, lexical status, if they originate within VP), claims that the VP-base generation of auxiliaries/modals is not only true for all Germanic OV-languages, but for the Mainland Scandinavian VO-languages as well. It is also true that Mainland Scandinavian has no independent tense particles, nor does it have *do*-support. Hence, while Mainland Scandinavian and English pair up in both [head - complement]-order and their lack of systematic verb movement into TP, Mainland Scandinavian still differs with respect to both the syntactic behavior of auxiliaries/modals and the morphemic status of T. But Mainland Scandinavian also differs to English in having Verb Second. Thus, there seems to be a direct correlation: It is the Verb Second phenomenon as such which lies behind the absence of free T particles and the fact that auxiliaries/modals syntactically behave like main verbs.

Let us look a little closer at the syntactic treatment of auxiliaries and modals that is predicted by the logic of the current system. We have already noted above that the classification of German, or any other Germanic OV-language, as type '[$_{TP}$ S T [$_{vP}$ t_S OV]]' would require the additional assumption that (finite) auxiliaries/modals are generally base generated under VP. This is not yet predicted by the current constraint set, but must be captured by additional means, as, for example, via a constraint like V-$_{IN}$-V^0. We also noted that this additional component is not necessary in the case of an '[$_{TP}$ __ [$_{vP}$ SOV] T]'-analysis.

Now, we just recognized that the Verb Second phenomenon superimposes, by its own dynamics, a demand that finite auxiliaries/modals do not lose their lexical status, and thus cannot be directly substituted into T^0. However, the additional demand arises, strictly speaking, *only* in the Verb Second context, and not in subordinated clauses. Therefore, analyzing German as '[$_{TP}$ __ [$_{vP}$ SOV] T]', and considering in addition nothing more than the prioritized burden of invoking a verbal head in the Verb Second context, we get the following prediction. Finite auxiliaries/modals directly substitute into (final) T^0, *unless* they have to undergo further movement into the Verb Second target projection, in which case, they must maintain their lexical status and adjoin to T^0 instead.(Keep in mind here the original minimal assumption on how a finite auxiliary/modal can maintain its lexical status. It is just the obligation of adjoining to T instead of substituting into it. That is, the finite auxiliary/modal doesn't necessarily need to be

base generated under VP.).[65]

Thus, considering the structure of main clauses and what they demand, we do not need to revise the structure of subordinated clauses proposed in (39) above. But there is still some more to learn about independent clauses. Recall once more the logic of the German ranking: In subordinated clauses, the subject remains within vP in order to avoid violation of CASE LEX; moving the subject to Spec, TP, a CASE LEX violation could only be circumvented by moving the verb into TP as well. But this would lead to violation of the even higher ranked constraint LEX HEAD EDGE, and is thus not a valid option. Now, in the Verb Second context, we acknowledged the necessity of moving the finite *verb* all the way up into the corresponding target projection above TP. For the purpose of a concrete illustration, let us assume a hypothetical constraint 'V2' which comprises the request of a predicate head surfacing in C^0 in any independent clause. V2 must be ranked at least above LEX HEAD EDGE.[66]

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[65]Shouldn't we see some kind of morphological reflection of such context-dependent opposition between adjoining to T and substituting into it? Not necessarily. Recall here that any kind of generative Verb Second analysis assumes the finite verb to move into an additional projection above the inflectional layer in *at least* non-subject-initial main clauses. But there, we do not see any morphological reflection of the additional V/T-to-F_{V2}-adjunction either; rather the morphological shape of the finite verb in clause final and in second position does not alter, despite that clause-finally, there is no adjunction to F_{V2}.

On the other hand, if we shift perspective, the system here just further reflects how modals and auxiliaries fall somehow in between a true lexical and a true functional category. However, in the current understanding, this is not caused by their 'semi-lexical' identity, but instead by the fact that they can be either lexical or functional within the syntactic representation.

Further, to add the restriction that (finite) modals/ auxiliaries are always base generated under VP in all Verb Second languages, *might* ultimately be the most adequate way to go. As said before, we could enhance the system by this additional component. The analysis would differ only slightly with the finite auxiliary/modal then being on a structural par with further non-finite auxiliaries/modals (see the discussion on complex verb constructions below). The analysis explored in the text is just the structurally most minimal that the system allows, and it is one which leads to an adequate pattern match in the case of a '[$_{TP}$ __ [$_{vP}$ SOV] T]'- classification.

[66]A hypothetical definition of V2 could be:= "Independent status of a clause c must be instantiated by the presence of a predicate head in the head of the projection realizing clause type/mood.". Keep in mind though that the Verb Second phenomenon is eventually triggered by more than just the factor focused on here.

The obvious effect of this scenario is this: If the finite verb ends up in C^0, then satisfaction of CASE LEX becomes in fact available *despite* moving the subject to Spec, TP. Certainly, CASE LEX is satisfied with or without movement to Spec, TP. Both Spec, vP and Spec, TP are lexically *ep*-governed by T-adjacent v if v is in C^0. Therefore, the subject could stay in Spec, vP if a specific context demands this. Nevertheless, the default is now to move the subject to Spec, TP, given that, as such, both CASE LEX and the next lower ranked GENERALIZED SUBJECT can be maximally satisfied. The tableaux in (60) and (61) illustrate the situation for both a 'single verb'- and an 'auxiliary + main verb'- configuration:[67]

(60)　German:

[$_{CP}$ Gestern küsste$_{v\text{ -T-Ci}}$ [$_{TP}$ **der Butler**$_j$ t_i [$_{vP}$ t_j t_i die Gräfin]]

　　　yesterday kissed　　　　　the　butler　　　　　the countess

　　"Yesterday, the butler kissed the countess."

Comparison with relevant candidates (all obey BRANCH RIGHT):

	V2	LexHdEdg	CaseLex	Gen Subj	Hd Left	Hd Right
L a. [$_{CP}$ XP v^0-T^0-C^0 [$_{TP}$ subj $t_{V\text{-}T}$ [$_{vP}$ t_S t_V obj]]]		*				******
b. [$_{CP}$ XP v^0-T^0-C^0 [$_{TP}$ __ $t_{V\text{-}T}$ [$_{vP}$ subj t_V obj]]]		*		*!		******
c. [$_{CP}$ XP C^0 [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]]	*!				**	*

---

[67]Remember that once the finite verb leaves vP, its trace becomes irrelevant for LEX HEAD EDGE such that it can be medial, satisfying HEAD LEFT instead of the lower ranked HEAD RIGHT. In turn, the trace of T is left-peripheral as well. On so-called 'separable verbal prefixes', which seem to reveal that the verbal trace is still in final position, see section 5.4.

Furthermore, notice that the main clause optima are in general more marked than the subordinated optima, given that LEX HEAD EDGE *is* violated. Hence, 'using V2' in order to avoid HEAD LEFT violations, or to satisfy CASE LEX and GENERALIZED SUBJECT simultaneously is not an option.

Finally, on the second tableau in (61): Candidate (a) wins over candidate (d), proving that, if nothing else is added to the system, the finite auxiliary optimally simply adjoins to T^0 in the Verb Second context, and is still not base generated under VP.

(61)   German:

[CP Gestern hat_{V-T-Ci} [TP **der Butler**_j t_i [_{vP} t_j die Gräfin geküßt_v]]

      yesterday has   the butler   the countess kissed

      "Yesterday, the butler has kissed the countess."

Comparison with relevant candidates (all obey BRANCH RIGHT):

	V2	LEXHDEDG	CASELEX	GEN SUBJ	HD LEFT	HD RIGHT
L a. [CP XP aux^0-T^0-C^0 [TP subj t_{V-T} [_{vP} t_S obj v^0]]]		*			*	*****
b. [CP XP aux^0-T^0-C^0 [TP __ t_{V-T} [_{vP} subj obj v^0]]]		*		*!	*	*****
c. [CP XP T$_{aux}$^{0}-C^0 [TP __ t_T [_{vP} subj obj v^0]]]	*!			*	*	***
d. [CP XP aux^0-T^0-C^0[TP subj t_{V-T} [VP t_S t_V [_{vP} t_S obj v^0]]]		*			*	******!

Importantly, the claim that, in the Verb Second context, it is after all preferred to move the 'subject' to Spec, TP does not mean that it must be the nominative subject. That is, in chapter 5, we will see that in the case of unaccusative 'dative' verbs, it is the 'dative subject' which takes the hierarchically highest position inside the verb phrase. It is then the dative phrase which qualifies for a potential move to Spec, TP in independent clauses. See section 5.3 for details.

      Why is it significant that Spec, TP emerges in the Verb Second context? Here are two reasons: First, recall the previously discussed acknowledgment that in any 'expletive - associate'- construction, the expletive is base-generated in Spec, TP. The recognition of a main/subordinated -contrast with respect to the availability of an inflectional specifier explains why German has TECs in main clauses, while it doesn't allow them in subordinated contexts. That is, in examples like the one in (48d) above, repeated here as (62), the expletive can indeed originate in Spec, TP, since Spec, TP can be the head of an A-chain without violating CASE LEX:

(62)   German:

[CP **Es**_j hat_{V-T-Ci} [TP **t_j** t_i [_{vP} **jemand**_j einen Apfel gegessen]]].

     there has   somebody a   apple eaten

      "Somebody has eaten an apple."

Second, there is VP-topicalization. One of Haider's arguments in favor of his claim that the German subject does not need to move into the inflectional layer is that we can construct examples in which the subject is part of a topicalized verb phrase (this VP occupying Spec, CP). While this is indeed the case, the argument has one crucial flaw. Clauses with full-VP-topicalization are *always* marginal. That is, they are often rejected (depending on the speaker), and they are mostly ungrammatical with transitive verbs. Even in those cases that sound relatively good – i.e. with, as highlighted by Haider 1993:152, both unaccusative and unergative *in*transitive verbs – the subject must be indefinite, and acceptability can vary depending on the speaker and the example chosen:[68]

(63)   German :

    a.   *[$_{vP}$ der Butler die Gräfin geküßt] hat doch mit Sicherheit nicht.

                 the butler   the countess kissed   has PRT with certainty   not

    b.   *[$_{vP}$ ein Butler die Gräfin geküßt] hat doch mit Sicherheit nicht.

                 a butler   the countess kissed   has PRT with certainty   not

    c. [$_{CP}$ [$_{vP}$ t_j die Gräfin geküßt]$_k$ hat$_{Ci}$ [$_{TP}$ der Butler$_j$ t_i [$_{vP}$ doch mit Sicherheit nicht [$_{vP}$ e]$_k$]]

                 the countess   kissed   has   the butler   PRT with certainty not

                 "Kissed the countess, the butler hasn't done this – certainly not."

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[68]The examples are constructed such that 'a sufficient amount of adverbs' remains in the non-topicalized part. As pointed out by Haider 1993:153, even in those cases, in which full-VP-topicalization is accepted, some material *must* remain to the right of the the finite verb; otherwise, the clause becomes ungrammatical. This however does not always help, as we can see in the current data sample.

Furthermore, on (64): The head-finality of a German unaccusative VP (64b, c), which contains nothing but V^0 and an object THEME-argument, follows by the strength of GENERALIZED SUBJECT. Even if the THEME is base generated in the complement of V^0, it still optimally moves to Spec, VP, in maximal obedience to GENERALIZED SUBJECT. See here the more detailed discussion on German unaccusative constructions in chapter 5 (5.3). On the other hand, the intransitive unergative vP (64a) is head-final, since, zooming in on the vP-internal structure, v is still the sister of VP (with v the extension of a V-head without internal argument); see 5.3 thereon as well.

d.   ^{??}[_{vP} Franzosen Spaghetti gegessen] haben hier doch sicherlich nicht.

         French   pasta   eaten   have   here   PRT   certainly   not

         "That French have eaten pasta here, this is quite certainly not true."

(64)   German (data in (a, c) cf. Haider 1993:152):

a.   [?][_{vP} ein Außenseiter gewonnen] hat hier noch nie.

         a   outsider   won   has   here   yet   never

         "That an outsider has won here, this never happened."

b.   [?][_{VP} Pflanzen$_i$ t_i vertrocknet] sind hier noch nie.

         plants   dried-up   are   here   yet   never

         "That plants dried up here, this never happened."

c.   ^(?)[_{VP} Akten$_i$ t_i verschwunden] sind hier noch nie.

         files   lost   are   here   yet   never

         "That files were lost here, this never happened."

These facts remain mysterious if we maintain that the subject never has any intention of leaving the lexical layer. Full-VP-topicalization should be as good as partial-VP-topicalization is. The latter, illustrated in (63c), has neither a star nor a question mark.

One might object that partial-VP-topicalization does not necessarily mean that a full *v*P, just minus the extracted subject, has been fronted, as suggested by the structure in (63c). Indeed, the exact analysis of what kind of constituent is fronted in German partial-VP-topicalization, and whether this can involve former extraction (= 'remnant movement') or not faces quite a dispute (see for example Fanselow 2002 contra Müller 2002, and references therein). Therefore, one could alternatively aim to argue that constructions as in (63c) involve the clause initial construction of a 'root'-VP.[69]

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[69]Here, the higher *v*P-layer would not be part of the topicalized portion. Be aware though that this would open up the unanswered question of why and how V-to-*v*-movement can be circumvented in the context at stake.

Above all, keep in mind in such a scenario that even if the topicalized VP contained nothing but the object, the VP

But the point here is a bit different It is not so much that we need to be able to account for the grammaticality of partial-VP-topicalization by the recourse to an analysis involving subject-extraction. It is more crucial that we need to account for the ungrammaticality of full-VP-topicalization. The latter remains a mystery as long as we insist that the subject is exclusively, even in the Verb Second context, part of VP (vP).

Therefore, it is not the current claim that the cases of partial-VP-topicalization entail that the subject must have left VP in order to derive them. Instead, the claim is that the obvious marginality of full-VP-topicalization is due to the preference for the subject to move out of the lexical layer in any Verb Second context. More precisely, if we acknowledge that the grammar, while being unable to license Spec, TP in all subordinated contexts, obtains that ability in the main clause, then we can understand the following. Suppression of the TP-specifier might still be in reach in the main clause as well, but it is ungrammatical except for a subset of cases. In these marginal cases, independent factors/constraints are able to once more overturn GENERALIZED SUBJECT in TP (as this is generally done by CASE LEX in the subordinated clause). Only then can the subject be part of the topicalized verb phrase.[70]

Altogether, the cases of full-VP-topicalization are often ungrammatical and mostly marginal, because the corresponding structures all miss the TP-specifier, a specifier the grammar would prefer to have in the Verb Second context:

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would still be predicted to come out head-final. This follows by the impact of GENERALIZED SUBJECT, which motivates movement of the object from the complement position to Spec, VP. (That is, we then had only VP- internal movement, inside the topicalized constituent.).

[70]There is an unresolved component here, starting with the general property of 'marginality' and the question of how clauses can be at all 'nearly but not fully' grammatical. This, however, is a quite intriguing problem not only for Optimality Theory but for generative grammar theories in general, and goes way beyond the scope of this investigation.

In the case at hand, it makes it particularly difficult to get a grasp on which concrete factors/constraints could ultimately motivate the renewed violation of GENERALIZED SUBJECT in Spec, TP. The task gets further complicated since, on the one hand, the acceptance level in 'full VP'-topicalization seems to vary by (a) the speaker, and (b) the choice of the verb and the VP content; and, on the other hand, it is far from clear what the actual candidate set is in the case of VP-topicalization. Considering that VP-fronting eventually serves the function of focusing the entire predicate/event, it seems

(65) Missing TP-specifier in a Verb Second context causes marginality:

missing Spec
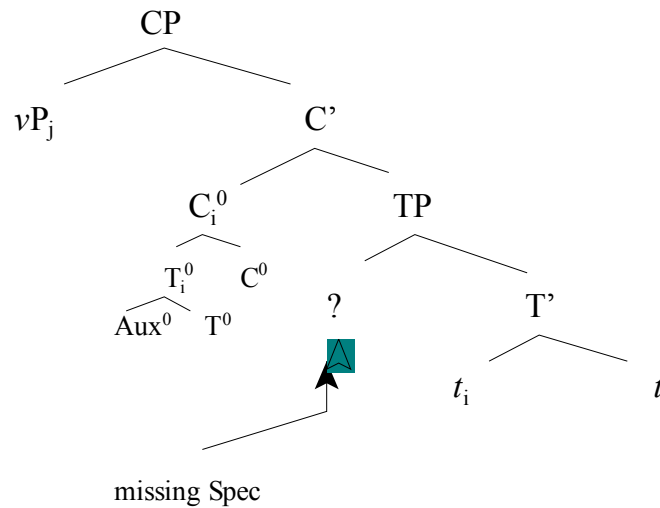
There is yet another aspect to become aware of with respect to the minimal tolerance towards violating GENERALIZED SUBJECT in German. We just acknowledged that the grammar allows to suppress the TP-specifier even in the main clause. Given the '[$_{TP}$ __ [$_{vP}$ SOV] T]'-analysis, based on the ranking LEX HD EDGE, BRANCH RIGHT>> **CASE LEX >> GEN SUBJECT** >> HD LEFT >> HD RIGHT, we also know that GENERALIZED SUBJECT is more generally violated within TP in all subordinated contexts. That is, with respect to basic word order, we observe a minimal tolerance on violating GENERALIZED SUBJECT in the inflectional layer, because satisfaction would lead, at the minimum, to a violation of the higher ranked CASE LEX.

Significantly, equal tolerance is not given within the lexical layer. That is, while it seems possible to withhold the subject, or better, the thematically highest argument, from moving to Spec, TP, nevertheless, the highest argument must move at least up to the highest VP-specifier. Consider here the structure of complex verb constructions which contain more than one finite auxiliary/modal:

most likely that pragmatic constraints are the ones that come into play.

(66) German :

    a.   ..., dass [$_{TP}$ __ [$_{VP}$ **der Butler$_j$** [$_{vP}$ t_j die Gräfin geküßt$_v$] **haben$_V$**] wird$_T$].

            that   the butler   the countess **kissed** **have$_2$**   **will$_1$**

            "... that the butler **will$_1$ have$_2$ kissed** the countess."

            Pattern in the subordinated context mirrors the English order:

            S O V - **Aux$_n$** - **Aux$_2$** - **Aux$_{fin-1}$**

    b.   [$_{CP}$ Morgen wird$_{V-T-Ci}$ [$_{TP}$ **der Butler$_j$** t_i [$_{vP}$ **t_j** [$_{VP}$ t_j die Gräfin geküßt$_v$] **haben$_V$**]

            tomorrow will   the butler   the countess kissed   have

            "Tomorrow, the butler will have kissed the countess."

Under the assumption that only the finite auxiliary/modal substitutes into (or, in independent clauses, adjoins to) T^0, then any residual, non-finite one has to be base-generated under VP. Let us assume that any such auxiliary/modal originates in a separate VP-shell.

    Now, given that GENERALIZED SUBJECT is ranked above HEAD LEFT in German, and given that there is no higher ranked constraint in the current set which could suppress the existence of a VP-specifier (such as CASE LEX does in TP), we expect that each auxiliary VP-shell must have a specifier. How? Simply by moving the thematically highest argument at least up to the highest Spec, VP. Recall the power of LEX HEAD EDGE: its ultimate impact is that all auxiliary/modal - shells are predicted to be head-final, the relative order among them mirroring the one we observe in SVO-languages like English. As we can see in (66) above, the expectation matches the German pattern. The logic is illustrated in the tableau in (67):

(67) German – complex verb construction:

    ..., dass [$_{TP}$ __ [$_{VP}$ **der Butler$_j$** [$_{vP}$ t_j die Gräfin geküßt$_v$] **haben$_V$**] wird$_T$]

       that   the butler   the countess **kissed**   **have$_2$**   **will$_1$**

       "... that the butler **will$_1$ have$_2$ kissed** the countess."

	LEXHDEDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. $[_{TP}$ subj T_{aux}^0 $[_{VP}$ t_S aux^0 $[_{vP}$ t_S object v^0]]]	*!	*		*	**
☞ b. $[_{TP}$ __ $[_{VP}$ subj $[_{vP}$ t_S object v^0] aux^0] T_{aux}^0]			*	***	
c. $[_{TP}$ __ $[_{VP}$ __ $[_{vP}$ subj object v^0] aux^0] T_{aux}^0]			**!	***	
d. $[_{TP}$ __ $[_{VP}$ __ aux^0 $[_{vP}$ subj object v^0]] T_{aux}^0]			**!	**	*
e. $[_{TP}$ __ $[_{VP}$ subj aux^0 $[_{vP}$ t_S object v^0]] T_{aux}^0]	*!		*	**	*
f. $[_{TP}$ __ T_{aux}^0 $[_{VP}$ __ aux^0 $[_{vP}$ subj object v^0]]			**!	*	**

The point here is that while German allows violations of GENERALIZED SUBJECT, such violations must still be *minimal*.

We can test the prediction that the subject must raise at least up to the highest VP-specifier in the following way. Take again the cases of full-VP-topicalization, and let us focus on those that are the least marginal, that is, on the ones which involve unergative, or unaccusative intransitive verbs. If the hierarchically highest argument has to move at least into the correspondingly highest Spec, VP, then it should be impossible to strand a non-finite auxiliary in clause final position. As we can see in (68) and 69) below, the prediction is indeed borne out:

(68) German:

   a.   ..., dass $[_{TP}$ __ $[_{VP}$ ein Aussenseiter$_j$ $[_{vP}$ t_j gewinnen$_v$] können$_{V-2}$] wird$_{T-1}$].
           that   a   outsider   win   can$_{inf-2}$ will$_1$
           "... that an outsider will be able to win."

   b. $^{??}[[_{VP}$ Ein Aussenseiter$_j$ $[_{vP}$ t_j gewinnen$_v$] können$_{V-2}$]] wird hier nicht.
                a   outsider   win   can$_{inf-2}$ will$_1$ here not
           "That an outsider is able to win, this won't happen here."

   c.   *$[_{vP}$ Ein Aussenseiter gewinnen$_v$] wird hier nicht können
                a   outsider   win   will$_1$ here not   can$_{inf-2}$

(69) German :

    a.   ..., dass [$_{TP}$ __ [$_{VP}$ Akten$_j$ [$_{VP}$ t_j verschwunden$_V$]   sein$_{V-2}$] werden$_{T-1}$].

                that   files   lost   be$_{-2}$ will$_1$

                "... that files will be lost."

    b. $^{???/*}$[$_{VP}$ Akten verschwunden$_V$] werden nicht sein.

                      files   lost   will$_1$ not   be$_{-2}$

Let us sum up, and then turn back to general TP-typology. We have undergone a longer journey in order to assess whether German is of type '[$_{TP}$ __ [$_{vP}$ SOV] T]' or of type '[$_{TP}$ S T [$_{vP}$ t_S OV]]'. Both analysis are possible, and while it is after all not that obvious which one is the adequate one, we have acknowledged several arguments in favor of '[$_{TP}$ __ [$_{vP}$ SOV] T]'. These arguments concerned both T-directionality and the localization of the subject.

    Overall, in terms of the system's internal dynamics, we have seen, on the concrete example of '[$_{TP}$ S T [$_{vP}$ t_S OV]]', how subject movement into Spec, TP without simultaneous verb movement leads to violation of CASE LEX, independent of directionality. Nevertheless, we have also discussed the three ways that a HEAD LEFT >> HEAD RIGHT grammar can avoid this CASE LEX violation by moving nothing into TP. Crucially, this is contingent upon the language embracing particular structural deviations from a [spec [head - complement]]-VP. That is, the grammar must precisely fall into one of the three mixed directionality types we have learned about in chapter 2.

    We have furthermore seen concrete examples of how the absence of verb movement into TP – which is, in the mixed directionality types at stake, always rooted in the goal of satisfying LEX HEAD EDGE – enables the occurrence of free tense/aspect particles. This holds even in VSO-grammars, which seemingly move the verb into the inflectional layer, but were here unmasked as VSO-cases, involving verb movement below TP. We have finally also seen that the equation of 'absent verb movement into TP' and 'possible occurrence of T particles' is ultimately not challenged by grammars which lack the former, but still systematically move the verb *through* TP in a set of contexts that involve all tenses.

    In the next section, we seek to understand why HEAD LEFT >> HEAD RIGHT grammars, crucially unlike HEAD RIGHT >> HEAD LEFT grammars, can never lack both verb and subject

movement into TP if their directionality is uniform, and thus, why SVO-languages always have their subject in Spec, TP on the surface (or higher).

3.6   Why there is no 'TSVO'-language

When it comes to the structural distinctions between possible uniform SVO- and SOV-grammars, my extended system derives a particular contrast between the two groups, which is directly related to the question of why we cannot find any 'TSVO'-languages:

Recall that we admitted, along with the 'subject-is-base generated-in-Spec, *v*P'-option, the conceptual possibility that the subject is base generated in the inflectional layer (cf. Chomsky 1986), here Spec, TP. That is, we did not rule out either of the two options with respect to the generation of possible candidates.

Now, as a matter of fact, SOV-grammars, or more precisely HEAD RIGHT >> HEAD LEFT grammars are not able to make use of the second possibility, meaning that they have to base generate the subject in Spec, *v*P. At the same time, depending on the ranking of the entire constraint set at stake, they can come out as a language, which furthermore leaves the subject within VP on the surface. On the other hand, uniform SVO-languages, that is, HEAD LEFT >> HEAD RIGHT grammars without any mixed directionality patterns, are able to use the option of base-generating the subject in Spec, TP, although unable to leave the subject in situ if it is base generated in Spec, *v*P.

Therefore, the system derives a fundamental difference between the possible constitution of a basic SVO-grammar on the one hand and a SOV–grammar on the other. SOV entails the necessity of the subject to be base-generated within the lexical layer, and the potential to leave it there on the surface. In opposition, SVO entails only the potential of the subject to be base-generated within the lexical layer and the necessity of moving it out on the surface. Looking at it from a broader typological perspective, this is a very welcome result. We know that SVO- and SOV-languages are rather different in whether they allow 'free word order'-variation such as scrambling and the like. Many SOV-grammars do, while SVO-grammars are less willing. Generative research has already recognized that there might be a direct connection between directionality (more precisely head/complement- order: VO vs. OV) and the permitting of (free) movement/ variation (see, for example, Fukui 1993, Saito & Fukui 1998, Haider and Rosengren

1998). The current system reveals that there might be yet another component to it. This is the outlined opposition of being potentially able to case govern all arguments inside the lexical layer, or lacking this capability.

Let us then first look at HEAD RIGHT >> HEAD LEFT grammars. We will not focus on them in this section (see more on the possible TP-distributions in SOV-languages in chapter 6); but we want to understand why they always base-generate the subject in Spec, *v*P, and furthermore why they don't have to move it into TP.

3.6.1   Uniform SOV – the subject can stay in situ

With respect to the option of 'subject-in-situ', we have already seen two examples thereof. Persian and German. As HEAD LEFT >> HEAD RIGHT grammars, these languages lack both verb and subject movement into TP and optimally favor a '[_TP ___ [_vP SOV] T]'-configuration (where in German, this is restricted to a non-Verb Second context). The same configuration, a head-final TP above a head-final *v*P, without any lexical movement into the former, can certainly be the optimal choice for a HEAD RIGHT >> HEAD LEFT grammar as well. It emerges whenever both the violation of CASE LEX (as a consequence of moving solely the subject into TP), and of LEX HEAD EDGE (as a consequence of moving the verb in support, in order to provide lexical *ep*-government of Spec, TP) is a greater threat than the violation of GENERALIZED SUBJECT, which is the cost of not moving the subject into Spec, TP. That is, '[_TP ___ [_vP SOV] T]' is optimal in a uniform SOV-languages if the ranking is among the following:

(70)   Uniform SOV lacks both verb and subject movement into TP *if*:
HEAD RIGHT, BRANCH RIGHT, LEX HEAD EDGE, CASE LEX >> GEN SUBJECT, HEAD LEFT

We will discuss the internal logic of the system with respect to HEAD RIGHT >> HEAD LEFT rankings in greater detail in chapter 6, where we will discover that there is yet another component to it. For now, it is sufficient to know that, once GENERALIZED SUBJECT and HEAD LEFT are ranked as in (70), '[_TP ___ [_vP SOV] T]' is the preferred TP:

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(71)　　[$_{TP}$ __ [$_{vP}$ SOV] T] wins in HEAD RIGHT >> HEAD LEFT　　　　　(relevant candidates):

	HEAD RIGHT	CASE LEX	LEX HD EDGE	GEN SUBJ	HEAD LEFT
a. [$_{TP}$ subj [$_{vP}$ t_S object v^0] T^0]		*!			**
b. [$_{TP}$ subj [$_{vP}$ t_S object t_V] T^0-v^0]			*!		***
☞ c. [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]				*	**

Why, on the other hand is there no HEAD RIGHT >> HEAD LEFT type such that the 'external' argument is really base generated inside the inflectional layer, in Spec, TP? Think about what the corresponding configuration '[$_{TP}$ S [$_{vP}$ __ OV] T]' accomplishes with respect to the current constraint set, and what it does not accomplish. Just like the winner (c) in (71), '[$_{TP}$ S [$_{vP}$ __ OV] T]' violates HEAD LEFT twice and GENERALIZED SUBJECT once, the latter in this case for the absent specifier in vP. But on top of that, '[$_{TP}$ S [$_{vP}$ __ OV] T]' furthermore violates CASE LEX, since there does not exist a lexical ep-governor of the case assignee in Spec, TP, regardless of the fact that T is adjacent to v. Therefore, even if '[$_{TP}$ S [$_{vP}$ __ OV] T]' is a possible candidate, it is still not a possible pattern, because it is harmonically bounded by '[$_{TP}$ __ [$_{vP}$ SOV] T]'. As such, it is unable to win, no matter how the constraints are ranked:

(72)　　[$_{TP}$ S [$_{vP}$ __ OV] T] cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
) a. [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]					*	**
; b. [$_{TP}$ subj [$_{vP}$ __ object v^0] T^0]			*!		*	**

Just the same holds for the pattern which differs from '[$_{TP}$ S [$_{vP}$ __ OV] T]' solely by moving the verb into a head-final TP: '[$_{TP}$ S [$_{vP}$ __ O t_V] V-T]'. Even if a it is a possible candidate, it is harmonically bounded by the alternative '[$_{TP}$ S [$_{vP}$ t_S O t_V] V-T]', which base-generates the subject inside vP, and then moves the verb and the subject into TP. Both structures violate LEX HEAD EDGE, since the lexical head surfaces in a functional projection, both share the same amount of

HEAD LEFT violations, and they both violate BRANCHING RIGHT (see chapter 6 for why the latter is the case). But in addition to that, a head-final *v*P without specifier violates GENERALIZED SUBJECT, a head-final *v*P plus specifier does not. Hence, once more we find a structure which base-generates the subject inside *v*P beating the structure which does not, under any ranking:

(73) [$_{TP}$ S [$_{vP}$ __ O t_V] V-T] cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
) a. [$_{TP}$ subj [$_{vP}$ t_S object t_V] T^0-v^0]		*		*		***
; b. [$_{TP}$ subj [$_{vP}$ __ object t_V] T^0-v^0]		*		*	*!	***

The conclusion to draw is this: An SOV-language, and on a broader scale, any grammar with a head-final VP, *must* be a language which base-generates its subject within the lexical layer, in Spec, *v*P, and depending on ranking, it can be a grammar which also leaves the subject therein.

3.6.2 Uniform SVO – the subject must leave VP

Why does the situation differ in SVO-languages, that is, in uniform HEAD LEFT >> HEAD RIGHT grammars? Let us first think of what *is* a possible pattern.

One possibility is that not only is the subject base-generated in Spec, *v*P and moves to Spec, TP, but the verb moves as well. This is the pattern which is well established in the generative literature for languages like French (cf. Emonds 1978, among many others). It is the pattern of uniform SVO-languages, which, under the perspective pursued here, have purely affixal tense aspect systems. Assume here the TP-structure in (74):

(74) French (data cf. Pollock 1989:367):

[$_{TP}$ Jean embrasse $_{v\text{-}T}$ [$_{vP}$ souvent [$_{vP}$ t_S t_V Marie]]]

   John   kisses   often   Mary

  "John often kisses Mary."

```
                        TP
                   ┌─────┴─────┐
                 Subj         T'
                         ┌─────┴─────┐
                        T⁰          vP
                     ┌───┴───┐   ┌───┴───┐
                    v⁰      T⁰  t_S      v'
                                      ┌───┴───┐
                                     t_V     Obj
```
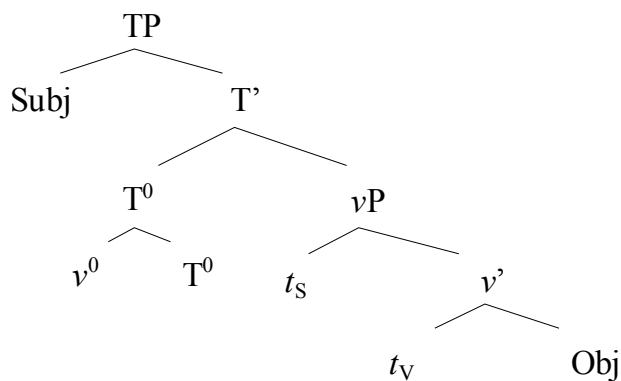
Note first that the configuration in (74) does not violate CASE LEX. So far, we have only featured the possible winners which avoid a CASE LEX violation by holding the subject back inside the lexical layer and not moving it into TP. But certainly, it is also possible to move *both* the subject and the verb into TP, and, by adjoining *v* to T, to provide a lexical *ep*-governor for the subject which is trivially adjacent to T (if T is the primary assigner of the subject's case). Furthermore, the structure does well on HEAD LEFT, BRANCHING RIGHT and GENERALIZED SUBJECT, as it does not deviate from [spec [head - complement]]. But, crucially, it is worse than the 'mixed directionality' cases we have seen in 3.3 and 3.4, 3.5 on LEX HEAD EDGE.

Now, in chapter 2, we have characterized uniform [spec [head - complement]]-grammars, which do not deviate therefrom inside *v*P, as languages that are indifferent towards the threat of a LEX HEAD EDGE violation. Considering the inflectional layer, and with it the impact of CASE LEX, as well as the theoretical possibility that the subject could be base generated in Spec, TP, we discover that there is a little more to it. Compare (74) with the structure in (75), which can belong to an English TP, given that the verb has not moved into TP:

(75) English (data cf. Pollock 1989:367):

[$_{TP}$ John T [$_{vP}$ often [$_{vP}$ t_S kisses Mary]]]
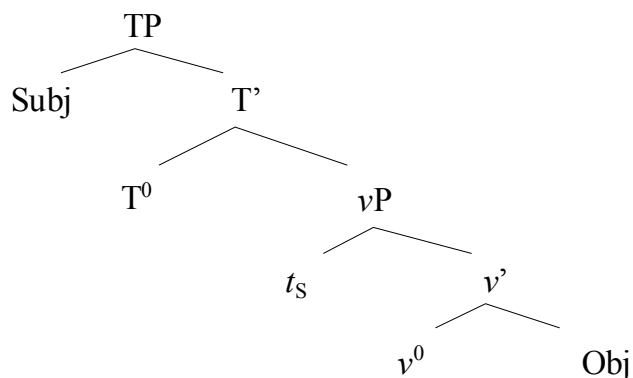
We know that the configuration in (75) violates CASE LEX, but, importantly, it *also* violates LEX HEAD EDGE, given that the verb surfaces in one of its perfect projections but not at an edge thereof; both the subject trace and the object block head-edge alignment. What, then, is the difference between (74) and (75) in terms of constraint profile, such that both are possible winners, depending on the ranking?

We said that (75) violates CASE LEX, so '[$_{TP}$ S V-T [$_{vP}$ t_S t_V O]]' can win if the grammar in question not only prefers to obey HEAD LEFT, BRANCHING RIGHT and GENERALIZED SUBJECT, all that at the cost of LEX HEAD EDGE, but furthermore, it wants to satisfy CASE LEX. But how does '[$_{TP}$ S T [$_{vP}$ t_S V O]]' become a winner? We already have the answer at hand, since we have been aware of [$_{TP}$ S V-T [$_{vP}$ t_S t_V O]]'s violation profile since its introduction as an alternative competitor. The structure in (75) violates HEAD RIGHT twice, but the one in (74) has *more* HEAD RIGHT violations. This is because adjunction of v^0 to T^0 adds a third one. (Recall the discussion in 3.3: for both v^0 and its copy, there exists a mother node such that v^0, or the copy, illegitimately aligns with the left edge of that mother node, and the same is true for the category T^0.)

Therefore, the extended system derives two uniform SVO types which both base generate the subject in Spec, vP and move it into Spec, TP. In the first type, the verb moves as well, in order to avoid violation of CASE LEX, at the cost of HEAD RIGHT. As a consequence, its tense/aspect system has to be purely affixal. Languages like French, then, are the result of one of the following ranking choices (see appendix A for yet another ranking constellation which leads

to the same grammar):

(76)   Optimal '[TP S V-T [vP t_S t_V O]]':   + verb movement/ + subject movement
         HEAD LEFT, BRANCH RIGHT, CASE LEX , GEN SUBJECT >> HD RIGHT, LEX HEAD EDGE

See in the tableau (77), how moving both the subject and the verb into TP is optimal if both LEX
HEAD EDGE and HEAD RIGHT are ranked at the bottom. Candidate (c) wins over the other
candidates (d), (e) and (f) that satisfy CASE LEX as well, since the grammar does not care very
much about LEX HEAD EDGE; and (c) wins over the other LEX HEAD EDGE violator (a), because
the grammar cares less about disobeying HEAD RIGHT than about causing a CASE LEX violation.

(77)   French: [TP Jean embrasse_{v-T} [VP souvent [vP t_S t_V Marie]]] – Comparison with relevant candidates:

	CASE LEX	HD LEFT	BRANCHR	GEN SUBJECT	LEX HD EDGE	HEAD RIGHT
a. [TP subj T⁰ [vP t_S v⁰ object]]	*!				*	**
b. [TP subj T⁰ [vP __ v⁰ object]]	*!			*		**
☞ c. [TP subj v⁰-T⁰ [vP t_S t_V object]]					*	***
d. [TP __ T⁰ [vP __v⁰ [vP subj t_V object]]]				*!*		***
e. [TP __ [vP subject object v⁰] T⁰]		*!*		*		**
f. [TP __ T⁰ [vP v⁰ object subject]]			*!	*		**

On the other hand, if both LEX HEAD EDGE and CASE LEX are ranked at the bottom, then a
uniform SVO-language emerges which base generates the subject in Spec, vP, but then moves
nothing but this subject into TP. Consequently, since the is no verb movement into the inflectional
layer, the language has the ability to insert free tense particles into T⁰. Languages like English and
Edo (recall the examples in 3.1) can be the result of one of the following ranking choices (see
appendix A for yet another ranking constellation which leads to the same grammar):

(78) Optimal '[TP S T [vP tS V O]]':   – verb movement/ + subject movement

   HEAD LEFT, BRANCH RIGHT, GEN SUBJECT >> HEAD RIGHT >> LEX HD EDGE, CASE LEX

Here, the optimal structure likewise maintains a [spec [head - complement]]- configuration in both *v*P and TP, since violating LEX HEAD EDGE is acceptable, just as it is in the previous type. However, the verb stays in situ, because it is more important to maximally obey HEAD RIGHT than to succeed on CASE LEX. This is demonstrated in the tableau in (79):

(79)   English: [TP John T [vP often [vP tS kisses Mary]]] – Comparison with relevant candidates:

	GEN SUBJ	HD LEFT	BRANCHR	HEAD RIGHT	LEX HD EDGE	CASE LEX
☞ a. [TP subj T^0 [vP tS v^0 object]]				**	*	*
b. [TP subj T^0 [vP __ v^0 object]]	*!			**		*
c. [TP subj v^0-T^0 [vP tS tV object]]				***!	*	
d. [TP __ T^0 [vP __v^0 [vP subj tV object]]]	*!*			***		
e. [TP __ [vP subject object v^0] T^0]	*!	**				
f. [TP __ T^0 [vP v^0 object subject]]	*!		*	**		

Before we ask about the structural option of base-generating the subject in Spec, TP, let us look briefly at auxiliaries and modals.

   Here is a preview of the conclusion: Whereas an SVO-grammar without verb movement into TP substitutes the auxiliary/modal into T^0, an SVO-grammar with verb movement into TP adjoins it to T^0. As such, the finite auxiliary/modal counts as a functional head and becomes an instantiation of T itself only in the former case. How is this significant, considering that the contrast in structure is subtle? If we compare English and French, then the system's prediction of the contrast is directly reflected in the auxiliary/modal morphology of the two languages.

   In the 'verb movement'-grammar of French, auxiliaries and modals systematically inflect for agreement, and we find infinitival forms (see, for example, Pollock 1989:389f). Meanwhile, in

the 'strictly V in situ'-grammar English, at least all modals (such as *can*, *must* etc.; i.e. those that have no main verb variant, and thus never project an extended projection by themselves) do not have any ability to inflect for agreement and they can not occur in the infinite form. See for comparison of the two auxiliary systems also Roberts 1993.

Let us look at how the structural contrast comes about. Above, we distinguished the '[$_{TP}$ S V-T [$_{vP}$ t_S t_V O]]'-type from the '[$_{TP}$ S T [$_{vP}$ t_S V O]]'-grammar by their opposite attitudes towards violating HEAD RIGHT vs. CASE LEX. This same factor determines their respective treatment of auxiliaries and modals.

On the one hand, if an SVO-grammar lacks verb movement into TP and is therefore least concerned about CASE LEX, then it will furthermore prefer to substitute an auxiliary or modal into T^0, withdrawing the lexical status of this element. Substitution does not improve the structure with respect to CASE LEX, since the auxiliary/modal now counts as a functional head which instantiates T^0 and thus projects a TP. Hence, there is still no lexical *ep*-governor in sight for the subject in Spec, TP. At the same time, and this is most relevant for the '[$_{TP}$ S T [$_{vP}$ t_S V O]]'-grammar, substitution spares additional violations of HEAD RIGHT which arise if an auxiliary/modal maintains its lexical status and adjoins to T^0. See the corresponding conflict in tableau (80).[71]

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[71]If we wanted to take adverb placement into consideration, then the outcome that a [$_{TP}$ S T [$_{vP}$ t_S V O]]-grammar directly substitutes an auxiliary/modal into T^0 would account for the fact that the auxiliary/modal precedes the adverb, in opposition to a main verb, and despite the lack of verb movement into TP.

See, for example, Pollock 1989:398 for the assumption that English modals are generated in T^0; see Grimshaw 1997:382 on the assumption that English finite auxiliaries are generated in I^0; see Vikner 2001:177ff on the assumption (plus an Optimality theoretic derivation thereof) that both modals and finite auxiliaries are inserted directly under T^0.

(80)   English: [$_{TP}$ He may [$_{vP}$ often [$_{vP}$ t_S forget the keys]]] – Comparison with relevant candidates:

(Keep in mind that no candidate violating HEAD LEFT or BRANCHING RIGHT can win under the ranking at stake)

	GEN SUBJECT	HEAD RIGHT	LEX HD EDGE	CASE LEX
L a. [$_{TP}$ subj T$_{aux}$^{0} [$_{vP}$ t_S v^0 object]]		**	*	*
b. [$_{TP}$ subj T$_{aux}$^{0} [$_{vP}$ __ v^0 object]]	*!	**		*
c. [$_{TP}$ subj aux^0-T^0 [$_{vP}$ t_S v^0 object]]		***!	**	
d. [$_{TP}$ __ T$_{aux}$^{0} [$_{vP}$ __ v^0 [$_{vP}$ subj t_V object]]]	*!*	***		

On the other hand, an SVO-grammar like French, which does not like to violate CASE LEX, stays away from substitution, and instead adjoins the auxiliary/modal to T^0:

(81)   French:

[$_{TP}$ Je vais$_{V-T}$ [$_{VP}$ t_S changer l'ampoule]]]

     I   will   change   the light bulb

"I will change the light bulb."

(Comparison with relevant candidates:)

	CASE LEX	GEN SUBJECT	LEX HEAD EDGE	HEAD RIGHT
a. [$_{TP}$ subj T$_{aux}$^{0} [$_{vP}$ t_S v^0 object]]	*!		*	**
b. [$_{TP}$ subj T$_{aux}$^{0} [$_{VP}$ __ v^0 object]]	*!	*		**
L c. [$_{TP}$ subj aux^0-T^0 [$_{vP}$ t_S v^0 object]]			**	***
d. [$_{TP}$ subj aux^0-T^0 [$_{VP}$ t_S t_{aux} [$_{vP}$ t_S v^0 object]]			**	****!
e. [$_{TP}$ __ T$_{aux}$^{0} [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]		*!*		***

Two remarks on the competition in (81): First, note that the winner (c) simply adjoins the auxiliary to T^0, without base generating it in a separate VP plus subsequently moving it into TP. This is because, once we follow the internal logic of the system, then previous base generation of the auxiliary under VP is harmonically bounded by the winner. Candidate (d) has the same

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violation profile as (c), but violates HEAD RIGHT one additional time.[72]

Either way, the crucial property of an auxiliary/modal which does not itself project TP is that it becomes a '*helping* verb' in a new case theoretic sense: It can help T, where T assigns case to the subject, by acting as a lexical governor thereof which is syntactically adjacent to T. As such, it circumvents the violation of CASE LEX. Nevertheless, we should also be aware that the winner in (81) has the same plus one additional violation compared with the optimal form – '$[_{TP}$ S V-T $[_{vP}$ t_S t_V O]]' – for simple verb clauses. (Compare (81c) with the optimal candidate (c) in tableau (77) above; the latter violates LEX HEAD EDGE only once.). Therefore, using an auxiliary as 'helping verb' cannot be the default choice for all tenses, but rather it must be forced by the semantic/functional needs to express, or to differentiate particular tenses/aspects.

Finally, let us take one further very brief excursus on the classification of English as a grammar that substitutes auxiliaries/modals directly into T^0. In the current system, this substitution is rooted in the desire to minimize HEAD RIGHT violations, while caring little about the violation of CASE LEX. Significantly, this same structural preference can play a part in the explanation of *do*-support.

Recall that according to Grimshaw 1997, the use of 'light' *do* in English is a use of a 'semantically and functionally stripped' element, which as such violates the general constraint FULL INTERPRETATION (:= "lexico-semantic structure is parsed"; cf. Grimshaw 1997:374). Therefore, its use must be motivated by a particular context that builds up a greater structural pressure and in turn justifies the violation of FULL INTERPRETATION.

Consider then that configurations which require *do*-support, such as *wh*-fronting ('what did you eat?') or negation ('she does not agree'), are contexts that demand that an abstract T be spelled out overtly within TP, or an affixal T be picked up by a carrier in TP.[73]

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[72]One could manipulate this result by assuming that, in order to maintain the lexical status of an auxiliary/ modal, it *must* be base generated under VP. In that case, candidate (d) would be the ultimate winner). The approach in the text seems slightly preferable, since it is structurally simpler. Recall here also the discussion of German in 3.5.3 above.

[73]Whether T^0, in the case of a 'non-phrasal' ('true') affix, contains the affix or is abstract, in both these conceptual scenarios, there is plenty of room to discover why, in a grammar without verb movement to T, i.e English, contexts such as *wh*-fronting or negation could demand that T be treated differently.

If we now recognize *do*-insertion as an instance of substitution into T^0, on a par with the finite auxiliaries and modals of the grammar, and if we furthermore take into account FULL INTERPRETATION, which should be ranked below HEAD RIGHT in English, then the system directly accounts for the fact that *do*-support is superior to the spelling out/picking up of T by *v*-to-T-movement. The latter would increase HEAD RIGHT violations, which can be avoided by the less costly *do*-substitution:

(82)   English: [$_{TP}$ She does$_T$ [$_{NegP}$ not [$_{vP}$ t_S forget$_v$ the keys]]] – Comparison with relevant candidates:

	GEN SUBJECT	HEAD RIGHT	FULLINT	LEX HD EDGE	CASE LEX
☞ a. [$_{TP}$ subj T$_{do}^0$ [$_{NegP}$ not [$_{vP}$ t_S v^0 object]]		***	*	*	*
b. [$_{TP}$ subj v^0-T^0 [$_{NegP}$ not [$_{vP}$ t_S t_V object]]		****!		*	

Notice that including a constraint like FULL INTERPRETATION is not in fact imperative in order to account for the winning of candidate (a) over (b); (a) would win over (b) in (82) also without any additional constraint. However, FULL INTERPRETATION or some alternative is necessary in order to capture that *do*-support does not occur in contexts in which T is abstract/affixal but there isn't any negation or the like. That is, without FULL INTERPRETATION, we get the prediction that there should be a free variation between constructions like 'she comes' and 'she does come'.[74]

On the one hand, a *wh*-context might require head movement to C (possibly along the lines of Grimshaw 1997's proposal), but an affixal T^0 cannot move, nor can an abstract T^0. On the other hand, in negation, either an affixal T cannot merge with *v* across an intervening negation marker (cf. Bobaljik 1994:5f) or, if abstract, it cannot be checked against *v* where the intervening negation (NegP) disrupts locality. Similarly, in contexts of emphasis ('... but I am telling you she DID come.'), we could suspect that the emphasis is an instance of a particular stress on T^0, which cannot be realized by abstract/affixal T.

[74]Roberts 1993:293f in fact notes that *do*-insertion seemed to be freely available in 16th century English. One possibility of interpreting this would be to say that the phenomenon of *do*-support does not involve any additional constraint such as FULL INTERPRETATION but rather the following holds.

What we observe in Modern English as an Emphasis contrast in the presence vs. absence of *do* in simple-main-verb clauses is just the outcome of economizing the optionality between the two constructions. As such, we tie *she does*

Despite this, in the presence of an auxiliary or modal, or a tense particle, T is already overtly spelled out and picked up by a morphologically independent carrier, and this carrier imposes as many HEAD RIGHT violations as *do*-substitution does. Therefore, *do*-support becomes obsolete and never occurs (we have 'she will not forget it', not '*she does not will forget it').

One last remark, which brings us back to the use of auxiliaries in both English and French. Once we bring FULL INTERPRETATION into the picture, one might ask whether the use of auxiliary verbs in 'Aux + main V'-constructions is in fact an instance of 'semantic under-parsing' as well. The point is that auxiliary verbs usually have a main verb variant. This main verb variant expresses a meaning that the auxiliary in an auxiliary construction doesn't have, or better, doesn't preserve. Note here that Vikner 2001:179 denies the parallel by observing: "When *have* (or *be* or a modal verb) is inserted under Tense^0, it still makes a semantic contribution to the clause, even if it does not assign a thematic role. When *do* is inserted under Tense^0, it makes no semantic contribution to the clause at all." (See here also Grimshaw 1997:383 on the assumption that auxiliary verbs, but not light *do*, have semantic content and are part of the input.). However, does Vikner's evaluation really capture the entire picture? It is certainly the case that finite auxiliaries and modals still make a semantic contribution to the clause (and that auxiliary *do* evidently makes none). But, with respect to finite auxiliaries, the question is, which *kind* of semantic contribution they make. Compare for example the use of the main verb *have* in (83a) with the auxiliary verb *have* in (83b):

(83)   English:

    a.   Mo has a cat.

    b.   Mo has finished all her assignments.

Whatever the exact semantics the auxiliary in (83b) contributes beyond pure tense (evidently aspect; see comment below), it certainly does not express 'ownership' in the same way as (83a).

The same contrast is clear in a grammar like French as well. Thus, the 'semantic under-parsing' we may observe in English cannot be reduced a syntactic distinction and to the fact that

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come to an emphatic context, *she comes* to a non-emphatic one. Nevertheless, such a reasoning would stir up the question of why more grammars without verb movement don't have something similar to the phenomenon of *do*-support.

the English finite auxiliary is directly substituted into T^0, while the French one is not. In the discussion of French above, we noted that the use of an auxiliary as a lexical helper for case assignment is, in terms of alignment, more costly than verb movement to T, and that therefore the operation of an auxiliary must be forced by the semantic/functional need to express different tenses/aspects. Here, we discover that 'Aux + V'-constructions might not only be more marked in terms of a potentially greater structural complexity (this depending on how a particular grammar chooses to integrate the auxiliary into the syntactic structure) but also because auxiliary constructions require some kind of semantic under-parsing which will violate FULL INTERPRETATION. One question for further research is then to ask what the positive counter-factors are which can overturn the markedness and lead to the use of an auxiliary verb in the first place. Obviously, this question does not only concern the syntax but also the semantics of corresponding constructions. Here, the point is that 'Aux + V'-constructions, in opposition to simple-verb-constructions, usually convey a combination of both tense and aspectual information (or, they emerge in passive, as opposed to active, configurations). Hence, one key to their emergence might be precisely their ability to support a specification of T in more one than one dimension.

Let us go back to general typology. We have exhausted the structural options of uniform SVO-grammars which base generate the subject in Spec, vP and then move it into Spec, TP. What does the system say about HEAD LEFT >> HEAD RIGHT grammars that base generate the subject outside the lexical layer, in Spec, TP?

First, if a grammar has verb movement into TP, then, no matter how we rank the constraints, base generating the subject therein can never be more harmonic than *moving* the subject from a lower base position in Spec, vP. The logic here is the same as in the case of the 'mirror image' head-final TP. Both '[$_{TP}$ S V-T [$_{v}$P t_S t_V O]]' and '[$_{TP}$ S V-T [$_{v}$P __ t_V O]]' violate LEX HEAD EDGE, since the lexical head surfaces in a functional projection, both incur the same number of HEAD RIGHT violations, but on top of that '[$_{TP}$ S V-T [$_{v}$P __ t_V O]]' violates GEN SUBJECT; as such, it is harmonically bounded by the alternative with a subject trace inside vP:

(84) $[_{TP}$ S V-T $[_{vP}$ __ t_V O]] cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
) a. $[_{TP}$ subj v^0-T^0 $[_{vP}$ t_S t_V object]]	***			*		
; b. $[_{TP}$ subj v^0-T^0 $[_{vP}$ __ t_V object]]	***			*	*!	

But let us think about HEAD LEFT >> HEAD RIGHT grammars which do not move the verb into TP. LEX HEAD EDGE gives a $[_{vP}$ __ v^0 object]- configuration a structural advantage over $[_{vP}$ subj v^0 object]. As we have discussed this in detail in chapter 2, the former does not violate LEX HEAD EDGE, whereas the latter does. We also know that the same does not apply to a head-final verb phrase, where LEX HEAD EDGE is satisfied regardless of the presence or absence of a VP-specifier. Therefore, in [head - complement]- grammars, and only there, the base generation of the subject inside the inflectional layer can harmonize the overall configuration in one particular way: if the verb surfaces inside the verb phrase, it can avoid the LEX HEAD EDGE violation which would result from a 'subject-in- vP'- base generation.

Thus, what we are discovering here is a fourth way of satisfying LEX HEAD EDGE in a HEAD LEFT >> HEAD RIGHT grammar. This last choice does not alter uniformity, since it neither changes the directionality of the X-bar-skeleton, nor does it lead to an alteration of an 'S - V - O'- surface order. Furthermore, it is necessarily tied to a willingness to disobey CASE LEX, since it is a choice which accomplishes LEX HEAD EDGE satisfaction by exiling the subject in a functional specifier position which is not lexically governed.

Therefore, the extended system allows for a third uniform SVO-type, which differs only slightly from the '$[_{TP}$ S T $[_{vP}$ t_S V O]]'-grammar discussed above. '$[_{TP}$ S T $[_{vP}$ __ V O]]' also lacks verb movement into TP, and as such is a grammar which allows for the occurrence of free tense/aspect particles. The only distinctive feature is that '$[_{TP}$ S T $[_{vP}$ __ V O]]' lacks the subject copy inside the verb phrase. The configuration is optimal under the ranking constellation given in (85). The following competition in (86) demonstrates how the selection is taken:[75]

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[75]See appendix A for yet another ranking constellation which leads to the same grammar.

(85) Optimal '[$_{TP}$ S T [$_{vP}$ __ V O]]':   – verb movement/ subject in Spec, TP

HEAD LEFT, BRANCH RIGHT, LEX HD EDGE >> GEN SUBJECT >> CASE LEX, HEAD RIGHT

(86) Base generating the subject in Spec, TP – *only* possible in a uniform SVO-grammar that lacks verb movement into TP:

Comparison with relevant candidates – all obey HEAD LEFT and BRANCHING RIGHT:

	LEX HEAD EDGE	GEN SUBJECT	CASE LEX	HEAD RIGHT
a. [$_{TP}$ subj T^0 [$_{vP}$ t_S v^0 object]]	*!		*	**
∟ b. [$_{TP}$ subj T^0 [$_{vP}$ __ v^0 object]]		*	*	**
c. [$_{TP}$ subj v^0-T^0 [$_{vP}$ t_S t_V object]]	*!			***
d. [$_{TP}$ __ T^0 [$_{vP}$ __v^0 [$_{vP}$ subj t_V object]]]		**!		***

Now, to distinguish a '[$_{TP}$ S T [$_{vP}$ __ V O]]'- from a '[$_{TP}$ S T [$_{vP}$ t_S V O]]'- grammar is tremendously hard on empirical grounds. The only difference between the two types is the absence vs. presence of an abstract element. Any language like English or Edo, that is, uniform SVO-grammars without verb movement into TP such that they allow for the emergence of free T-particles, could fall under either of the two types. The nontrivial task is to formulate reliable tests that indicate either the existence or the non-existence of a copy in Spec, vP.

Sportiche 1988 argues that floated quantifiers accomplish just this, that they indicate the existence and location of a subject trace. According to Sportiche, quantifiers like French *tous* and English *all*, which quantify over the subject and can appear in post-auxiliary position (as in 'they$_i$ have all$_i$ taken her advice'), provide direct evidence for the claim that the language base generates its subject inside VP.

One interesting observation in this respect might be the following: Yoruba is an African SVO-language which also has free T-particles, indicating that it lacks verb movement to T^0. See (87) with the particle *yóò* expressing future tense (the example is provided by Oluseye Adesola) :

(87) Yoruba:

[TP Alex **yóòT** [vP __ ra   ìwé]].

　　　Alex   FUT   buy   book

　　"Alex will buy a book."

Significantly, Yoruba lacks floated quantifiers (cf. Adesola, Baker (pc)). One could interpret this as an indicator for the lack of a subject copy in the Yoruba vP: it is only if a lower base position exists that a quantifier can be stranded. This would mean that Yoruba is of type '[TP S T [vP __ V O]]', while English of type '[TP S T [vP t_S V O]]'.

But, while this gives us some room to explore in future research, we should be cautious. This is because the proposal that floated quantifiers decisively and cross-linguistically, indicate the existence of a VP-internal subject trace has been criticized (cf. Bobaljik 2001). If floated quantifiers are not linked to Spec, vP across all grammars, obviously, we cannot be sure that their absence in Yoruba tells us anything about the absence of Spec, vP

From a broader perspective, considering that the distinction is so subtle, empirically, the emergence of '[TP S T [vP __ V O]]'-grammars might play only a minor role. But conceptually, the factorial possibility of the pattern has some relevance.

One primary incentive of this overall investigation is to demonstrate how the impact of a constraint such as LEX HEAD EDGE (in its interplay with general alignment constraints and those that require a subject) can help us to understand why certain mixed patterns in phrase structure directionality are possible, while others are not. In chapter 2, we distinguished three major classes of such mixed types, all emerging in grammars that have a general preference for [head - comp] - orders. In this sense, it seems theory-internally important to give the overall system as much structural freedom as possible, such that we obtain some means to see how stable the results ultimately are. Let us consider, therefore, allowing the possibility that the subject, or better, the thematically highest argument, can be base-generated outside the lexical layer. Then, we have to recognize that this provides yet another structural opportunity of satisfying LEX HEAD EDGE in a [head - complement]-oriented grammar. Nevertheless, even then, the overall factorial typology still includes the 'mixed' types which we have derived in chapter 2. That is, the 'right-peripheral specifier'- choice, the 'head movement'-, and the 'right peripheral head'-choice, all co-exist

together with the choice of exiling the subject in the functional layer – a welcome result.

Altogether, with '[$_{TP}$ S T [$_{vP}$ __ V O]]' and '[$_{TP}$ S T [$_{vP}$ t_S V O]]' on the one hand and '[$_{TP}$ S V-T [$_{vP}$ t_S t_V O]]' on the other, we have seen all uniform SVO-grammars that the system produces.[76]

These three types share that the subject surfaces in Spec, TP in the basic word order. The last question to answer then is: Why can't the subject stay inside the lexical layer? Why isn't there any SVO-mirror image of '[$_{TP}$ __ [$_{vP}$ SOV] T]'? This is also the question of why there is no 'TSVO'-grammar. To recognize the cause thereof was the starting puzzle of this chapter.

The system's answer to the question is simply this: While '[$_{TP}$ __ T [$_{vP}$ S V O]]' is certainly a possible structure, it does not constitute a possible type, since the structure is invariably less harmonic than the alternative which starts off equivalently but then moves the subject to Spec, TP.

'[$_{TP}$ __ T [$_{vP}$ S V O]]' is the result of base generating, in a [head - complement] setting, the subject in a left-peripheral vP-specifier, and then moving nothing into TP, nor moving V within the lexical layer. Without verb movement into TP, the grammar is able to fill T^0 with independent particles. Hence, if '[$_{TP}$ __ T [$_{vP}$ S V O]]' were a possible type, then so should be a language with basic 'T - S - V - O'-order. But, as the table in (88) shows us, there is no such language, because, crucially, '[$_{TP}$ __ T [$_{vP}$ S V O]]' is harmonically bounded by '[$_{TP}$ S T [$_{vP}$ t_S V O]]':[77]

(88) **[$_{TP}$ __ T [$_{vP}$ S V O]] is harmonically bounded**:

	GEN SUBJECT	HD LEFT	BRANCH R	HD RIGHT	LEX HD EDGE	CASE LEX
) a. [$_{TP}$ subj T^0 [$_{vP}$ t_S v^0 object]]				**	*	*
; b. [$_{TP}$ __ T^0 [$_{vP}$ subj v^0 object]]	*!			**	*	*

[76]See appendix A for one further type, which almost equates with '[$_{TP}$ S T [$_{vP}$ t_S V O]]', the only difference being that the subject copy is a right-peripheral vP-specifier.

[77]Be aware that '[$_{TP}$ __ T [$_{vP}$ S V O]]' is simultaneously harmonically bounded by '[$_{TP}$ S T [$_{vP}$ __ V O]]'. Both structures violate HEAD RIGHT twice, both violate CASE LEX, both violate GENERALIZED SUBJECT once. But in addition to that, '[$_{TP}$ __ T [$_{vP}$ S V O]]' violates LEX HEAD EDGE.

Compare '[$_{TP}$ S T [$_{vP}$ t_S V O]]' and '[$_{TP}$ __ T [$_{vP}$ S V O]]': Both violate HEAD RIGHT twice. They also both violate LEX HEAD EDGE, since in neither of the two verb phrases, the verb surfaces at an edge of *v*P even if v_v does not leave the lexical layer. Furthermore, both violate CASE LEX. '[$_{TP}$ S T [$_{vP}$ t_S V O]]' cannot obey CASE LEX for the reason discussed above. '[$_{TP}$ __ T [$_{vP}$ S V O]]', on the other hand, violates CASE LEX with respect to T's case assignment. This is because the case assignee in question (the subject if T assigns nominative, the object if T assigns absolutive) might be lexically *ep*-governed, but the lexical governor fails to be syntactically adjacent to T. Thus, so far, both competitors tie. But, then, on top of that, '[$_{TP}$ __ T [$_{vP}$ S V O]]' violates GENERALIZED SUBJECT in TP, which '[$_{TP}$ S T [$_{vP}$ t_S V O]]' does not.

Therefore, the conclusion to draw is this: '[$_{TP}$ __ T [$_{VP}$ S V O]]' might be a possible candidate, but it is *not* a possible basic word order pattern, because the structure is harmonically bounded and, as such, cannot win under any ranking.

Altogether, the factorial typology derived by the extended system includes only SVO-grammars which either move the subject into Spec, TP or directly base generate it therein. As pointed out earlier, this gives us an interesting contrast between the possible constitution of an SOV-grammar on the one hand and an SVO-grammar on the other. Whereas SOV entails that the subject's base position is inside the lexical layer and that this position can be maintained on the surface, any SVO-grammar must be a grammar in which the subject is at least in Spec, TP on the surface. Besides contributing to the understanding of how SOV- and SVO-languages often diverge beyond basic V/O-order, this fundamental distinction has another consequence for SVO: Free tense/aspect particles, where they emerge in a language which lacks verb movement into TP, *must* appear between the subject and the verb, and they can never precede the 'S - V - O'-sequence. The result correctly captures the empirical findings.

This last point completes the illustration of the extended system and its impact on the distribution of TP (see more though on SOV in chapter 6). We have seen that the system not only contributes to a new understanding of how the syntactic structure and the dynamics of verb movement into TP can, in part, determine the morphological realization of the corresponding tense/aspect system (rather than vice versa); it furthermore explains why we do not find any 'free standing' tense/aspect particles, even if we embrace the conception that tense/aspect information is encoded

in syntactic functional heads. As a non-trivial bonus of the system, we should be critically aware that the overall factorial typology predicted does not include any 'weird' type that is unlikely to be attested (see Appendix A for proof). Hence, we do not have to pay for the gained explanations with the undesirable side effect of over-generalization.

Lastly, it is worthwhile to notice that an essential part of the answer to the 'TSVO'-puzzle is played by the constraint LEX HEAD EDGE. While, here, its impact is not causing any 'mixed directionality' pattern, it infiltrates the basic word order typology in a more subtle way which leads to a contrast between vP-head-final and vP-head-initial grammars and their respective options of base generating and moving out the subject (it also leads, on a par with GENERALIZED SUBJECT, to an ultimate blocking of the unwanted 'TSVO'; see previous footnote.).

More generally, we have seen that all constraints proposed in chapter 2 play a crucial role not only in the derivation of basic phrase directionality, but they furthermore have a direct impact on the distribution of systematic movement within the verbal extended projection. In the next chapter, we will see that this impact immediately carries over to nominal extended projection and systematic noun movement therein.

Before we go there though, as a last point, I want to briefly discuss one alternative Optimality theoretic perspective onto the inflectional layer, that is, Vikner 2001. This can be seen as an extended footnote, demonstrating more explicitly that, despite the vast progress in the Optimality theoretic research on basic word order typology and the explicit consideration of the role of a syntactic inflectional layer therein, there was still a need for an answer to the questions which we have raised and addressed in this chapter.

3.7   Why do it my way?

Consider Vikner 2001. In section 3.1 above, we noted that the corresponding Optimality theoretic system, without intending to solve the '*TSVO'-puzzle, in fact excludes the unwanted type. But unfortunately, it *also* excludes the insertion of free tense formatives in any other language without verb movement. We then want to understand why this is the case.

To begin with, be aware that Vikner's system is specially designed in order to account for the absence vs. presence of overt verb movement into the inflectional layer. Rather than focusing on the connection thereof to the absence vs. presence of free tense/aspect particles, Vikner instead

links +/- verb movement directly to the morphological strength of agreement, more precisely to the strength of person agreement. For that matter, IP is here divided into PersP > TP (see Vikner 2001:140).[78]

Now, why is there no room for the emergence of free T-particles even in the absence of V^0-movement to T^0, or to $Pers^0$ (through T^0)? The logic goes like this: First, in parallel to the assumptions made here, TP is projected even in the absence of overt movement (cf. Vikner 2001:147 (tableau 21)). Furthermore, Vikner axiomatically assumes that functional heads are universally left of their complement (Vikner 2001:143), and distinguishes several other points:

(89)   Cf. Vikner 2001:145,146, a functional head may

a.   be radically empty, in which case it violates the constraint OBLIGATORY HEADS ("violated by every completely empty X^0"; an adaptation of Grimshaw 1997:377, Haider 1988:101)

b.   contain only a feature, e.g. $Pers^0$ and $Tense^0$, but no phonetic material, in which case it violates none of OBLIGATORY HEADS, PRED-RIGHT ("violated by any V^0 or Adj^0 which is left of its XP-sister"), X^0-RIGHT/ X^0-LEFT ("violated by any head which is left of its XP-sister / right of its XP-sister")

c.   contain phonetic material (or a trace thereof), in which case it violates X^0-RIGHT and possibly also PRED-RIGHT.

Given (89), we get a scenario in which filling T^0 by an abstract feature violates *no* alignment constraint, whereas filling it by phonetic material (or a trace thereof) violates at least X^0-RIGHT. From this, we can infer the following:

Under a 'V-in-situ'-ranking, the insertion of a tense/aspect particle into T^0 is harmonically bounded by the candidate with an abstract feature therein. Here is why: A tense/aspect particle constitutes phonetic material, meaning that it must violate X^0-RIGHT. On the other hand, having only an abstract feature in T^0 violates nothing. Certainly, in addition to the alignment constraints mentioned above, Vikner's system has constraints which enforce verb movement, and thus, phonetic material/a trace in T^0. These are constraints on distinctive marking of person features and, crucially, on checking them (see Vikner 2001:141). If the marking/checking-constraints are

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[78]Note that Vikner 2001 is not concerned about the derivation of subject movement into IP, but we might assume that this is determined by an additional constraint interaction.

ranked appropriately, then we get the situation that the alignment constraints are violated in PersP and TP, by presence of phonetic material (the verb), or by presence of a trace. However, the system *only* accepts this in the case of syntactic verb movement. In the absence thereof, which means that the marking/checking-constraints are low ranked, then there is no component of the system which favors phonetic material in T^0, only one that disfavors it. Consequently, having only an abstract feature in T^0 becomes invariably more harmonic than inserting a T-particle: The T-particle violates X^0-RIGHT, the abstract feature violates nothing.

But then, at best, we could have free T-particles in grammars *with* verb movement, not in those without verb movement where we actually want them. Altogether, Vikner's system excludes the possibility of 'T_{part} - S - V - O', but at the cost of predicting the total impossibility of free tense/aspect- particles in 'V-in-situ'- languages.

To be fair, Vikner has other motives in his analysis. As said, he intents to derive a causal connection between strength of affixal agreement morphology and syntactic verb movement. This perspective is part of a broadly discussed tradition. Vikner is not the first who has argued that verb movement, and the absence thereof, is driven by morphologically 'rich' vs. 'poor' agreement on the verb (see Pollock 1989, among many others). The strongest assessment of the correlation was to assume a bidirectional implicational universal (= the 'Rich Agreement Hypothesis' in its strongest form; e.g. Rohrbacher 1999, Vikner 1997, see Bobaljik 2002b:3 for terminology and discussion):

(90)   Strongest version of the 'Rich Agreement Hypothesis':
        "If and only if agreement morphology is rich, a grammar has (overt) verb movement into
        the inflectional layer."   (where 'rich' may be defined in various ways)

Nevertheless, the 'Rich Agreement Hypothesis' has faced strong dispute, and has been falsified by, for example, Bobaljik 2002b:4, who replaces it with a weaker unidirectional implicational universal:[79]

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[79]Note that Bobaljik 2002b explains the assumed uni-directional implication by a correlation whose underlying perspective is parallel to the current proposal. That is, Bobaljik argues for a determination from syntax to morphology (and

(91)   "If agreement morphology is rich, then (overt) verb movement to Infl occurs."

Importantly, Bobaljik presents counter-examples from Germanic languages such as Tromsø and Faroese, which falsify the other half of the bidirectional implication. That is, Bobaljik's evidence falsifies the following unidirectional implication:

(92)   "If agreement morphology is weak, then there is no overt verb movement".

Bobaljik provides an analysis which is designed in order to account for the first uni-directional entailment in (91). It motivates why overt movement occurs in languages with rich morphology (rich is here defined as "verbal inflection is rich if and only if finite verbs may bear multiple distinct inflectional morphemes"; Bobaljik 2002b:5). However, the analysis does not yet explain how +/- movement is triggered in grammars with poor morphology. In accordance with (91), such grammars can either move the verb to Infl, or not. Hence, there is a missing part of how this is determined. Furthermore, be aware that the approach requires a structural interpretation of, for example, German, in which $Infl^0$, more precisely $AgrS^0$ and T^0, are to the right of VP, and movement occurs there into. This is because German's morphology is rich under Bobaljik's definition (e.g. *küss - t - est* 'kiss-PAST-2pSg; compare Bobaljik 2002b:3, 8, 15). Thus, there must be verb movement, and, in turn, T^0 and Agr^0 must be on the right of their complements in order to correctly account for the basic word order in subordinated clauses.[80]

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not vice versa). In short: 'a more complex syntactic structure' (= Infl is split into AgrS and T, instead of constituting one single node) M'a more complex morphological structure' (= rich inflection = the finite verb may bear multiple distinct inflectional morphemes) M'necessary verb movement'.

    With respect to the first entailment, there is a hidden problem: Strictly speaking, the more complex syntactic structure just *allows* for multiple inflectional morphemes, hence rich inflection, it does not enforce it. But then, it is possible that a grammar splits Infl, but still, the finite verb never bears rich inflection, and hence there is no trigger for necessary verb movement (in which case the explanation for the uni-directional breaks down).

    [80]Bobaljik 2002b does not discuss the necessity of right-peripheral functional heads. Keep in mind here that the finite verb surfaces at the final end of the clause in German subordinated clauses. If V^0 moves as high as into a left-peripheral $AgrS^0$, then any object/PP must move even higher, otherwise it would not surface in front.

This isn't necessarily problematic, though it clashes with Vikner 2001's view that functional heads are universally on the left. At the same time, German has rich agreement morphology also in Vikner's assessment ("person morphology is found in all tenses"; Vikner 2001:12; 15 on German). Vikner ultimately argues against (91), and defends the second uni-directional implication in (92), defeating arguments on Tromsø and Kronoby which could falsify the generalization (cf. Vikner 2001:11f).

Vikner's analysis is strong in the sense that it covers all Germanic languages, explaining why a subset of them have verb movement and the others don't. It is furthermore complete by motivating entirely when a language moves V to T/Pers, and when it doesn't. That is, if a grammar doesn't distinguish person morphology in all tenses, then it never has verb movement into the inflectional layer (given the constraint ranking). On the other hand, if the grammar has rich agreement morphology instead, then, simplifying, it has verb movement if the 'checking'-constraint outranks the alignment constraints, and it doesn't if the ranking is the reverse (compare Vikner 2001:50).

As appealing as Vikner's system is, there is still a certain oddity to its ultimate assessment of the difference between surface SVO-languages and surface SOV-languages. Given that in Vikner's understanding, functional heads are universally on the left, then *all* languages with rich agreement morphology but with surface SOV-order must be languages without syntactic verb movement. Surface SVO-languages with rich agreement morphology, on the other hand, can be grammars with or without verb movement. If one's general intent is to reveal that syntactic movement is fundamentally co-driven by agreement morphology, then this outcome is at least quite surprising.

But, there is a more serious weakness. Given Vikner 2001, no grammar with poor (person) agreement morphology can ever have syntactic verb movement to Infl. Now, as we will see in chapter 6, the African Kru languages seem to falsify this entailment (cf. the description of Koopman 1984); and significantly, they do this in a less subtle way than the Germanic cases raised by Bobaljik 2002b. Vata and Gbadi do not express *any* agreement, and thus have 'poor'

Bobaljik 2002a:230ff explicitly argues for the presence of right-peripheral functional (and verbal) heads in Germanic OV-languages, as part of his explanation of Holmberg's Generalization.

agreement in practically any sense. Nevertheless, word order variation strongly implies that the languages have verb movement into the inflectional layer.

Beyond the task of solving the '*TSVO'-puzzle, it is also concerning the above that I have featured in this chapter another perspective into the inflectional layer, one in which the syntax has a partial impact on the morphology and not vice versa. Crucially, this impact is on the tense/aspect morphology, focusing away from agreement. Furthermore, the current system explains the absence vs. presence of systematic verb and subject movement by a conflict between alignment constraints, GENERALIZED SUBJECT and a constraint on case assigners. In the next chapter, we will now see that recognizing case as a factor involved will have an explanatory impact beyond movement in the verbal domain.

Chapter 4 –   Getting in line: Nouns and genitive possessor phrases

This chapter will reveal that, without any major additions, the system established in the two previous chapters captures a systematic connection between the verbal and the nominal domains. This connection concerns both the directionality and the distribution of lexical head movement, where both factors are determined by the same set of constraints, {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCH RIGHT, GEN SUBJECT, CASE LEX}. We will see that a simple application of the system to the domain of nominal extended projections leads to typological predictions about the word order of nouns and their (possessor) genitive phrases which appear to match, and as such explain, the empirical findings.

The chapter is structured as followed: Section 4.1 introduces the chapter's theme, which is a puzzle concerning the word order typology of a nominal head and a genitive-case-bearing (possessor) phrase. The section draws an exact parallel between nominative case assignment in verbal extended projections and genitive case assignment in nominal ones. This enables the application of the extended system to the 'genitive-in-NP'-structure. In the subsequent sections, we will discuss in greater detail how the system predicts the contrastive typological distribution. 4.2 explains the dominance of pre-nominal genitive in SOV-languages. 4.3 distinguishes the pre-nominal genitive that is possible in uniform SVO-languages without verb movement into TP. The section furthermore illustrates why such grammars can also be languages with a post-nominal genitive. 4.4 continues by taking a parallel look at uniform SVO-languages that do have verb movement into TP. Section 4.5 discusses the emergence of a post-nominal genitive in '[head - complement]'- grammars with head-final *v*P (i.e. German, Persian). Finally, 4.6 explains why VSO- and VOS-languages always have a post-nominal genitive.

The chapter only considers genitive phrases that constitute possessors. The expectation is that the account as presented carries over to other genitive phrases as well, since the impact of CASE LEX concerns case-marking in general, and thus should be valid for all genitive case-marking in noun phrases. Nevertheless, there might be other factors that come into play such as thematic linking, in derived nouns, which go beyond the possible scope of this thesis.

4.1 N/*gen*-P-order and V/O directionality

What determines the relative order of a noun and a dependent genitive phrase? Quite surprisingly, when we consider some uniform SVO-languages, such as the ones in (1) to (4), we see that they do not share the same directional choice in NP as in VP:

(1)   Swedish (cf. Holmes & Hinchliffe 1997:43):

    a.   gårdens   **ägare**$_N$ b.   * ägare$_N$ gårdens

        [farm]$_{Gen}$ owner   owner   [farm]$_{Gen}$

        "the farm's owner"

(2)   English:

    a.   the man's   **book**$_N$ b.   *book$_N$ the man's

        [the man]$_{Gen}$ book

(3)   Edo (Syntax Seminar, Rutgers University, Baker 1998):

    a.   **èbé**$_N$ né!né òkpìá   b.   *né!né òkpìá èbé$_N$

        book   [the   man]$_{Gen}$ [the   man]$_{Gen}$ book

        "the man's book"

(4)   Icelandic (data cf. Thráinsson 1994:167):

    a.   **dúkkur**$_N$ litlu stelpnanna   b.   *litlu stelpnanna dúkkur$_N$

        dolls   [little girls-the]$_{Gen}$ [little girls-the]$_{Gen}$ dolls

        "the little girls' dolls"

In the Mainland Scandinavian languages such as Swedish, and in English, the possessor phrase bearing genitive case (here and below:= *gen*-P) precedes the nominal head. But in the African language Edo, and also in Icelandic, the *gen*-P follows the noun. Seeing the data in isolation, we could wonder if either of these are truly exceptional cases. However, the typological work on the topic shows that the overall distribution is even more intriguing.

      Dryer 1992:91 compares on a broad scale how **VO**-languages order a noun and a dependent genitive phrase, and how **OV**-languages do it. He observes a substantial contrast

between the two groups. On the one hand, out of 124 genera of OV-languages, only 12 have 'N - *gen*-P'-order; the remaining 112 having '*gen*-P - N'-order. On the other hand, we can find 30 genera of VO-languages with '*gen*-P - N'-order and 63 genera with 'N - *gen*-P'-order. Why do OV-languages most frequently choose the pre-nominal genitive (- 90%), whereas VO-languages *tend* to prefer the post-nominal but more than 30% have a pre-nominal genitive?

Under a generative grammar-perspective, if we were to consider this as being about 'subjects', subjects permit themselves to be analyzed as *specifiers* (see Chomsky 1986:192ff, Stowell 1991:106). That is, taking into account the strong universal tendency towards *left*-peripheral specifiers, we could argue the following. We cross-linguistically identify a *gen*-P as a type of a subject, not by thematic association (perhaps) but with respect to case: we draw a parallel between case assignment to a subject in the verbal domain (*nom*, *erg/abs*) and genitive assignment to a possessor in the nominal domain. Thus, we pair the *gen*-P with the verbal subject rather than the object. Consequently, it should be no surprise that a *gen*-P precedes the noun in an *S*VO-language.

The reasoning is supported by one additional aspect: a closer look at the VO-group reveals that neither VO*S*- nor V*S*O-languages appear to have pre-nominal genitive, but rather they have overwhelmingly 'N - *gen*-P'-order (see Dryer 1992:91, fn.10, cf. Dryer 1991)[1]. So, it seems that where the subject follows the verbal head in the verb phrase, the *gen*-P follows the nominal head in the noun phrase.

Nevertheless, whether we compare the genitive phrase with the verbal subject or the object, the puzzle with respect to the SVO-languages remains either way. As illustrated in the data sample in (1 - 4), not all SVO-languages prefer '*gen*-P - N'-order. On the contrary, both the pre-nominal and post-nominal genitive are common in SVO-languages (Dryer 1992:fn.10).

Suppose that we are still interested in a unified treatment of genitive bearing possessor phrases and in the assumption that they are always in a specifier position, since this opens up a window to account for the emergence of pre-nominal genitive in SVO-languages. We need, then, an explanation for all those SVO-grammars within the 63 genera that have 'N - *gen*-P'-order.

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[1]Compare also Hawkins' 1983 Expanded Sample of 336 (+1000) languages, where we find only one language in the VOS/VSO-group (Hawkins' V-first) with pre-nominal *Gen*; this is the VSO language Milpa-Alta-Nahuatl, which belongs genetically to an SVO-group.

What we need is an approach which gives us an explanation of:

(i)   Why does the genitive phrase follow the noun in many SVO-languages, even if the *gen*-P is in a specifier?

(ii)   Why do VSO- and VOS-grammars so systematically have a post-nominal genitive? Why isn't there any emergence of a *gen*-P in a left-peripheral specifier, which ends up preceding the noun?

(iii)   How is it at all possible that a few OV-languages have a post-nominal genitive, and can we formulate any structural pre-conditions for the occurrence of this pattern?

4.1.1   The solution to the '*gen*-P/N'-puzzle

The only additional assumptions needed in order to answer all of the above questions is to admit that (a), genitive case assignment in the nominal domain is indeed restricted to a (long-distance) [*spec*, head]-relation; and (b), the case assigner of genitive in nominal extended projections is a functional head, an extension of N^0. Note that (a) and (b) are nothing more than the simple recognition of the following structural parallel in case assignment:[2]

(5)   Parallel between nominative and genitive case assignment:

Gen is to N what *nom* is to V. Both are functional cases, in the sense that the case assigner is a functional extension F^0 of the lexical head (N/V)'s extended projection.

What does the structural equation grant us? It enables CASE LEX to apply to both the verbal and the nominal domain in a uniform way. In general, both domains are not only manipulated by the alignment constraints HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE and BRANCHING RIGHT, but

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[2]Be aware that to say that grammars cross-linguistically assign *genitive* case to a dependent (possessor) noun phrase is certainly an abstraction. While this is common terminology in the literature which looks at languages with morphological cases, not all of these grammars in fact elect genitive as the case assigned in the nominal domain. As just one example, take the Eskimo languages (cf. Bok-Bennema 1991:30f), in which the genitive case assigned to possessor phrases in noun phrases is morphologically identical to the ergative case occurring on subjects of transitive verbs.

Keeping the abstraction in mind, if not made explicit otherwise, I continue to call the case a grammar assigns to a possessor phrase genitive case.

also by the needs imposed through CASE LEX. Now, if genitive case is assigned to a possessor by a functional head (call it $F_{[+gen]}$), then CASE LEX will demand structural closeness between this functional case assigner and a helping lexical head, here N^0. This is because $F_{[+gen]}$ alone is unable to lexically *ep*-govern its case assignee and with it to obey CASE LEX – just as T is unable to satisfy CASE LEX without *v*'s (or V's) help. Furthermore, in both the verbal and the nominal domain, achieving the requirement of closeness is complicated by the fact that the case in question must be assigned to a specifier. Just as we have observed that Spec, *v*P blocks syntactic adjacency between T and *v* in a [head - complement]-setting, so does Spec, NP for $F_{[+gen]}$ and N under the same head directionality. In both domains, this can be resolved by different configurations, involving either lexical movement or not, and being independently preferred or rejected by the alignment constraints.

On the other hand, *unlike* in the verbal domain, specifier positions, and for that matter 'subjects', have little relevance in nominal extended projections apart from case assignment. This is because GENERALIZED SUBJECT is mute here. Consequently, there is nothing that favors the creation of specifiers per se, and as such, triggers the 'obligatoriness of subject positions' in the same way as in the verbal domain.

Altogether, it is the similarity and imbalance of constraint impact (*all* constraints *but* GENERALIZED SUBJECT are active in the nominal domain), which, in an intriguing way, leads to a factorial typology which becomes the key to answer the questions raised in (i)-(iii). Let me summarize up front how this works out.

The fact that SOV-languages overwhelmingly have pre-nominal genitive, and both VSO- and VOS-languages generally have post-nominal genitive, while SVO-languages more or less evenly divide between the two basic orders, is directly related to the languages' behavior in the verbal domain. These differences are connected to the following contrast:

First, we have seen in chapter 3 that uniform SVO-languages either require verb movement into TP or reject it. Determination of the optimal choice involves the relative ranking of CASE LEX and HEAD RIGHT. Crucially, this ranking determines within the noun phrase the position of the genitive phrase, and whether lexical noun movement takes place or not. We will see that the system distinguishes only three possibly optimal head-initial configurations, which result in two different word orders; all other structures are harmonically bounded. Two of them

can win in a uniform SVO-grammar: The first (cf. (6b) below) places the genitive phrase into the specifier of the functional case assigner, leaving N^0 in situ and resulting in pre-nominal genitive. The configuration grants the least HEAD RIGHT violations (in a [head - comp]-setting), but at the cost of violating CASE LEX, since the genitive phrase is not lexically *ep*-governed. The second choice, given in (6a), locates the genitive phrase in Spec, NP, but then moves N^0 across into a second higher NP-shell. This guarantees the existence of a lexical head, syntactically adjacent to $F_{[+gen]}^0$, which governs the case assignee. Thus, it spares CASE LEX, but only through an increase in HEAD RIGHT violations:

(6)   The two configurations of genitive case assignment possibly chosen by an SVO-language:[3]

a. 'N - *gen*-P': violating 3< HEAD RIGHT   b. '*gen*-P - N':
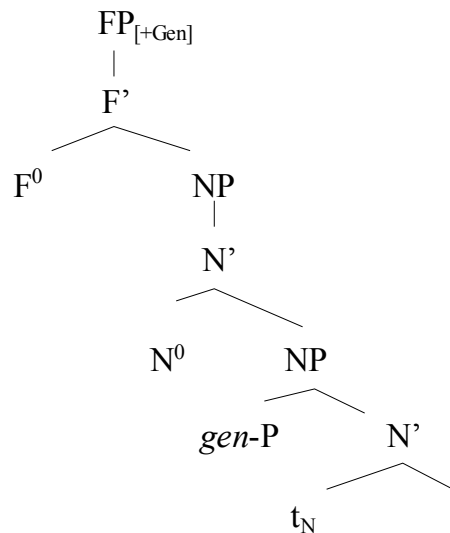
                                                      violating 2< HEAD RIGHT, 1< CASE LEX

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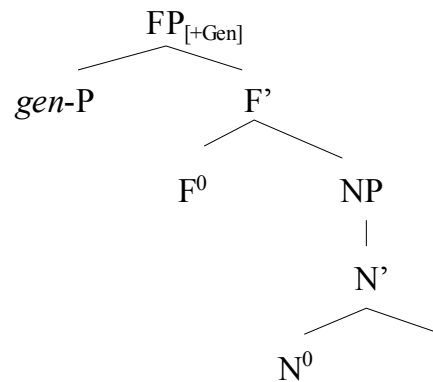
[3]Given that (6a) and (6b) are the only possible optima in SVO-grammars, therefore N never moves to $F_{[+Gen]}$, at least not to optimize the configuration of genitive case assignment.

(6a) violates HEAD RIGHT three times, whereas (6b) does so only twice but then violates in addition CASE LEX. As such, the selection between the two structures is determined by the relative ranking of HEAD RIGHT and CASE LEX.

Now, not only does the system capture that either (6a) or (6b), and with it post- or pre-nominal genitive, can be the optimal choice of a uniform SVO-grammar, it also derives another generalization, which is the following (uni-directional) implication:

(7)   Typological generalization I:
        If a uniform SVO-language has systematic verb movement into TP, then it has noun movement across any genitive phrase in Spec, NP:
        - '+ V-movement into TP' М 'N - *gen*-P'
        - 'Verb movement entails noun movement'

That is, the factorial typology allows for a uniform SVO-language that lacks verb movement to have either '*gen*-P - N'- or 'N - *gen*-P'-order, since both HEAD RIGHT >> CASE LEX and CASE LEX >> HEAD RIGHT are among the ranking options that cause such types. However, a uniform SVO-grammar which systematically moves the verb into TP, always has post-nominal genitive, because the type's derivation necessitates the CASE LEX >> HEAD RIGHT ranking. Therefore, languages like Icelandic ('+ V-to-I-movement', cf. Vikner 1995, 2001) and French are expected to have 'N - *gen*-P'-order.

Why is the option of pre-nominal genitive unavailable in VOS- and VSO-languages? The system's answer is the following:

In the case of VSO, all possible ranking constellations once more involve CASE LEX >> HEAD RIGHT, such that (6a) must be the winner, and with it 'N - *gen*-P'-order. VOS recognizes a second alternative: BRANCHING RIGHT is so low ranked that the optimal solution is to place the *gen*-P in a right-peripheral NP-specifier. This is then in parallel to a right-peripheral lexical specifier in the verbal domain. The surface result is again 'N - *gen*-P'-order:

(8)   'N - *gen*-P' by a right-peripheral lexical specifier in a VOS-grammar:

violating 2< HEAD RIGHT, 1< BRANCHING RIGHT

$FP_{[+Gen]}$
|
F'
F^0 NP
      N'   *gen*-P
   N^0
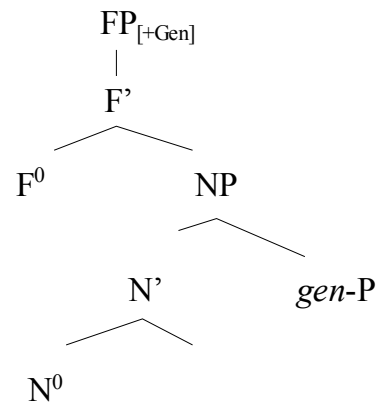
Now, what about OV-languages and their substantial resistance to having a post-nominal genitive? First, in HEAD RIGHT >> HEAD LEFT -grammars, and for that matter, in uniform SOV-languages, the system derives only one possible optimal configuration, which locates the genitive phrase in Spec, NP, and then satisfies CASE LEX without any noun movement. If both $F_{[+gen]}^0$ and N^0 are final, then N^0 can lexically govern the *gen*-NP from a position that is syntactically adjacent to $F_{[+gen]}^0$ without further ado:

(9)   The one configuration of genitive assignment chosen by uniform SOV-languages:

violating 2< HEAD LEFT

$FP_{[+gen]}$
|
F'
NP   F^0
gen-P   N'
          N^0
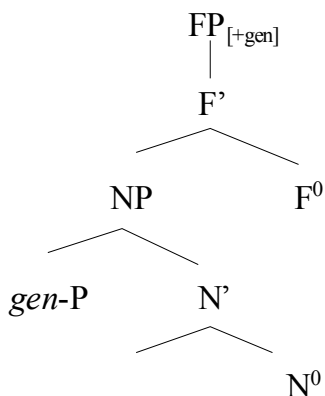
Given the exclusive optimality of (9), the surface result is always '*gen*-P - N'-order. How then, lastly, is it in rare cases possible for a *v*P-final grammar to have post-nominal genitive? Only in

the case that the language is in fact a non-uniform OV-language in the sense that it has left-peripheral functional heads in the verbal domain, does the system still allows for the occurrence of 'N - *gen*-P'. That is, in a grammar such as German or Persian, with HEAD LEFT >> HEAD RIGHT ranking, the optimal choice can be the configuration we have seen in (6a), and not (9). This leads to post-nominal genitive, despite the fact that we are dealing with an OV-structure. Therefore, the system derives a second generalization:

(10)   Typological generalization II:
        An OV-language can have 'N - *gen*-NP'-order only if
        it also has left-peripheral functional heads in both the verbal and the nominal domain.
        - 'Left-peripheral N entails left-peripheral F over V'

Thus, whereas (S)VO-languages can have pre-nominal genitive without any mixed head/complement-directionality, OV-languages with post-nominal genitive must have [head - comp]-patterns *throughout* the grammar – not only in their nominal but in their verbal extended projections as well.

Altogether, the system's factorial typology predicts the following empirical typology:

(11)   Expectations in the nominal domain – in relation to the verbal domain:
        i.   SVO-languages without systematic verb movement into TP can have either pre-nominal or post-nominal genitive.
        ii.   SVO-languages with verb movement into TP must have 'N - *gen*-P'-order.
        iii.   VSO- and VOS-languages must have 'N - *gen*-P'-order.
        iv.   SOV-languages must have pre-nominal genitive, unless they have left-peripheral functional heads in both the nominal and the verbal domain.

        v.   Pre-nominal genitive in SVO-languages is a *functional* specifier.
        vi.   Pre-nominal genitive in SOV-languages is a *lexical* specifier.
        vii.   Post-nominal genitive is always a *lexical* specifier.

In general, the system encounters a parallel between nominative case assignment to a verbal subject and genitive assignment to a nominal possessor phrase. Just as the nominative subject can be case marked either in Spec, vP or in Spec, TP, so can a genitive phrase be case marked either in Spec, NP or in Spec, DP.

The following sections illustrate the derivation of these results in greater detail, also asking how well they match the empirical findings. Though before we do this, let us discuss in brief the identity of the functional head that assigns genitive case.

4.1.2 D assigns genitive case

My hypothesis is that $F_{[+gen]}$ is D. That is, the system extrapolates upon Abney 1987 and his analysis of English noun phrases. Abney 1987's analysis rests on the assumption that (a), NPs are in fact complements of determiners (see also Fukui & Speas 1986, Stowell 1989, followed by many others; see Grimshaw 1991 on the assumption adopted here that D is a functional extension of N); and that (b), the English genitive possessor phrase is located in Spec, DP, a presence which influences the possible content of D^0. More precisely, I will follow Franks 1995:13 (among others), and assume the following adaptation: In English, D^0 can be filled by a determiner, a demonstrative or a possessive pronoun (the latter cf. Giorgi & Longobardi 1991:155, 161). In a pre-nominal genitive construction, D^0 contains the clitic -*s*, which assigns genitive case to the possessor phrase in Spec, DP:[4]

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[4]Abney 1987:20 himself does not assume that the -*s* clitic is in D. Rather, he takes D^0 to be filled by Agr-features. Furthermore, I follow Abney 1987, Grimshaw 1990:70ff in the assumption that English *of*-phrases are PPs. See a further comment on this choice in section 4.3.

(12)   English (cf. Franks 1995:13):

   [$_{DP}$ [the king [of England]]'s$_D$ [$_{NP}$ hat]]

'[possessor] - -**s** - noun'

```
                          DP
                 _____/  _____
               DP                    D'
                |               _____/ \_____
               D'             D⁰            NP
            ___/ \___          |             |
          D⁰        NP         |             |
           |     /‾‾|‾‾\       |             |
          the  King of England 's           hat
```
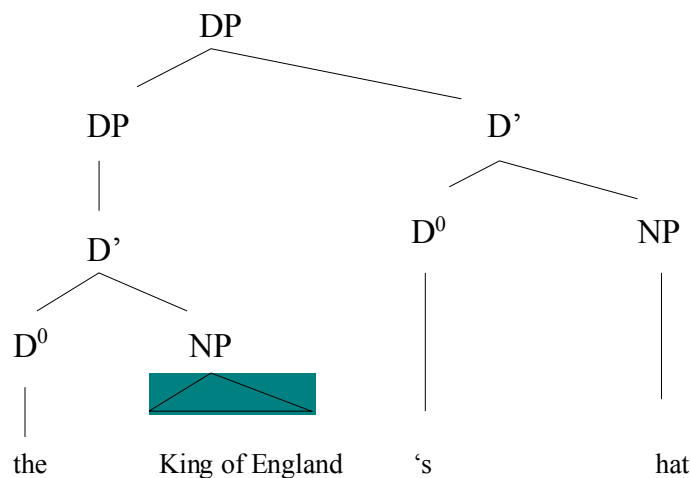
The analysis of -*s* as occupying D^0 captures on the one hand that -*s* clitizes onto the entire genitive phrase. In (12), the genitive phrase contains itself a PP-complement; the -*s* clitic follows this PP. It also explains to us why the genitive phrase is incompatible with a determiner or a possessive pronoun. Both are banned by -*s*, just as a determiner bans a possessive pronoun and vice versa:

(13)   English:

   a.   [the butler]'s$_D$ pillow

   b.   the$_D$ pillow   c.   his$_D$ pillow

   d.   *[the butler]'s$_D$ the$_D$ pillow; *the$_D$ [the butler]'s$_D$ pillow
   e.   *[the butler]'s$_D$ his$_D$ pillow; *his$_D$ [the butler]'s$_D$ pillow
   f.   *the$_D$ his$_D$ pillow; *his$_D$ the$_D$ pillow

Now, I extrapolate the idea that D is cross-linguistically the head that assigns genitive case to a possessor phrase; where the system in turn predicts that the possessor case assignee can surface

either in Spec, DP or in Spec, NP, as it predicts that T's case assignee, the nominative subject, can surface either in Spec, TP or in Spec, vP. But why precisely D? Considering the huge body of generative work on noun phrases, more functional heads besides D have been proposed (see, for example, Bernstein 2001, Longobardi 2001 for an overview). What motivates the current identification?

My answer is primarily a conceptual one which takes up the theoretical questions we have asked about the inflectional layer in the previous chapter, and the 'IP'/TP-perspective we have defended. That is, if there is an 'independent' functional head assigning genitive case, then shouldn't we generally see its morphological realization in one form or another, one form crucially being an independent particle? Taking this concern seriously, the point is that it is not at all easy to gather conclusive evidence for the simultaneous and more general existence of more than one functional head, each one possibly filled with an independent particle, say D and further ones located between D^0 and N^0. Be aware that I categorically exclude K as a candidate for $F_{[+gen]}$. K^0, which has been proposed as a functional head erected above D^0 (cf. Bittner & Hale 1996:7, Travis & Lamontagne 1986), is itself a case marker. That is, it instantiates the case which is assigned *to* the noun phrase from outside. It is natural to expect that a case marker cannot itself assign case to another phrase, which means that K is intrinsically incapable of assigning genitive case.

Searching for heads between D^0 and N^0, there is, on the one hand, the work initiated by Ritter 1991a, b who proposes (in an analysis on Hebrew noun phrases) a head Num. Ritter, however, primarily identifies Num^0 as a target of noun movement, and she provides evidence that the noun moves across a genitive phrase into a position *below* D^0. But, then, considering the system introduced here, this noun movement could in fact be targeting a second *lexical* NP-shell, due to the goal of moving the lexical noun-head into a genitive governing position that is syntactically adjacent to D, the latter being the primary case assigner of genitive (cf. (6a) with $F_{[+gen]} = D$).

On the other hand, there is an abundant literature on Romance noun phrases, which on the grounds of adjective distribution, argues for several noun movement targets, all between D and N's base position (Cinque 1990a, 1993, 1999, Crisma 1993, Bernstein 1991, Valois 1991, among many others). However, as noted by Longobardi 2001:597, the primary success of that

research is to have established the existence of a potentially universal hierarchy of adjectives, which is respected cross-linguistically and among which the noun seems to take hierarchically different positions in different languages. This does *not* necessarily mean that the distinct localizations of the noun correspond to distinct (functional) heads between N and D, all simultaneously present universally. Another suitable interpretation is that, while grammars generally respect the hierarchy in their mapping onto the syntactic structure, they nevertheless choose different cut-off points with respect to the exact partition relative to the noun. For Longobardi, the string of post-nominal adjectives provides more conclusive evidence for at most *one* noun target between D and N's base position.[5]

Once more, this target position does not have to be a functional extension. A pre-adjectival position could likewise be caused by noun movement inside the lexical layer, in reaction to a language specific choice of base generating particular adjectives in Spec, NP such that the impact of LEX HEAD EDGE and/or CASE LEX enforces noun movement across the specifier into a position that is at the edge of lexical NP and syntactically adjacent to D.

Let me briefly clarify my standpoint on adjectives and the aspect of language-specific choice in their syntactic integration. Intriguingly, once we consider the broader typology, it appears that languages choose rather diverse ways of projecting an adjective into the nominal extended projection. This is because adjective directionality varies to a high degree: According to Dryer 1992:95, the ordering of noun and adjective does not form a 'correlation pair' at all with V/O-order. For that matter, the current take on the base generation of adjectives is to acknowledge multiple options. On the one hand, if the adjective itself projects a phrase, and thus aligns inside the nominal extended projection as an AP, then grammars can divide on whether they will adjoin such an AP to NP, or to N-bar (or even locate it in Spec, NP). On the other hand, it is also possible for a grammar to not let the adjective project, in which case A^0 directly adjoins to N^0 (see Basque as one potential example in 4.2). I take it that grammars eventually choose quite idiosyncratically between these options, which then results in an absence of systematic

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[5]As Longobardi 2001:597 puts it: "[While] four intermediate heads are indicated as potential targets for N-raising [...] no individual language provides evidence for more than one such head, at least on the grounds of N-movement, so their number actually results only from a comparative perspective. [fn. 24:] In other words, language internal alternations concerning the surface appearance of N among the various positions [...] are likely not to exist."

distribution. Be aware, however, that this does not exclude the possibility that there exists a certain hierarchy between adjectives, which restricts how multiple adjectives have to be ordered with respect to each other. We can also still expect that, within a particular mapping dimension (say adjunction of AP to NP), the grammar's ranking of the alignment constraints enforces a consistent directionality (for example, adjoining AP to the left of NP, due to the impact of BRANCHING RIGHT).

Returning to the question of whether there is (cross-linguistically) a functional extension F between D and N, clearer evidence would be found in instances in which both D^0 and F^0 are simultaneously filled by independent heads. But the task of providing such cases is complicated by another empirical peculiarity: not everything that resembles an 'article' is necessarily a head, or a functional extension of N. That is, while determiners of the *the*-kind might be cross-linguistically instances of D-heads, the same does not always hold for demonstratives, nor quantifiers, nor possessive pronouns. All three classes can also be phrasal.

First, determiners should not be equated with demonstratives without further consideration. As pointed out by Dryer 1992:121, while in some languages, such as English, determiners and demonstratives seem to belong to the same category, it is about as common that they belong to different ones. In the latter case, demonstratives appear to be grouped with noun-modifying adjectives. Now, we just pointed out that grammars might vary greatly with respect to the syntactic integration of adjectives. This alone runs contrary to the idea of $F_{[+gen]}$. Furthermore, whichever structural integration a grammar implements, if the demonstrative is an adjective, it evidently does not instantiate a functional extension F^0 of N.[6] As a phrasal AP, the demonstrative could adjoin on a par with other APs, or alternatively, it could move into or be base generated in Spec, DP. For a generative 'movement-to-Spec, DP'-approach to Romanian and Modern Greek demonstratives, see, for example, Giusti 1997:107ff. (Giusti however assumes the corresponding base position to be an Agr-specifier.).

Importantly, the same categorical adjective/phrasal status can hold for quantifiers and possessive pronouns as well. See once more Giusti 1997:115 for the identification of Italian numerals as APs. Furthermore, see Giorgi & Longobardi 1991:155 for the grouping of Italian

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[6]See though, for example, Abney 1987:208 on the assumption that it is A^0 which takes NP as its complement,

possessive pronouns such as *mio* 'my/mine' with adjectives, which explains that they take position in the adjective hierarchy and can occur both pre- and post-nominally:

(14)   Italian (cf. Giorgi & Longobardi 1991:161):

    a.   il mio libro   b.   il libro mio

        the my book   the book my

        "my book"   "my book"

The recognition that demonstratives, quantifiers and possessive pronouns can be phrasal also makes comprehensible the observation that they can occur in pre-nominal position even in a grammar which is uniformly head-final. If the corresponding elements are adjoined phrases (or specifiers), then the grammar's uniformity rather expects them in a left-peripheral position, not only in a [head - complement]-, but also in a [complement - head]-language. Turkish, for example, which is consistently head-final throughout the grammar (see chapter 6, 6.2, for clause data), nevertheless has pre-nominal quantifiers. This is shown in (15a). (15b) gives us an example of Turkish post-positions, and (15c) illustrates the Turkish pre-nominal genitive. (Note that Turkish imposes agreement on the noun within the genitive relation.):[7]

(15)   Turkish ((a, b) cf. Kural 1997:504, 503; (c) cf. Kornfilt 1997:185):

    a. üç   kiÑ$_N$ b. Ahmet tarafindan$_P$ c. Hasan-&a kitab$_N$-&a

        three   person   Ahmet   by   Hasan-*gen* book-3Sg

        "three people"   "by Ahmet"   "Hasan's book"

On the other hand, take cases like English, French or German. Here, determiners, demonstratives and possessive pronouns can be identified as heads erected above N^0. But the point is that the heads in these languages appear to all fall under the same category D (for the assumption that possessive pronouns are base generated in D^0 in both French and English, see, for example,

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where AP is an optional projection between DP and NP.

    [7]Turkish has no definite determiner, though the numeral *bir* 'one' can also function as an indefinite article (cf. Kornfilt 1997:106). In the latter case *bir* still precedes the noun, though unlike a numeral, it follows other adjectives and as such seems to be adjoined below them (where *bir* otherwise, on a par with other numerals, adjoins above).

Giorgi & Longobardi 1991:155, 161). This evaluation at the very least straightforwardly explains why determiners, demonstratives and possessive pronouns are in complementary distribution: they compete for one position D^0, and because of this, cannot occur simultaneously. Recall the English example in (13f) above, and see a German one in (16):[8]

(16) German:

    a.   der Mann   a'.   dieser Mann   a''.   mein Mann

        the man   this   man   my man

    b.   *der dieser Mann; *dieser der Mann

         the this   man ;   this   the man

    c.   *dieser mein Mann; *mein dieser Mann

         this   my   man ;   my   this   man

    d.   *mein der Mann; *der mein Mann

         my   the man ;   the   my   man

In the end, the above obstacles all bring us back to the likelihood that $F_{[+gen]}$ is D. Thence, D is understood as a category label which encodes, on a broader level, the information on presence vs. absence of semantic reference, specificity and identity. As such, D^0 can be filled not only by definite determiners but also by indefinite ones, demonstratives, quantifiers and possessive heads (if the grammar in question groups them all under D).

    Altogether, if $F_{[+gen]}$ is D, then the syntactic head obtains a genuine identity with functions that are independent of sole genitive assignment, *and* with a morphological realization that can generally be formative-like, and is not necessarily abstract. This last aspect is essential since, as mentioned above in section 4.1.1, as long as it concerns just genitive assignment, the possible winners in the nominal domain never move N^0 into $FP_{[+gen]}$.

    This scenario still allows for the following possibility. Given the stipulated conflating character of D, then, zooming in on the components in D, $F_{[+gen]}$ might equate not with D as a

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[8]That German possessive pronouns fall under D is supported by the fact that they take the same gender and case endings as the indefinite determiner *ein*.

whole, but with one of the components therein. As such, if further research decisively revealed that a specific language splits D into more than one functional extension, then case assignment could become the job of the particular extension that contains the component in question.[9]

Attributing genitive case assignment to D is still not uncontroversial for the following reason. As pointed out by Dryer 1992:121, many languages lack determiners (articles) entirely. The assumption that $F_{[+gen]}$ is universally D forces us to postulate that an abstract D^0 is projected, at least in the presence of a genitive phrase, even in a language which otherwise lack independent evidence for a DP. Certainly, if it was, for example, Poss in D which is responsible for genitive case assignment, then the D-head in question would not need to encode any (in)definiteness-specification. Nevertheless, it should contain the possessive component in abstract form.

We do in fact find languages which seem to lack a determiner system, and at the same time, nouns in possessive constructions show both agreement and additionally, possessive specific morphology. This could suggest that DP is exclusively projected in genitive configurations. One example is Classic Nahuatl (cf. Baker (pc.)), in which the presence of a

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[9]One particularly special example might be the exceptional case of Hungarian. As pointed out by Szabolcsi 1994, in Hungarian, a possessor phrase can receive either dative or nominative case, depending on its position. The possessor carries dative case if it precedes the definite determiner, and nominative when it follows the definite determiner. In both cases, the noun is followed by a possessive suffix and shows agreement morphology:

(i)   Hungarian ((a) Bernstein 2001:539, (b) Giusti 1997:96):

   a.   az én-]   vendég-e-m   '**Det** - [possessor]$_{nom}$ - noun'

           the I-*nom* guest- Poss-1Sg

           "my guest"

   b.   Mari-nak a   kalap-ja   '[possessor]$_{dat}$ - **Det** - noun'

           Mari-*dat* the hat-Poss.3Sg

           "Mary's hat"

According to Szabolcsi 1994, only the dative possessor occupies Spec, DP. Nominative case appears to be received in a specifier below DP, which, for Szabolcsi, is an Agr-projection, given the agreement on the noun. Note though also the possessive-suffix, which is merged with the noun in both (a) and (b).

Either way, Hungarian could be a case, in which two functional extensions of N are assigners of two different cases: For example, $Poss^0$ as a first extension assigns nominative, D^0 as a second functional head assigns dative.

genitive phrase not only imposes agreement on the nominal head but also the occurrence of a possessor-suffix -*uh* (= [w]; [w] phonetically deletes after final consonants). The suffix is absent in noun phrases without possessor:

(17)   Classic Nahuatl:

a. te   -tl   b. no- te   **-uh**   c. i- te **-uh**   cihua-tl

  stone -*absolute* marker[10]   1Sg- stone -*poss*   3Sg- stone-*poss* woman

  "a/the stone"   "my stone"   "the woman's stone"

Notwithstanding these facts, the same cannot be said about languages like Japanese or Latin, which like Nahuatl lack a determiner system, but do not show any 'possessor'-morphology of the above kind. Therefore, while we below explore the working hypothesis that genitive is assigned by D in nominal extended projections, we should still stay alert for the following possibility:

(18)   a.   Working hypothesis: $X^0_{[+gen]}$ is always D.

       b.   Possible modification of the working hypothesis:
               $F_{[+gen]}$ is D, but languages that lack determiners altogether cannot project D^0, and therefore, genitive case must be assigned by N itself.

If (18b) holds, then D is the primary case assigner of genitive only in grammars that have DP, and only in those languages D^0 must be projected whenever a genitive phrase is present.[11]

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[10]The "absolute"-marker, which is -*tl* after open syllables, -*tli* after closed syllables, and -*li* after -*l*, attaches to any Nahuatl common noun, and is dropped in possessive constructions (or replaced by the 'possessive'-suffix). Note that the absolute marker seems to be a *functional* element, given that it disappears in noun-incorporation contexts (cf. Baker, pc.). This might suggest that a functional extension is projected even in 'plain' noun phrases.

[11]If the language does *not* morphologically encode the determiner-like functional information in *any* context, this is distinct from the reasoning defended for TP in chapter 3, where we noticed that the critical cases discussed in the literature still morphologically express tense and/or aspect and/or mood in one or the other form. Also note that, despite being interesting, this is not the place to address the question on which factor(s) are, in such a scenario, responsible for a language to choose whether it projects DP or not. Lastly, it is also left for further research to explain the relevant question of why, if a grammar has DP, D becomes the necessary case assigner of genitive (but see some speculation thereon in 5.3).

Modifying the working hypothesis as in (18b) would alter the typological results of the system given in (11) only in one point. Generalizing over the subset of all languages that lack DP, it would still be predicted that the VOS- and VSO-types can only have a post-nominal genitive, and that SOV-types can only have a pre-nominal genitive unless they have left-peripheral functional heads in the verbal domain. The optimal structures would be the same as we have seen in 4.1.1, minus $FP_{[+gen]}$ (= DP). It would be furthermore derived that uniform SVO-types without DP can have either a pre-nominal or post-nominal genitive, where, '*gen*-P - N'-order corresponds to a structure with the genitive phrase in Spec, NP rather than in Spec, $FP_{[+gen]}$/DP (the post-nominal genitive still as depicted in (6a), minus $FP_{[+gen]}$/DP). The only difference would be that systematic verb movement into TP would no longer entail post-nominal genitive. In the next sections, we will explain at several points how this stability of the overall typology comes about.

It is important to maintain, under both the working hypothesis (18a) and its modification in (b) that genitive case assignment is restricted to a (possibly long-distance) [*spec*, head]-relation. This means that even if the genitive phrase is base-generated in the complement of N, it must move to Spec, NP (or Spec, DP) in order to receive its case.

Let us now turn to the illustration and further discussion of the typological results, as they were summarized in (11) above. I start by having a closer look at why uniform SOV-languages allow only pre-nominal genitive, followed by the question of why uniform SVO-languages without systematic verb movement into TP can have either a post-nominal or pre-nominal genitive, and how the pre-nominal genitive differs structurally in both groups.

4.2   Pre-nominal genitive in SOV

Why do HEAD RIGHT >> HEAD LEFT -grammars all share one choice of assigning genitive case, resulting in '*gen*-P - N'-order? And why, for that matter, does the genitive phrase always surface in lexical Spec, NP? Let us have another look at the optimal configuration seen in (9). It is repeated in (19), with $F_{[+gen]}$ identified as D, and illustrated in an example from the SOV-language Basque (on Basque clause structure, see chapter 6, 6.2):

(19)   Basque (cf. Egutzkitza 1993:167):

[DP [NP [Itziar -ren]   liburu_N] -a_D]

      Itziar *gen* book   the

"Itziar's book"

```
            DP
            |
            D'
           /  \
         NP     D⁰
        /  \
  gen-NP    N'
             \
              N⁰
```
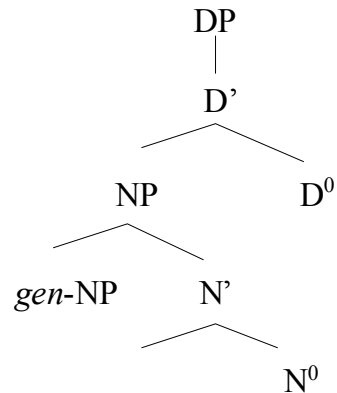
Note that in Basque, -(*r*)*en* as in (19), must be a case marker, which is, as such, part of the genitive phrase, as Basque generally realizes case through suffixes that merge with the last element of the noun phrase (cf., for example, Eguzkitza 1993):[12]

(20)   Basque (cf. Saltarelli 1988:77):

liburu berri hari-ek

book   new   that-Pl.*absolutive*

"those new books"

The most straightforward structural interpretation appears to be that Basque projects a head-final KP above a head-final DP (cf. Goenaga 1984, Eguzkitza 1993:165), where K, as a suffix, merges with the last element of its complement by 'phrasal affixation' of the kind proposed by Yoon 1994 (see chapter 3). Then, the internal structure of a genitive phrase is for example:

(21)   Basque (cf. Eguzkitza 1993:167):

[KP [DP [NP liburu_N] -a_D] -ren_K] erosket-a

       book   the *gen* purchase-the

"the purchase of the book"

---

[12]The only plausible alternative would be that -*en* is a post-position. But see, for example, Eguzkitza 1993 who comes to the conclusion that the 'genitive' marker is really a case marker, on a par with the so-called 'grammatical' cases of the grammar, absolutive, ergative and dative (see Eguzkitza 1993:164ff, 185).

Another significant point to make about Basque is that the adjective follows the noun, as we can also see in (20). This post-nominal adjective position is not uncommon in (uniform) SOV-languages. Nevertheless, it might surprise us on a theoretical level, as long as we take Basque adjectives to be projected into the noun phrase as phrasal APs. Consider BRANCHING RIGHT, or, more generally, whichever principle enforces left-peripheral alignment of phrasal adjuncts. If *berri* corresponds to an AP and adjoins on the right of NP, this would violate BRANCHING RIGHT. In this scenario, it is quite obscure what could be the constraint that could overrule BRANCHING RIGHT. However, there is no puzzle if we, as suggested above, acknowledge that some grammars do not let the adjective project but rather adjoin A^0 directly to N^0:[13]

(22)   Basque (data cf. Saltarelli 1988:77):

    $[_{KP}$ $[_{DP}$ $[_{NP}$ liburu$_N$ berri$_A$] hari$_D$]-ek$_K$]

            book   new   that -Pl.*abs*

    "those new books"

```
            DP
           /  \
              D'
             /  \
           NP     D^0
          /  \
            N'
           /  \
             N^0
            /  \
          N^0   A^0
```
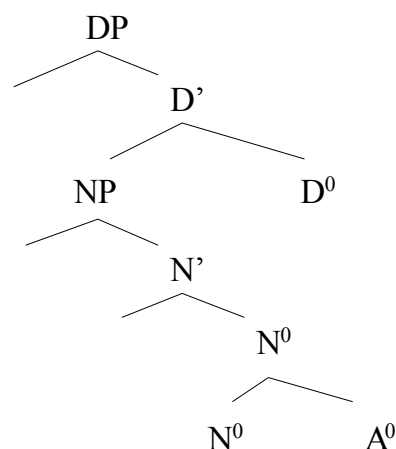
Now, right-adjunction of the adjectival head, as opposed to left-adjunction, follows by Basque's ranking HEAD RIGHT >> HEAD LEFT. (It as such carries over to other SOV-languages with 'noun - adjective' -order, where due to A^0 -adjunction to N^0.) Recall the general point, that head-to-head-adjunction increases head alignment violations. That is, the complex nominal head in

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[13]Thinking in terms of directionality, one might also be tempted to alternatively acknowledge Abney 1987:208's proposal, and to consider the possibility that in some grammars, A^0 is a (first) extension of N^0. In a uniform SOV-language and a HEAD RIGHT >> HEAD LEFT -ranking, the adjective would come out on the right of the nominal head.

Nevertheless, such a conception would not be innocent at all, considering that this would mean that a lexical head (N) extends into a distinct lexical head (A). This, at least, stirs up one serious question, namely what the categorical status of the entire extended projection should be.

(22), 'N^0-A^0', violates HEAD LEFT twice, once because the category N coincides with the right edge of the mother node N-bar, and once because A^0 coincides with the right edge of the mother node N^0. But if A^0 adjoined on the left of N^0, such that A's left edge coincided with the left edge of the mother node N^0, this would incur one violation of HEAD RIGHT instead of HEAD LEFT. So, with this latter structure we end up with one HEAD RIGHT and one HEAD LEFT violation, which is worse under the ranking HEAD RIGHT >> HEAD LEFT. Therefore, if A^0 is adjoined to N^0 in Basque, then by HEAD RIGHT >> HEAD LEFT, A^0 is expected to adjoin on the right side, which results in 'noun - adjective'-order.

Let us, then, go back to the structure in (19), [$_{DP}$ __ [$_{NP}$ gen-P [... N^0]] D^0], and the question of why it is the best way of assigning genitive case in a HEAD RIGHT >> HEAD LEFT-grammar. First, the configuration obeys CASE LEX. This is because D, assigning genitive to Spec, NP, has a lexical helper in N which governs Spec, NP from a position that is syntactically adjacent to D^0. We also know that neither HEAD RIGHT[14], nor BRANCHING RIGHT nor LEX HEAD EDGE is violated; the latter due to the fact that N surfaces at an edge of its perfect lexical projection NP. Furthermore, GENERALIZED SUBJECT is vacuously satisfied, despite the fact that Spec, DP is non-existent. In the nominal domain, with GEN SUBJECT mute, there is no need to have Spec, DP, at least not for GEN SUBJECT.

Now, think about the alternative structures. If the genitive phrase surfaces in Spec, DP without N moving into DP as well, then the corresponding configuration violates CASE LEX, regardless of whether the gen-P leaves a copy in Spec, NP or not. On the other hand, if N^0 adjoins to D^0 (in the syntax), in order to provide an D-adjacent lexical governor of Spec, DP, then this causes additional violations, starting with LEX HEAD EDGE. This alone is enough to show us that a structure which has both the gen-NP and N inside DP cannot win against (19) in a HEAD RIGHT >> HEAD LEFT grammar, even if CASE LEX is obeyed. The point is that (19) not only satisfies CASE LEX but also LEX HD EDGE, BRANCHING RIGHT, HEAD RIGHT, and maximally HEAD LEFT.

Thus, the reason why (19) is the only optimal choice in a HEAD RIGHT >> HEAD LEFT language is really that, unlike in verbal extended projections, GENERALIZED SUBJECT is mute for

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[14]The attentive reader might note: HD RIGHT is violated if N^0 has no complement. I'll come to this point below.

nominal projections, and with it the demand for 'subject' positions beyond the one specifier in which case can be assigned. Therefore, there is much less of an overall conflict to resolve, and consequently, there is less variation in the factorial typology.

Altogether, it does not matter whether a uniform SOV-language actually moves the subject into Spec, TP, and whether this is accompanied by verb movement into TP or not. The different types of SOV still share (19) as their optimal choice in the nominal domain. Regardless of the exact ranking of CASE LEX, GEN SUBJECT, BRANCHING RIGHT and LEX HEAD EDGE, all that they need to share is HEAD RIGHT >> HEAD LEFT.

This reasoning is illustrated in table (23), followed by a tableau in (24). First, (23) shows us how the candidate (a), $[_{DP}$ __ $[_{NP}$ *gen*-P $[... N^0]] D^0]$, which corresponds to (19), harmonically bounds the alternative, fully head-final structures ((23) is not a tableau; the constraints remain unranked):

(23) $[_{DP}$ __ $[_{NP}$ *gen*-P $[.... N^0]] D^0]$ harmonically bounds any other head-*final* DP:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD RIGHT	HEAD LEFT
☞ a.$[_{DP}$ __ $[_{NP}$ Gen-P $[.... N^0]] D^0]$						**
; b. $[_{DP}$ Gen-P $[_{NP}$ __ $[.... N^0]] D^0]$		*!				**
; c. $[_{DP}$ Gen-P $[_{NP}$ t_G $[.... N^0]] D^0]$		*!				**
; d. $[_{DP}$ Gen-P $[_{NP}$ t_G $[... t_N]] N^0$-$D^0]$	*!		*			***[15]
; e.$[_{DP}$ __ $[_{NP}$ __ $[_{NP'}$ Gen-P $[... t_N]] N^0] D^0]$						***!

Tableau (24), then, demonstrates that '$[_{DP}$ __ $[_{NP}$ *gen*-P $[.... N^0]] D^0]$' beats the other possible winners, as soon as HEAD RIGHT is ranked above HEAD LEFT:

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[15]See chapter 6 on why lexical head movement into a head-final FP violates BRANCHING RIGHT.

(24) $[_{DP}$ __ $[_{NP}$ *gen*-P $[... N^0]]$ D^0] beats the possible head-initial winners if HD RIGHT >> HD LEFT :

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HEAD RIGHT	HEAD LEFT
⌐ a.$[_{DP}$ __ $[_{NP}$ Gen-P $[.... N^0]]$ D^0]						**
b. $[_{DP}$ Gen-P D^0 $[_{NP}$ __ $[N^0 ....]]]$		*!			**	
c. $[_{DP}$ __ D^0 $[_{NP}$ __ N^0 $[_{NP}$ Gen-P $[t_N ...]]]]$					*!**	
d. $[_{DP}$ __ D^0 $[_{NP'}$ $[N^0 ....]$ Gen-P$]]$				*!	**	

Notice that the exclusive optimality of a head-final NP, which thus results in pre-nominal genitive, would not change even if the language in question was actually lacking DP. That is, if the modification (18b) of the working hypothesis is true, then, a language with HEAD RIGHT >> HEAD LEFT ranking and without DP still has no reason to deviate from an optimal '$[_{NP}$ *gen*-P $[.... N^0]]$'-choice. The same reasoning as in the verbal domain applies, and with it the point developed in chapter 2: LEX HEAD EDGE, which is the first factor to cause deviations from an otherwise preferred spec/head/comp-ordering in the lexical layer, is satisfied in any head-final LexP, including NP, even if a specifier is present. Furthermore, a '$[_{NP}$ *gen*-P $[.... N^0]]$'-configuration clearly satisfies CASE LEX as well, even if N is the case assigner: the *gen*-P is still lexically *ep*-governed. Hence, as long as HEAD RIGHT >> HEAD LEFT, '$[_{DP}$ __ $[_{NP}$ *gen*-P $[.. N^0]]$ D^0]', or '$[_{NP}$ *gen*-P $[.. N^0]]$' is optimal, and the result will be a pre-nominal genitive.

But let us think about the complement position of N^0. If in all contexts in which the only dependent phrase present is the genitive phrase, that genitive phrase has to surface at least as high as Spec, NP in order to be in a legitimate position to receive case (by hypothesis, genitive case can only be assigned to a specifier), then what if anything is in the complement of N^0?

Recall that when we introduced HEAD LEFT and HEAD RIGHT in chapter 2 (2.2), we noticed that this constraint pair imposes upon any grammar a general preference to link a single argument into the complement instead of the specifier. This is because a head that lacks a complement incurs one violation of HEAD LEFT and one of HEAD RIGHT, whereas a head/complement-structure violates either HEAD LEFT or HEAD RIGHT but not the two of them simultaneously. Therefore, if nothing else forces the genitive phrase to be directly base generated

in a specifier, then, for the sake of HEAD LEFT/RIGHT, the system will favor base generating the genitive phrase in complement position, from where the *gen*-P moves into Spec, NP (or, depending on ranking, to Spec, DP) for case:

(25) Basque:

      [DP [NP [gizon -a -ren]i [*t*i etxeN]] -aD]

            man   the *gen*   house   the

     "the man's house"

The complement position of N is filled by a copy of the *gen*-P:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HEAD RIGHT	HEAD LEFT
⌐ a.[DP __ [NP Gen-P [*t*G N⁰]] D⁰]						**
; b. [DP __ [NP Gen-P [__ N⁰]] D⁰]					*!	**

If we think about what could force the genitive phrase not to be base-generated in the complement, the only reason that might come to mind is 2-linking. For example, if one expected a hierarchical distinction between an object-2-role- (such as THEME) and a subject-2-role linking (such as AGENT or POSSESSOR), then this could mean the following: 'By axiom, possessor genitive phrases cannot originate in the complement of N^0 (only THEMEs can), because subject-2-roles require linking into a higher position, a specifier'. In such a scenario, a genitive possessor phrase should be base-generated in all candidates at least as high as Spec, NP, meaning that all candidates would share one HEAD RIGHT- and one HEAD LEFT violation in NP. (Basically, the same necessity to violate both HEAD LEFT and HEAD RIGHT in NP is given in any context without any dependent phrase, say, in '[DP theD [NP guyN]]'.). Regarding the set of grammars in which $F_{[+gen]}$ is the genitive case assigner, imposing this axiom onto the system would not alter the factorial typology.[16]

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[16]It would slightly alter the predictions on the distribution of pre- vs. post-nominal genitive in SVO-grammars

Nonetheless, we should keep in mind that it is not that clear that a possessor phrase even receives a 2-role. See, for example, Higginbotham 1983:395 who notes that in a possessor-construction such as *a cat's toy*, there is no thematic selection involved. See also Grimshaw 1990:70ff who (building on Emonds 1985) claims that, while certain types of nouns have an argument structure in the same way as verbs do, nouns are nevertheless in general "defective 2-markers". Grimshaw accounts for a variety of phenomena in the behavior of nouns based on the assumption that nouns are precisely unable to 2-mark their arguments. In order to do so, they need a preposition such as English *of*, which rather than being an instantiation of case, functions as a 'transmitter' of 2-assignment. Only by 2-identification of N's and P's argument structure, does the noun manages to 2-mark (on 2-identification, see Higginbotham 1985, Li 1990). In this conception, any case-marked phrase in the nominal extended projection, including the possessor phrase, must be a phrase without a 2-role.

Furthermore, Baker 2003:165 proposes the 'Reference-Predication Constraint' (RPC). The RPC is an essential part of Baker's theory of the nature of the lexical categories V, N and A, the theory being adopted here. Now, by the RPC, N cannot assign any 2-role to Spec, NP: "No syntactic node can both 2-mark a specifier and have a referential index". While this does not say anything positive about 2-marking in the noun phrase, nevertheless, it still entails that if N can assign a 2-role, then the only target thereof can be its complement position. This in turn implies that a noun can assign at most one 2-role, and a noun phrase can contain at most one noun phrase carrying a 2-role. Strictly speaking, this also means there is no room for a hierarchical distinction in nominal 2-linking. Basically, the RPC is only compatible with three conceptual options: Either (a), all roles, including those that express POSSESSOR- and AGENT- relations, have to be received in the complement position of N, or (b), N can only assign THEME-roles (to its complement), or (c), N cannot assign any 2-roles at all. (b) and (c) entail that, at least, genitive phrases which correspond to possessors (or agents) are not 2-marked.[17]

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without DP (and without any functional extension as the assigner of genitive case).

[17]Note that such a case- but not 2-marked phrase would not violate the 'Visibility Condition' (cf. Chomsky 1995:119), which makes 2-marking contingent upon case marking but not vice versa. Also note that the recognition of a genitive phrase carrying no 2-role does *not* entail that this phrase couldn't express a participant of the noun's 'lexical conceptual structure' (*lcs*; see Grimshaw 1990:5). If the noun has an argument structure (see Grimshaw 1990:ch.3 for the

Altogether, there appears to be a fair possibility that genitive (possessor) phrases originate in the complement of N, in the absence of any other dependent phrase. Hence, without featuring any explicit claim, I tentatively assume so below, given that this is the system-internal prediction.

Going back to directionality, and the pre-nominal genitive in SOV-languages, the complement position is relevant for another reason. This is an aspect we would miss if we simply took the pre-nominal genitive in OV-languages as due to the fact that the [comp - head]-structure is parallel in both vP and NP. That is, if we did not locate the *gen*-P in Spec, NP, cf. '$[_{DP}$ __ $[_{NP}$ *gen*-P [comp N^0]] D^0]', with the complement filled by either a copy of that *gen*-P, or another phrase (or with an absent complement), and instead assumed that the *gen*-P to surface in the complement, then the following would be left unexplained. Considering SOV-languages which allow a second nominal dependent such as a PP in addition to the genitive phrase, this second dependent in the complement intervenes between the genitive phrase and the noun, in a clear parallel to the corresponding [spec [complement - head]]-order within vP. This is illustrated in (26) with Japanese, and in (27) with Basque:[18]

(26)　　Japanese (data cf. Fukui 1993:413):

　　　　$[_{DP}$ __ $[_{NP}$ John-no $[_{pp}$ New York -de$_P$]-no　koogi$_N$] D^0]

　　　　　　John$_{Gen}$　　　New　York　　in　　　　lecture

　　　"John's lecture in New York"

(27)　　Basque (data cf. Eguzkitza 1993:169;fn.6):

　　　　$[_{DP}$ __ $[_{NP}$ Villasanteren　$[_{PP}$ Axularri buruzko$_P$]　liburu$_N$] -a$_D$]

　　　　　　Villasante-*gen*　　　Axular-*dat*　about-ko　　book　　　the

　　　"Villasante's book about Axular"

---

claim that only complex event nominals do), then the genitive phrase could still *correspond* to a 'subject'-2-role without being itself an actual argument. See here again Grimshaw 1990:118ff, 134, and the proposal that nominalization suppresses the external argument of the underlying base verb, which in turn enables, in English, the licensing of a possessive NP as an 'a(rgument)-adjunct', where the a-adjunct precisely *corresponds* to the subject of the base verb without itself carrying any 2-role (for one example, see Grimshaw 1990:134: *the government's* imprisonment of refugees).

[18]Fukui 1993:412 notes that Japanese allows free scrambling within the noun phrase, on a par with the situation in a verbal extended projection. Furthermore, Fukui glosses the nominal marker -*no*, which suffixes onto any NP-internal phrase, with 'genitive'. On Japanese and Basque clause structure, see chapter 6 (6.2).

With the complement intervening between the *gen*-P and the nominal head, the pre-nominal genitive of SOV-languages differs significantly from the pattern possible in SVO-languages. To see this, let us proceed to the next section. This section discusses the potential emergence of a pre-nominal genitive in SVO-languages, a possibility which is contingent upon the lack of verb movement into TP.

4.3   SVO and another kind of pre-nominal genitive
If an SVO-grammar with '*gen*-P - N'-order allows for the co-occurrence of a second dependent phrase, such as a PP, this PP must follow the noun. Therefore, the following two examples, Danish in (28), and English in (29), can be captured by the tree structure given below:

(28)   Danish (cf. Allan, Holmes & Lundskær-Nielsen 2000:29):

[$_{DP}$ [en dreng-] -s$_D$ [$_{NP}$ hund$_N$ t_{Gen}]]

[a   boy]$_{Gen}$ dog
"a boy's dog"

(29)   English:

[$_{DP}$ [the king]' s$_D$ [$_{NP}$ book$_N$ [$_{PP}$ about turtles]]]

[the king]$_{Gen}$
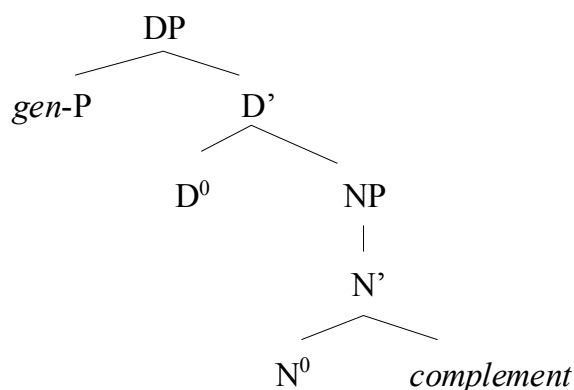
Given the current analysis, the only elements that can intervene between the genitive phrase and the noun are adjectives that are adjoined to NP, as in, for example,
[$_{DP}$ [the queen]' s$_D$ [$_{NP}$ [$_{AP}$ attractive] [$_{NP}$ husbands$_N$]], and the functional head (D) which we

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have identified as the primary assigner of genitive case. In an SVO-structure with a pre-nominal genitive, D intervenes, since the associated structure has a [spec [head - complement]] - directionality and the genitive phrase is located in Spec, DP.

Furthermore, note for Danish that, as in English, we find the *-s*-clitic, which cliticizes onto the last element in the genitive phrase, and blocks the ordinary determiner of the 'possessed' noun from occurring. This suggests that the Danish *-s* is also located in D^0, D being the extension of the 'possessed' noun:[19]

(30)   Danish (cf. Allan, Holmes & Lundskær-Nielsen 2000:29):

[DP [en af mine venner-] -sD   [NP farN t_{Gen}]]

[one of my   friends]Gen   father

"the father of one of my friends"

How, then, does the configuration in (29) win in an SVO-language, and why must the grammar lack verb movement into TP? And why, furthermore, does the lack of verb movement into TP not entail that an SVO-grammar must have a pre-nominal genitive (corresponding to (29)), but rather, that such grammar could also be a language with post-nominal genitive?

Just as we have seen this in the reasoning above on SOV, with GENERALIZED SUBJECT mute in the nominal domain, the overall harmony struggle does not include any general preference for specifiers apart from case assignment. At the same time, due to CASE LEX, there is still the need to locate the genitive phrase in a specifier which is lexically governed from a position that is syntactically adjacent to the supported D-head. There is also still a desire to have the lexical head at an edge of its own perfect projection, due to LEX HEAD EDGE, and BRANCHING RIGHT, HEAD LEFT and HEAD RIGHT are all applicable.

Then, just as we have discussed in the two previous chapters, obedience to LEX HEAD EDGE, as well as to CASE LEX, puts more pressure on a grammar which generally favors a [spec

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[19]The Danish definite determiner, '-(e)n' or '-(e)t' is added as a suffix to the end of the noun, such as, for example, *mand-en* 'man-the' (cf. Allan, Holmes & Lundskær-Nielsen 2000:30). In parallel to what we have discussed in chapter 3, this does not necessarily indicate N-to-D-movement, but could very well be due to phonological merger of syntactically adjacent D and N. Crucial to our current concerns is that nouns following a genitive never take a determiner-suffix (see *far* in (30); not *far-en* (check *n*)). We find, however, constructions of the form *vinter-en-s afslutning* 'winter-the-s end = the winter's end = the end of winter' (cf. Allan, Holmes & Lundskær-Nielsen 2000:28).

[head - complement]]-skeleton. It is this aspect which puts more potentially optimal candidates on the map of a HEAD LEFT >> HEAD RIGHT grammar. But with a GENERALIZED SUBJECT not relevant, there is one less component in the overall conflict, and thus, we have even fewer possible winners than in the verbal domain. Let us first see how we end up with three potentially optimal [head - complement]- configurations, while the other structural parallels to possible TP-winners are harmonically bounded. Among these potential winners is only one pre-nominal genitive:

(31)　Less variation for 'subject'-positions in the nominal domain:　　(relevant candidates)

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD RIGHT	HEAD LEFT
) a. [DP Gen-P D⁰ [NP __ N⁰ compl]]		*			**	
) b. [DP __ D⁰ [NP __ N⁰ [NP Gen-P t_N compl]]]					***	
) c. [DP __ D⁰ [NP N⁰ compl Gen-P]]			*		**	
; d. [DP Gen-P D⁰ [NP t_G N⁰ compl]]	*!	*			**	
; e. [DP Gen-P N⁰-D⁰ [NP t_G t_N compl]]	*!				***	
; f. [DP __ D⁰ [NP Gen-P N⁰ compl]]	*!	*			**	

First, whereas in the verbal domain the current system allows two kinds of uniform SVO-patterns without lexical head movement into the inflectional layer, in the nominal domain, the two possibilities collapse into one: Candidate (a) harmonically bounds candidate (d), meaning that if the genitive phrase receives its case in Spec, DP, it either moves there without passing through Spec, NP, or, if it is not base generated in complement position, it is directly base-generated in Spec, DP. The reason is LEX HEAD EDGE, which gains greater power, once the independent motivator of specifier-generation, GENERALIZED SUBJECT, is vacuously satisfied in any case.

　　Furthermore, with GENERALIZED SUBJECT inactive, the choice of obeying both LEX HEAD EDGE and CASE LEX by doing N-movement inside the lexical layer, across the genitive assignee

in Spec, NP, becomes more harmonic as well. Consider candidate (b),

[$_{DP}$ __ D^0 [$_{NP}$ __ N^0[$_{NP}$ Gen-P t_N compl]]], which is the structural parallel of the strict 'VSO'-pattern. In the nominal domain, candidate (b) violates nothing but HEAD RIGHT, and as such, (b) harmonically bounds candidate (e), [$_{DP}$ Gen-P N^0-D^0 [$_{NP}$ t_G t_N compl]], the latter being the structural parallel of moving both the subject and the verb into TP and resulting in 'SVO'. Since (e) violates HEAD RIGHT as many times as (b) does, but violates LEX HEAD EDGE in addition to that, (e) cannot be a possible winner. The overall effect of this harmonic bounding in terms of basic order is that post-nominal genitive ('N - *gen*-P (- PP)') becomes a possibly optimal choice of uniform SVO-grammars, and not only of true 'V-first'-languages. This holds despite the fact that we located the genitive phrase cross-linguistically in a specifier.

A final note on candidate (f): It is the structure which correlates with the 'TSVO'-pattern, the latter being already harmonically bounded in the verbal domain. Sandwiching a case assignee between its primary case assigner (here D) and the lexical helper (here N) cannot win in the nominal domain either. If we want to violate CASE LEX, we had better do it in a way that does not threaten LEX HEAD EDGE.

Altogether, then, if we look at the three possible winners (a), (b) and (c), the following emerges from (31): Under HEAD LEFT >> HEAD RIGHT, we get a somewhat greater variation than in a HEAD RIGHT >> HEAD LEFT -grammar; just as in the verbal domain, this is caused by the greater struggle to obey LEX HEAD EDGE and CASE LEX. At the same time, we have less overall variation than in the verbal domain, and this is also due to the impact of LEX HEAD EDGE. That is, comparing (a), (b) and (c), we see that the optimal choice between them is a ranking matter of HEAD RIGHT, CASE LEX and BRANCHING RIGHT (because (a), (b), (c) only violate these three constraints). Nevertheless, despite the fact that LEX HEAD EDGE is fully respected by all potential winners, the constraint still plays an essential role in the election of this 'elite' set. As just outlined above, LEX HEAD EDGE is the determining factor which cuts off patterns that could constitute possible winners otherwise. This enables us to understand how uniform SVO-languages can have a post-nominal genitive.

Let us now look closer at the choice among the possible winners in a HEAD LEFT >> HEAD RIGHT grammar. This choice depends on the ranking of HEAD RIGHT, CASE LEX and BRANCHING RIGHT. This gives us the following sub-typology for all HEAD LEFT >> HEAD RIGHT

types derived by the extended system:

(32)   HEAD LEFT >> HEAD RIGHT -grammars have either pre- or post-nominal genitive depending on:

a. BRANCH RIGHT >> HEAD RIGHT >> CASE LEX $[_{DP}$ Gen-P D^0 $[_{NP}$ __ N^0 compl]]; **pre-nominal *gen***

b. BRANCH RIGHT >> CASE LEX >> HEAD RIGHT $[_{DP}$ __ D^0 $[_{NP'}$ __ N^0 $[_{NP}$ Gen-P t_N compl]]]; post-nominal *gen*

c. CASE LEX >> BRANCH RIGHT >> HEAD RIGHT $[_{DP}$ __ D^0 $[_{NP'}$ __ N^0 $[_{NP}$ Gen-P t_N compl]]]; post-nominal *gen*

d. CASE LEX >> HEAD RIGHT >> BRANCH RIGHT $[_{DP}$ __ D^0 $[_{NP'}$ N^0 compl Gen-P]]; post-nominal *gen*

e. HEAD RIGHT >> BRANCH RIGHT >> CASE LEX $[_{DP}$ Gen-P D^0 $[_{NP}$ __ N^0 compl]]; **pre-nominal *gen***

f. HEAD RIGHT >> CASE LEX >> BRANCH RIGHT $[_{DP}$ __ D^0 $[_{NP'}$ N^0 compl Gen-P]]; post-nominal *gen*

The factorial typology above deserves one side remark. Note that out of the six logical ranking possibilities, four give us post-nominal genitive, and only two yield pre-nominal genitive. Why is that interesting? It can surely be misleading to directly compare the numerical distribution of ranking types, and the patterns they correspond to, with actual empirical typologies. Nevertheless, it is a quite surprising result that the current system, without purposeful engineering, directly matches the numerical empirical typology reported by Dryer 1992: Recall that out of 93 VO genera 30 have pre-nominal genitive, 63 have post-nominal genitive. Thus, both the empirical and the factorial typology note a greater frequency of post-nominal genitive. Indeed, both times, the ratio is two to one.[20]

Now, among the SVO-grammars derived by the current system, which types exactly have pre-nominal genitive? Crucially, only those that lack systematic verb movement into TP. That is, the ranking choices (32a) or (e), with CASE LEX ranked *below* HEAD RIGHT and BRANCHING

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[20]Note that this result finds a correlation, even if we consider all different TP-types with [head - complement]-order in *v*P/VP that the system derives.

The factorial typology comprises in this group altogether six types: four distinct types that have on the surface 'S - V - O' order (three of them without verb movement into TP, of which two can have either post- or pre-nominal genitive, one which can only have pre-nominal genitive; and the one with verb movement, which allows only post-nominal genitive). Furthermore, we find one type with the surface order 'V - S - O' (always with post-nominal genitive); and one type with 'V - O - S'-order (always with post-nominal genitive). Hence, altogether, we have three types that must have post-nominal genitive, one type that must have pre-nominal genitive, and two types that can have either pre- or post-nominal genitive. See appendix A for the total list of types.

RIGHT, are found only in those SVO-types which are willing to violate CASE LEX not only in the nominal domain but in the verbal domain as well. Thus, in the previous chapter, we analyzed languages like English or the Mainland Scandinavian ones as grammars whose basic clause structure maps onto a TP with the subject surfacing in Spec, TP but with the verb remaining in situ. According to the current system, exactly these languages can have a pre-nominal genitive, where the genitive phrase receives its case in Spec, DP, and the noun does not move out of its base position. As illustrated in the examples above, English and the Mainland Scandinavian languages indeed have a pre-nominal genitive. See in the following tableau, how the configuration $[_{DP}$ Gen-P D^0 $[_{NP}$ __ N^0 compl]] becomes the ultimate winner:

(33)   English:

  $[_{DP}$ [the king]' s$_D$ $[_{NP}$ book$_N$ $[_{PP}$ about turtles]]]

	BRANCHING RIGHT	HEAD RIGHT	CASE LEX
☞ a. $[_{FP}$ Gen-P F^0 $[_{NP}$ __ N^0 compl]]		**	*
b. $[_{DP}$ __ D^0 $[_{NP'}$ __ N^0 $[_{NP}$ Gen-P t_N compl]]]		***!	
c. $[_{DP}$ __ D^0 $[_{NP}$ N^0 compl Gen-P]]	*!	**	

Nevertheless, the system likewise derives that SVO-languages without systematic verb movement into TP do not necessarily have a pre-nominal genitive. Rather, among all possible rankings resulting in 'S - V - O' with V-in-situ, we also find the possibility of having CASE LEX and BRANCHING RIGHT ranked *above* HEAD RIGHT (see appendix A for proof).

Indeed, this is a welcome result. Recall the examples of Edo and Yoruba, which are SVO-languages without verb movement. Looking at their *gen*-P/N-distribution, however, Edo and Yoruba deviate from English: both have a post-nominal genitive. For Edo, we already saw one example, (3), in section 4.1 above. Yoruba is illustrated in (34), together with a corresponding competition (the example is provided by Oluseye Adesola):

(34)   Yoruba :

$$[_{DP} \_\_ D^0 \ [_{NP} \_\_ \text{àga}_N \ [_{NP} \text{ìyá} \ t_N \ t_{Gen}]]]$$

chair   mother$_{Gen}$

"the mother's chair"

	BRANCHING RIGHT	CASE LEX	HEAD RIGHT
a. $[_{FP} \text{Gen-P} \ F^0 \ [_{NP} \_\_ N^0 \ \text{compl}]]$		*!	**
☞ b. $[_{FP} \_\_ F^0 \ [_{NP} \_\_ N^0 \ [_{NP} \text{Gen-P} \ t_N \ \text{compl}]]]$			***
c. $[_{DP} \_\_ D^0 \ [_{NP} N^0 \ \text{compl Gen-P}]]$	*!		**

Thus, we see that the system correctly offers a choice for (uniform) SVO-languages that lack systematic verb movement into TP: they can have either pre-nominal or post-nominal genitive. As we will see in the next section, the same is not true for SVO-grammars that have systematic verb movement into TP.

But before we go on to this point, let me briefly comment on whether (or how) a HEAD LEFT >> HEAD RIGHT - grammar can allow *both* pre- and post-nominal genitive simultaneously.

Chomsky 1986:194 classified not only pre-nominal noun phrases as genitive case marked, but post-nominal *of*-phrases as well in English. If this was correct, then English would be a language with basic '*gen*-P - N' and basic 'N - *gen*-P'-directionality. Within the present theory, this assumption runs contrary to the fact that the system does not produce such a result, at least not where the system is applied in its strictest form.[21]

In general, if constraints are in conflict on a matter, as HEAD RIGHT, CASE LEX and BRANCHING RIGHT are with respect to the genitive distribution, then the relative ranking between them will decide for one option only. Classifying English as a grammar with pre-nominal genitive, then, leaves us with the question: what are *of*-phrases? Now, beyond the system's theoretical expectations, here is a simple reason against a categorization of the *of*-phrase as genitive case marked. If both 'DP (*'s*)' and '*of* DP' were genitive phrases, then this would mean that one and the same grammar can express the same case on the same noun phrase

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[21]On Modern (Standard) German, which appears to have pre-nominal genitive *if* the genitive phrase constitutes a

simultaneously in two different ways. This is, at best, an odd assumption, since, once we seriously extrapolate upon the idea, we have to ask ourselves why we elsewhere distinguish between two cases when they are morphologically distinct. For example, if genitive case can have two forms in English, then why don't we identify *he* and *him* as two variants of nominative (or, alternatively, accusative) case?[22]

This still leaves two possibilities: either *of*-phrases are 'true' prepositional phrases, or, if *of* is a case marker, heading a KP, then the corresponding case is not genitive, but a different one, assigned by N itself to its complement. Be aware though that the line between a 'true' preposition and a preposition that is an instantiation of case, hence K, is, as I take it, a very fine one, and conceptually quite difficult to draw. This does not, as such, vote in favor of a KP-analysis nor of a PP-approach, but it makes it seriously more difficult to reject one over the other. Mainly for that reason, and since this is peripheral to the current focus, I leave the question open. For a PP-approach, see, for example, Abney 1987, and Grimshaw 1990.[23]

Altogether, we have seen in this section, together with the previous one, how pre-nominal genitive in SOV-languages, analyzed as $[_{DP}$ __ $[_{NP}$ *gen*-P compl $N^0]$ D^0 $]$, differs from pre-nominal genitive in SVO-grammars, $[_{DP}$ Gen-P D^0 $[_{NP}$ __ N^0 compl$]]$, and how this seems the empirically correct approach. We have furthermore noted that the current system allows for SVO-languages that lack movement into TP to choose either pre- or post-nominal genitive, and

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proper name, but post-nominal genitive elsewhere, see section 4.5.

[22]Given that we do not consider the *-s* clitic in pre-nominal genitive an instantiation of case, but the assigner thereof (*-s* = D), we could speculate whether in both the pre- and the post-pattern, we are confronted with a genitive KP, it being the case that only K can be either abstract or contain *of*. But this is not a valuable solution, as long as we cannot say anything principled about the reason why K is abstract in the pre-nominal position.

Travis & Lamontagne 1986 suggest that K can be an empty category in an ECP-governed context (in which K can recover the necessary case features). As such, *of* is obligatory where KP is a sister of N as opposed to V (only V provides the [acc]-feature that K has to recover). By the same token, however, this should necessitate the insertion of *of* when the KP is in pre-nominal position. Yet, **of the queen's husband* is ungrammatical.

[23]I take constructions of the form 'a cat of *the queen's*' to involve ellipsis, as suggested by, for example, Aoun et. al 1987:537. 'DP's' can represent 'DP's N' not only within an *of*-phrase but in other contexts as well; see, for example:

(i)   My brother's exhibition went well, but *my uncle's* didn't do so well.

(ii)   I visited my friend's cousin, and I saw *my mother's*, too.

'DP's' in such elliptic contexts could either correspond to a DP without NP-complement, that is to $[_{DP}$ [my uncle] s_D $]$, or

that this again is empirically justified. Let us now turn to SVO-languages that have systematic verb movement into TP, and to the question of what this implies for their genitive distribution.

4.4   The systematic connection of verb and noun movement

Unlike 'V-in-situ' SVO-grammars, the SVO-type that moves the verb systematically into TP generally moves the noun phrase across the genitive phrase, resulting in post-nominal genitive. Why exactly does this hold?

Recall that we saw in chapter 3 how the derivation of the corresponding TP requires the violation of LEX HEAD EDGE and, crucially, the violation of HEAD RIGHT to a greater amount than any TP with the subject in Spec, TP and without verb movement. Since these latter TPs violate CASE LEX, one essential property of the 'SVO/+verb movement'-type is to accept additional violation of HEAD RIGHT, in order to avoid violation of CASE LEX; which means that CASE LEX must be ranked above HEAD RIGHT. Furthermore, we know that in all uniform [(spec) [head - complement]]- grammars (the configuration which results in a basic 'S - V - O'-surface), BRANCHING RIGHT must be ranked above both HEAD RIGHT and LEX HEAD EDGE. Otherwise, we get another TP-type.

Putting both pieces together, we see that any grammar which systematically moves both the verb and the subject into the inflectional layer must be a language with a post-nominal genitive. The tableau in (35) illustrates this point by comparing the two domains of TP and DP on the same constraint ranking:

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to a DP plus NP containing a zero N^0, that is $[_{DP}$ [my uncle] s_D $[_{NP}$ e_N]].

(35)   Correlation between verb movement into TP and noun movement across a genitive
phrase in Spec, NP: Relevant candidates; all HEAD LEFT obeying:

	BR-RIGHT	GEN SUBJ	CASE LEX	LEX HD EDGE	HEAD RIGHT
L a. [TP subject v^0-T^0 [vP t_S t_V object]]				*	***
b. [TP subject T^0 [vP __ v^0 object]]		*!	*		**
c. [TP subject T^0 [vP t_S v^0 object]]			*!	*	**
d. [TP __ T^0 [vP __ v^0 [vP subject t_V object]]]		*!*			***
e. [TP __ T^0 [vP v^0 object subject]]	*!	*			**
a'. [DP Gen-P N^0-D^0 [NP t_G t_N compl]]				*!	***
b'. [DP Gen-P D^0 [NP __ N^0 compl]]			*!		**
L d'. [DP __ D^0 [NP __ N^0 [NP Gen-P t_N compl]]]					***
e'. [DP D^0 [NP N^0 compl Gen-P]]	*!				**

The above logic gives us the implication introduced in section 4.1.1, repeated here in (36):

(36)   [TP subj v^0-T^0 [vP t_S t_V object]]   M   [DP __ D^0 [NP __ N^0[NP Gen-P t_N compl]]]
'+ verb movement into TP' M   'N - *gen*-P'

Note that the implication is uni-directional, meaning that we cannot conclude from a post-nominal genitive that the language in question has systematic verb movement as well. We have seen in the last section that SVO-grammars with 'V-in-situ' can have either pre- or post-nominal genitive.[24]

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[24]We could still formulate the implication in (36) through its contra-positive, in which case we get an implication that goes from the nominal domain to the verbal domain.. If a [head - complement]-grammar has pre-nominal genitive, then it must lack systematic movement into TP:

Obviously, the logical connection drawn by the system gives us a generalization which has to verify itself over time; it cannot be empirically proven, but only falsified. Its validity will depend on how well it holds up in the progress of generative research. At the same time, the system recognizes and predicts a significant correlation between verb movement and noun movement, which seems to be a very worthwhile point of discussion, and can be used as a stimulus for further research.

In this respect, the following contrast is significant. The Mainland Scandinavian languages (such as Danish and Swedish) are SVO-grammars which lack systematic verb movement into the inflectional layer (they only have Verb Second movement in main clauses)(cf. Vikner 1995, 2001). As we have illustrated above, Danish and Swedish furthermore have a pre-nominal genitive. This situation differs from Icelandic: According to Vikner (among many others), Icelandic divides from its Germanic VO-relatives by having systematic verb movement into the inflectional layer. Significantly, it *also* differs from them in having a post-nominal genitive:[25]

(37)   Icelandic (data cf. Thráinsson 1994:167):

$[_{DP}$ ___ D^0 $[_{NP}$ ___ dúkkur$_N$ $[_{NP}$ [litlu stelpnanna] t_N t_{Gen}]]]

                      dolls   [little   girls]$_{Gen}$

"the little girls' dolls"

We noted earlier that the current structural interpretation of post-nominal genitive has a precedent in Ritter 1991a, b, who claimed that the post-nominal genitive in Hebrew is due to

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(i) $[_{DP}$ Gen-NP D^0 $[_{NP}$ ___ N^0 compl]]   M $[_{TP}$ subj T^0 $[_{vP}$ (t_S) ... v^0...]]

        '+ *gen*-P - N' in [head - comp]   M   **'– verb movement into TP'**

[25]In Icelandic, along with the Mainland Scandinavian languages such as Danish, the definite determiner suffixes onto the noun, as, for example, *hús-ið* 'house-the'. Once more, this does not necessarily indicate N-to-D-movement, but could also be due to phonological merger of syntactically adjacent D^0 and N^0.

Also be aware that Icelandic's possessive pronouns are evidently phrasal, and as such adjoined (to NP). This is indicated by the fact that there is no complementary distribution between the possessive pronoun and the determiner: *hús-ið hans Haraldar* 'house-the his Harold's = Harold's house' is possible, but * *hús hans Haraldar* is not (cf. Thráinsson 1994:167).

leftward noun movement across the genitive phrase in Spec, NP. The hierarchical relations are identical here, the only difference is the recognition of a different target position: the noun does not land in a functional projection NumP, but in a lexical noun phrase shell. Otherwise, as in Ritter's approach, the genitive phrase in Spec, NP c-commands any potential PP-phrase base-generated in the complement of N's base position. Now, one of Ritter's arguments in favor of such a c-command relation between the genitive phrase and the following complement is the binding relation between the two: the genitive phrase can bind an anaphoric expression in the complement position but not vice versa (cf. Ritter 1991a:44).

It might be worthwhile, however, to be somewhat cautious about inferring directly from binding relations to c-command. It is not always clear whether the ability/non-ability of binding is not (co-) determined by other factors such as linear order, or eventually more critically, by factors which have nothing to do with syntactic hierarchy but are of purely semantic nature. Nevertheless, keeping in mind this caution, we can still notice that the facts observed by Ritter for Hebrew have a straightforward parallel in Icelandic post-nominal genitive. The genitive phrase, which itself has to precede any additional PP-complement, can bind into the latter, but not vice versa; see (38) (the genitive phrase holds here an agent relation to the noun):

(38)   Icelandic (data cf. Bondre-Beil 1994:107):

    a. $[_{DP}$ ___ D^0 $[_{NP}$ ___ lysingu$_N$ $[_{NP}$ Maríu$_i$ t_N $[_{PP}$ af sér$_i$ $]]]]$

                    descriptions   Maria-*gen*   of herself

       "Maria's descriptions of herself"

    b.   *lysingu sér$_i$ af Maria$_i$

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Next, let us consider French. In chapter 3, we identified French as an SVO-grammar with systematic verb movement into TP. French also has, along with all other Romance languages only a post-nominal genitive. That is, the function expressed in Icelandic by morphological case is taken up in the Romance languages by a *de/di*-phrase, which could either be a PP or a genitive case marked KP. Relevant for us is that the *de*-phrase follows the nominal head:

(39)   French:

les$_D$ valises$_N$ [de   la femme]
the   suitcases   K-*gen*/P the women
"the woman's suitcases"

Before continuing further, it must be pointed out that the topic of Romance noun phrases is a huge one, given the abundant work present in the field (for an overview, see Longobardi 2001). This as such renders it beyond the scope of this dissertation to really enter into the discussion. Most important for our purposes here, is the fact that French, along with the other Romance languages, allows more than one *de*-phrase in post-nominal position. In the following example, the first *de*-phrase expresses a possessor, the second an agent:[26]

(40)   French (a), Italian (b), Spanish (c) (Giorgi & Longobardi 1991:132, 133):

a.   les livres **de** Jean **de** mon auteur préféré

b.   i libri **di** Gianni **del** mio autore preferito

c.   los libros **de** Juan **de** mi autor preferido
         "John's books by my favorite writer"

This availability of iteration sheds some doubt on whether *de*-phrases are in fact genitive case marked phrases, that is KPs, instead of true prepositional phrases. Furthermore, there is the question of how the order between several *de*-phrases is determined and how a simultaneous presence is structurally represented.

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[26]It might be worthwhile to point out that all native Spanish and Portuguese speakers I consulted rejected examples of the (40)-kind, and agreed that, in general, only one *de*-phrase per noun phrase is legitimate.

That being said, what is critical in light of '+ verb movement into TP MN - *gen*-P' is that neither French nor the other Romance languages have '*gen*-P - N'-order.[27]

Therefore, if *de*-phrases are PPs and not genitive, then French doesn't provide direct support for the implication from verb movement to noun movement, but at the same time, it does not falsify it. Furthermore, while it is much less clear how the linear order between several *de*-phrases is restricted, there is still a more robust preference for a *de*-phrase to precede a distinct prepositional phrase (cf. Longobardi 2001:569). Here, we also find the *de*-phrase to be able to bind into the following PP. All this is, at the minimum, consistent with the system's predictions. The following shows the structures which are possible if we interpret the *de*-phrase as carrying genitive case:[28]

(41)   French:

    a. $[_{DP}$ __ le$_D$ $[_{NP}$ __mari$_{N-j}$ $[_{NP}$ [de la reine$_i$] t_N $[_{PP}$ dans son$_{i/j}$ palace]]]]

        the   husband   *gen* the queen   in   her/his palace

        "the queen's husband in her/his palace"

    b. $[_{DP}$ __ le$_D$ $[_{NP}$ __ livre$_N$ $[_{NP}$ [du president$_i$] t_N $[_{PP}$ a propos de lui-même$_i$]]]]

        the   book   *gen*-the president   about   himself

        "the president's book about himself"

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[27]See Giorgi & Longobardi 1991:155, 161 on the assumption that French possessive pronouns such as *mon* 'my' etc. (also Spanish *mi* etc.) are determiners, whereas Italian possessive pronouns such as *mio* (also the French/ Spanish *mien/mio*- 'mine'-series) are phrasal adjectives. The determiner-pronouns are analyzed as being base generated under D^0. Thus, they precede the noun, but not because they are genitive case marked. AP-possessive pronouns can precede if they are adjoined to NP; once more, this has nothing to do with genitive case marking.

[28]The examples are provided by Marie Barchant (French), Sarah Teardo (Italian), Martin Boguszko (Spanish) and Valeria Lamounier (Portuguese). Note that in Italian, 'backwards' binding is available as well, cf. Giorgi & Longobardi 1991:162 'la descrizione di se stesso$_i$ a Gianni$_i$' = "the description of himself to Gianni".

In all four languages, postposing the *de/di*-phrase behind a distinct PP is possible (modulo intonation and heaviness considerations), though it seems this is most readily available in Italian. A potentially interesting parallel in this respect is that in Italian (also Spanish) clauses, we find frequently right-dislocation of the subject (see Samek-Lodovici

(42) Italian :

a. [_DP __ i_D [_NP __ mariti_N [_NP [della regina_i] t_N [_PP nel suo_i palazzo]]]]

   the   husbands   *gen*-the queen   in   her   palace

   "the queen's husbands in her palace"

b. [_DP __ il_D [_NP __ libro_N [_NP [del presidente_i] t_N [_PP a   sè stesso_i]]]]

   the   book   *gen*-the president   about himself

   "the president's book about himself"

(43) Spanish:

a. [_DP __ los_D [_NP __ maridos_N [_NP [de la reina_i] t_N [_PP en su_i palacio]]]]

   the   husbands   *gen* the queen   in her palace

   "the queen's husbands in her palace"

b. [_DP __ el_D [_NP __ libro_N [_NP [del   presidente_i] t_N [_PP sobre el/si mismo_i]]]]

   the   book   *gen*-the president   about   himself

   "the president's book about himself"

(44) Portuguese:

a. [_DP __ os_D [_NP __ maridos_N [_NP [da   rainha_i] t_N [_PP no seu_i palacio]]]]

   the   husbands   *gen* -the queen   in   her palace

   "the queen's husbands in her palace"

If *de*-phrases are genitive, one approach to the availability of iteration that is worth considering might be the concept of 'multiple specifiers'(cf. Chomsky 1995:375). Alternatively, each *de*-phrase could occupy the specifier of a separate NP-shell. In both scenarios (with the hierarchy between the *de*-phrases organized by independent means, and D being able to assign genitive case more than once), the optimal candidate will be one that moves the nominal head across the highest NP-specifier, achieving syntactic adjacency of D and N, in order to satisfy CASE LEX at the cost of an additional HEAD RIGHT violation. The predicted basic order is 'N - *gen*-P - *gen*-P... - PP'. Another possibility is that only the first *de*-phrase in a sequence is a

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1996 for an OT analysis based on focus).

genitive-case-marked KP, while any additional one is a PP. *de* would then be ambiguous between a case marker and a true preposition, and the pattern 'N - *gen*-P - *de*-PP ...- PP'.

As a last point in this section, we want to understand why the predicted implication, '+ verb movement into TP MN - *gen*-NP', relies on the assumption that we are talking about grammars in which a functional head assigns genitive (rather than N itself), and why, if N is the assigner, then there is no implication but there is still the prediction that SVO-languages can have either pre- or post-nominal genitive. This draws upon the earlier point that languages which lack a determiner system might therefore lack DP, which in turn means that N has to assign genitive case itself, to Spec, NP.

This results would hold, because leftward lexical head movement inside the lexical layer is not only motivated by CASE LEX but also by LEX HEAD EDGE. Suppose that D is absent, so that no case assignment of D is involved. Then, there is no threat imposed on CASE LEX; in the sense that an NP-specifier could not intervene between D and its lexical helper N. There is, however, in [head - complement]- grammars, the threat of a specifier blocking the alignment of N^0 at an edge of NP. The logic does not differ from the reasoning we have developed in chapter 2, and which by now should be familiar. In a [head - complement]-setting, a left-peripheral specifier prevents the head from surfacing edge-most, and, thus, yields a violation of LEX HEAD EDGE. This holds, unless the grammar turns towards one of the three choices that the system offers to circumvent the cost: the 'right-peripheral head'-, the 'right-peripheral specifier'-, or the 'head movement'-choice.

Recall that we are looking at the nominal domain where GENERALIZED SUBJECT is mute. Therefore in an 'SVO'-grammar, – in any grammar which prefers [head - complement]-order by HEAD LEFT >> HEAD RIGHT –, the 'head movement'-choice has a greater chance of winning over an 'N-in-situ'-solution. [$_{NP}$ *gen*-P [N^0 complement]] violates LEX HEAD EDGE (keep in mind that the complement could be filled either by the copy of the *gen*-P or by another phrase). Hence, in an SVO-grammar (which is unwilling to violate BRANCHING RIGHT for LEX HEAD EDGE), [$_{NP}$ __ N^0 [$_{NP}$ *gen*-P [t_N comp]] will win over [$_{NP}$ *gen*-P [N^0 comp]] if LEX HEAD EDGE is ranked above HEAD RIGHT. In contrast, 'N-in-situ' will win over the 'head movement'-choice if the ranking is reversed:

(45)   Pre- or post-nominal genitive, dependent on the ranking of HEAD RIGHT and LEX HEAD EDGE:

	LEX HD EDGE	CASE LEX[29]	BRANCHR	GEN SUBJ	HEAD LEFT	HD RIGHT
a. [$_{NP}$ Gen-P [N^0 complement]]	*					*
b. [$_{NP}$ __ N^0 [$_{NP}$ Gen-P [t_N complement]]]						**

Both LEX HEAD EDGE >> HEAD RIGHT and HEAD RIGHT >> LEX HEAD EDGE are among the ranking choices that derive SVO-grammars without systematic verb movement into TP, but also among those that derive an SVO-grammar that has verb movement (recall chapter 3, and see appendix A). Therefore, there is no implication from verb movement to noun movement, but at the same time, either pre- or post-nominal genitive can be the basic nominal structure of an SVO-language without DP.[30]

       To sum up, based on the idea that genitive is a functional case in the nominal domain, and thus a correlate of nominative in the verbal domain, we have seen in this section how the system derives an entailment relation between verb movement into the inflectional layer and the necessity of noun movement leading to post-nominal genitive. We have thus acknowledged that, while it is impossible to empirically prove a universal entailment, there are both conceptual and empirical reasons to welcome the implication from verb to noun movement.

4.5   Conditions for 'post-nominal genitive & OV'
Let us now turn to the question of how the system accounts for the marginal occurrence of post-nominal genitive in underlying OV-languages. Later, in section 4.6, we will discuss why strict V-first languages always have a post-nominal genitive. But firstly, here is why we should discuss the two phenomena in one sequence. In chapter 2, we learned about a few systematic ways of being a grammar with 'mixed' directionality. All these ways prefer on a more general level [(spec) [head - complement]]-configurations, but nevertheless deviate from a corresponding

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[29]Both configurations obey CASE LEX, even if N is the case assigner. N lexically *ep*-governs its assignee, whether it stays in situ or whether it crosses Spec, NP.

[30]Obviously, the pre-nominal genitive should differ here to the one discussed in section 4.4, in the sense that no

[subject - verb - object]-pattern inside *v*P. Now, having introduced CASE LEX in chapter 3, and with it the TP-typology derived by the extended system, the overall prediction for the nominal domain is consistently as follow.

On the one hand, it is the [head - complement]- grammars, which switch to [comp - head] inside *v*P/VP, and hence are underlying OV (that is, type C-grammars), which can and do have a *post*-nominal genitive, as long as the ranking is CASE LEX >> HEAD RIGHT. Thus, post-nominal genitive is tied to the occurrence of [head - complement]- patterns elsewhere in the grammar.

On the other hand, in the nominal domain, [head - complement]-grammars that surface as VOS or VSO-languages will not deviate from the mixed directionality they choose in the verbal domain. That is, VSO- and VOS-grammars (type A and B), which seem to make a structurally unsystematic choice in verbal extended projections, are nevertheless systematic with respect to their post-lexical subject positions across VP and NP. This is because CASE LEX must be ranked above HEAD RIGHT or BRANCHING RIGHT in order to derive the corresponding types in the first place.

Altogether, the point is that both the unexpected occurrence of post-nominal genitive in OV, as well as the systematic occurrence thereof in strictly V-first is directly tied to the theory of what is a possible mixed word order? developed in this thesis.

Let us look first at post-nominal genitive in OV. In section 4.2, we have seen that the system does not give HEAD RIGHT >> HEAD LEFT- grammars any reason to have a post-nominal genitive. Languages which generally prefer [(spec) [complement - head]]- configurations favor a pre-nominal genitive. However, the situation is different for HEAD LEFT >> HEAD RIGHT- grammars with a head-final verb phrase. Such type C-grammars pattern in many of their structural choices with uniform SVO-grammars, which means that they can have either a pre-nominal genitive, corresponding to [$_{DP}$ Gen-NP D^0 [$_{NP}$ __ N^0 compl]], or they can have a post-nominal genitive, due to leftward noun movement across a genitive phrase in Spec, NP. How, then, does a particular choice come about?

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functional head should be able to intervene between the genitive phrase and N.

4.5.1 Mixed head directionality and the preference for a post-nominal genitive

We know that the 'right-peripheral head'-choice, which leads to a head-final *v*P, wins in a HEAD LEFT >> HEAD RIGHT-grammar only if LEX HEAD EDGE and GENERALIZED SUBJECT and BRANCHING RIGHT are ranked above HEAD LEFT. This implies two things:

On the one hand, if LEX HEAD EDGE is ranked above HEAD LEFT, and HEAD LEFT is above HEAD RIGHT, then by transitivity, LEX HEAD EDGE is above HEAD RIGHT. Now, just at the end of the previous section, we discussed the impact of a LEX HEAD EDGE >> HEAD RIGHT - ranking on the nominal domain in an SVO-grammar. We realized that, in the hypothetical case of a grammar lacking the DP-layer entirely (which means that N must assign genitive case), a LEX HEAD EDGE, HEAD LEFT >> HEAD RIGHT- ranking yields a language with post-nominal genitive. The same reasoning applies to any type C- grammar. Only here, in the absence of DP, a post-nominal genitive would be the only possibility, since, as we have said, LEX HEAD EDGE can never be ranked below HEAD RIGHT, or else we are not facing a type C grammar.[31]

On the other hand, when D is the assigner of genitive, the optimal choice (and with it the order of *gen*-P and N) will depend on the ranking of BRANCHING RIGHT, CASE LEX and HEAD RIGHT. Given that BRANCHING RIGHT is necessarily ranked above HEAD LEFT in type C, and thus, by transitivity, above HEAD RIGHT, there is no chance for a post-nominal genitive that corresponds to a genitive phrase in a right-peripheral Spec, NP. But there is a good chance for a post-nominal genitive due to leftward noun movement. All that is needed is for CASE LEX to be ranked above HEAD RIGHT. As discussed in chapter 3, this is the case in both Persian and German, which, to avoid violation of CASE LEX, do not use systematic verb movement into a head-final TP. The grammar's ranking 'LEX HEAD EDGE, CASE LEX, BRANCH RIGHT >> GEN SUBJECT >> HEAD LEFT >> HEAD RIGHT' therefore predicts the emergence of post-nominal genitive, despite a head-final *v*P. This is precisely what we observe. (46) and (47) show examples of Persian and German,

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[31]This also means that nominal extended projections are predicted to have [head - complement]-order in type C, with or without the extension of the system by CASE LEX:

In the nominal extended projection, with GEN SUBJECT mute, the 'right-peripheral head'-choice can never win against the 'head movement'-choice in a HEAD LEFT >> HEAD RIGHT-grammar. Even in the presence of a lexical specifier, crossing it by head movement and maintaining [head - complement] only violates HEAD RIGHT; pushing the head to the right violates HEAD LEFT.

demonstrating the basic 'N - *gen*-P'-order. The corresponding competition is shown in (48):[32]

(46) Persian (data cf. Ghomeshi 1996:11):

$[_{DP}$ ___ D^0 $[_{NP}$ ___ kif-e$_N$ $[_{NP}$ [in mard] t_N t_{Gen}]]]

bag+EZ   [this man]$_{Gen}$

"this man's bag"

(47) German:

$[_{DP}$ ___ die$_D$ $[_{NP}$ ___ Ehemänner$_N$ $[_{NP}$ [der Königin$_i$] t_N $[_{PP}$ in ihrem$_i$ Palast]]]]

the   husbands   [the queen]$_{Gen}$ in her palace

"the queen's husbands in her palace"

(48) Post-nominal genitive despite a head-final *v*P:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD LEFT	HD RIGHT
a. $[_{DP}$ Gen-P D^0 $[_{NP}$ ___ N^0 compl]]		*!				**
L b. $[_{DP}$ ___ D^0 $[_{NP'}$ ___ N^0 $[_{NP'}$ Gen-P t_N compl]]]						***
c. $[_{DP}$ ___ D^0 $[_{NP}$ N^0 compl Gen-P]]			*!			**
d. $[_{DP}$ ___ $[_{NP}$ Gen-P compl N^0] D^0]					*!*	
a'. $[_{TP}$ subject T^0 $[_{vP}$ ___ v^0 object]]		*!		*		**
b'. $[_{TP}$ ___ T^0 $[_{vP}$ ___ v^0 $[_{vP'}$ subject t_V object]]]				*!*		***
c'. $[_{TP}$ ___ T^0 $[_{vP}$ v^0 object subject]]			*!			**
L d'. $[_{TP}$ ___ $[_{vP}$ subject object v^0] T^0]					**	

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[32]Persian does not have determiners but only demonstratives (and an indefinite enclitic, which can attach to singular and plural nouns, meaning 'a certain, a particular; one of a class'; cf. Ghomeshi 1996:39). If the demonstratives are not of category D but rather A, then, the fact that they precede N could be due to AP-adjunction to NP (instead of base generation in D^0). If that also meant that DP is absent in Persian, then the 'N - *gen*-P'-order would be due only to the impact of LEX HEAD EDGE, as outlined above. Ghomeshi 1996 assumes the existence of DP in Persian; see also next footnote for an argument in favor of at least an abstract D^0.

On German, note that adjectives always intervene between D and N, as in *der attraktive Butler* 'the attractive butler'. I assume that adjectives generally project in German and, as APs, they adjoin to (the highest) NP.

As we see in the German example, the genitive phrase itself precedes any PP-complement. Once again, the relative binding relations are in accordance with what we expect (if binding ability is solely determined by c-command). This is illustrated in (49) (see also Haider 1993:23 who observes the phenomenon, and suggests exactly the same NP-shell structure as given in (49) and derived by the current system):

(49)   German:

   a. $[_{DP}$ __ das$_D$ $[_{NP}$ __ Buch$_N$ $[_{NP}$ [des Präsidenten]$_i$ t_N $[_{PP}$ über sich selbst$_i$]]]]
               the   book   [the president]$_{Gen}$ about himself
         "the president's book about himself"

   b.   *das Buch seiner selbst$_i$ [über den Präsidenten]$_i$

The post-nominal genitive in Persian requires one further remark: Notwithstanding that the surface patterns in Persian match the system's expectations, it should be noted that Ghomeshi 1996 argues against the hierarchical relations given in (46) and in favor of an analysis in which the genitive phrase is in a right-peripheral Spec, DP (cf. Ghomeshi 1996:50). While this is incompatible with the current system, we have to ask whether Ghomeshi's argument against an N-movement approach to Persian is decisive.[33]

Before we look at the argument, I follow Ghomeshi 1996:37 in her assumption that the so-called Persian 'Ezafe'-construction involves a process similar to compounding. In this construction, N^0 dominates several heads (N plus, potentially more than one, N, A, or P) as long as all heads agree via the head-final ezafe vowel (glossed as EZ; see example (50) below). Consequently, noun movement across a possessor in an Ezafe-configuration will involve movement of the 'compound-like' complex head as a whole. As a result, the entire Ezafe-string

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[33]Ghomeshi explicitly argued against the application of Ritter's (Hebrew) theory to Persian. Since Ritter's structure is a configurational parallel of the current proposal, Ghomeshi's binding argument discussed in the text challenges both approaches.

The same does not hold for her criticism that in 'se-tâ ketâb-e hasan' "three book Hasan = Hasan's three books", the definite reading is left unexplained, unless *hasan* has syntactic scope over the numeral. The definite reading can either be due to the direct localization of the numeral in D^0, or due to the scope of an abstract D^0 c-commanding the numeral in

ends up in front of the possessor:[34]

(50)   Persian (data cf. Ghomeshi 1996:35):

[$_{DP}$ __ D^0 [$_{NP}$ __ [dust-e qadboland-e]$_N$ [$_{NP}$ jiân t_N t_{Gen}]]]

                      friend+EZ tall+EZ   Jian$_{Gen}$

"Jian's tall friend "

Now, according to Ghomeshi, the problem of an N-movement approach is the following. Once we embed a reflexive pronoun into the Ezafe-complex, a possessor can bind the reflexive. Elsewhere in the grammar, such binding is tied to c-command. This, then, apparently indicates that the possessor is in a hierarchically higher position than the reflexive pronoun, running contrary to the structure in (51).

(51)   Persian (data cf. Ghomeshi 1996:45):

[$_{DP}$ __ D^0 [$_{NP}$ __ [barâdar-e **xod**$_i$-e]$_N$ [$_{NP}$ hasan-râ$_i$ t_N t_{Gen}]]]

                      brother+EZ self+EZ   Hasan$_{Gen}$

"Hasan's own brother "

Is it true that *hasan-râ* cannot bind the reflexive in an N-movement approach? Notice that the raising, which moves *xod* out of the surface scope of the possessor, is an instance of head movement and *not* of XP-A-movement. Furthermore, the copy of the head, that is, the lower base position *is* c-commanded by *hasan-râ* (the specifier and the complement both c-command the head of the lower NP). Consequently, the possessor can bind the reflexive via this base position, even if on the surface, *hasan-râ* is below *xod*.

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an NP-adjoined position.

[34]Ghomeshi 1996:34f distinguishes the Ezafe-construction, as a syntactic X^0-to -N^0-adjunction, from true compounds, the latter formed by derivational morphology. Taking up Karimi & Brame 1986, Lazard 1992, she, however, also notes that Ezafe-constructions can develop into true compounds, but then they lose the Ezafe-vowel.

If the construction indeed does not involve adjunction below the N^0-level, then a question for the current system is why the adjoining X^0 aligns at the right side and not at the left, the latter predicted by Persian's ranking HEAD LEFT >> HEAD RIGHT. I have to leave the question open at this point.

In short, what we have to take into account is the possibility of reconstruction before the binding relation is evaluated. It is true that, if reconstruction applies to A-bar-movement only, it is not immediately obvious whether head movement can be subsumed under A-bar-movement in this respect without further ado. But we should still notice that the situation critically differs from the binding configurations seen before: In the earlier examples, it is always the genitive phrase in Spec, NP which binds a reflexive in the complement position, without any movement of one phrase passing the other. Furthermore, looking at German, we can find similar binding possibilites as in Persian, despite the fact that, as we have seen in (49) above, a genitive phrase is able to bind into a following PP (but not vice versa):

(52)   German:

    a. $[_{DP}$ __ die$_D$ $[_{NP}$ __ [**Selbst**$_i$-zerstörung]$_N$ $[_{NP}$ [des Trinkers]$_i$ t_N t_{Gen}]]]

          the   self-destruction   [the alcoholic]$_{Gen}$

       "the alcoholic's self-destruction"

    b. $[_{DP}$ __ die$_D$ $[_{NP}$ __ Zerstörung$_N$ $[_{NP}$ [des Trinkers]$_i$ t_N durch sich selbst$_i$]]]

          the   destruction   [the alcoholic]$_{Gen}$ by   him   self

       "the alcoholic's destruction by himself"

Altogether, we see that in both Persian and German, we find post-nominal genitive, but we also find a head-final *v*P. In spite of this superficial directional contrast, the occurrence of 'N - *gen*-P'-order is not at all idiosyncratic. It rather correlates with the fundamentally head-initial character of both grammars seen in every phrase but VP/*v*P. What we arrive at here is the system's generalization on the marginal co-occurrence of post-nominal genitive and OV-order. The co-occurrence is contingent upon the preference for [(spec) [head – complement]] outside *v*P. This generalization was introduced in section 4.1.1 above and is here summarized in (53):

(53)   Post-nominal genitive & OV M   [head - complement] in FP, where FP is an

                                           extension of N *or* V.

Before we turn to VSO and VOS, let us discuss the possibility of pre-nominal genitive in a type C-grammar.

4.5.2 Mixed head directionality and pre-nominal genitive

According to Giorgi & Longobardi 1991:146ff, Longobardi 2001:568 (among others), Modern German allows, in addition to the general post-nominal genitive, a pre-nominal genitive configuration as well, which is restricted to proper names. Two examples are given in (54a) and (54b):

(54) German:

    a.   Martins   Freund   b.   Sabines Freund

          Martin*masc-gen* friend   Sabine*fem-gen* friend

          "Martin's friend"   "Sabine's friend"

    a'.   ^{??/*}der Freund Martins   b'.   ^{??/*}der Freund Sabines

    c.   das Kissen meines Bruders   d.   das Kissen meiner Freundin

          the pillow   [my brother(**masc**)]*gen*   the pillow   [my   friend(**fem**)]*gen*

          "my brother's pillow"   "my friend's pillow"

    c'.   ^{??/*}meines Bruders Kissen   d'.   ^{??/*}meiner Freundin Kissen

First, notice that the *-s* ending on the masculine proper name in (54a) also appears on other genitive masculine noun phrases (cf. *meines Bruders* in (54c)), though it is missing on genitive feminine noun phrases (see *meiner Freundin_* in (54d)). Nevertheless, the *-s* ending does occur on the pre-nominal feminine proper name in (54b). Olsen 1991, Delsing 1993 and Lattewitz 1994 (among others) concluded from this that *-s* in the pre-nominal genitive construction cannot be a case marker (Delsing locates *-s* in D^0). As I understand it, however, this evaluation still does not falsify the assumption that the pre-nominal proper names have genitive case. Rather, consider that the construction indeed involves an *-s* suffix in D^0 which merges with the proper name. It should not surprise us if such *-s* suffix fuses phonologically with a masculine genitive *-s* case ending (where the female genitive form doesn't have a morphologically-overt case ending

in the first place). Whether the pre-nominal proper names carry genitive case or some other (abstract) case, what we still need to ask is how they receive this case and why they occur in a position that precedes the nominal head.[35]

Now, the point is that the Modern German pre-nominal genitive is restricted to a clear subset of noun phrases, that is, proper names. All other noun phrases, such as *meines Bruders* in (54c), or *meiner Freundin* in (54d), must occur post-nominally and are only marginally (if at all) acceptable if they precede the noun. On the other hand, proper names are definitely preferred in pre-nominal position and tend to be rejected post-nominally.[36]

Thus, there seems to be a clear division between the application of the two constructions, and we do not get both pre- and post-nominal genitive for the same kind of noun phrase. Nevertheless, the system's up-front expectation is that a grammar chooses, depending on ranking, only one configuration for all contexts.

Importantly, (54c') and (54d'), beyond sounding pretty bad, have an *archaic* flavor to them. This might precisely be related to the fact that Old High German is a grammar with

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[35]The construction should not be confused with yet another dialectal variant of pre-nominal possessor phrases in which the possessor phrase carries *dative* case. Then, it generally precedes the noun (hence, it is not restricted to proper names), and D^0 is always filled by a possessive pronoun; for example:

(i)   [*dem Vater*]$_{dat}$ *sein Haus*

          the father   his   house

          "the father's house"

I assume that the 'possessor-dative'-dialect falls out of a ranking involving HEAD RIGHT >> CASE LEX, on a par with the case of Old High German (see discussion below). An open question is why the dialect chooses dative over genitive in the nominal domain.

Note also that in colloquial speech, some speakers of Standard German allow fronting of a PP to Spec, DP, as in (ii) (cf. Webelhuth 1992:118), a construction which does not involve case-marking at all:

(ii)   [$_{DP}$ [$_{PP}$ über Chomsky]$_i$ die$_D$ [$_{NP}$ Gerüchte$_N$ t_i]] hat er nicht geglaubt.

              about Chomsky   the   rumors   has he not believed

          "He didn't believe the rumors about Chomsky."

[36]Longobardi 2001:568 assumes that post-nominal genitive of proper names is unmarked as well. As a native speaker of German, I disagree with this judgment.

general   *pre*-nominal, not post-nominal, genitive (cf. Hawkins 1983:335)[37]:

(55)   Old High German (Nibelungenlied:1390):   in Modern German:

        a.   eines chvniges lant   b.   das Land eines Königs

                [a king]*gen*   land   the land   [a   king]*gen*

                "a king's land"   "a king's land"

With this fact in mind, let us recall the discussion in chapter 3 (3.5), where we reasoned whether (Modern) German is a grammar with an [$_{TP}$ __ [$_{vP}$ S O V] T]-structure, or an[$_{TP}$ S T [$_{vP}$ t_S O V]] -structure. We opted for the former, but also pointed out that the grammar eventually descended from '[$_{TP}$ S T [$_{vP}$ t_S O V]]'. Here is why:

As we have seen in section 3.5, [$_{TP}$ __ [$_{vP}$ S O V] T] is the optimal choice under a ranking 'BRANCHING RIGHT, LEX HEAD EDGE >> CASE LEX >> GEN SUBJECT >> HEAD LEFT >> HEAD RIGHT'. As we know now, since HEAD RIGHT is below both BRANCHING RIGHT and CASE LEX, this ranking constellation gives us a grammar with a post-nominal genitive.

The alternative TP-structure, [$_{TP}$ S T [$_{vP}$ t_S O V]], can also be optimal in a grammar with post-nominal genitive. This is the result if the ranking is 'BRANCHING RIGHT, LEX HEAD EDGE, GEN SUBJECT >> CASE LEX >> HEAD LEFT >> HEAD RIGHT'. Recall that the variation between the two TP-optima depends on the relative ranking of GENERALIZED SUBJECT and CASE LEX. CASE LEX can be ranked below GENERALIZED SUBJECT (resulting in '[$_{TP}$ S T [$_{vP}$ t_S O V]]') but still above HEAD RIGHT, predicting a post-nominal genitive.

The factorial typology does, however, include one further type. If, in the above ranking constellation, CASE LEX is demoted *below* HEAD RIGHT, then we obtain a grammar with '[$_{TP}$ S T [$_{vP}$ t_S O V]]'-structure and pre-nominal genitive. That is, we get a grammar that has the same kind of mixed directionality in clauses as Modern German (modulo that T can only be abstract; recall the discussion in 3.5). The only difference is that possessor genitive phrases generally precede the nominal head, since '[$_{DP}$ Gen-P D^0 [$_{NP}$ __ N^0 compl]]' is optimal. Let us

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[37]Hawkins likewise classifies Old High German as a grammar with basic OV, plus Verb Second/First order, furthermore with prepositions and initial determiners. Thus, Old High German is, like Modern German, not a case of a uniform SOV-grammar, but rather has systematic 'head-initial' properties.

assume that this is the ranking of Old High German. Then, (56) gives the ranking constellation, the tableau in (57) demonstrates how the pre-nominal genitive can beat the post-nominal genitive, in a HEAD LEFT >> HEAD RIGHT -grammar with head-final *v*P:

(56) Old High German:
LEX HD EDGE, BRANCH RIGHT, GEN SUBJECT >> HD LEFT >> HD RIGHT >> CASE LEX

(57) Old High German (Nibelungenlied:1390):

[$_{DP}$ [eines chvniges] D^0 [$_{NP}$ __ lant$_N$ t_{Gen}]]
  [a king]$_{gen}$ land
"A king's land"

	LEX HD EDGE	GEN SUBJ	BRANCHR	HD LEFT	HD RIGHT	CASE LEX
L a. [$_{DP}$ Gen-P D^0 [$_{NP}$ __ N^0 compl]]					**	*
b. [$_{DP}$ __ D^0 [$_{NP'}$ __ N^0 [$_{NP'}$ Gen-P t_N compl]]]					***!	
c. [$_{DP}$ __ D^0 [$_{NP}$ N^0 compl Gen-P]]			*!		**	
d. [$_{DP}$ __ [$_{NP}$ Gen-P compl N^0] D^0]				*!*		
a'. [$_{TP}$ subject T^0 [$_{vP}$ __ v^0 object]]		*!			**	*
b'. [$_{TP}$ __ T^0 [$_{vP}$ __ v^0 [$_{vP'}$ subject t_V object]]]		*!*			***	
c'. [$_{TP}$ __ T^0 [$_{vP}$ v^0 object subject]]		*!	*		**	
d'. [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]		*!		**		
L e'. [$_{TP}$ subject T^0 [$_{vP}$ t_S object v^0]]				*	*	*

Considering (56), and the diachronic change from Old High German to Modern German, we can now capture this change by recognizing a simple promotion of one constraint. Promoting CASE LEX into a higher constraint stratum has led from a pre-nominal to post-nominal genitive (and to

a stability of the head-final verb phrase pattern despite the otherwise head-initial orientation; recall the discussion in 3.5.1).

How is the above relevant with respect to the pre-nominal genitive of proper names in Modern German? While I have nothing insightful to say on how to implement this on a conceptual level, I nevertheless strongly suspect that the subset of proper name-noun phrases is a relic of the older stage of the grammar which had more systematically pre-nominal genitive. That is, for some reason, proper names are still case-marked in Spec, DP, and as such cause violation of CASE LEX, despite the fact that an additional violation of HEAD RIGHT and the resulting post-nominal genitive is now less costly.

This reason could conceivably be related to the fact that proper names are intrinsically referential expressions, which favor localization in Spec, DP. That is, in a possessor construction involving a proper name, the entire (super-ordinated) noun phrase must be interpreted as a definite one, with the proper name determining the reference. (See Longobardi 1994:622ff for the independent assumption that proper names in certain varieties of Romance must move into D^0 in their own noun phrases if the determiner is absent)[38].

It should be highlighted though that we should be careful with respect to the assumption that a syntactic constraint is responsible for the special treatment of proper names in German. The justification of such constraint would ultimately depend on its typological validity. That is, we should in theory be able to find other VO-languages which prefer more generally a post-nominal genitive, but – by high ranking of constraint X – demand pre-nominal genitive for proper names only. If the phenomenon is a sole property of German and other Germanic OV-languages, then it might be exclusively related to the diachronic change from a pre- to a post-nominal-genitive grammar. I will have to leave the puzzle for further research, however. I also have to leave aside the fact that we can combine in German the pre- and post-nominal genitive into one construction (in (58), the higher *gen*-P must express an agent, the lower one a theme):

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[38]See also Delsing 1993 who suggests that the German pre-nominal proper name incorporates into the D-head of

(58)   German:

    a.   Lolas Beschreibung ihres neuen Films

           Lola$_{gen}$ description   [her   new   movie]$_{gen}$

           "Lola's description of her new movie"

That is, in German, D seems to be able to assign genitive case twice in the same nominal extended projection.[39]

      Altogether, we have seen in this section how the emergence of a post-nominal genitive in an OV-language is contingent upon a preference for [head - complement]-directionality beyond the nominal domain. Let us now lastly address the question of why the generality of post-nominal genitives in both VOS- and VSO-languages is directly related to the emergence of a V-first-pattern as such.

4.6   Uniformly post-nominal genitive in VSO and VOS

Why exactly do VSO- and VOS-languages only allow post-nominal genitive? The answer is simple, and there is not more to it than what we have already noticed.

      In order to derive the TPs that have a basic word order 'verb - subject - object' or 'verb - object - subject', CASE LEX must be ranked above at least either HEAD RIGHT or BRANCHING RIGHT. As such, in the nominal domain, the pre-nominal configuration, [$_{DP}$ Gen-NP D^0 [$_{NP}$ __ N^0 compl]], can never win, but is necessarily beaten by either a post-nominal genitive construction which involves a right-peripheral specifier, or by the post-nominal genitive construction which is the result of N-movement.

      In a VOS-language, a surface post-nominal genitive can correspond to either of the two structures. That is, either [$_{DP}$ __ D^0 [$_{NP}$ N^0 compl Gen-NP]], with a genitive phrase in a right-peripheral lexical NP-specifier, can be the ultimate winner, or the N-movement configuration, [$_{DP}$ __ D^0 [$_{NP}$ __ N^0[$_{NP}$ Gen-NP t_N compl]]]. (One might take this as a reflection of how close VOS-grammars are to basic VSO-languages.)

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the super-ordinated noun phrase.

[39]Giorgi & Longobardi 1991:149 assume that pre-nominal genitive phrases in German are case-marked in the lexicon, not in the syntax.

In chapter 3 (3.3), we discussed how a $[_{TP}$ __ T $[_{vP}$ V O S]]-grammar is derived by a ranking 'HEAD LEFT, LEX HEAD EDGE, **CASE LEX** >> GEN SUBJECT >> **BRANCH RIGHT, HEAD RIGHT**'. With respect to the relative ranking of BRANCHING RIGHT and HEAD RIGHT, this means that the two constraints can be ranked either way, and the clause optimum will still be $[_{TP}$ __ T $[_{vP}$ V O S]], and with it basic 'V - O - S'-order. Nevertheless, CASE LEX must be ranked above both BRANCHING RIGHT and HEAD RIGHT, or else the outcome is another type.[40]

Then, in a VOS-grammar, the choice between post-nominal genitive by a right-peripheral NP-specifier or by leftward noun movement depends on whether in the full ranking, we have HEAD RIGHT >> BRANCHING RIGHT or the reverse. If BRANCHING RIGHT is below both HEAD RIGHT and CASE LEX, $[_{DP}$ __ D^0 $[_{NP}$ N^0 compl Gen-NP]] wins (see the tableau below in (59)). If HEAD RIGHT is at the bottom, we have the same conflict resolution as in Persian, German, Icelandic etc. and $[_{DP}$ __ D^0 $[_{NP}$ __ $N^0[_{NP}$ Gen-NP t_N compl]]] wins. In both scenarios, the language has post-nominal genitive. But, since CASE LEX can never be at the bottom of the triple in a VOS-grammar, '$[_{DP}$ Gen-NP D^0 $[_{NP}$ __ N^0 compl]]' can never be optimal; and hence, a VOS-grammar can never have a pre-nominal genitive.

That post-nominal genitive is due to a right-peripheral NP-specifier in VOS Tzotzil has been explicitly claimed by Aissen 1996:451, 454ff. (59) presents an example followed by the corresponding competition. The tableau in (59) also compares the nominal phrase with the verbal one, illustrating how in both domains, LexP ends up with the same directionality, and neither the subject nor the possessor phrase surfaces in the specifier of the relevant FP. Note that in the Tzotzil genitive construction, the nominal head agrees with the possessor through the same set of ergative markers used to cross-reference transitive subjects in clauses (so called 'set A'-affixes):

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[40]See appendix A on one further ranking option which elects '$[_{TP}$ __ T $[_{vP}$ V O S]]' as the optimal candidate but doesn't necessarily have CASE LEX >> HEAD RIGHT. In this constellation, BRANCHING RIGHT must still be ranked below both HEAD RIGHT and CASE LEX.

(59) Tzotzil (data cf. Aissen 1996:454):

$[_{DP}$ __ D^0 $[_{NP}$ s-p'in$_N$ t_{Gen} [li Maruch-e]]]

A3-pot   [the Maruch-ENC]$_{Gen}$

"Maruch's pot"

```
                              DP
                              |
                              D'
                          /        \
                        D⁰          NP
                                  /     \
                               N'       gen-P
                              /   \
                            N⁰
```
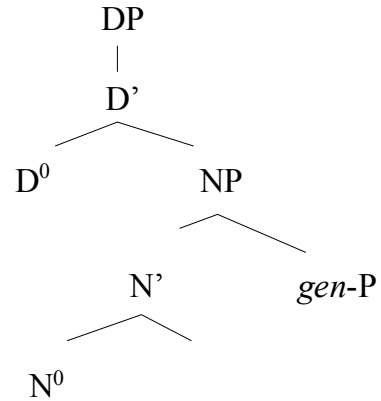
Right-peripheral Spec, LexP in both the verbal and the nominal domain:

	LEX HD EDGE	HD LEFT	CASE LEX	GENSUBJ	HD RIGHT	BRANCHR
a. $[_{DP}$ Gen-P D^0 $[_{NP}$ __ N^0 compl]]			*!		**	
b. $[_{DP}$ __ D^0 $[_{NP'}$ __ N^0 $[_{NP}$ Gen-P t_N compl]]]					***!	
☞ c. $[_{DP}$ __ D^0 $[_{NP}$ N^0 compl Gen-P]]					**	*
d. $[_{DP}$ __ $[_{NP}$ Gen-P compl N^0] D^0]		*!*				
a'. $[_{TP}$ subject T^0 $[_{vP}$ __ v^0 object]]			*!	*	**	
b'. $[_{TP}$ __ T^0 $[_{vP}$ __ v^0 $[_{vP'}$ subject t_V object]]]				**!	***	
☞ c'. $[_{TP}$ __ T^0 $[_{vP}$ v^0 object subject]]				*	**	
d'. $[_{TP}$ __ $[_{vP}$ subject object v^0] T^0]		*!*		*		

Verification of whether the Tzotzil genitive phrase is indeed in a *right*-peripheral specifier or not is complicated by the fact that Tzotzil does not allow more than one dependent phrase to occur; only the single genitive phrase is legitimate (the genitive doesn't need to express a possessor

relation; cf. Aissen 1996:454, 455)[41]. If it is true that the *gen*-P indeed surfaces in a right Spec, NP, then Tzotzil draws a clear parallel between the lexical layer of its verbal and its nominal extended projections. Within the current system, this parallelism has a single cause and explanation: the impact of LEX HEAD EDGE.

It is also significant that Tzotzil's nominal domain shows the same directionality split between the lexical and the functional layer that we have observed in the grammar's verbal domain in chapter 2. The theory of 'possible mixed directionality types' developed in this thesis allows right-peripheral lexical specifiers, but any VOS-grammar which makes use of this option is nevertheless expected to prefer left-peripheral functional specifiers and adjuncts. Indeed, according to Aissen 1996:458, while Tzotzil has post-nominal genitive, Spec, DP can nevertheless be targeted by a possessor that constitutes a *wh*-phrase, as in English '*whose* N'. Crucially, such *wh*-possessors align on the left, not on the right. That is, whichever position the *wh*-possessor targets in the functional domain of the nominal extended projection – for Aissen, this is Spec, DP – the fronted position is a left-peripheral one, as predicted by a VOS-type-ranking:[42]

(60)   Tzotzil (cf. Aissen 1996:457, 458):

[DP [buch'u]*wh-gen* D^0 [NP x-ch'amal$_N$ t_{Gen}]]$_i$ i-cham t_i

who   A3-child   *cp*-died

"whose child died?"

Having explained why a VOS-language generally has post-nominal genitive, let us turn to VSO. Here, the system adds to the implication 'verb- movement into TP Mpost-nominal genitive' a second one:

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[41]This is not an idiosyncracy of Tzotzil. Many languages allow only one dependent phrase (which carries 'genitive' case).

[42]Obligatory fronting of a *wh*-possessor within the nominal extended projection is also true for German. We have *wessen Kind* 'whose child', not **Kind wessen*.

(61)   If a grammar moves the verb inside the lexical layer below TP, leading to
        $[_{TP}$ __ T^0 $[_{vP}$ __ v^0 $[_{vP}$ subject t_V object]]], then it necessarily chooses the equivalent
        structure in the nominal domain, $[_{DP}$ __ D^0 $[_{NP}$ __ N^0 $[_{NP}$ Gen-P t_N complement]]] =
        'T - V - S - O'   M   **'N - *gen*-NP - PP'**

In chapter 3, we have seen that verb movement inside the lexical layer, below TP, in
combination with an absence of subject movement to Spec, TP, requires both HEAD RIGHT and
GENERALIZED SUBJECT to be at the bottom of the hierarchy. This is because, while $[_{TP}$ __ T^0 $[_{vP}$
__ v^0 $[_{vP}$ subject t_V object]]] spares violation of HEAD LEFT, LEX HEAD EDGE, BRANCHING RIGHT
and CASE LEX, it pays its price by violating HEAD RIGHT and GENERALIZED SUBJECT to a greater
degree than potentially winning alternative structures do. As such, a $[_{TP}$ __ T $[_{vP}$ V S O]]-
grammar is a grammar which avoids BRANCHING RIGHT and CASE LEX violations on the cost of
GENERALIZED SUBJECT and HEAD RIGHT. That is, in order to derive a $[_{TP}$ __ T $[_{vP}$ V S O]]-
grammar, we must have 'HEAD LEFT, LEX HEAD EDGE, **BRANCH RIGHT**, **CASE LEX** >> GEN SUBJECT, **HEAD
RIGHT**', or else, we get another type.[43]

        As we have seen all along, for $[_{DP}$ __ D^0 $[_{NP}$ __ $N^0[_{NP}$ Gen-NP t_N compl]]] to win in the
nominal domain, only HEAD RIGHT needs to be lowest ranked. But if HEAD RIGHT and
GENERALIZED SUBJECT are ranked below the rest of the set, then obviously, HEAD RIGHT is
below BRANCHING RIGHT and CASE LEX. The tableau in (62) illustrates a corresponding
competition on a Mixtecan example, and also compares the nominal with the verbal domain in
this type:[44]

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[43]See appendix A for one other ranking constellation that produces the VSO-type. Even in this second ranking
variation, both BRANCHING RIGHT and CASE LEX must be ranked above HEAD RIGHT.

[44]In chapter 3, we mentioned that the Celtic VSO-languages might in fact fall under the SVO-type that has both
subject and verb movement into TP, but then results in an 'V - S - O'-order by moving the verb into an even higher FP.
Since the current system predicts that any grammar that has systematic verb movement into TP should have post-nominal
genitive, so is such a VSO-type expected to have post-nominal genitive as well which is correct.

        As for Yosondúa Mixtec, be aware that the grammar might lack a DP-layer, since it has no determiners. Noun
movement across the genitive phrase in Spec, NP, and with it post-nominal genitive, is still predicted, but then is solely

(62)   Yosondúa Mixtec (data cf. Farris 1992:16):

$$[_{DP} \underline{\quad} D^0 [_{NP} \underline{\quad} s\dagger h\dagger_N [_{NP} y\S [_{NP} [chaa] t_N \; t_{Gen}]]]]$$

                 child   male   man

"the man's son"

	LEX HD EDGE	HD LEFT	BRANCHR	CASE LEX	GEN SUBJ	HD RIGHT
a. $[_{DP}$ Gen-NP D^0 $[_{NP'} \underline{\quad} N^0$ compl]]				*!		**
L b. $[_{DP} \underline{\quad} D^0$ $[_{NP'} \underline{\quad} N^0[_{NP'}$ Gen-NP t_N compl]]]						***
c. $[_{DP} \underline{\quad} D^0$ $[_{NP'} N^0$ compl Gen-NP]]			*!			**
d. $[_{DP} \underline{\quad} [_{NP'}$ Gen-NP compl $N^0] D^0$]		*!*				
a'. $[_{TP}$ subject T^0 $[_{vP} \underline{\quad} v^0$ object]]				*!	*	**
L b'. $[_{TP} \underline{\quad} T^0$ $[_{vP} \underline{\quad} v^0$ $[_{vP'}$ subject t_V object]]]					**	***
c'. $[_{TP} \underline{\quad} T^0$ $[_{vP} v^0$ object subject]]			*!		*	**
d'. $[_{TP} \underline{\quad} [_{vP}$ subject object $v^0] T^0$]		*!*			*	

The implication in (61) seems quite unspectacular within the internal logic of the current system. Also, on an intuitive level, it might not surprise us so much that basic 'verb - subject - object'-order always correlates with post-nominal genitive.

However, it is easy and logically sensible to think of a system which does *not* impose this correlation, and which therefore predicts that the nominal and the verbal domain do not necessarily coincide structurally in a VSO-grammar. As a matter of fact, theories which motivate verb movement by, for example, the strength of agreement morphology (cf. Roberts 1985, Rohrbacher 1999, Vikner 2001, Bobaljik 2002b), or by the strength of functional features in I or T (cf. Chomsky 1995), such theories have little to say about whether the head movement in phrases of distinct lexical categories is connected in any systematic way. But considering the empirical typology and the apparent absence of VSO-languages with pre-nominal genitive, a

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driven then by the impact of LEX HEAD EDGE.

system that is able to capture the correlation is definitely needed.

The same holds for a second generalization. Combining the system's predictions on VOS and VSO, we arrive at the empirically desirable entailment that **'basic VS languages have post-nominal genitive'**. Lastly, connecting (61) with the already established implication that 'verb-movement into TP ⲘＰpost-nominal genitive', we ultimately derive another implicational universal, which, once more, has to prove itself over time:

(63)   Leftward **verb movement** across a lexical specifier **entails**
        Leftward **noun movement** across a lexical specifier, but not vice versa.

This completes our exploration of the nominal domain and the distribution of (possessor) genitive phrases therein. We have seen that the extended system, beyond solving the '*TSVO'-puzzle in the verbal domain, is particularly powerful in the way it captures the typological correlations and differences in the directionality of verbal subjects on the one hand and genitive phrases on the other.

Altogether, the system not only explains why VOS and VSO languages always have a post-nominal genitive, but it also accounts for the fact that approximately one third of the SVO-languages have a pre-nominal genitive, while two thirds still have a post-nominal genitive. The system furthermore gives an answer for why, unlike basic VO-grammars, OV-languages make a much stronger 'correlation pair' in the sense that they seldom show post-nominal genitive. The predicted typology, which exactly matches the empirically attested distribution (cf. Dryer 1992:91, Hawkins 1983), is summarized in (64):

(64)   The proposed system derives – 'the queen's palace' vs. 'the palace the queen's':

OV-languages   **SVO**-languages   **VS**-languages
                                                                        (VOS, VSO)

ʿ**Gen-P – N**'   ʿ**Gen-P – N**'   '**N – Gen-P**'

        '**N – Gen-P**'   '**N – Gen-P**'

        (in the system: contingent upon left F in   (in the system: *always* expected **if**
        both nominal *and* verbal domain)   grammar has **verb movement to T**)
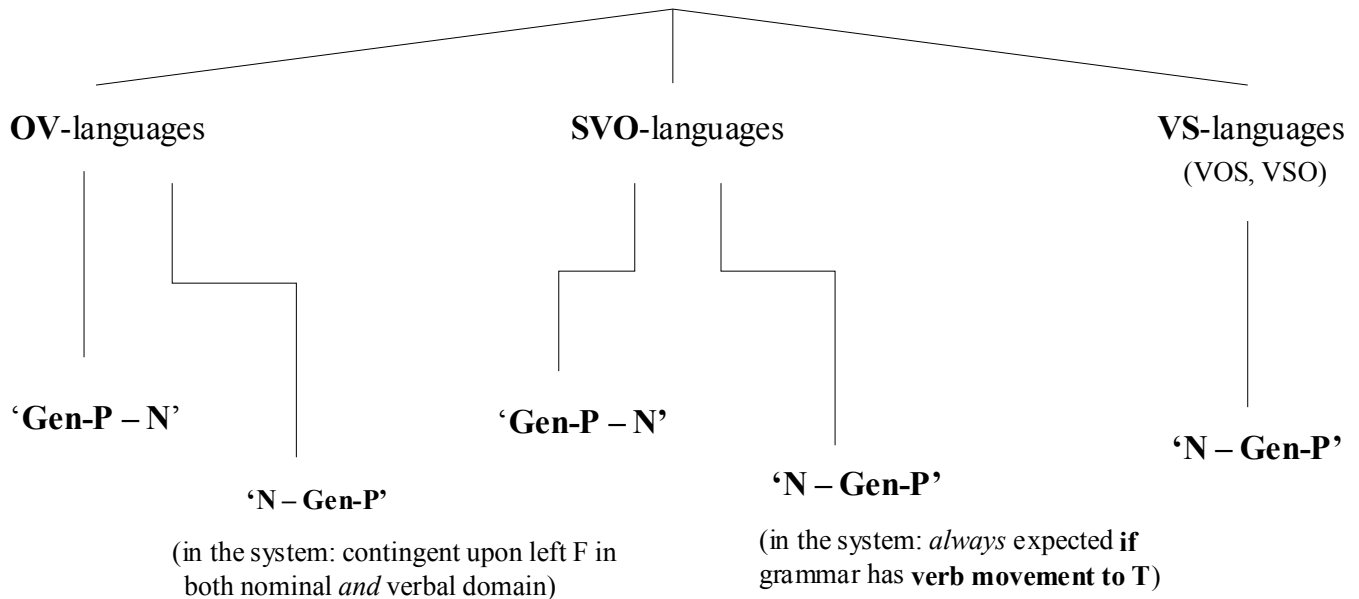
Beyond deriving these basic empirical facts, the system entails two generalizations, which recognize further aspects of the systematic nature in which languages implement superficially 'mixed' directionality. On the one hand, OV-languages with a post-nominal genitive have to prefer left-peripheral functional heads beyond the noun phrase context; on the other hand, (S)VO-languages with verb movement have noun movement, resulting in a post-nominal genitive.

Chapter 5 – Looking for order in AP and PP

As articulated in the introductory chapter, one of the premises of this investigation is Baker 2003's theory on lexical categories. Following Baker, verbs, nouns and adjectives, and no other categories, are assumed to be lexical heads. In the last three chapters, we have looked at verbal and nominal extended projections, but so far nothing has been said about the directionality within adjectival (extended) projections. In light of the current system, the crucial question about adjectives, and in particular predicate adjectives, is whether GENERALIZED SUBJECT applies to them. This in turn determines the system's expectations for the directionality of adjectival projections.

Instead of looking at several different language types, this chapter will focus on one grammar, that is, German. The reason for this more limited focus is twofold:

The first reason is that, considering the three major 'mixed' directionality-types derived in chapter 2, we have learned that VOS and VSO languages have parallel directionality in the verb phrase and the noun phrase. AP is expected to share the same directionality with no distinctive issues arising. Since I have no information that this is not the case, these types are not discussed here. Furthermore, considering the broader typology, while maybe *all* languages distinguish two open lexical classes, nouns and verbs, only certain languages make a further distinction between these and a third open class, the class of adjectives (cf. Schachter 1985:13). Therefore, some languages might not even have APs, so the topic does not arise at all.

German does make this further distinction, however, and it also allows adjectives to take PP-complements. In addition, some adjectives are able to assign case, which is not a common feature either. Beyond this, German falls under the third major mixed directionality type derived in chapter 2, which is the most interesting in terms of AP-directionality, because this type does not have parallel [head - complement]-order in NP and *v*P/VP. So, there is a real question as to whether AP patterns with the former or the latter.

The second reason for focusing on German is that German's AP-directionality happens to be a rather hard case to analyze empirically. The basic surface order between the adjective and its complement is challenging for both a theory that takes AP to be head-final (cf. Haider &

Rosengren 1998:27, Vikner 2001:60, 145; among others) and for a theory that assumes it to be head-initial (cf. Webelhuth 1992:75, 184, Corver 1997:338 (Doetjes, Neeleman & van de Koot 2001:8 for Dutch); among others). As such, it also challenges the system proposed here. But despite the possibility that the data might have led us to the explanatory borders of the current constraint set, the following analysis of predicative adjectives in fact not only captures their ambiguous directionality, but it also gives us a chance of obtaining a clearer understanding of what it means for GENERALIZED SUBJECT to be a 'clause'-focused constraint, and of why functional and lexical cases are distributed in a particular way in different types of extended projections. The proposal also allows us to approach the case dynamics in unaccusatives and passives.

The chapter is structured as follows. Section 5.1 introduces Baker 2003's theory of predicate adjectives (and nouns) adopted here. It then shows how the extended system correctly captures the directionality within German predicate noun constructions, and in predicate adjective constructions, *if* the latter's complement is a prepositional phrase. The section also provides background on the definition of GENERALIZED SUBJECT, based on the application of Baker's predication theory to the current system. Section 5.2 proceeds by confronting us with German predicate adjectives that assign case to their complement, illustrating how their directionality differs from that of the verb phrase and exploring a solution of this fact. This solution recognizes a restriction on where a lexical head can direct its case, depending on whether it extends into a 'higher order'- 2-role-assigner or not. This leads to an excursus on unaccusatives and passives in section 5.3, still focusing on German.

Finally, section 5.4 steps back and shows how the conceptual position that verbs, nouns and adjectives are lexical heads, but prepositions are not, can explain the directionality within German PPs. We will notice that German P patterns with functional heads and is therefore unaffected by LEX HEAD EDGE. The section finally launches into the exploration of three different reasons that post-positions can arise in a grammar that prefers [head - complement] in its functional domain.

5.1 'Small clauses' are projections of Pred

5.1.1 Pred and 'predicative' extended projections

According to Baker 2003:ch.2, whose theory on adjective and noun predication builds on Bowers 1993, non-verbal predication requires a Pred-head. This Pred-head is a predicative functor, whose specifier originally contains the subject of the predication, and which selects, depending on its thematic coding, either a noun phrase or an adjective phrase as its complement. (The more precise assumption is that there are two Pred-heads, one for NPs and one for APs; cf. Baker 2003:164. This finds support in the fact that they are phonologically distinct in some languages such as Edo; cf. Baker 2003:41, ex. (42);165, ex. (147).) In a grammar like English, Pred happens to be a zero-morpheme in both cases; the copula verb *be* is an auxiliary verb and does not equate with Pred.[1]

Thus, in the examples (1a) and (1b), the subject *Lola* receives its 2-role through Pred. *Beautiful* corresponds to an adjective phrase and *a witch* to a noun phrase both of which are complements of Pred.

(1)   English:

a.   Lola$_i$ is [$_{PredP}$ t_i Pred^0 [$_{AP}$ beautiful]]
b.   Lola$_i$ is [$_{PredP}$ t_i Pred^0 [$_{DP}$ a witch]]

The recognition of Pred is at the heart of Baker's theory on the essential distinction between the three lexical categories V, N, and A. The primary property which defines a verb, as opposed to a noun or an adjective, is that only V is able to assign a 2-role to its specifier. Adjectives and nouns, on the other hand, are unable to do so, by definition. Rather, in predicative contexts, both A and N need the functional Pred-head, Pred being the actual assigner of the subject's 2-role in non-verbal predication (cf. Baker 2003:31, 35ff,162). Consequently, it is Pred which instantiates the predication of its subject by its NP/AP-complement, and neither the noun nor the adjective can be predicative as such.

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[1] On the structural integration of the copula, as this is adopted here, see more below.

It is worthwhile noticing at this point that in Baker's theory, all verbs are in fact derived by an adjective incorporating into, and thereby lexicalizing, a Pred-head prior to lexical insertion (cf. Baker 2003: 81, 86ff; Baker terms it 'conflation'). Thus, verbs are ultimately nothing more than the combination of an A 'in' a Pred (plus, depending on the verb, a small *v*). Reasoning backwards, this however also means that an adjective which performs the hypothetical function of assigning a 2-role to Spec is not an adjective anymore, but rather an 'adjective conflated into a Pred-head', and, as such, a verb.[2]

Now, applying the above theory of non-verbal predication to the current system, we first of all obtain a clearer understanding of what the term 'clause' in GENERALIZED SUBJECT is all about. We defined GENERALIZED SUBJECT as a constraint that demands the existence of a specifier in any XP that forms part of a clause, and noted that a clause is here understood as an extended projection either headed by a verb or by a predicate head. We can now equate the concept of 'predicate head' with $Pred^0$. We can see why these two categories are input for GENERALIZED SUBJECT, and neither N nor A are input, even if N and A can project an extended projection as well. Only V and Pred have the ability to assign a 2-role to a specifier, which in turn can become the subject of a syntactic predication. Thus, only V and Pred have the genuine potential to 'set up' clauses. Furthermore, we are talking about an ability which is essential to both V and Pred but to no other category, in the sense that it is one of V's and Pred's defining properties, a property that co-creates their identity *as* a specific category, in opposition to any other. It is this matter which sets V and Pred apart from all other syntactic categories, uniting them into a 'natural class' which in turn feeds GENERALIZED SUBJECT.

Taking the perspective of GENERALIZED SUBJECT, in contrast, the constraint expresses the pressure that universal grammar imposes on the corresponding extended projections. It is basically about ensuring that the projection of a head, which can project a clause, does indeed become a clause. That is, at the most basic level, any category whose identity is defined via the

---

[2]The essential property of nouns, in distinction to V and A, is that only nouns bear a referential index (cf. Baker 2003:162ff). This, combined with the Reference-Predication Constraint RPC (cf. Baker 2003:165; see also chapter 4 above for discussion), makes it impossible for the noun to incorporate into $Pred^0$, *unless* it loses its referential index, in which case it also loses the essence of its N-identity (cf. Baker 2003:166, fn. 42).

potential to assign a 2-role to its specifier must be a head that projects a clause, whenever it projects into the syntactic structure. Consequently, any extended projection projected by such a head is a clause, and GENERALIZED SUBJECT inclines the head to provide a specifier/subject therein, as one crucial ingredients of what a clause syntactically instantiates.

Before we go on, we have to dive into a short excursus on the conceptual pairing of Pred and the theory of extended projections. By identifying Pred as the head of the extended projection in non-verbal predication, we allow a functional head to extend its own extended projection: PredP – TP – CP. Pred is therefore not a functional head dependent on another lexical head, and moreover, it anchors a functional space that equals that of V.

Note first in this respect that in chapter 4, we already pointed to the possibility that particular classes of 'determiner'-pronouns head their own DP, this DP not being the extension of N. In a similar vein, considering Haider 2000:49's understanding of the concept 'extended projection', a complementizer is not necessarily part of the extended projection underneath, but rather, it could be the head of an independent CP which selects its (IP/VP-) complement (though Haider, with the same breath, calls the complementizer 'lexical'). Furthermore, Riemsdijk 1998:31, in his theory of extended projections, defines prepositional phrases as categorically distinct from NP/DP, and calls them 'expanded' instead of extended projections. He also grants P, where it counts as a 'semi-lexical' head, the ability to "occupy the position of a lexical head", thus, to head a projection. Recognize though that all of the above cases (assume for a moment that the projecting head *is* F, not Lex or 'semi-Lex'; in the current theory, there are no semi-lexical heads, and *only* V, N, and A are lexical, all other heads are functional) are instances in which a functional head does not depend on another lexical head, but still, F does not open up an extended projection, in the sense that it itself projects distinct functional heads.

Now, at the end of this chapter (section 5.4), I will in fact further promote the possibility of a functional head heading an autonomous projection which is not an extended one of a lexical head. I propose that this is a valid option for at least P (and possibly C) – but P will not head an extended projection. The possibility of a functional head itself extending is solely granted to Pred, for the following reason. The aspect that distinguishes Pred from other functional categories is that its function is essentially distinct. Rather than encoding functional information and working as a satellite for a head that instantiates a predication, Pred itself instantiates a

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Note first in this respect that in chapter 4, we already pointed to the possibility that particular classes of 'determiner'-pronouns head their own DP, this DP not being the extension of N. In a similar vein, considering Haider 2000:49's understanding of the concept 'extended projection', a complementizer is not necessarily part of the extended projection underneath, but rather, it could be the head of an independent CP which selects its (IP/VP-) complement (though Haider, with the same breath, calls the complementizer 'lexical'). Furthermore, Riemsdijk 1998:31, in his theory of extended projections, defines prepositional phrases as categorically distinct from NP/DP, and calls them 'expanded' instead of extended projections. He also grants P, where it counts as a 'semi-lexical' head, the ability to "occupy the position of a lexical head", thus, to head a projection. Recognize though that all of the above cases (assume for a moment that the projecting head *is* F, not Lex or 'semi-Lex'; in the current theory, there are no semi-lexical heads, and *only* V, N, and A are lexical, all other heads are functional) are instances in which a functional head does not depend on another lexical head, but still, F does not open up an extended projection, in the sense that it itself projects distinct functional heads.

Now, at the end of this chapter (section 5.4), I will in fact further promote the possibility of a functional head heading an autonomous projection which is not an extended one of a lexical head. I propose that this is a valid option for at least P (and possibly C) – but P will not head an extended projection. The possibility of a functional head itself extending is solely granted to Pred, for the following reason. The aspect that distinguishes Pred from other functional categories is that its function is essentially distinct. Rather than encoding functional information and working as a satellite for a head that instantiates a predication, Pred itself instantiates a

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predicative functor, assigning 2-roles to its 'own' arguments. It can, for that matter, take over the syntactic function of a lexical head and anchor its own projection, providing the required functional space for its arguments. Considering Baker's theory and the proposal that all verbs are ultimately instances of adjectives incorporated into Pred prior to lexical insertion, we could, in fact, see it also the other way around and recognize that V projects T (and C), because Pred does.

There might be yet another aspect in which universal grammar reflects the unease of a functional head anchoring a functional space. This concerns the role that copulas, such as English *be*, play in non-verbal predication.

Be aware that the following discussion presents a slight departure from Baker's structural interpretation, and future research is needed to provide a concrete analysis of the constraint conflict that lies behind the typological options of how to invoke a copula. The shift of perspective seems nevertheless worthwhile to point out, since acknowledging the role of the concept 'extended projection' might provide new insight into the question of why some languages need a copula in predicative sentences, while others do not, or do so only variably.

As stressed by Baker 2003:39ff, the tempting equation of the English copula *be* with the Pred-head as such seems to be the wrong approach, given that in non-finite contexts like *I consider* [$_{Pred}$ *Chris* $Pred^0$ *intelligent/a genius*] (cf. Baker 2003:40), the copula disappears, while Pred is still present (] in English, but overt in, for example, Edo). Baker then ties the necessity of the copula, – which he identifies as a lexical head/auxiliary distinct from T –, to the pressure of particular grammars to attach the tense morphology to a lexical host (the copula) rather than to a functional one (abstract Pred) (cf. Baker 2003:50; among others). Thus, the copula is introduced as a way of providing a lexical head for T-affixes, in a finite context. Baker furthermore alludes to the fact that grammars divide with respect to how 'often' they bring in the copula. While English seems to rely on the copula in all finite contexts, Arabic, for example, can do without the copula in default present tense, where no overt tense morphology is present in general, but it uses a copula in past and future tense, in which corresponding affixes search for a lexical host (cf. Baker 2003:46ff). Other languages, such as Mohawk (cf. Baker 2003:50) do not have a copula at all, but can only express default present tense in non-verbal predication. Lastly, some grammars, such as Abaza (cf. Baker 2003:51), seem to care little in principle and allow for the tense morphology to attach to an abstract functional Pred.

Altogether, the variety of typological options seems to point to an Optimality theoretic constraint conflict. But there is more. While the connection of the copula's emergence to the specification of T is indeed compelling, the idea that the copula is brought in solely in order to pick up an affixal morphology has to struggle with the fact that, for example, English must use the copula even in a context in which T is an independent particle making attachment unnecessary:[3]

(2)   English:

    a. $[_{TP}$ She will$_T$ [**be** strong]].   b. $[_{TP}$ She can$_T$ [**be** the one]].

    a'.   *She will strong.   b'.   *She can the one.

I note in passing that data like (2) also go against any structural interpretation which takes the copula simply to be an instantiation of T. But then, what else could be so important for particular grammars that forces them to bring in the lexical head? It could be precisely the unease of some grammars towards having a functional head that anchors a functional space.

Now, Baker assumes that the functional head Pred can be lexicalized by an adjective prior to lexical insertion, which yields a verb (a V-head). Furthermore, we are assuming all along that a transitive verb is a V which extends into a functional head v, where v is generally lexicalized by substitution of V^0 into v^0, which gives us lexical vP, *not* VP.[4] Relevant for the point at stake is that, while both A and V give up their own identity by substituting into Pred and v, they on the other hand can provide the 'lexical' body to turn PredP and vP into lexical

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[3]This is noted by Baker 2003:50,fn.14 himself.

[4]Baker 2003:77ff distinguishes between Pred and v, in that Pred assigns a THEME-role to its Spec, while v assigns an AGENT/subject-role. (Lexicalized) Pred therefore really equates with V, which projects the layer below vP. Nevertheless, comparing non-verbal and verbal predication, then v provides the 'external' role in verbal predication, Pred the 'external' role in non-verbal predication. (Thus, the THEME is an internal role in the former context, but an external role in the latter; cf. Baker 2003:65). Meanwhile, Bowers 1993:595 equates Pred with v, because he identifies Pred as the assigner of the external/subject 2-role across all categories.

projections.[5] The suggestion is then to recognize a structural parallel: The copula in non-verbal predication substitutes into $Pred^0$ just as V^0 substitutes into v^0 in (transitive and unergative) verbal predication, lexicalizing the corresponding head. Only this time, the lexicalization has the particular purpose of turning a functional extended projection into a lexical one. That is, using the copula in non-verbal predication is precisely a way of lexicalizing Pred in those contexts in which Pred is about to anchor a, – particularly specified –, functional space.

In a nutshell, the language-specific emergence of the copula is correlated with the grammar's acceptance level towards a functional Pred extending into functional projections. A very strict language like English (or German; see below) might allow functional abstract Pred in a non-finite context, not because there is no T in search for a host, but rather because only in this context does PredP not erect any functional layer.[6]

As soon as an extension is at stake, for example, in any finite context, English uses the copula to lexicalize $Pred^0$ such that the result is a lexical extended projection. Thus, tensed non-

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[5]Keep in mind that therefore *v* and Pred crucially differ to any other purely functional category like, for example, T. T can never be lexicalized, even if an auxiliary verb substitutes into it. Here, the effect is instead that the auxiliary loses its lexical status, becoming a pure instantiation of T.

See here also Baker 2003:87, who recognizes Pred as falling somehow in between a functional and a lexical category, given its functional origin combined with an ability to undergo lexicalization. Once more, I understand the distinct nature of Pred and *v* to be a consequence of their essentially distinct function which operates on *thematic* structure, and, as such, instantiates a contrast to any other functional category.

For the following, also keep in mind that lexicalized *v*P, and then PredP, are input for LEX HEAD EDGE, meaning that both lexicalized *v* and lexicalized Pred satisfy LEX HEAD EDGE (only) if they surface at an edge of *v*P and PredP.

[6]This reasoning also fits well with the fact that *be* is needed even in some non-finite contexts such as those that involve controlled PRO (for example, '*I want Pro to *(be) tall when I grow up.*'). If it is true that these contexts require a functional projection as well (TP; cf. Chomsky 1999:39), then, this can be held responsible for the necessity of the copula, whereas a reasoning solely based on tense morphology cannot.

On the other hand, in (non-finite) constructions like '[*with* [PredP *Chris* $Pred^0$ *sick/an invalid*], *the rest of the family was forced to work harder*' (cf. Baker 2003:40), the preposition doesn't need to be an extension of Pred; instead, *with* is likely a preposition/ complementizer which heads its independent projection and takes PredP as a complement (see more on prepositions in section 5.4 below).

verbal predication receives an analysis as in (3a), as opposed to non-finite one in (3b):[7]

(3)   English:

   a. $[_{TP}$ She$_i$ will$_T$ $[_{PredP}$ t_i be$_{Pred}$ $[_{AP}$ strong$]]]$ Pred extends into TP °   *be* lexicalizes Pred

   b.   He considers $[_{PredP}$ her Pred^0 $[_{AP}$ beautiful$]]$ Plain PredP °   no lexicalization necessary

In the above scenario, it is *not* the copula which assigns the subject-2-role. This is genuinely Pred's function, just as in *v*-lexicalization by V, it is *v* which assigns a 2-role to its Spec, not V.

What is new about the current reasoning is that it ties the occurrence of a lexical head in non-verbal predication to the general markedness of a purely functional extended projection, a markedness which we would independently expect if we think in terms of the original conception of an extended projection. At the same time, the approach leaves theoretical room for a future project to explore: Grammars might vary with respect to their acceptance level, as well as their strategy of responding to this markedness. That is, grammars distinct from English could either accept extended projections that are headed by Pred; or they could make more fine grained distinctions relying on lexicalization of Pred, depending on the specific quality/ quantity of the extended functional space, – as, for example, allowing for a TP as long as it encodes minimal functional information such as default present tense.[8]

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[7]Granted that the adjective has the theoretic potential of incorporating into Pred^0 prior to lexical insertion, we might ask whether there is an option for the adjective to move and substitute into Pred^0 *after* lexical insertion, as an alternative to adding the copula. In section 6.3, I will point to such a solution in the Kru languages. In terms of relative markedness, a grammar might choose between the two alternatives depending on whether it is less costly to invoke additional material (the copula), or to extract the adjective out of AP which is a complement of Pred (in opposition to *v* being directly projected *by* V).

[8]Thinking about how tense/aspect information is realized in the syntax, a possibility that is far from trivial is one where T does, in fact, not contain *any* information in default present tense. This would mean that the distinction between 'finite' and 'non-finite' really is a distinction between absence and presence of TP as such. A further possibility is that a grammar could allow a plain PredP, without TP-extension, to express default present tense in non-verbal predication, though here it remains unclear what assigns the nominative case of the subject.

Therefore in what follows, I will tentatively assume that the German copula *sein* lexicalizes Pred[0] in the manner described for English *be*, given that both grammars coincide with respect to the use of the copula. The alternative would be to recast the copula as an auxiliary-lexical shell projected by Pred, and as such erected above PredP.

5.1.2 Expected directionality in non-verbal predication

Let us thus address the question of what this interpretation of Baker's theory implies with respect to the directionality within non-verbal predicates. We assume that non-verbal predication requires a PredP, and it is the extended projection projected by Pred which is evaluated on GENERALIZED SUBJECT. Consequently, neither the noun phrase nor the adjective phrase in the complement of Pred is evaluated on GENERALIZED SUBJECT, and so we expect the following. The head/complement-directionality *within* this noun/adjectival complement should pattern with the directionality the grammar in question imposes on its noun phrases, not the one it imposes on verb phrases.[9]

Recall once more the three major mixed directionality-types derived in the second chapter: In chapter 2, 3 and 4, we learned that VOS and VSO languages have parallel [head - complement] -directionality within *v*P/VP and NP, even if NP involves a specifier. Consequently, AP is expected to have this same directionality as well. Since I don't know of any opposing critical cases, a discussion of these is not pursued here. The more interesting type to consider is the third, which applies the 'right-peripheral head'-choice in *v*P/VP, but sticks to the elsewhere preferred [head - complement]-pattern within NP.

Looking at German, then we first expect that in noun predication, the 'predicative' noun phrase has just the same head-orientation as any other noun phrase, even if it contains a specifier. Keep in mind that, given the current system, such an NP-specifier could only host a genitive phrase dependent on the noun, *not* the subject of the predication, the latter being necessarily base- generated in the specifier of PredP. This prediction is indeed born out: as we see in (4a)

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[9]This holds for nominal predication obligatorily, for adjectival predication as long as the adjective involved does not incorporate into Pred[0] in the syntax. On the latter possibility, see section 6.3 for one concrete example instantiated by the Kru language Vata.

below, the order between a noun and its possessor is 'N - Gen-P', not 'Gen-P - N', in parallel to what we have seen in chapter 4. Likewise, the order between N and a PP-complement is unchanged 'N - PP', or 'N - Gen-P - PP', as illustrated in (4b) and (4c).

Pred, on the other hand, follows its NP-complement (or more precisely, DP-complement), when it is lexicalized by the copula. This is thus on a par with any German VP/vP, as expected. (Keep in mind that the 2-role of *Lola* is not assigned by the copula, but by Pred, the copula merely functioning as a 'lexicalizer' in my approach):[10]

(4)   German:

    a.   ..., weil Lola [eine Freundin$_N$ [$_{DP}$ meines Bruders]] ist.

           since Lola   a   friend(fem)   [my   brother]$_{Gen}$ is

           "..., since Lola is a friend of my brother's"

    a'. ...weil [$_{TP}$ [$_{PredP}$ **Lola** [$_{DP}$ eine$_D$ [$_{NP}$ **Freundin$_N$** [$_{NP}$ **[meines Bruders]**$_{Gen}$ t_N t_{Gen}]]]] ist$_{Pred}$] T]

    b.   ..., weil Lola [eine Künstlerin$_N$ [$_{PP}$ auf diesem Gebiet]] ist.

           since Lola   a   artist   on   this   region   is

           "..., since Lola is an artist in this area."

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[10]As suggested above, an alternative analysis, though a slightly less economic one, could have the copula occupy an auxiliary VP-shell erected by the Pred-head. In such a scenario, the abstract functional Pred^0 would be predicted to precede its NP/AP-complement, while the lexical VP-shell would still be head-final.

Note that for German, the current constraint system is, in itself, sufficient to motivate the emergence of a lexical head in non-verbal predication, precisely in the context of a TP-extension (with finite T), be it as a lexical shell above PredP or as a 'lexicalizor' of Pred^0. The point is that the case assigner T will violate CASE LEX, as long as Pred is a functional head. Only by the introduction of an additional lexical head can the CASE LEX violation be circumvented. This is a benefit in German, as long as CASE LEX is ranked above HEAD LEFT and HEAD RIGHT, and thus is never violated with respect to the case assigner T (recall the discussion in section 3.5). The reasoning can however not be extrapolated to English, because, there, CASE LEX is notoriously violated in finite contexts (cf. the discussion in 3.6).

c.   ..., weil dies [ein Brief$_N$ [$_{DP}$ meines Bruders] t_N [$_{PP}$ an meinen Freund]] ist.

            since   this   a   letter   [my   brother]$_{Gen}$ to my   boyfriend   is

            "..., since this is my bother's letter to my boyfriend."

What about predicate adjectives? Given that the AP is a complement of Pred, just as the NP is, and given that Pred projects the clause in non-verbal predication, AP should not face any greater pressure of projecting specifiers than NP does, meaning that the German ranking should favor [A^0 - complement] -orders, rather than [complement - A^0]. That is, we expect the German AP to pattern with noun phrases, not with verb phrases. This is based on the ranking HEAD LEFT >> HEAD RIGHT, together with the fact that GENERALIZED SUBJECT does not apply within AP. This expectation is illustrated in the tableau in (5):

(5)   The German adjective **precedes** a potential complement:

	LEX HD EDGE	BRANCHR	CASE LEX	GENSUBJ	HEAD LEFT	HD RIGHT
L a. .... [$_{PedP}$ Subj [$_{AP'}$ __ A^0 compl] Pred$_{Lex}$^{0}]					*	*
b. .... .. [$_{PedP}$ Subj [$_{AP'}$ __ compl A^0] Pred$_{Lex}$^{0}]					**!	

The prediction is indeed born out if the complement of A is a prepositional phrase (see also Webelhuth 1992:75):

(6)   German:

    a.   ..., weil [$_{PredP}$ Lola [$_{AP}$ zufrieden$_A$ [$_{PP}$ mit ihrer Arbeit]] ist$_{Pred}$]

           since   Lola   happy   with her work   is

           "..., since Lola is happy with her work"

    b.   Sie ist [$_{AP}$ lieb$_A$ [$_{PP}$ zu ihm]].

           She is   kind   to him

    c.   Siegfried ist [$_{AP}$ stolz$_A$ [$_{PP}$ auf seine Arbeit]].

           Siegfried   is   proud   of his   work

d.   Lola ist [AP gutA [PP in der Schule]].

       Lola is   good   in the school

Note that the PP-complement *can* also precede the adjective, which I interpret as an instance of scrambling, a type of leftward movement. Shifting the PP results, in terms of information structure, in subtle focus of the adjective, as in (7):

(7)   German:

    a.   ..., weil Lola auf ihre Arbeit stolz ist

        since Lola of her   work   proud is

       "...., since Lola is PROUD of her work."

    a'.   ..., weil [PredP Lola [PP auf ihre Arbeit] [AP stolzA *t*PP] istPred]

In the structure in (7a'), the scrambling site is taken to be Pred-bar, meaning that the PP is scrambled into the head-final PredP. This takes up an idea in Haider & Rosengren 1998:6 who tie the occurrence of scrambling more generally to the domain of head-final lexical projections (as one necessary, though not sufficient condition thereof). In Haider & Rosengren 1998:27's view, the fact that the German AP allows scrambling is one indication of its head-finality, challenging the perspective taken here. But, as we see, given that non-verbal predication still involves a head-final projection, either lexicalized PredP or an auxiliary VP-shell, we can recast Haider & Rosengren's insight about the occurrence of scrambling by recognizing that the movement targets a projection whose head is final. If one wanted to disagree more radically, one could also assume that in (7), scrambling targets AP. Haider & Rosengren's claim does, after all, have to prove itself facing universal typology. Just to give one potentially falsifying example, the Slavic languages, such as Russian, are SVO-languages which appear to have scrambling (cf. Franks 1995:73).[11]

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[11]Assuming scrambling to the AP-node in (7) is in the spirit of Doetjes, Neeleman & van de Koot (henceforth D, N & K) 2001, who assume an underlying [A^0 PP]-structure for Dutch, and whose analysis of degree-elements is applied below to German in argumentation for the head-initial base. D, N & K 2001:26, 24ff argue that leftward PP-movement

The following presents two arguments in favor of analyzing a head-initial AP as the underlying base order, instead of deriving (6) from an underlying head-final AP. The first one involves a comparison with verbal predication, and relies on the premise that adjectival predication corresponds to a clause structure as well, the copula being an auxiliary verb thereof.

If the examples in (6) were derived by rightward movement of PP, then this would be an instance of clause-internal right-dislocation, that is, extraposition. Now, German clauses marginally allow extraposition of a PP, though this requires a particular stress on the PP (cf. Truckenbrodt 1994). But, as becomes evident in subordinated complex verb configurations, the PP *must* occur at the outermost right of the clause, following any auxiliary. It can never been squeezed into the middle of the verbal complex. That is, a PP cannot surface on the immediate right of the main verb, which would be its base location if the structure of VP/ *v*P were [head - complement]. On the contrary, PP-extraposition must target a position above the highest VP (TP).[12]

(8)　　German:

　　a.　　..., weil er [PP auf seine Schwester] **gewartet hat**.

　　　　　　since he　　for　his　　sister　　　　waited　　has

　　　　　　"...., since he has waited for his sister."

　　b.　　[??]..., weil er gewartet hat [PP auf seine Schwester].

　　c.　　*..., weil er **gewartet** [PP auf seine Schwester] **hat**.

targets the highest node of the adjectival extended projection. The distinction enables them to account for intriguing differences with respect to the Dutch (im)possibility of extraction out of the shifted PP, depending on the size of the extended projection.

　　Ultimately, rather than focusing on a specific landing site for the leftward shift, the explicit claim is that the left-peripheral position of the PP is *not* a base position but the result of leftward scrambling.

[12]The same can be said about the position of clauses, which occur obligatorily after the entire verbal complex. That is, clauses also cannot directly follow the main verb, unless it is the only verb. See, for example, Haider 2000:61 on the point that the German clause final verbal complex can never be broken up by any non-verbal material. See Hoekstra 1997:158 for the same impenetrability in Frisian. On extraposition of clauses, see also the remarks on German in section 3.5, and on the Kru languages in chapter 6.

(9)   German:

    a.   ..., weil er schnell [PP zum Kiosk] **gelaufen ist**.

                  since he quickly   to-the store   run   is

                  "...., since he ran quickly to the store."

    b.   ??..., weil er schnell gelaufen ist [PP zum Kiosk].

    c.   *..., weil er schnell **gelaufen** [PP zum Kiosk] **ist**.

(10)   German:

    a.   ..., weil er [PP mit dem Messer] **gespielt hat**.

                  since he   with the   knife   played   has

                  "...., since he played with the knife."

    b.   ?..., weil er gespielt hat [PP mit dem Messer].

    c.   *..., weil er **gespielt** [PP mit dem Messer] **hat**.

Compare the examples in (8-10) with the subordinated clauses involving predicative adjectives. The PP can appear between the adjective and the clause-final auxiliary without further ado:

(11)   German:

    a.   ..., weil sie **zufrieden** [PP mit ihrer Arbeit] **ist**.

                  since she happy   with her   work   is

                  "...., since she is happy with her work."

    b.   ..., weil Lola **lieb** [PP zu ihm] **ist**.

                  "..., since Lola is kind to him."

    c.   ..., weil Siegfried **stolz** [PP auf seine Arbeit] **ist**.

                  "..., since Siegfried is proud of his work."

    d.   ..., weil Lola **gut** [PP in der Schule] **ist**.

                  "..., since Lola is good in school."

Thus, either extraposition is a different phenomenon in the two domains, allowing right-adjunction below an auxiliary in adjectival but not in verbal predication – or, the PP is in a right-peripheral complement position of the adjective (but not the verb). The second view is the simpler one, and the one predicted by the current system.

If we are fair, we have to see that the current analysis recognizes the AP as a complement of PredP, the latter projecting the actual clause. One could argue that extraposition targets right-adjunction to AP, and this has nothing to do with clausal right-dislocation. This objection granted, a PP-extraposition approach still leaves the puzzle of why PP-right-dislocation is so easily available in the German AP, whereas it is rather exceptional in the case of VP.

The second argument for an underlying head-initial AP in 'A - PP'-configurations involves degree elements such as *too*, in German *zu*, and follows an argument made by Doetjes, Neeleman & van de Koot (henceforth D, N & K) 2001 for Dutch. D, N & K, who build on the work of Corver 1997, distinguish between two different classes of degree expressions. The first one, containing for example *more* and *less*, is a class of modifiers which project a phrase and can, as such, adjoin to all kinds of projections, including AP (the modifiers can also occur in Spec, DegP; cf. D, N & K 2001:36, 37). The other class, containing for example *too* and *very*, is a class of degree-heads which instantiate a functional extension of A. That is, the degree head is Deg^0 which constitutes a functional extension of A^0 (cf. D, N & K 2001:5). Therefore, a Deg-head cannot occur in a non-adjectival context. D, N & K present several arguments for this view, and we will take the claim's correctness for granted here. Consequently, the following example involves a PredP, in which Pred takes a DegP-complement:[13]

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[13]I am not sure whether the German equivalent of *very*, *sehr*, could not be a phrasal modifier as well, given that one can find examples in which *sehr* modifies a verb phrase, as in:

(i)   Das gefällt mir sehr. "That like me very = I like that a lot."

(ii)   Ich habe ihn sehr um seine Geduld beneidet. "I have him very for his patience envied = I very much envied his patience."

The discussion therefore focuses on *too = zu*. *Sehr* could be a degree head which is nevertheless capable of projecting its

(12)   German:

       Er ist [$_{DegP}$ **zu**$_{Deg}$ [$_{AP}$ stolz$_A$ [$_{PP}$ auf seine Arbeit]]]

       he is   too   proud   of his   work

       "He is too proud of his work."

Now, recall that we noted earlier that the PP can precede the predicative adjective in German, as well as follow it. The point is that, if it does precede in an example involving a Deg-head, then the PP cannot occur between Deg^0 and A^0, as we would expect this if the left-peripheral position were indeed the complement of a head-final AP. Rather, the PP must precede both the Deg-head and the adjective, suggesting that it is indeed in a scrambled position:

(13)   German:

    a.   Siegfried ist [$_{PP}$ auf seine Arbeit] **zu stolz**.

             Siegfried   is   of his   work   too proud

             "Siegfried is too proud of his work."

    b.   *Siegfried ist **zu** [$_{PP}$ auf seine Arbeit] **stolz**.

There is a contrast here to the verbal domain. Recall the discussion of German *v*P-internal structure in chapter 2 (2.3.3). There, we noted that, even in the case of the hierarchically lowest adverbs, that is, manner adverbs, a PP (and depending on context, also a DP) *can* surface between the adverb and the verb. Therefore, manner adverbs, which occur in many contexts immediately left-adjacent to the main verb, still can not be recognized as elements that have to surface closest to the verb. The same holds for the negation marker *nicht* 'not'. Depending on context, we even find cases in which it is extremely marked for the manner adverb/negation to be squeezed between PP and the verb:[14]

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own phrase, which then can adjoin to other phrases as well. The same seems to be true for *ganz* 'very, entirely, complete'. See the comment in section 5.4 below.

[14](14b) is only good if we stress *gestiegen* and interpret the clause with contrastive focus, as, for example, in:

(i)   ..., weil er auf den Stuhl nicht GESTIEGen, sondern gesprungen ist. "Since he didn't step on the chair but

(14)   German:

    a.   ..., weil [_{VP} er **nicht** [_{PP} auf den Stuhl] **gestiegen**_V] ist.

            since   he not   on the chair   stepped   is

            "...., since he didn't step on the chair. "

    b.   *..., weil [_{VP} er [_{PP} auf den Stuhl] **nicht gestiegen**_V] ist.

(15)   German:

    a.   ..., weil [_{VP} er **vollständig** [_{PP} in den See] **gefallen**_V] ist.

            since   he completely   in the lake fallen   is

            "...., since he has fallen into the lake completely. "

    b.   ^{??/*}..., weil [_{VP} er [_{PP} in den See] **vollständig gefallen**_V] ist.

Noticing this contrast helps to avoid re-introducing the following reasoning concerning the structure of the verb phrase. If we claim that the intervention of a degree head between an adjective and a preceding PP indicates a leftward shift of the PP, and we also know that German makes abundant use of scrambling in the verbal domain, then why not claim that 'PP - verb'-order is also the result of shifting the PP to the left, as an LCA-based analysis would have it (cf., for example, Hinterhölzl 2000)?

      The point is not only that a possible 'PP - adverb - verb'- order is a weak indication of PP-leftward movement, given that the adverb is not chained to the verb-adjacent position and given that we have already seen evidence in favor of the perspective that German adverbs can adjoin at several heights of the tree, including V-bar. These facts impede a direct comparison between the case of VP and AP, since while the Deg-head has a fixed position in the tree, a phrasal adverb is only frozen in one position as long as we assume that it must adjoin to a particular node, or that it must occur in a particular specifier. Beyond that, the most relevant point to keep in mind is that neither a case marked argument *nor* a PP can ever surface on the

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    jumped."

Sentential negation requires the order in (14a).

right of a clause-final main verb without any markedness involved. We have already seen corresponding examples of PP right-dislocation in (8-10) above. We may add to these data that, in absence of a clause final verb cluster, that is, with just one main verb in final position, right-dislocation of a PP does not become any better, but even worse:[15]

(16)   German:

    a.   ..., weil er [PP auf seine Schwester] **wartete**.

            since he   for his   sister   waited

            "...., since he waited for his sister."

    b.   *..., weil er **wartete** [PP auf seine Schwester].

(17)   German:

    a.   *..., weil er schnell **lief** [PP zum Kiosk].

            since he quickly   ran   to-the store

    b.   [??]..., weil er **spielte** [PP mit dem Messer].

            since he played   with the   knife

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[15]Hinterhölzl 2000:310 foregrounds yet another case which for him is evidence for the leftward movement of V's complement. This is the *zu*- ('to') infinitive, for which it is true that the particle *zu* must occur left adjacent to the verb, and no DP/PP can intervene between *zu* and V.

Be aware though that this is still not on a par with the adjectival degree-head *zu* 'too' and the situation in AP. While it is perfectly fine for a PP to surface on the right side of the adjective, the same is not the case for a *zu*-infinitive. On the contrary, PP-right-dislocation is not only marked (as in (8-10)/(17)) but *always* plainly ungrammatical:

(i)   Ich bitte dich [in den See] **zu** springen.   (ii)   *Ich bitte dich **zu** springen [in den See].

      I   ask   you in the lake to jump

      "I ask you to jump in the lake."

Acknowledging that German has a [TP __ [vP S O V] T]-structure, it is likely that *zu* 'to' is base generated under T^0, from whence it clitizes onto the (adjacent) verb in the phonological structure.

Altogether, the relative ordering relations between, on the one hand, a predicate adjective and a PP, and, on the other hand, a PP and a verb, are significantly different. The current system accounts for this contrast by base-generating the PP in a right-peripheral complement position of A, in contrast to the head-final verb phrase. That is, AP, which is a complement of Pred, has itself $[_{AP} A^0$ - complement]- order; lexical A^0 satisfies LEX HEAD EDGE by aligning with the left edge of AP. Both AP and its possible extension DegP are head-initial. All this is in accordance with the grammar's general preference for head orientation, due to the ranking HEAD LEFT >> HEAD RIGHT. In the next section, we will see how the directionality changes, once we consider adjectives that assign case to their complement.[16]

As a last remark before we go on, it should be noted that in an attributive AP, the situation differs. Here, the pattern is very strict: any PP must precede the attributive adjective, as in (18):

(18)   German:

    a.   der $[_{PP}$ mit der Arbeit] zufriedene   Professor

           the   with the work   happy-3Sg.*nom* professor

           "the professor happy with the work"

    b.   *der zufriedene $[_{PP}$ mit der Arbeit] Professor

While I have nothing insightful to say about the exact dynamics involved, I assume that (18) is either an instance of obligatory scrambling to the left, or, more likely, the [complement - A^0]-order is directly forced upon the construction by other constraints not considered here.

Notice that, unlike in adjectival predication, the attributive adjective agrees with the super-ordinated modified noun phrase in both number and case (this is the *-e* ending in (18)), and also manifests either 'weak' or 'strong' endings depending on the +/- definiteness of the noun phrase. As such, the adjective might be forced into a noun-adjacent position in order to pick up the agreement information. See also Haider 1993:38 on the observation that there is an apparent

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[16]Keep in mind that a [head - complement]- AP could in principle accept AP-adjuncts without any violation of LEX HEAD EDGE, the latter being violated only by the presence of a specifier.

adjacency restriction targeting the noun and the attributive adjective. Since the internal structure of attributive adjective is little understood in general (cf. Chomsky 1995:382, fn.22), I leave the matter open for further research.[17]

5.2 The emergence of 'surface'- head-finality

So far, we have only looked at adjectival predication in which A's complement is a PP; and we have noticed that unlike a verbal head, the adjectival head easily licenses a PP on its right. The situation is different when the adjective combines with a case-demanding DP. German does not have many adjectives that assign case to an object, but for those that do, the DP must occur on the left of the adjective. Three examples are given in (19):

(19)   German:

    a.   Er ist [$_{DP}$ seiner Freundin]$_{Dative}$ **treu**.

          he is   his   girlfriend   faithful

          "He is faithful to his girlfriend."

    a'.   *Er ist **treu** [$_{DP}$ seiner Freundin]$_{Dative}$.

    b.   Vielleicht ist er ja [$_{DP}$ des vielen Geldes]$_{Gen}$ **überdrüssig**.

          maybe   is he indeed the much   money   weary

          "Maybe, he is tired of all that money."

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[17]Another possibility might be that the construction involves a noun/det-co-referent *pro* in Spec, AP, which must be locally controlled by the super-ordinated determiner, in order to transmit the agreement information into the adjective phrase. This in turn would enforce the head-finality of AP. Note here that many languages double the determiner within the attributive adjective, as for example in Hebrew (cf. Ritter 1991b:3):

(i)   **ha**-axila   **ha-**menumeset •el Dan

      the-eating   **the-polite**   *gen* Dan

      "Dan's polite eating"

b'. *Vielleicht ist er ja **überdrüssig** [DP des vielen Geldes]*Gen*.

c. Ich bin [DP meiner Tante]*Dative* **böse**.

   I am my aunt   angry

   "I am mad at my aunt."

c'. *Ich bin **böse** [DP meiner Tante]*Dative*.

There are two crucial aspects to note. First, the availability of case within the German AP differs significantly from what we have seen for genitive in the nominal domain. That is, while genitive case (or whichever case a grammar licenses in its nominal domain) does not need to be used within noun phrases, it always can be if one wants to add a possessor to the noun. But with respect to German adjectives, only a selected subset of APs involve case assignment. An adjective that does not qualify has no access to case, even if the thematic relations are the same:

(20) German:

  a. Ich bin **böse** [PP auf meine Tante].

    I am mad at my   aunt

  b. Ich bin [DP meiner Tante]*Dative* **böse**.

    I am my aunt   angry

    "I am mad at my aunt."

(21) German:

  a. Ich bin **wütend** [PP auf meine Tante].

    I am mad   at my   aunt

  b. *Ich bin [DP meiner Tante]*Dative* **wütend**.

    I am my aunt   angry

    "I am mad at my aunt."

Second, while dative case seems definitely the most common case within the adjectival domain, a few adjectives involve genitive case assignment, and the left-orientation of the case-marked phrase is still the same (cf. (19b)).

We can even find adjective phrases with two cases assigned, in parallel to the corresponding derived verb (note that the suffix *-ig* forms adjectives from nouns in German). In such a scenario, both DPs have to precede the adjective:[18]

(22) German:

    a.   ..., weil ich [$_{DP}$ meinem Freund]$_{Dative}$ [$_{DP}$ die Antwort]$_{Acc}$ **schulde**.

          since I   my   friend   the answer   owe

        "..., since I owe the answer to my friend."

    b.   Ich bin [$_{DP}$ meinem Freund]$_{Dative}$ [$_{DP}$ die Antwort]$_{Acc}$ **schuldig**.

          I   am   my   friend   the answer   due

        "I owe the answer to my friend."

    b'.   *Ich bin [$_{DP}$ meinem Freund]$_{Dative}$ **schuldig** [$_{DP}$ die Antwort]$_{Acc}$.

    b''.   *Ich bin [$_{DP}$ die Antwort]$_{Acc}$ **schuldig** [$_{DP}$ meinem Freund]$_{Dative}$.

    b'''.   *Ich bin **schuldig** [$_{DP}$ meinem Freund]$_{Dative}$ [$_{DP}$ die Antwort]$_{Acc}$.

Altogether, case marking within the adjective phrase seems to depend idiosyncratically on the adjective heading the phrase, suggesting that it is an inherent case assigned by A. But why the obligatory left-orientation?

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[18]If an adjective assigns two cases, it seems that dative must be one of them. But the combination does not need to pair dative with accusative; *sicher* 'secure', for example, selects a dative reflexive and a genitive object:

(i)   Ich bin mir$_{Dat}$ dessen$_{Gen}$ sicher. – "I am me thereof sure = I am sure about that"

5.2.1   Relevance of Burzio's generalization

Recall the basic configurational assumption on adjectival predication: The construction necessarily involves PredP, Pred being the assigner of the subject-2-role, *not* the adjective itself. The adjective heads an AP, which is the complement of $Pred^0$. That is, if A^0 assigns case to its complement (an object), then it does so without assigning any 2-role to a subject. Now, if we compare these dynamics with structural case assignment in the verbal domain, in the latter, there appears to be an incapability of licensing object case assignment without subject-2-role assignment. That is, on the dimension of verbal structural case, the assignment of accusative case to the object seems to be contingent upon the assignment of a 2-role to a subject. This was observed by Burzio 1986 and stated in his generalization:

(23)   Burzio's generalization (cf. Burzio 1986:178):

"Case is assigned to the object if and only if a 2-role is assigned to the subject."

Calling upons Burzio's generalization is controversial, both because it is unclear whether the generalization is actually true, or in which form it could be (cf. Levin & Rappaport 1995:287f, fn.4; Hendrik 1995:321), and because it is unknown which actual cause lies beneath it (cf. Baker 1988; Baker, Johnson & Roberts 1989:222f, 234ff on passives). One can also ask how relevant it can possibly be, given that the generalization constituted an attempt to capture the dynamics of *structural* case assignment in the *verbal* domain. Despite the fact that it is uncertain what could actually qualify as a structural case in the adjectival domain, the data above seem to directly point towards a rather idiosyncratic, and thus inherent nature of adjectival case in German. Furthermore, since we acknowledged the proposal that active transitive verbs are syntactically not atomic, but rather split into a V-head which extends into *v* (this is adopting Chomsky 1995:315, Baker 2003:79), we must also ask whether and how Burzio's generalization has an echo in such conception. This is tightly connected to the question of the structure of both passives and unaccusatives, and what happens to *v*, the usual assigner of the subject/external 2-role in these contexts.

Thus, even if we grant Burzio's generalization enough credit in itself, can it help us to understand more about the link between thematic structure and case in general, beyond the

verbal domain?

Looking at it from an abstract hierarchical perspective, the insight behind the generalization seems to be that case assignment to a hierarchically *low*(er) argument depends on the existence of structure that is of *thematically high*(er) order. That is, if we think of thematic linking and the assumption that the subject-2-role is linked into a hierarchically higher position, we can identify the subject-2-role and the head that assigns it as being of thematically higher order. Now, the reality of *v* has frequently been motivated by the reference to lexical semantics/decomposition, correlating *v* with a CAUSE operator which is syntactically present and ultimately responsible for the assignment of the external 2-role in transitive constructions (cf. Jackendoff 1976, 1983, Dowty 1979, Parsons 1990; see Baker 2003:79ff for discussion and application, as well as extension thereof to his theory). But be aware that the concept of a syntactic *v*-head and a syntactic CAUSE operator are not identical, as for example, Baker 2003:68, 85 assumes the presence of an empty *v*-head without a CAUSE operator in unaccusative constructions.

Taking up on the equation of the external-role-assigner in the verbal domain with a syntactic CAUSE operator, and factoring in Burzio's generalization, the hypothesis here is this. First, there is a connection between the dynamics of structural case and the syntactic presence of a thematically higher-order 2-assigner such as the CAUSE operator. But this is not all. The connection also factors in lexical case assignment more generally, meaning that the absence of a syntactic CAUSE operator influences both the dynamics of structural case and the dynamics of case assignment in adjectival and nominal extended projections. Furthermore, the actual dependency on the syntactic CAUSE operator does not so much restrict 'object case assignment' as such, but rather the (lexical) case assignment within a particular hierarchically low domain.

In that spirit, here is the definition of a constraint to explore; a constraint, that expresses the inability of a lexical case assigner to assign its case (structural or inherent) to a position within its perfect projection, whenever it does not extend into a thematically higher-order 2-assigner, identified as the syntactic CAUSE operator:[19]

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[19]The constraint, if it proves itself valuable in future research, potentially constitutes an unviolated axiom (or a super-ordinated constraint). In the following, I am not so much concerned with what the possible violation of 2-DEP-CASE

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(24) 2-DEPENDENCY OF LEXICAL CASE (2-DEP-CASE):=   *ep* = extended projection

   • *ep* projecting lexical heads " such that " assigns case to a position in perfect " P:

   " XP, XP is an extended projection of ", X^0 contains the syntactic operator CAUSE.

2-DEP-CASE quantifies not only over V but over all lexical heads that anchor an extended projection, meaning that it applies to V, lexicalized Pred, N and A. Furthermore, the trigger for a lexical head being able to assign case is not so much the presence of a subject-2-role as such, but the syntactic presence of a particular assigner thereof, the CAUSE operator. Only if the lexical head extends into a head containing CAUSE will the lexical head be able to assign case freely.

On the other hand, 2-DEP-CASE does not in fact entirely block the lexical head's ability to assign case; rather, it takes away the ability of assigning it within its own lexical domain.

Acknowledging (24) opens more than one door. We will be able to understand why lexical case in the German AP distributes in a particular way; and more generally, why neither N nor A make great case assigners cross-linguistically. But we will also capture the altered case dynamics in unaccusatives and passives, where we understand the phenomenon of T changing its case target and directing it towards the THEME-object, which emerges in these structures, as the end result of a rather context-independent incentive to obey 2-DEP-CASE. (Clearly, this line of analysis depends on a particular structural interpretation of the corresponding constructions, which one must be open to embracing.)

Let us start by understanding how 2-DEP-CASE influences case assignment within AP, since this is the original puzzle at stake. Following Baker's theory of non-verbal predication, neither N nor A ever extend into any projection that could host a CAUSE operator. Instead, both NP and AP are complements of Pred, and Pred is not an extension of any corresponding head.

Consequently, in obedience to (24), only V can in theory assign case *itself within* its own lexical projection. Recall that in chapter 3, we made a distinction between lexical and functional case, arguing that T is a functional case assigner. Then, later, in chapter 4, we recognized D as a functional case assigner of genitive. Now, 2-DEP-CASE says nothing about how a functional case

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can contribute to the understanding of adjectival case assignment and beyond, but rather with its impact as a restriction that is obeyed across different contexts. See also the discussion in section 5.3 below, on 2-DEP-CASE's role within the dimension of verbal structural case, which is a super-ordinated one.

should be assigned. (This includes also case assignment by P, since P is here categorized as a functional head.). The specifier (or complement) of VP, NP, or AP can receive case from a functional head without entering into any conflict with 2-DEP-CASE. Neither is the constraint threatened in any situation in which a lexical head acts as a lexical helper for functional case assignment. However, 2-DEP-CASE, in its absolute obedience, does exclude N or A from ever becoming primary case assigners in themselves, unless they assign the corresponding case (via a long-distance relation) to a position *outside* their own perfect lexical projections. The restriction in (24), then, creates a kind of 'give-and-take'-interaction between the lexical and the functional domain of an extended projection.

Given Baker's theory of predication, V (which equals a Pred-head lexicalized by A prior to lexical insertion) is the only lexical head that can extend into a higher order predication. That is, only V can extend into a head *v* that potentially hosts the syntactic CAUSE operator. Therefore, only if the lexical head is V and extends into *v* which contains CAUSE can that lexical head project its own case directly into LexP. Here, the head of the extended projection has the most options, since it can also project its case into the functional layer, and its functional extensions can direct their case(s) into the lexical layer. In accordance with 2-DEP-CASE, only V can have the advantage of all three options.[20]

But N and A, which are unable to extend, by themselves, into a higher order predication, have only two options:

(A)   A functional extension of the lexical head is the primary case assigner. F^0 can direct the assignment to a position within the lexical projection. We have seen an example thereof in genitive assignment by D, which targets either Spec, DP or Spec, NP.[21]

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[20]If Universal Grammar is an essentially economic system, then it is not surprising that the exhaustive set of case assignment choices is reserved for a context that is thematically the richest.

[21]In chapter 4, we asked whether languages that lack a determiner system are unable to project D^0. We noted that a lack of any access to D left N with the burden of assigning genitive case itself. Now, if that complete inaccessibility of D is a reality, then 2-DEP-CASE is here (necessarily) violated. If, on the other hand, the lack of determiners does not equal a grammar's basic ability to extend N into (abstract) D, then a sufficiently high-ranked (or even super-ordinated) 2-DEP-

(B)   The lexical head itself assigns case, but then, in accordance with 2-DEP-CASE, the case can be assigned only to a position within its functional layer.

For German adjectives, my proposal is this: If the adjective is a case assigner, then it turns to option (B) in order to assign its case.

5.2.2   No case assignment inside AP

Having recognized that the adjectival case in question is an inherent case, we first identify A^0 as the primary assigner thereof. Second, we acknowledge that German obeys the constraint on 2-dependency of lexical case, which forces A^0 to assign its case to a position within the functional layer of A. In the last section, we have already learned that A has the ability to extend into DegP. Thus, the proposal is that German As assign their case to Spec, DegP, through a long-distance [spec, head]-relation:

(25) $[_{DegP}$ $[_{DP}$ seiner Freundin$]_{Dat}$ Deg^0 $[_{AP}$ treu$_A$ t_{Dat} $]$

              his   girlfriend   faithful

      "faithful to his girlfriend"
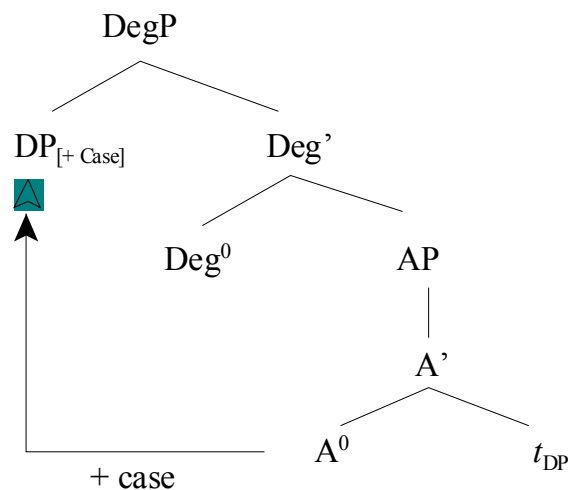
CASE could explain why corresponding grammars, despite lacking a determiner system, still project D as a genitive case assigner.

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The tableau in (26) shows why the tree in (25) is the optimal choice. The premise here is that it is the adjective itself which assigns dative case to the DP in Spec, DegP. If it were Deg, then we should expect dative case to be available in general in German APs (at least in gradable ones), the way genitive case is in noun phrases. But this is not correct. Therefore, A projects DegP in (25) merely to assign its own case, in a way that does not violate 2-DEP-CASE (Deg^0 in (25) can have] information encoded). The tree in (25) then wins in accordance with the further German ranking that we already know. That is, in the given scenario, German turns to the violation of CASE LEX and HEAD RIGHT. All alternatives which assign (dative) case within AP fail on 2-DEP-CASE. This includes the choice which is on a par with genitive case assignment in NP (see candidate (c)). The winner (a) (corresponding to (25)), also beats competitor (b), which moves the adjective into the Deg-head and, as such, violates LEX HEAD EDGE:[22]

(26)   Projecting a lexical case into the functional layer: (Relevant candidates; all BRANCHR obeying)

	2-DEP-CASE	LEX HDEDGE	CASE LEX	GENSUBJ	HD LEFT	HD RIGHT
∟ a. [$_{DegP}$ DP$_{Dat}$ Deg^0 [$_{AP}$ __ treu$_A$ t_{Dat}]]			*			**
b. [$_{DegP}$ DP$_{Dat}$ treu$_A$-Deg^0 [$_{AP}$ __ t_A t_{Dat}]]		*!				***
c. [$_{AP}$ __ treu$_A$^{0} [$_{AP}$ DP$_{Dat}$ t_A t_{Dat}]]	*!					**
d. [$_{AP}$ __ treu$_A$ DP$_{Dat}$]	*!					*
e. [$_{AP}$ DP$_{Dat}$ t_{Dat} treu$_A$]	*!				*	

Is there any further evidence supporting the structure in (25)? Here are two points in favor:

First, what happens in the presence of an overt degree-head? The Deg-head *zu* 'too' must occur in between the case-marked object and the adjective. This is exactly what we expect, if (25) is indeed the structure associated with German adjectival case, but it would remain obscure if the

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[22] Keep in mind that any additional lexical shell which is created by a simple recursion of A^0 or V^0, N^0 (e.g. candidate (c)) is still another instance of perfect AP (VP, NP); this in contrast to A/V's substitution into a Pred/*v*-head, which gives us perfect PredP/*v*P. Therefore, moving the case target into the specifier of an additional AP-shell can not help with respect to satisfaction of %-DEP-CASE.

DP was in a (left-peripheral) complement-, or specifier position of A^0:

(27)   German:

    a.   Er ist [$_{DegP}$ [$_{DP}$ seiner Freundin]$_{Dat}$ **zu**$_{Deg}$ [$_{AP}$ treu$_A$ t_{Dat}]]

               He is   his   girlfriend   too   faithful

               "He is too faithful to his girlfriend."

    b.   *Er ist **zu** [$_{DP}$ seiner Freundin]$_{Dat}$ treu.

    c.   *Er ist **zu** treu [$_{DP}$ seiner Freundin]$_{Dat}$.

    d.   *Er ist [$_{DP}$ seiner Freundin]$_{Dat}$ treu **zu**.

(28)   German:

    a.   Ich bin [$_{DegP}$ [$_{DP}$ dessen]$_{Gen}$ **zu**$_{Deg}$ [$_{AP}$ überdrüssig$_A$ t_{Gen}]]

               I   am   thereof   too   tired

               "I am too tired of it."

    b.   *Ich bin **zu** dessen überdrüssig.

A second consideration also points towards a head-initial AP, even if A assigns case. We can find examples, in which the adjectival extended projection contains both a case-marked DP and a PP. Here, the DP must precede the adjective, but the PP follows, on a par with the data seen above on adjectival predication without lexical case. The current proposal correctly captures the surface order, by locating the DP in Spec, DegP and the PP in the right-peripheral complement of the adjective:

(29)   German:

    ..., weil ich [$_{DegP}$ [$_{DP}$ meinen Eltern]$_{Dat}$ (zu)$_{Deg}$ [$_{AP}$ **dankbar**$_A$ [$_{PP}$ für diese Lösung]]] bin.

        since I   my   parents   (too)   grateful   for this solution   am

        "I am (too) grateful to my parents for this solution."

Now, let us step back for a moment, and consider not only the German AP, but adjective and noun phrases more generally. The impact of 2-DEP-CASE contributes to the understanding of why both adjectives and nouns are rather 'impaired' case assigners cross-linguistically. Within both NP and AP, we frequently see prepositional phrases in the complement, but morphologically case marked DPs in complement position are exceptional. Acknowledging 2-DEP-CASE, the point is that neither A nor N can assign case to a potential complement without violating the constraint. Furthermore, as we have said, the only way of circumventing the violation is to invoke a functional extension either as a case assigner, or so that one can assign case to a position in the functional layer. Both times, the choice relies on the premise that N/A have access to functional extensions, which could be additionally constrained in some grammars.[23]

Also, in the German AP, we see that the optimal structure violates CASE LEX, a constraint that the grammar elsewhere obeys (circumvention of the violation would require violation of the even higher ranked LEX HEAD EDGE; recall candidate (a) vs. (b) in tableau (26)). Thus, the configuration is more marked than other case assignment configurations in the grammar. Perhaps, for that reason, it is restricted to inherent adjectival case (recall also that German does not have many adjectives that assign case). Just the same increase in terms of markedness can hold for any other grammar, since case assignment in FP can lead to additional violations of CASE LEX or LEX HEAD EDGE or HEAD LEFT/RIGHT, depending on how a grammar adapts to the task. In short, 2-DEP-CASE restricts the case assignment ability of both A and N in a more severe way than it does for V.

So far, we have seen that the introduction of 2-DEP-CASE enables us to correctly capture the distribution of adjectival case within the German AP. Even if a case marked DP precedes the adjective on the surface, the data ultimately suggest that the AP still has [head - complement]-order, and as such, patterns with the grammar's noun phrases. That is, this surface head-finality is not an underlying head-finality, but caused by localization of the case marked DP in a functional specifier, Spec, DegP. Beyond capturing German, 2-DEP-CASE has the welcome effect of

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[23]This could hold either because the functional extension does per se not qualify as a primary case assigner (most likely the case for Deg), or because the grammar disallows a functional extension whose head does not encode independent functional information but remains empty instead.

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restraining the case assignment abilities of both adjectives and nouns in general.

In the following section, we want to dive into a brief excursus on how the proposal of 2-DEP-CASE finds further support when we consider its impact in the verbal domain.

5.3   Changing the case target in unaccusatives and passives

Facing the complexity of each of the two topics, unaccusatives and passives, it is obvious that I can deliver no more than the outline of an idea of how the configurations coincide. Notwithstanding this, the recognition of 2-DEP-CASE as being a driving force involved in both constructions offers plenty of space to explore in future research and seems worth pointing out. The core of the idea is that both types of construction lack the presence of CAUSE, which, in obedience of 2-DEP-CASE, motivates T to direct its case to the (internal) THEME.

Let us first clarify how, in the case of transitive (and unergative) verbs in an (*nom, acc*) - system, no potential conflict with 2-DEP-CASE arises. Without any conflict, the projecting lexical head V can and does assign its structural case within the perfect VP.[24]

So far, we have assumed that the lexical domain of a verbal extended projection is layered, splitting into VP which erects a *v*P in any transitive configuration. Following Baker 2003:79 (among many others), we assumed that while the subject-2-role is assigned by *v*, and as such originates in Spec, *v*P,[25] the object THEME-role is assigned by V, and is thus base-generated in VP.[26] Universally, in any active context, V lexicalizes *v*.

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[24]For simplification of the general argument, I leave unergative verbs out of the discussion for the most part, presupposing that they project a *v*P as well, v^0 containing CAUSE. This puts them on a par with transitive verbs in the respect which concerns us here. Following Chomsky 1995:315, 316, I take the *v*P to be an extension of a VP without any internal argument, and hence, without any structural case to assign. See Baker 2003:85f for more discussion.

[25]In the current application, we have to add 'or Spec, TP'. Keep in mind that we allowed for the theoretical option that the external argument is directly base generated in Spec, TP. See chapter 3 for details.

[26]Note that, ultimately, Baker 2003:81 takes the THEME to always originate in Spec, VP, the complement in fact always being AP. Recall that for Baker, every V is the result of an A having incorporated into a Pred-head prior to lexical insertion. His final application thereof locates the process in the syntax, such that a possible PP or GOAL-object is embedded in the AP, which is across contexts, the actual complement of V (= Pred lexicalized by A).

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Now, consider the newly added assumption: In every transitive and unergative active context of a (*nom, acc*)-system, – and only here –, v^0 contains CAUSE. It is for this reason that the THEME can receive structural case from V itself,[27] within perfect VP, without any threat of 2-DEP-CASE. The point of 2-DEP-CASE is that it restricts lexical heads in their case assigning abilities if the head does *not* extend into a head containing CAUSE; where it does extend, no conflict arises. Thus, we get the situation of V assigning structural (accusative) case to the object, the internal argument which it also 2-marks We want to furthermore assume that it is universally less marked for V to assign structural case to an argument that it also 2-marks than to assign structural case to an argument that it does not 2-mark. That is, suppose there is a pair of two structural cases: nominative assigned by T and accusative assigned by V. There are also at most two arguments in need for case: an internal argument which is 2-marked by V, and an external one 2-marked by *v*. (Other internal DP-arguments are 'flagged' to receive a particular inherent case; cf. section 3.2.) Then, as long as no additional conflict arises, V will assign accusative case to the object and not to the subject, since the object is an argument V also 2-marks, the subject is not. In consequence, T assigns nominative case to the subject which is 'left over' – not 2-marked by V, not flagged for any inherent case and still without case. As matter of fact, in this scenario, T ends up assigning structural case to the argument whose base position is, by 2-linking, the hierarchically closest to T. Thus, the distribution of the two structural cases which is preferred in a default situation can also be understood as the best in terms of locality of case assignment:[28]

Mainly for structural simplicity and ease of presentation, I will maintain here an analysis, in which 'prior to lexical insertion' means 'prior to syntax', such that V does not have any AP-complement but rather selects a PP or possibly a GOAL-object directly, if present (without necessarily rejecting the possibility that the syntactic structure is as rich as envisaged by Baker).

[27]There is the tradition of identifying *v* (not V) as the assigner of accusative case to the object (see, for example, Chomsky 1999:39). The logic that I develop here goes through only if it is the lexical head which anchors the extended projection that assigns accusative case. This is V.

[28]The reasoning implies that (*erg, abs*)-case systems are facing an additional conflict such that T (instead of V) is forced to assign structural (absolutive) case to the object.

(30)   Active transitive verbs:
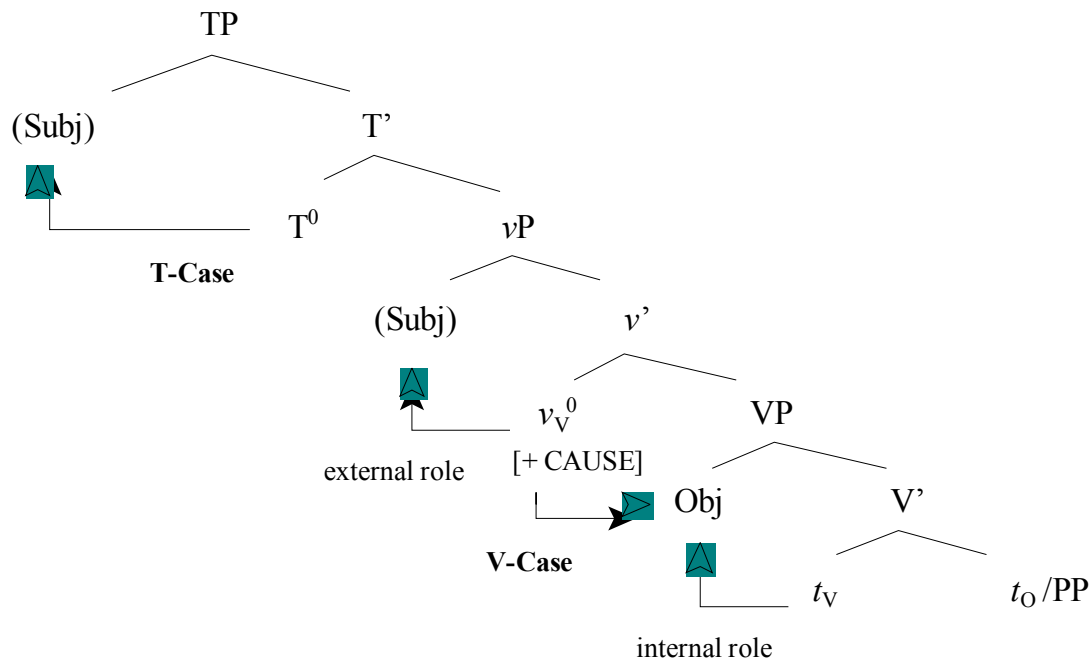
One additional conflict which blocks the default distribution arises in a context in which CAUSE is not accessible in the syntax. This can hold either because (a), there is no CAUSE element even in the lexico-semantic structure (unaccusatives); or (b), the CAUSE element is not syntactically represented (although it is present semantically; as in passives).[29]

If CAUSE is absent, the ability of V to assign case within its perfect projection vanishes in the face of 2-DEP-CASE, in the same way as it does in adjectival and nominal extended projections. V can assign case only to a position outside VP, if 2-DEP-CASE has to be obeyed.

However, the claim is that the situation still slightly differs in the dimension of verbal structural case; that is, it differs if the lexical head's case is a structural case which is one of a pair of two structural cases: *acc* assigned by V vs. *nom* assigned by T. Why is this important? The point is that, within the domain of verbal structural case, the context-independent strength of 2-

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[29]This makes a distinction between the semantic presence of the CAUSE operator and a syntactic representation thereof. Keep in mind that a lexico-semantic structure (or lexical conceptual structure) can always include components that are not syntactically represented (see, for example, Jackendoff 1983:68, 183ff (section 9.5)). Notwithstanding this,

DEP-CASE appears to have led to a context-independent, general change in structural case distribution. Recall that in AP and NP, the only way for N/A to assign case is to move the target away, to a position outside the perfect AP/NP. For a structural case which comes in a pair, with the other case normally assigned to the higher position, outside perfect LexP, there is a simpler solution: This is, simply, to let T assign case to V's argument.

The advantage of having T instead of V assign structural case to V's argument is that it grants the grammar the same maximal set of choices for positioning the internal argument, i.e. the same range of choices that the grammar would have in the presence of CAUSE. The internal argument can remain in VP not only in transitive contexts but also in unaccusatives and passives, *or* it can move out. If V insisted on assigning case, then the internal argument would have to move (or else 2-DEP-CASE would be violated). It is for that reason that we want acknowledge a general change in the distribution of structural case: as soon as CAUSE is absent in verbal extended projections, T directs its case towards the internal argument (V, on the other hand, directs its case towards the external argument if there is one). As such, universal grammar enables a specific grammar to make the decision of where to locate the internal argument by the constraint ranking which instantiates it, without being restricted by 2-DEP-CASE. Let us discuss unaccusatives, to see these dynamics at work.[30]

5.3.1   German unaccusatives and how T does V's job

Consider the German example in (30), in which the internal THEME-argument of the unaccusative verb *kommen* 'arrive' receives nominative case instead of accusative:

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however, CAUSE can only be present in the syntax if it is indeed present in the lexico-semantic structure.

[30]We see that 2-DEP-CASE does not behave like a true constraint here, but rather like an axiom which works beyond a particular ranking, and has led to a particular interplay in the dimension of structural case. This interplay in turn enables the specific grammar to make its structural choices freely, solely dependent on the particular constraint ranking

(30)   German:

...., weil   [ein wichtiger Diplomat]$_{THEME\text{-}nom}$ kommen wird.

       because [an important   diplomat]$_{nom}$ arrive   will

"...., because an important diplomat will arrive."

Why is the THEME case marked by T and not by V? The point is that all unaccusative contexts lack the CAUSE operator. That is, in unaccusatives, the underlying thematic structure is less complex, since even the lexico-semantic representation lacks a causal component. Therefore, following Chomsky 1995:315, 316, the assumption is that unaccusative verbs syntactically lack the vP-layer altogether, and with it the CAUSE operator.[31]

    Given the reasoning just outlined, the absence of CAUSE makes V give up its case target: Not V but T directs its case towards the internal argument of V. As a result, the grammar has the freedom to either locate the argument within VP or to move it out, the ultimate choice depending on the grammar's constraint ranking.

    Obviously, comparing the unacusative with the transitive structure, there is one component missing in the former. Since the thematic structure does not introduce any external argument, V's structural case assignment gets canceled. Then, one possible objection might be the following. In an unaccusative context, there is more pressure to move the internal argument out of VP, to Spec, TP, because the subject is missing. Doesn't this make a case target change analysis superfluous, because the object ends up in a position to which V could assign its case (outside perfect VP)? No, it does not. In light of the current system, there is not much difference between the subject moving to Spec, TP in transitives and the object moving in unaccusatives. In both cases, a particular ranking could force a grammar to reject such a move. The fact that, in the absence of a higher argument, it becomes necessary for the object to move to Spec, TP (to satisfy GEN SUBJECT) can also be understood as an implication that it becomes especially important for V to give up its structural case assignment. Only then does no potential conflict with 2-DEP-CASE arise, and thence the decision to move or to not move the object out of VP can be made by a

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which constitutes the grammar.

    [31]Note that this slightly deviates from Baker 2003:68, 85, who assumes that vP is not absent, but v^0 is empty. Ultimately, the same logic as in the text could still be applied. The crucial aspect is the missing CAUSE operator.

particular ranking.

One example of a grammar which exploits the potential freedom of keeping the internal argument within the perfect VP on the surface is German. This is because, as argued in chapter 3 (3.5.2), the German subject generally stays within the lexical layer in all subordinated (non-Verb Second-) contexts. In unaccusative configurations, this means we get a configuration in which the internal argument receives nominative from T, but it still occurs in Spec, VP, on a par with the transitive subject occurring in Spec, vP. In this specific grammar, then, if there were no case target change, the outcome would lead to violation of 2-DEP-CASE, because V would direct its case to a position within perfect VP.

We see in the tableau in (32) how, exactly, German picks the optimal structure in unaccusatives. 2-DEP-CASE is left out at this point, in order to make clear that it does not participate in the actual decision process. Rather, in its super-ordinated role, it restricts the possible candidates, which, in absence of CAUSE, must all be structures in which T directs its case towards the THEME, not V. The point is nevertheless to observe that the optimal structure would violate 2-DEP-CASE without case target change:

(32) German:

....., weil [$_{TP}$ __ [$_{VP}$ [ein wichtiger Diplomat]$_{THEME-nom}$ t_O **kommen**$_V$] **wird**$_T$].

   because   [an   important   diplomat]$_{nom}$ arrived   will

"....., because an important diplomat will arrive."

(relevant candidates):

	LEX HD EDGE	BRANCHR	CASE LEX	GENSUBJ	HEAD LEFT	HD RIGHT
L a. [$_{TP}$ __ [$_{VP}$ THEME$_i$ t_i V^0] T^0]				*	**	
b. [$_{TP}$ THEME$_i$ T^0 [$_{VP}$ t_i t_i V^0]]			*!		*	*
c. [$_{TP}$ THEME$_i$ V^0-T^0 [$_{VP}$ t_i t_V t_i]]	*!					***
d. [$_{TP}$ __ T^0 [$_{VP}$ __ V^0 THEME]]				**!		**
e. [$_{TP}$ __ T^0 [$_{VP}$ THEME$_i$ V^0 t_i]]	*!		*	*		**
f. [$_{TP}$ __ T^0 [$_{VP}$ __ V^0 [$_{VP'}$ THEME$_i$ t_V t_i]]				**!		***

When considering German, besides understanding the impact of 2-DEP-CASE, there is always also the issue of directionality to be looked at. It is therefore important to observe that in unaccusative configurations, an absent external argument does not entail an absent VP-specifier (which we identified in chapter 2 as a crucial ingredient in the emergence of a head-final VP). In parallel to what we have seen all along, it is the combined impact of GENERALIZED SUBJECT and LEX HEAD EDGE, both being ranked above HEAD LEFT, which ensures the following. In the first place, VP has a specifier. Second, the 'head movement'-choice (cf. chapter 2) has no chance to succeed. That is, LEX HEAD EDGE cannot be satisfied by moving across a specifier, since the verbal head, as the head of a clause, can not escape its duty of projecting a specifier. Therefore, V is always pressed to the outermost right-periphery if it surfaces within VP (no matter which VP/*v*P this is).

In unaccusatives, this has two consequences. First, even if, in a context without any PP, we allow the THEME to be base-generated in the complement of V, it will nevertheless move (at least) to Spec, VP to satisfy GENERALIZED SUBJECT (compare candidate (a) with (d)). The ranking of LEX HEAD EDGE then leads to head-finality.[32]

Second, compare candidate (a) and (f). German V cannot escape the pressure of LEX HEAD EDGE and GENERALIZED SUBJECT. There is no option of extending the lexical projection by another shell, as is possible in the nominal domain. The logic is just the same as it is in transitive/*v*P-contexts: In a clausal extended projection, in which GENERALIZED SUBJECT is active, the pressure on the lexical head is greater than it is for N or A. This leads, in the 'mixed directionality'-type of German, to a switch with respect to the head/complement-order.

Evidence that the German nominative case marked THEME can indeed surface inside perfect VP comes from so called unaccusative 'dative' verbs. German has a class of unaccusative verbs that take, besides a THEME- (which receives nominative case), a GOAL- argument which receives inherent dative case. What is significant about this class is that the dative argument has the syntactically more prominent role. This is evident from the fact that (in a subordinated

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[32]On this first account, yet another factor ensures the movement to Spec, VP. This is the configuration of structural case assignment. Recall that we are presupposing that structural case assignment is restricted to a (possibly long-distance) [spec, head]-relation. For that matter alone, the internal argument must raise to at least Spec, VP in both transitive and unaccusative contexts.

context), the nominative argument follows the dative argument in the basic word order; a configuration which is elsewhere strongly marked or even ungrammatical (cf. Lenerz 1977:114ff; see also Büring 1992:17f):[33]

(33)   German ((b), (b') cf. Büring 1992:17):

   a.   ..., weil [DP dem Pianisten]*Dat* [DP dieser Fehler]*Nom* unterlaufen ist.
               since   the   pianist   this   mistake   undergone   is
           "..., since the pianist has made this mistake."

   b.   ..., weil [DP Chico]*Nom* [DP dem Mann]*Dat* [DP ein Buch]*Acc* schenkt.
               since   Chico   the   man   a book   gives
           "..., since Chico gives a book to the man."

   b'.   *...., weil [DP dem Mann]*Dat* [DP Chico]*Nom* [DP ein Buch]*Acc* schenkt.[34]

The data suggest that the internal THEME-argument – despite receiving T's case – is still in the same 'low' structural position as it is in transitive contexts. As such, it occurs, in an unmarked setting, below the GOAL, instead of obligatorily surfacing above.[35]

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[33]The verbs furthermore allow the *nom* 'subject' to undergo 'was ... für'-split (cf. den Besten 1985), a *wh*-extraction in which a *wh*-phrase is split into a fronted *wh*-element and a [*für ...*]-PP ('for...') left behind. In the case of nominative case marked arguments, 'was ...für'-split seems to be only possible if the argument is an internal one.

[34]The example becomes grammatical if one heavily stresses *dem Mann*, but not under a neutral intonation.

[35]That the dative phrase is in a hierarchically higher position than the nominative phrase when it precedes is also supported by binding theory. The dative phrase can bind an anaphor in the nominative phrase but not vice versa:

(i)   ..., weil [dem Pianisten]*dat*-i [er selber$_i$]*nom* gefällt.

            since the   pianist   he self   likes

          "..., since the pianist likes himself."

(ii)   *..., weil [ihm selber]*dat*-i [der Pianist]*nom*-i gefällt.

At this point, it is desirable to understand where exactly the GOAL surfaces in unaccusative (and transitive) dative contexts.

5.3.2   Dative case in German verbal extended projections

In chapter 2 (2.1), we briefly mentioned that there is considerable debate on whether the underlying thematic hierarchy is in German either 'GOAL > THEME', or 'THEME > GOAL', and on whether the hierarchy is context independent or can differ from verb to verb. Note in this respect that Baker 2003:81 (including fn.25), whose vP-VP-shell structure is in part motivated by correlating the verbal heads with semantic primes/operators (v = CAUSE and V = BE), locates the GOAL universally below the THEME and takes 'GOAL - THEME'-orders cross-linguistically to be the result of dative shift. Nevertheless, we should keep in mind that the correlation of VP-shell structure and semantic primes does not necessarily entail that the GOAL originates below the THEME. See for example Büring 1992:17 for a lexical decomposition of a the German verb *geben* 'to give' that invokes a HAVE-prime. Correlating a V-shell with HAVE could yield a linking in which the THEME originates below the GOAL (see also Büring 1993).

No matter which standpoint one takes, the following is important with respect to our current concerns. As soon as one posits the (context dependent) existence of an additional verbal shell between VP and vP, then it is possible to account for the unmarked 'GOAL - THEME' - order, without giving up on the claim that the German transitive subject can surface within the lexical layer (as we have defended in chapter 3).[36]

This additional shell, call it v_{GOAL}, could be one which is indeed filled with a syntactic operator correlating to a semantic prime in the way that CAUSE does. The GOAL would be base generated in Spec, vP$_{\text{GOAL}}$, its 2-role assigned by v_{GOAL}. Alternatively, v_{GOAL} could simply be a target projection for dative shift. Either way, in the light of 2-DEP-CASE and going back to unaccusative verbs, it is important that v_{GOAL} is distinct to V in the same way as v is. As such, substituting V into v_{GOAL} will give us lexical v_{GOAL}, meaning that a dative phrase in the corresponding specifier can receive inherent case from V without getting into any conflict with 2-

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[36]Keep in mind that in transitive contexts, the nominative case marked (AGENT) argument must precede a dative phrase in an unmarked setting.

DEP-CASE, even in the absence of syntactic CAUSE. The GOAL in Spec, $v\text{P}_{\text{GOAL}}$ is in perfect $v\text{P}_{\text{GOAL}}$, not in perfect VP.

What we then get altogether in German unaccusative dative verbs is a kind of 'target crossing' in the case dynamics of V and T: T directs structural case 'downwards' to the internal THEME-argument which is below V's inherent case target, the GOAL in Spec, $v\text{P}_{\text{GOAL}}$. This is illustrated in (34). Keep in mind that the reason why T takes up V's job of assigning structural case to the internal THEME-argument has nothing to do with the presence or absence of the dative phrase. It applies to unaccusative dative verbs and to simple unaccusative verbs alike, and is triggered by the syntactic absence of CAUSE. On the other hand, the GOAL receives dative case in Spec, $v\text{P}_{\text{GOAL}}$ regardless of whether the lower THEME receives nominative in an unaccusative context or accusative in a transitive context:[37]

(34)   German unaccusative dative verbs:

..., weil [$_{\text{TP}}$ __ [$_{v\text{P}}$ [dem Pianisten]$_{\text{GOAL}}$ [$_{\text{VP}}$ [ein Fehler]$_{\text{THEME}}$ t_{V} t^{38}] unterlaufen$_{v\text{GOAL}}$] ist$_{\text{T}}$]

   since   the   pianist   a   mistake   undergone   is

   "..., since the pianist has made a mistake."

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[37]The structural parallel of 'crossing targets' won't apply in the dimension of structural case as long as CAUSE is syntactically present. That is, Vwill not assign accusative to the subject and let T assign nominative to the deeper embedded object in the presence of CAUSE. This rests on the axiom that V chooses the less marked option of assigning structural case to an argument it 2-marks over the more marked option of assigning structural case to an argument it does not 2-mark, as long as 2-DEP-CASE is obeyed either way.

[38]The copy could be either the THEME or the GOAL, depending on the linking assumption one makes.

TP

T'

vP$_{GOAL}$ T^0 *nom* case

dem Pianisten   *v*'   *dat* case

VP $v_V{}^0$

ein Fehler...
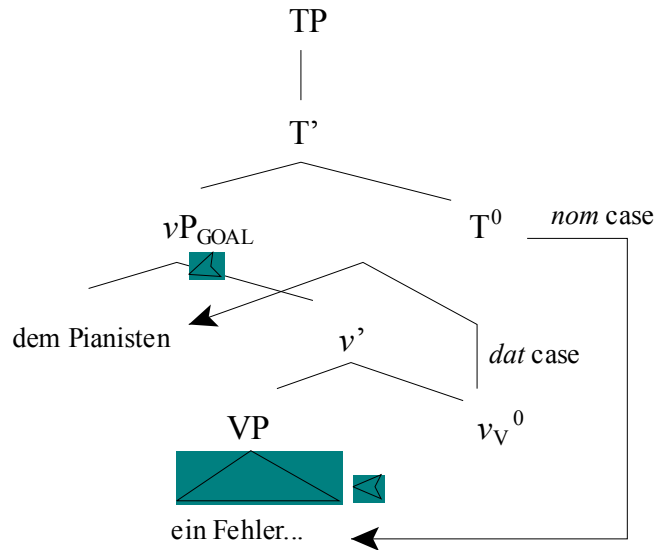
T-case	°	assigned to the internal THEME **in Spec, VP**
(structural *nom*; with T in T^0)		(= *inside* perfect VP)
V-case	°	assigned to GOAL **in Spec, vP$_{GOAL}$**
(inherent *dat*; with V in $v_{GOAL}{}^0$)		(= *outside* perfect VP)

Considering (34) solely in terms of structural geometry, the GOAL-argument in German unaccusative dative verbs is exactly on a par with a transitive subject. In the current system, this implies that it should be the dative phrase which syntactically behaves like a subject, not the nominative phrase. That is, the fact that the GOAL is the thematically highest argument within the lexical layer makes the following prediction. It implies that it is the dative GOAL which qualifies for a potential move to Spec, TP, not the nominative THEME. This prediction is borne out as follows. In section 3.5.3, we highlighted the fact that it is extremely difficult for the German subject to participate in VP-topicalization. We attributed this to the necessity of the subject to move to Spec, TP in a Verb Second-context, at the same time stressing that it is not so much the nominative subject which has to leave the lexical layer as the thematically highest argument. In the context of unaccusative dative verbs, this means that it should be the dative GOAL which resists participation in VP-topicalization, not the nominative THEME. As shown in (35), this is the case:

(35)   German:

  a.   ..., weil [DP dem Pianisten]*Dat* [DP ein Fehler]*Nom* unterlaufen ist.

       since   the   pianist   a   mistake   undergone   is

  b.   [[Ein Fehler]*Nom* unterlaufen] ist [dem Pianisten]*Dat* nicht.

       a   mistake   undergone   is   the   pianist   not

       "Made a mistake, the pianist did not."

  c.   ??/*[[Einem Pianisten]*Dat* unterlaufen] ist [der Fehler]*Nom* nicht.

       a   pianist   undergone   is   the mistake   not

On the other hand, in terms of case distribution in the extended projection, the recognition of a *v*P_GOAL-shell (with Spec, *v*P_GOAL the target of dative case in the verbal domain) places the corresponding constructions, in terms of *inherent* case dynamics, on the same level as the adjectival configurations involving dative case discussed in section 5.2 above. In both structures, the lexical head assigns its inherent case to a position outside the perfect VP/AP, circumventing any conflict with 2-DEP-CASE.

Given that dative is an inherent case and, in the verbal domain, is always assigned to Spec, *v*P_GOAL, we also expect that dative case is assigned even if the dative phrase is the only case- marked argument in the clause. Indeed, German has a handful of intransitive dative verbs. The verbs could be called 'unaccusative' in the sense that the causal component and the AGENT-external argument is absent. But unlike other unaccusatives, the underlying object does not surface with nominative case but rather with inherent dative case. One example is given in (36). With the dative phrase in Spec, *v*P_GOAL, no conflict with 2-DEP-CASE arises:[39]

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[39]The finite verb must appear in third person singular form. That is, it does not agree in person and number with the dative 'subject'. (The agreement in (36) is just a coincidence because the dative phrase happens to be in third person singular.) In that sense, the nominative case assigner T appears to be still active, imposing agreement on the verb, even if it ends up not assigning its case.

One side remark on the head-finality of T, which is a consequence of German CASE LEX obedience (see 3.5): In order to satisfy CASE LEX on behalf of the case assigner finite T, finite T must be syntactically adjacent to a lexical head which governs all of its case assignees. This means that even if finite T ends up not assigning its case, such that it has zero

(36)   German:

    a.   ...., weil meinem Bruder vor der Prüfung graut.

    a'.   ..., weil [$_{TP}$ __ [$_{vP}$ [meinem Bruder]$_{Dat}$ [$_{VP}$ t^{40} t_V vor der Prüfung] graut$_{vGOAL}$] T]
               since   my   brother   at the exam   shudders
               "..., since my brother shudders at the thought of the exam."

By the same token, if a German transitive verb assigns dative instead of accusative case to the object and the verb passivizes, then, the object does not emerge with nominative case but receives the same case, as it would receive in a corresponding active context. The structural result is very much on a par with the intransitive dative verbs. While the finite verb must be third person singular (it does not agree with the dative argument), the only overt case-marked DP is the dative phrase:

(37)   German:

    a.   Ich helfe [meinen Eltern]$_{Dat}$.   active voice
        I   help   my   parents

    b.   [Meinen Eltern]$_{Dat}$ wird   geholfen.   passive voice
        my   parents-PL will-3PSg   helped
        "My parents are helped."

I touch upon the change of structural case distribution in passives in a moment. Here, we only want to note that, even if passive means syntactic suppression of the CAUSE-component, dative case assignment does not threaten 2-DEP-CASE, as long as German V generally assigns dative to a specifier outside perfect VP, as we have assumed.

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case assignees, it still must be syntactically adjacent to a lexical head, or else CASE LEX is violated.

[40]The GOAL may or may not have a copy inside VP, depending on the linking assumption one makes (as discussed above).

5.3.3 A brief note on passives

Now, let us briefly address passives, in order to see how the same logic as we used in unaccusatives can be applied. In general, considering passive constructions in the light of a vP-VP-theory, a question which arises is whether the vP-layer is still present, and if so, then what is contained in it. On the one hand, passive formation, which can only apply to transitive and unergative verbs, involves the explicit syntactic suppression of the subject-DP carrying the external 2-role. On the other hand, as highlighted by Baker, Johnson & Roberts 1989:220ff, the external role appears to be not only implicitly, but also syntactically still present. That is, Baker, Johnson & Roberts' purely syntactic interpretation of passive formation identified the passive morphology as the recipient of the external 2-role, though they located the passive morpheme (-EN), and thus the external argument, in I^0. Adopting the vP-VP-theory of transitivity, one then faces the question of whether syntactic suppression of the causal component means total absence of the vP-layer, or whether the passive morphology in fact originates within v^0 rather than in the inflectional layer, or even whether linking of the external role into Spec, vP in transitive contexts is still somehow reflected in the passive context as well (i.e. the assumption of an abstract *pro*-element; cf., for example, Fukui 1988).

Despite of these many faceted issues, only one aspect of this question is imperative to address in light of 2-DEP-CASE: In order to explain that the THEME receives T's case, we need to acknowledge that the CAUSE-operator is syntactically absent, whether vP is present or not. Then, V will lose its role of assigning structural case to the THEME and T takes over. This in turn grants specific grammars the freedom of positioning the THEME (V's original case target) either inside or outside VP, in the same manner as we have described for unaccusatives.

In passives, we might find in addition a 'case target reversal' in the sense that V still assigns structural case but re-directs it, as T does. (The proposal that the passive morpheme itself receives *acc* case comes to mind here; cf. Baker, Johnson & Roberts 1989:239). Such analyses would be in accordance with 2-DEP-CASE, as long as the position of the recipient is outside VP. The point about 2-DEP-CASE though is that it renders obsolete the reasoning of whether V's case is in fact absorbed, or potentially re-directed to another target (at least, it is not needed to explain why the THEME does not receive accusative case). 2-DEP-CASE now motivates the proposal that the THEME receives T's case, by directly linking it to the distinct syntactic representation of the

thematic structure in passives (on a par with unaccusatives). What remains is the recognition of passive as exactly a process which alters this syntactic representation of the thematic structure, in contrast to how it is given in active contexts.

Note then that, unsurprisingly, in German, a *nom*-receiving THEME in a passive context has the same lack of prominence as the argument of an unaccusative. That is, as illustrated in (38), in a passivization of a di-transitive verb, which involves both a dative GOAL and a nominative THEME, the nominative 'subject' can follow the former without being at all marked:[41]

(38)   German:

    ...., weil [meinem Vater]$_{Dat}$ [das Auto]$_{Nom}$ gestohlen wurde.

        since   my   father   the car   stolen   will-PAST

    "..., since the car was stolen to my father."

This completes our excursus on unaccusatives and passives, and the impact of 2-DEP-CASE thereon. We have seen that the recognition of 2-DEP-CASE pays off beyond its capacity of capturing why a case marked DP within the German AP precedes the adjective, despite that we have analyzed an [A^0 - complement]-order in adjectival predication.

All in all, the acknowledgment that case assignment by a lexical head to a position inside perfect LexP is heavily restricted by the issue of whether the lexical head projects a thematically higher order CAUSE operator or not, can be a key to start to understand why cases are distributed in a particular way throughout an extended projection.[42]

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[41]The nominative THEME can also easily be part of a topicalized VP, stranding the dative phrase, as we have seen in the case of dative unaccusatives in (35) above. The case of passives is less clear, though, since it is not completely bad to strand the nominative phrase instead of the dative noun phrase.

[42]As a final remark, the recognition of CASE LEX and the described dynamics of structural case target change might also add to the understanding of (*erg, abs*)- languages. Significantly, ergative languages have been described as grammars in which *all* verbs are in fact unaccusative verbs (cf. Bok-Bennema 1991:21), or as languages that have historically evolved out of a generalized application of passive (cf. Bok-Bennema 1991:21 for Niuean; cf. Hale 1970, Dik 1980 for Australian ergative languages, which have passed, or are still passing, through a stage of obligatory passive

5.4   P-functionality and directionality

In this last section of this chapter, we want to shift the focus from A to P. That is, we want to look in more detail at some of the directionality consequences' which fall out from a pairing of the current system with a theory that delimits the set of lexical categories to be verbs, nouns, and adjectives (all of which we have discussed by now), and recognizes adpositions as being functional heads. Note in advance that the discussion will focus entirely on these consequences, presupposing that the claim that P is a functional category is as such correct. For a sound argumentation on favor of this view, see Baker 2003:Appendix. I continue to limit the primary attention to German, with a side look on Finnish and Dutch, given that the grammar's distribution of adpositions has some puzzling aspects which might ultimately gain us further insights into both the internal architecture of PP, and the conception of extended projections in general.

What, then, is the consequence of P being functional in a grammar that has the German ranking? The first expectation is that any PP has [head - complement]-order, on a par with other functional heads. Second, the presence or absence of a specifier cannot compromise this [head - complement]-orientation in any way. We will see throughout this section that both points are correct.

The majority of German adpositions are prepositions, meaning that the surface order is 'P - noun phrase'. A few examples are given in (39). The pattern is stable, even if P is preceded by a PP-internal modifier (or specifier) such as *ganz* 'very, entirely, complete' (see (39d)):

(39)   German:

    a.   [$_{PP}$ unter$_P$ [$_{DP}$ der Brücke]]   b.   [$_{PP}$ neben$_P$ [$_{DP}$ dem Tisch]]

           below   the bridge   next-to   the   table

---

formation; see Bok-Bennema 1991:20f for more discussion and references).

If such generalized application of passive meant that in an ergative grammar, the CAUSE operator is never syntactically present, since it is deleted or absorbed, then this would also imply that case target change generally happens, as soon as V has an internal (THEME) argument. That is, T would, not only in unaccusative but also in transitive contexts, assign its case (absolutive) to the object, as appears to be the case (cf. Bok-Bennema 1991:202-219). Consequently, (*erg*, *abs*)-grammars would unmask themselves as (*nom*, *acc*)- systems plus a more general application of structural case target change, ultimately due to the impact of 2-DEP-CASE.

c.	$[_{PP}$ mit$_P$ $[_{DP}$ dem Messer$]]$ 	 d.	$[_{PP}$ ganz ohne$_P$ $[_{DP}$ jede Hemmungen$]]$

    with the knife 	 completely without any scruples

Let us briefly address the question of *ganz*'s syntactic representation, to see why it makes sense to assume that the modifier is inside PP. According to Morimoto 2002:15f, *ganz* is a modifier that requires strict adjacency with an X^0 over which it takes exclusive scope, where X^0 can be of any category. She therefore takes *ganz* to be a "non-projective syntactic word" (referred to as an 'intensifier'), which adjoins to X'. Nevertheless, this evaluation appears to be only in part correct, since it overlooks that *ganz* can function either as an adverb or an attributive adjective. Only as an adverb does *ganz* take particularly local scope. That is, as Morimoto 2002:15 correctly observes, *ganz gut gemacht* 'completely good made' means 'did really well' and not 'did everything well'.

I assume that as an adverb, *ganz* occupies Deg^0. Then, in the example *ganz gut*, DegP constitutes the functional extension of the adjective *gut* ($[_{DegP}$ ganz$_{Deg}$ $[_{AP}$ gut$_A]]$), while in (39d), we have just a plain DegP, either adjoined to P-bar or contained in Spec, PP. As an adverb, *ganz* takes scope over the right-adjacent X^0 (here A^0 and P^0).

Be aware, though, that the same is not true if *ganz* functions as an attributive adjective, in which case it also picks up the nominal agreement (as any other attributive adjective). In the two examples in (40), *ganz* takes scope over *Torte* in both (40a) and (40b), and not only over *süße* in (40b). ((40b) means that I ate the entire cake, which was moreover sweet, *not* that I only ate the sweet part of the cake.) I therefore assume, that, as an attributive adjective, *ganz* adjoins to NP (on a par with other adjectives):

(40)	German:

    a.	$[_{DP}$ die$_D$ $[_{NP}$ ganze $[_{NP}$ Torte$_N]]$

        the   entire   cake

    b.	Ich habe die ganze süße Torte gegessen.

        I   have   the entire   sweet cake   eaten

        "I ate the entire sweet cake."

Returning to PP, can there be any other phrases, besides modifiers of the *ganz*-kind, that occupy   Spec, PP, which is the primary interest here? The proposal is that we do find cases, in German and beyond, in which either the complement of P moves to Spec, PP, or P's argument is directly base-generated in Spec, PP, yielding a 'post'-positional surface order.

To clarify in advance, the following is not a promotion or defense of an LCA-based approach, that is, of the idea that post-positions are *in general* derived by NP-movement to Spec, PP. Rather, the proposal is that there exists a set of reasons – I will point out two – which can target a particular subset of PPs in a specific grammar. This leads to a *combination* of 'post'- and 'pre'-positions in [head - complement]-oriented languages. In a [complement - head]-grammar, the distinctions, if they exist, remain 'invisible' on the surface. This ultimately leads to a generalization which can be put to the test in future research:

(41)   Generalization on P-directionality:
        A language with both 'pre'- and 'post'-positions must be a language that is elsewhere primarily a head-initial language, and cannot be a grammar that is fully head-final elsewhere.

If the goal were to promote a 'pure' LCA-based system, then the most natural expectation would be that all SOV-languages (derived from an underlying [head - complement]-structure) have pre-positions, unless a *general* device secures NP-movement to Spec, PP. That a general device is needed is obvious, given that, cf. Dryer 1992:83, out of 114 genera of OV-languages, only 7 are pre-positional. But once this is implemented into universal grammar, and made mandatory in order to derive the majority of post-positional OV-languages, the same device should be available to VO-languages as well, meaning that a VO-language should be able to be *dominantly* post-positional. This, however, would again take off into the wrong direction, since, cf. Dryer 1992:83, out of 82 VO-genera, only 12 are post-positional. In short, it seems best not to be interested in a general trigger for NP to Spec, PP movement, one that would apply to any complement of P.

That said, we still need an explanation for why we do find some post-positions, alongside with the more dominant pre-positional PP in, for example, German. In the following, I will recognize two primary causes, one for complement-movement to Spec, PP, the other for base-

generation in Spec, PP:

(42)   Two reasons for $[_{PP}$ XP$_i$ $[$ P^0 t_i $]]$, $[_{PP}$ XP $[$ P^0 __ $]]$:

   (i)   P assigns a particular case to its complement, and a distinct case to its specifier.

   (ii)   Occupation of the complement expresses a locative relation (LOC), and occupation of the specifier expresses a directional relation (DIR), where DIR takes a hierarchically higher position than LOC universally.

Notice first that, while (i) could in principle be tied to an alternative reasoning, saying that one case is assigned to the left, the other one to the right, (ii) is genuinely dependent on the syntactic distinction between complement and specifier position, because (ii) operates on the hierarchical difference between the two positions. Furthermore, (i) could theoretically target any arbitrary set of Ps, at least in German, in which the case that P assigns is in part lexically idiosyncratic. That is, except for nominative, all three German cases can be assigned by a particular P to its complement position:

(43)   German:

   a.   'ohne' + *acc*:   b.   'ausser' + *dative*:

       $[_{PP}$ ohne$_P$ $[_{DP}$ meine Tasche$]]$ $[_{PP}$ ausser$_P$ $[_{DP}$ meinem Bruder$]]$
            without   my   bag   except   my   brother

   c.   'trotz' + *genitive*:

       $[_{PP}$ trotz$_P$ $[_{DP}$ des schlechten Wetters$]]$
            despite   the bad   weather

At the same time, neither of the two options could apply to all adpositions of a grammar. This is because both (i) and (ii) define a distinction that associates both the complement and the specifier with a particular function. In addition, (ii) can only operate on adpositions that express locative vs. directional relations.

Neither (i) nor (ii) is in fact fully productive in German. Still, it is worthwhile to recognize them as factors deriving surface-post-positions which are more systematically instantiated in other grammars.

5.4.1 Dividing the PP-space by 'type of case'

Let us first discuss the distinction in (i), that is, the possibility that P assigns a particular case to its Spec, while it assigns another to its complement. A systematic implementation of this possibility can be found in the SVO-language Finnish.

Finnish is not only significant because of its 'fifteen or so' cases (cf. Holmberg & Nikanne 1993:6ff), most of which express locative or directional relations. Vainikka 1993:129 calls nominative, accusative, partitive and genitive the language's 'grammatical' cases. The aspect of interest here is that Finnish systematically divides the PP-internal space into two 'case domains'. That is, P assigns partitive case to its complement, and genitive case to its specifier (cf. Vainikka 1993:137f, 143f).

Some prepositions only assign genitive (see (44a) below), yielding strictly post-positional PPs on the surface. Other prepositions assign only partitive, yielding a set of surface-consistent pre-positional phrases (see (44b)). Lastly, a small subset of P assigns both genitive and partitive, again to Spec vs. complement (cf. (44c) vs. (d)). Vainikka 1993:145 notes that there may be slight semantic differences between pre- and post-positional usage, as suggested by the glosses. Altogether, the language has both 'P – noun phrase'- and 'noun phrase – P'-configurations, which correspond to an underlying [spec [head - complement]] -pattern, systematically dividing up the PP-space by 'type of case':[43]

(44)   Finnish (data cf. Vainikka 1993: 136, 143, 145):

        a.   [$_{PP}$ Riittan$_i$ [**kanssa**$_P$ t_i]]

                    Riitta+*Gen*   with

                "with Riitta"

_____

[43]For the claim that Finnish is a basic SVO-grammar, with a [head - complement]-orientation in the verbal domain, see Holmberg, Nikanne, Oraviita, Reime & Trosterud 1993:201.

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b.   [PP __ [**ilman**P sateenvarjoa]]

                without   umbrella+*Part*

        "without an umbrella"

c.   [PP kentän$_i$ [**ympäri**P t_i]]

             field+*Gen*   around

        "around (surrounding?) the field"

d.   [PP __ [**ympäri**P kenttää]]

               around   field+*Part*

        "around (scattered?) the field"

Going back to German, we do not find anything remotely as systematic as Finnish, but we do find one preposition, *nach* 'after, according to', which seems to assign genitive case to its specifier, but dative case to its complement. The two word orders are associated with different meanings more clearly than in Finnish. Only the complement position expresses a temporal relation:

(45)   German:

a.   [PP __ [**nach**P [DP dem Essen]*Dat*]]

                after   the   meal

b.   [PP [DP meiner Meinung]*Gen*-i [**nach**P t_i]]

              my   opinion   according-to

        "according to my opinion"

c.   [PP [DP meines Wissens]*Gen*-i [**nach**P t_i]]

              my   knowledge   according-to

        "according to my knowledge"

5.4.2   Linking DIR-roles above LOC-roles

What about the option discussed in (42.ii)? Van Riemsdjik 1998:33ff discusses, among other grammars, German and Lezgian, the latter a Daghestanian language found in the Caucasus.

Lezgian has an even richer case system than Finnish and distinguishes 15 locative cases, which are expressed by suffixes on the noun. Van Riemsdjik points to a hierarchical distinction between, on the one hand, suffixes expressing a specific location (= LOC), and, on the other hand, those introducing presence (vs. absence) of motion and the direction thereof (= DIR): The direction-relation appears to take a higher position in the functional space than the location-relation. (DIR-suffixes attach outside of LOC-suffixes to the noun, which indicates $F^0_{DIR} > F^0_{LOC}$, on the premise that noun movement to F_{LOC} and further to F_{DIR} creates the morphemic ordering.). For the same hierarchy of 'DIR > LOC', see also Jackendoff 1983:163 and his conceptual analysis of English prepositional phrases (Jackendoff calls DIR PATH and LOC PLACE), as well as Koopman 2000:226 for an application of Jackendoff to a syntactic tree structure with PathP > PlaceP.

Now, Van Riemsdjik encounters the same 'DIR > LOC' hierarchy in his analysis of German P-'circumflex'- configurations. These configurations constitute a small number of structures in which a preposition precedes a noun phrase, which itself precedes an apparent post-position. The preposition seemingly expresses location and the post-position direction. See three examples in (46) below. Note that (46a) and (46c) have directional meanings, which nevertheless still integrate a locative component; (46b) is purely directional:

(46)   German ((b, c) cf. Van Riemsdjik 1998:4):

    a.   **an** [$_{DP}$ der Straße]$_{Dat}$ **entlang**   b.   **auf** [$_{DP}$ den Berg]$_{Acc}$ **hinauf**

          at   the street   along   on   the mountain   up

          "along the street (at its side)"   "up onto the mountain"

    c.   **hinter** [$_{DP}$ der Scheune]$_{Dat}$ **hervor**

          behind   the barn   from

          "from behind the barn"

The proposal to be outlined below is the following. One way a grammar can implement the hierarchy 'DIR > LOC' (or 'PATH > PLACE') is to link the direction relation to a specifier position, that is Spec, PP, and the location relation to the complement of P. Since the specifier c-commands the complement, such correlation reflects the hierarchy 'DIR > LOC'. Thus, an unambiguously directional reading, as opposed to a locative one, is due to linking the argument of

a spatial adposition into Spec, PP, yielding a surface-post-position. This is option (42.ii).

However, I take this distinction (once more) not to be systematically implemented in the German grammar; rather, it is restricted to a small number of spatial prepositions, all of which express direction exclusively and thus always require base generation in Spec, PP, and all of which can occur in 'circumflex'-configurations.

Let us back up a step in order to get a clearer picture. In German, a large set of spatial prepositions can trigger either a directional or a locative reading. The grammar systematically distinguishes between the two meanings via case. As illustrated in the examples in (47), P assigns accusative for direction, but dative for location. The two kinds of PPs can only be combined with semantically matching verbs (see (47a, b)), or with those that allow for both a DIR and a LOC reading, in which case, the case marking disambiguates them. The same is true if the PP is the complement of a noun: accusative case always leads to a directional reading, dative case always to a locative reading (cf. (47c, d)).

(47)   German:

    a.   Ich steige [PP __ [**auf**P [DP de**n** Stuhl]*Acc*]]   *acc* = directional reading

                I   climb   **onto**   the   chair

    b.   Ich stehe [PP __ [**auf**P [DP de**m** Stuhl]*Dat*]]   *dat* = locative reading

                I   stand   **on**   the   chair

    c.   der Weg [PP __ [**in**P [DP de**n** Wald]*Acc*]]   *acc* = directional reading

                the road   **into**   the   forest

    d.   der Weg [PP __ [**in**P [DP de**m** Wald]*Dat*]]   *dat* = locative reading

                the road   **in**   the   forest

Dutch appears to make a parallel distinction, but not through case but by position. Significantly, Spec, PP is unambiguously associated with the directional reading. As noted by Koopman 2000:224f, Dutch has a set of prepositions which also occur as post-positions. A 'P - noun phrase'-order can have either a directional or a locative reading *if* the PP is the argument

of a motion verb (the present perfect auxiliary must be 'be'). 'Noun phrase - P'-order is, however, always associated with a directional reading (see (48a) below). Furthermore, when the PP is a complement of a noun, the distinction made by case in German finds a perfect minimal pair in the Dutch division by position: 'noun phrase - P' can only express direction (cf. (48b)), 'P - noun phrase' only location (cf. (48c)):[44]

(48)   Dutch (data cf. Koopman 2000:224):

     a.   Zij is meteen [PP [DP het water] [**in**P __]] gesprongen.

             she is immediately   the water   in   jumped

             "She jumped immediately **into** the water."

     b.   de weg [PP [DP het bos] [**in**P __]]   Specifier = directional reading

             the road   the forest   in

             "the road **into** the forest"

     c.   de weg [PP __ [**in**P [DP het bos]]]   Complement = locative reading

             the road   **in**   the forest

             "the road in the forest"

---

[44]Koopman herself proposes an analysis, which derives Dutch 'post'-positions by movement to a PP-specifier. She makes, however, a much more fine-grained distinction, differentiating between several functional heads above P (see Koopman 2000:225ff).

Furthermore, Dutch has in addition [+R]-pronoun-movement to Spec, PP. That is, inanimate pronominal objects such as *er* 'it' or *nergens* 'nowhere' always precede P (see Koopman 2000:207ff, Riemsdjik 1998:29, for discussion).   [+R] -pronoun movement to Spec, PP appears to have an isolated instantiation in German *damit* 'that with = with that'. See also in parallel English *here in*, *there after*, *thereof* etc.

Taking it at face value, *damit* could be a case of noun incorporation into the functional head P. But *da* seems to retain its phrasal status, indicated by the fact that, while **mit da* as such is ungrammatical, *da* can be extracted. For example, we have (*da* is here on a par with Dutch [+R]-pronouns, which also can be extracted ; cf. Koopman 2000:208):

(i)   Da$_i$ hat er nicht [PP t_i [mit t_i] gerechnet. – 'There has he not with counted = He didn't expect that.'

Going back to German, the obligation to impose an ultimately directional reading is also found in the circumflex-configurations seen in (46) above. Nevertheless, the initial preposition adds a locative component in (46a) and (46c). Why and how can this be the case? See first in (49) the structure here generally associated with the circumflex-construction:

(49)   German:

der Weg [PP-2 [PP-1 __ [**an**P-1 [DP der Straße]*Dat*]] [**entlang**P-2 __]]
 the   road   at-LOC   the   street   along-DIR
 "the road **along** the street (**at** its side)"
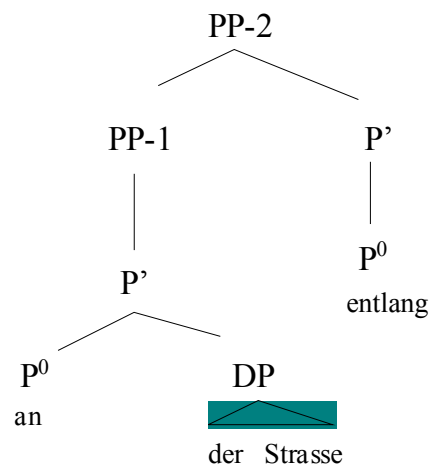
The combination of pre- and 'post'-position is taken to be an instance of a PP$_1$ embedded into another PP$_2$, with PP$_1$ originating in the specifier of the higher P$_2$. While PP$_1$ is a prepositional phrase, with P$_1$ preceding its complement, P$_2$ has no complement. On the surface, PP$_2$ looks like a post-positional phrase, but assuming the structure in (49), this is an effect of P$_2$'s argument occupying a left-peripheral specifier, not a left-peripheral complement.

The entire circumflex-configuration has a directional reading, this time not due to case, but by positioning in Spec. That is, like the more productive pattern in Dutch, German appears to have a handful of spatial adpositions, which are systematically post-positional, because they express the direction-relation by positioning P's argument in the specifier rather than in the complement. Consequently, the circumflex-PP cannot be embedded under a verb that enforces a purely locative reading, just as it is impossible to embed a spatial PP involving accusative case

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marking under such a verb:

(50)   German:

   a.   *Ich stehe [PP __ [an_P [DP die Straße]*Acc*]]

   b.   Ich stehe [PP __ [an_P [DP der Straße]*Dat*]]
          I   stand   at   the   street
          "I am standing **at** the street"

   c.   *I stehe [PP-2 [PP-1 __ [an_{P-1} [DP der Straße]*Dat*]] [**entlang**_{P-2} __]]
          I   stand   at-LOC   the   street   along-DIR

Nevertheless, in (49), the locative component is still represented, which, I claim, is precisely
realized by the dative case marking, assigned through P$_1$ to its DP-complement. This can also be
taken as subtle evidence for the structure proposed above (at least for the fact that the initial
adposition has a more local relation to the sandwiched noun than the 'post'-position): The point is
that a spatial 'post'-position like *entlang* does not necessarily occur in a circumflex-configuration.
But where it takes a DP-argument, the DP must not only precede the 'post'-position but it
furthermore has to receive accusative case. Thus, it seems that the spatial post-positions, which
exclusively enforce a directional meaning by localization of P's argument in Spec, PP, then also
are only able to assign accusative case (recall that German spatial prepositions assign *acc* to
impose a directional meaning and *dat* for a locative meaning). This is illustrated in (51a) vs. (51b,
c). The grammatical (51a) does not involve any locative component, and is fine since *entlang*
assigns accusative case. (51b) shows us a motion verb, and (51c) a verb that enforces a purely
locative reading; neither one is compatible with *entlang* assigning dative case.

(51)   German:

   a.   Ich ging [PP [DP die Straße]*Acc* [**entlang**_P __]]
          I   walked   the   street   along
          "I walked along the street."

a'.   *Ich ging **entlang**$_P$ [$_{DP}$ die Straße]

b.   *Ich ging [$_{PP}$ [$_{DP}$ der Straße]$_{Dat}$ [**entlang**$_P$ __]]

c.   *Ich stehe [$_{PP}$ [$_{DP}$ der Straße]$_{Dat}$ [**entlang**$_P$ __]]

    I   stand   the   street   along

The locative component only arises in the circumflex-configuration, and, as a matter of fact, only if the deeper embedded P$_1$ assigns dative case to the sandwiched DP, its immediate complement. While (51a) does not determine any location, and thus, can, for example, mean that I walked in the middle of the street, (52) specifies that I walked along the street but at its side:

(52)   German:

Ich ging [$_{PP-2}$ [$_{PP-1}$ __ [**an**$_{P-1}$ [$_{DP}$ der Straße]$_{Dat}$]] [**entlang**$_{P-2}$ __]]

 I   walked   at-LOC   the   street   along-DIR

"I walked the **along** the street (**at** its side)"

PP$_1$ in Spec, PP$_2$ °   Directional reading

P$_1$ assigns dative case to its DP-complement   °   Locative component

    The example that we have seen in (46c) above, *auf den Berg hinauf*, however, combines two directional specifications, and significantly, involves *acc* case marking of the sandwiched DP. In (53a), *auf* expresses that I climb onto the mountain, whereas *hinauf* adds the somewhat redundant component of meaning that I climb up the mountain (as opposed to down). Both directional relations can also be expressed separately, as illustrated in (53b) and (53c). The case involved is always accusative. Finally, (53d) vs. (53e) show that the pre-position is, in isolation, able to assign dative case, yielding a locative reading, whereas the post-position is not:

(53)   German:

a.   Ich steige [$_{PP-2}$ [$_{PP-1}$ __ [**auf**$_{P-1}$ [$_{DP}$ den Berg]$_{Acc}$]] [**hinauf**$_{P-2}$ __]]

    I   climb   on-DIR   the mountain   up-DIR

    "I climb **up onto** the mountain."

b.   Ich steige [$_{PP}$ __ [**auf**$_P$ [$_{DP}$ den Berg]$_{Acc}$]]   *acc* = directional reading

             I   climb   on-DIR   the mountain

             "I climb **onto** the mountain."

c.   Ich steige [$_{PP}$ [$_{DP}$ den Berg]$_{Acc}$ [**hinauf**$_P$ __]]   Specifier = directional reading

             I   climb   the mountain   up-DIR   P

             "I climb **up** the mountain."   *acc*

d.   Ich stehe [$_{PP}$ __ [**auf**$_P$ [$_{DP}$ dem Berg]$_{Dat}$]]   *dat* = locative reading

             I   stand   on-LOC   the mountain

             "I'm standing **on** the mountain."

e.   *Ich stehe [$_{PP}$ [$_{DP}$ dem Berg]$_{Dat}$ [**hinauf**$_P$ __]]   Specifier = directional reading

              I   stand   the mountain   up-DIR   P

                                                                         **dat*

Thus, whereas the circumflex-configuration in (52) appears to combine the two strategies of *acc* vs. *dat* and Spec vs. complement- positioning in order to convey both a DIR- and a LOC-relation, the circumflex-configuration in (53a) combines the two in order to convey a complex DIR-relation with two components.

      Altogether, in this section we have discussed adpositions with respect to their potential relationship to the complement, and reasons why an XP in the complement can be forced to move to Spec, PP, or to be base generated in Spec, PP. This results in a kind of post-position, regardless of whether the PP has (or would have) [P^0 - complement]- or [complement - P^0]-order. We have encountered two concrete reasons, one that a particular case is assigned to Spec, PP, the other that a particular spatial dimension is expressed by linking into Spec, PP as opposed to the complement.

      Finally, let us briefly address the possibility of an adposition remaining without any complement (or specifier) at all. Instances thereof appear to be the so called 'separable prefixes' in German, which I take, following Zeller 2001, to constitute, in the syntactic representation, intransitive PPs (for the concept of 'intransitive PP', see Jackendoff 1983:49; see also Van

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Riemsdjik 1998:31).

5.4.3 Intransitive PP

German has many 'separable prefixes', which phonologically merge with the main verb if the latter stays in situ. If the verb raises into the Verb Second-slot, then the 'prefix' is stranded, thus separated. One example is given in (54):

(54)   German:

    a.   ..., wenn sie das Licht **an**macht.   b.   Sie macht das Licht **an**.

          when she the light on-makes   she makes the light on

          "..., when she turns on the light.   "She turns on the light."

Importantly, most of the separable prefixes have a 'second life' as prepositions, or post-positions (all spatial post-positions are also 'separable prefixes'). Nevertheless, in the 'separable prefix'-function, reference grammars, and also some generative analyses (see, for example, Haider 2000:56), take them to form part of the verb, ergo the term 'separable prefix'.

Now, when the verb is in situ, an 'incorporation'-approach to the prefix might seem the most obvious analysis, the solution has a quite significant conceptual flaw. If P in (54a) is really a prefix of V, then it is unclear how V can 'ex-corporate' out of the complex, as in (54b). The prefix either shares the same syntactic head position with V^0, or it is adjoined to V^0 by P^0-to-V^0-adjunction. In both cases, it should be taken along, wherever V^0 moves.

Beyond this conceptual problem, which, to be fair, depends on the axioms of syntactic head movement one assumes, there are further empirical reasons in favor of acknowledging that the 'separable prefixes' are particles which have phrasal status in the syntactic representation. Zeller 2001:ch.2 argues at length for this recognition, discussing, among other points, that the particles can be topicalized, and can escape deletion in gapping constructions. One example of a topicalized particle is given in (55c):

(55)   German ((c) cf. Zeller 2001:89):

    a.   ..., weil die Sonne im   Osten **auf**geht.

             since the sun   in-the east   up-goes

             "..., since the sun rises in the east."

    b.   Die Sonne geht im   Osten **auf**.

             the sun   goes in-the east   up

             "The sun rises in the east."

    c.   **Auf** geht die Sonne im Osten, aber **unter** geht sie im Westen

             up goes the sun in-the east   but   down goes it in-the west

             "The sun rises in the east, but it sets in the west."

Following Zeller 2001:4, the assumption therefore is that a 'separable prefix' never forms part of the syntactic V-node, only 'non-separable' true prefixes do (those that move together with the verb). Rather, the particle heads an intransitive PP. The P merges with adjacent V only on the morpho-phonological level, but in the syntax, the intransitive PP constitutes the complement of the head V^0:

(56)   German:

    a.   ..., dass er [PP [**zurück**P]] kommt.

             that he   back   comes

             "... that he comes back."

    b.   ..., dass er [PP [**aus**P]] schläft.

             that he   out   sleeps

             "... that he gets a good night sleep."

Accepting this view, there is a further conceptual issue to take notice of. If German has intransitive PPs, in which P remains without complement, this gives us a case of a P which is not an extension of a projecting noun, but one in which P constitutes an entirely autonomous functional head which projects its own phrase. This touches on the theoretical question of whether

P is always, only sometimes or never part of the nominal extended projection underneath (see also Grimshaw 1991, Van Riemsdjik 1998 for discussion). But does the existence of intransitive PPs tell us something about the architecture of other PPs as well?

In fact, when we take into account that most of the intransitive prepositions can also take a complement in German, it does not seem too unlikely that the preposition either way projects an independent phrase and is never an extension of a nominal head. Potentially related is the fact that German P generally assigns case to an embedded DP (visible by the morphological case the DP carries itself). Thus P as such cannot constitute a case marker.

Altogether, here is a conceptualization that is worthwhile to consider. It starts with the observation that functional adpositions are either case markers, thus, they equal K-heads (cf. Travis & Lamontagne 1986, Bittner & Hale 1996), or they are case assigners themselves. We could interprets this in the following way:

(57)   Hypothesis on P-status:

Only if P equals K, P_K constitutes a functional extension of an *ep*-projecting noun.

If, on the other hand, P is a case assigner itself, then P heads its own autonomous functional projection and selects DP (or PP) as a complement.

What would this imply on a more general level? It would mean that, while certain functional heads are contingent upon lexical heads that erect them, functional heads are in principle able to project independently, without any lower lexical base, and they are even capable of taking a complement.

As a final point, compare P and C. If P is not necessarily a functional extension of a nominal projection, then could it be possible that the projection headed by a complementizer is not part of the extended verbal projection underneath? As noted earlier, Haider 2000:49 suggests this in his conception of extended projection.

As a matter of fact, there is a reason why the idea of a complementizer that heads an independent projection makes sense from the perspective of the current system. The point is that if the complementizer was part of the clausal extended projection underneath, then it should attract movement to its specifier, by GENERALIZED SUBJECT. However, the pattern 'XP -

complementizer ...' appears to be hardly attested. Be aware that this is a puzzling phenomenon not only with respect to the current system, but it arises in one or the other form in most analyses. It is usually set aside by reference to the 'Doubly-Filled-Comp-Filter' (DFCF; cf. Chomsky & Lasnik 1977). In order to answer the particular challenge here, certainly, there is the option of assuming a version of the DFCF (see, for example, Vikner 2001:168 for recourse thereto), either as an axiom or a super-ordinated constraint. Notwithstanding, this is a quite odd stipulation and seems, after all, not more than a quick fix to the problem. A better approach could be to search for a constraint which in interaction with other constraints derives a harmonic bounding of the pattern. Recall here how we have achieved the exclusion of the 'TSVO'-pattern in chapter 3. Another alternative would be to slightly specify the definition of GENERALIZED SUBJECT, such that it excludes the CP-layer and only demands a specifier in any XP which forms part of the 'kernel' of a clause, that is, the inflectional layer and anything underneath – the traditional A-domain of a clause. Nevertheless, if the complementizer is in fact outside the clausal verbal extended projection in any case, then this would explain without further ado why GENERALIZED SUBJECT does not apply to the complementizer's projection. Having noted this conceptual possibility, I will leave the issue open for further research.[45]

Conclusion: We have discussed in this chapter the directionality within AP and PP, keeping the focus on German. In both contexts, we have been confronted with instances of surface-head-finality. But under closer inspection, these instances appeared to be the result of moving an XP in the complement to the left and out of a [head - complement]-structure (or having no complement at all but only a specifier).

Notice that such movement was never recognized as one that concerns all members of the category. In the German predicative AP, a case marked DP occurs left of A^0, since it moves out of its base position in order to receive case. PP-complements do not need to move for this reason.

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[45]Keep in mind that in the scenario of the complementizer heading its independent projection, the need for a 'DFCF' or something like it does not entirely disappear. While there is no question anymore of why there isn't any demand for a specifier, the reasoning does not yet capture why the specifier seldom is a *potential* option. Therefore, the question of what exactly lies beneath the 'DFCF' is still a task for future research, but it is then an independent problem which lies outside of the realm of this thesis.

Consequently, we encounter 'DP - adjective'-, but 'adjective - PP'-order. Similarly, within PP, a DP-complement can move to Spec, PP for a specific case, or it can be base generated in Spec, PP in order to receive a directional reading. Other DPs though remain in complement-position and thus, once more, the result is a subclass of post-positions, alongside pre-positions elsewhere.

Therefore, altogether, while we have seen that German can be analyzed as a grammar with $[A^0$ - complement]- and $[P^0$ - complement]- order (as expected by the associated ranking), we have noted that movement can in part disguise this. On a more general level, then, we have learned that head-finality does not necessarily correspond to underlying head-finality. But where it does not, it takes aside a particular (and definable) subclass and never the entire class. This creates mixed directionality within one particular category. Finally, the kind of mixed head directionality we have seen can only arise in languages with a more general preference for [head - complement]-order, not in those that prefer [complement - head].

This last point also means that, all along, we have not seen a case yet in which a predominantly head-final grammar (by HEAD RIGHT >> HEAD LEFT) has basic mixed word order patterns. The next and last chapter of this thesis will provide discussion of one such type.

Chapter 6 – Getting mixed up in head-final languages

This last chapter takes a closer look at the typology of head-final languages. During this thesis, we have seen various ways of how languages can have mixed directionality, all of them surprisingly systematic in their ways of deviating from uniformity. All of them were also languages that have a more general preference for [head - complement]. As a matter of fact, it was a central claim of this dissertation that head-initial-oriented grammars have more structural conflicts to resolve than head-final oriented grammars. This gave us the key to explain why we find, on the one hand, fairly uniform SOV-languages, and, on the other hand, head-initial oriented languages which divide into SVO-languages, VSO-languages, VOS-languages, and those with a head-final verb phrase. This chapter will introduce and account for different kind of systematic mixed directionality, exemplified by the African Kru languages (cf. Koopman 1984), a type which has a more general preference for [complement - head]-order.

The Kru languages have only post-positions, the noun phrase is head-final, we find phrase-final determiners and complementizers, and the verb phrase also appears to be head-final since non-finite verbs follow both the subject and the object. Nevertheless, the finite verb surfaces between the subject and the object in the basic order. Therefore, Hawkins 1983:285 identifies the languages in his typological survey with the SVO-languages. According to Koopman 1984, the 'S - V_{fin} - O'-pattern is the result of verb (and subject-) movement into an IP with [head - complement]-order, in a grammar which elsewhere prefers [complement - head]. This chapter will show how the current system derives the possibility of such a type.

Significantly, the Kru grammar is accounted for by the proposed system without any further extensions or assumptions. All that we need to do is to consider the exact definition of BRANCHING RIGHT, and one further aspect of this constraint that we have not discussed so far. We will then see that the system's factorial typology includes one additional mixed type. It has, unlike the ones introduced in chapter 2, pre-dominantly [complement - head]-order throughout both the lexical and the functional domain, but switches to [head - complement] whenever the head involves a complex head-to-head adjunction.

The Kru type will remain the only type with mixed directionality that the system allows in primarily head-final languages. This is a positive outcome. That is, the Kru grammars, by having a preference for [complement - head]- order, combine post-positional phrases with an 'S - V_{fin} - O'- basic order. However, consulting Hawkins' Expanded Sample of the world's languages, we do not find any VSO- nor any VOS-grammars which are dominantly post-positional (cf. Hawkins 1983:283[1]; only a group of SVO-languages with post-positions exists, among them the Kru languages). The current system explains this, since beyond predicting that dominantly head-final grammars can, by movement into the inflectional layer, result in surface 'S - V_{fin} - O', the system also predicts that there is no possibility for a dominantly head-final grammar to result, by movement into the inflectional layer, in surface 'V_{fin} - S - O' or 'V_{fin} - O - S'.[2]

The chapter is structured as follows. Section 6.1 takes another look at BRANCHING RIGHT and illustrates how the constraint imposes a further restriction which we have ignored so far. Section 6.2 briefly discusses the three uniform SOV-types derived by the system; all of them consistently prefer [complement - head] across the different domains, and only differ concerning whether they raise the verb and/or the subject into a head-final TP. Finally, section 6.3 demonstrates, with the concrete examples of the Kru languages Vata and Gbadi (described by Koopman 1984), how a grammar can prefer both a head-initial TP, yielding basic 'subject - verb - object'-order on the surface, and head-final projections elsewhere.

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[1]Hawkins lists one isolated case, the V-first language Pima Papago.

[2]This is another effect of the system's incapability of producing grammars with consistently right-peripheral functional heads and left-peripheral lexical heads ('*right F^0 above left Lex^0'; recall the discussion in chapter 2, 2.5). All that the system allows is a clause structure with left-peripheral functional heads above right-peripheral lexical heads.

As a matter of fact, the Kru type is another example of this second combination 'left F^0 above right V^0', since we will see that the languages have a head-final VP which extends into a TP with [head - complement]-order. Nevertheless, as also shown below, the system (including its extension by CASE LEX in chapter 3) predicts that a head-final oriented languages, if it moves the verb into [$_{TP}$ T - complement] always also moves the subject, yielding 'S - V_{fin} - O'. There is no type which moves just the verb, yielding 'V_{fin} - S - O'.

6.1   Pushing complex heads to the left

So far, we have noted that BRANCHING RIGHT is violated whenever a specifier or an adjunct aligns right-peripherally instead of occurring left of its sister node. We also observed that a head, regardless of its categorical status, can either precede or follow its complement without entering into conflict with BRANCHING RIGHT.

This second statement is true for all non-complex heads. That is, it holds regardless of the directionality inside the perfect LexP. Even if a lexical head moves within the lexical layer, the result can never be a complex head, since all there can be in theory is either substitution or recursion: V^0 substitutes into v^0, and as such creates a simple v_v^0- node. V^0 or v_v^0 (or more generally, Lex^0) can extend by recursion into an additional lexical shell, but this also creates a non-complex head. BRANCHING RIGHT is also unchallenged if a simple F^0 either precedes or follows its complement. Lastly, not even all complex heads threaten to violate BRANCHING RIGHT. Below, we will see that an unmoved lexical head which is at the bottom of the tree can be complex, and does not enter into conflict with BRANCHING RIGHT, regardless of directionality.

What we have not paid attention to so far is that the constraint *is* sensitive to whether some head adjoins to F^0, creating a head-to-head-adjunction configuration in the syntax. Let us take another look at BRANCHING RIGHT, in order to understand why and how this sensitivity comes about:

(1)   BRANCHING RIGHT:=
       • sister nodes *x*, *y* such that neither *x* nor *y* is a syntactic terminal, *x* and *y*'s mother node
       z and *x* are both projections of the same head *w*:
       the right edge of *x* and the right edge of *z* must coincide.

The point is that head-to-head adjunction creates an X^0-node which is not a syntactic terminal. (Recall that a syntactic terminal is defined as a syntactic node which dominates no other syntactic node; thus, it dominates nothing but itself.) In consequence, an F-head to which another head has adjoined and the corresponding sister node XP constitute a pair of sister nodes of which neither one is a syntactic terminal. Rather, both XP and F^0 are internally complex, in the sense

that they dominate further syntactic nodes. Furthermore, considering the triple of the two sister nodes and the mother node F-bar, F-bar is ultimately a projection of the same head as XP is (one of the sister nodes), as long as XP and FP are both part of the same extended projection. This, then, is a structural configuration that is parallel to what we have seen for a specifier, its sister node and the mother node, as well as for a phrasal adjunct and its syntactic sister and mother. All three are relevant for BRANCHING RIGHT. To see the structural similarity, compare (2a), which shows the structural environment of a specifier, and (2b) for the structural environment of a complex F-head:

(2)   Two configurations, each one consists of two sister nodes and their mother node – in each one both sisters dominate further syntactic nodes, and in each one only one sister is a projection of a head which also projects the mother node:

a.   Neither Spec nor v' is a syntactic terminal: b.   Neither F_1^0 nor vP is a syntactic terminal:

mother: $v\mathbf{P}$

two sisters: **Spec** v'

mother: **F'**

two sisters: $\mathbf{F_1^{\ 0}}$ $v\mathbf{P}$

v^0 $F_2^{\ 0}$

vP and v' are both projections
of the same head v^0;
Spec is not a projection of v^0

vP and F' are both (extended) projections of
the same head (which is the projector of ep);
$F_1^{\ 0}$ is not a projection at all
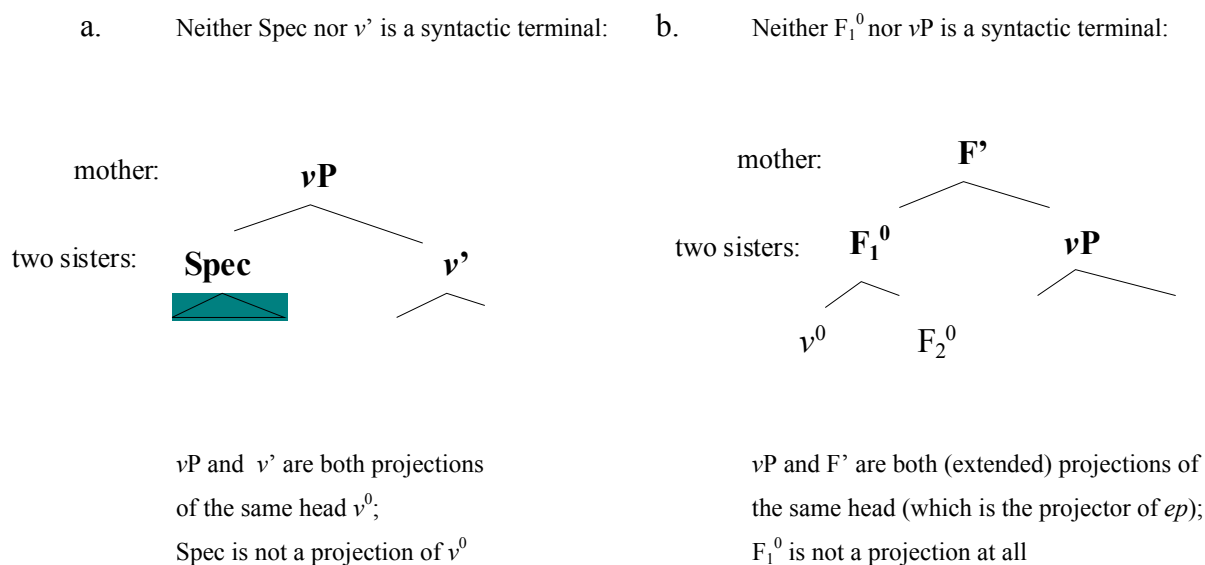
Let me clarify at this point that I make a categorical distinction between a head and a projection. That is, a syntactic node can either be a head, and then it is the projector of a projection, or it can constitute a projection projected by a head. But I take it to be impossible that a projection is simultaneously a head, or that a head is itself a projection. See here van Riemsdjik 1998:8 who, following Muysken 1983, distinguishes the three X-bar-levels X^0, X' and XP by a combination of two features, [+/– Projection] and [+/– Maximal]: X^0 is [**– Proj**; – Max], whereas X' and XP

are [+ **Proj**; – Max] and [+ **Proj**; + Max].[3]

Furthermore, adjunction to a syntactic node, be this to X^0, X' or XP, creates a category which is constituted of two segments, a higher and a lower segment (cf. Chomsky 1995:177). Now, since X' is a projection, then adjunction to X' will create two X'-segments; we can say that each X'-segment is a projection since the category X' is a projection. The same holds for adjunction to XP. By the same token, after adjunction to X^0, we have two X^0-segments, of which we can say that each segment is a head since the category is a head. Still, neither of the two X^0-segments constitutes a projection.

With this in mind, we can go back to the two configurations in (2a) and (2b) and notice what they have in common. In (2a), we have the two sister nodes Spec and v', neither of which is a syntactic terminal. The same is true for the two sister nodes F_1^0 and vP in (2b); F_1^0 is not a syntactic terminal since it dominates both v^0 and F_2^0.

Furthermore in (2a), the mother node vP of the two sister nodes Spec and v' is itself a projection of v^0. One of the sisters (v') is also a projection of v^0, though the other sister (Spec) is not. Although Spec is a projection, there does not exist any head which projects both Spec and the mother vP. Hence, it is true that out of the two sister nodes in (2a), only one, v', is a projection of the same head as vP, but the same cannot be said about the other sister node, Spec.

In (2b), we have the same constellation, but for a slightly different reason. Here, the mother node F' is an extended projection of V^0 (the projector of ep). Since every extended projection is a projection, we have to conclude that F' is a projection of V^0. By the same token, vP, one of the two sister nodes under F', is a projection of V^0. Thus, out of the two sister nodes in (2b), only vP is a projection of the same head as the mother node F'. But, just as in (2a), the same cannot be said about the other sister node, F_1^0. This time, the reason is because F_1^0 is not a projection at all: F_1^0 is a head, and a segment of the category F^0, but it is not a projection.

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[3]The distinction is preserved in Grimshaw 1991's theory of extended projections, though it is not made explicit, since heads are defined as L0 (= level 0), X'-nodes as L1 and XP-nodes as L2 (cf. Grimshaw 1991:3).

However, see also Sells 2001:17, 104, Morimoto 2001:158 (among others) for a different interpretation which takes any projection within an extended projection to be itself a(n extended) head (or co-head).

Altogether, if head-adjunction to F creates a structural context which is input for BRANCHING RIGHT, then which directionality violates the constraint and which one obeys it? Just as specifiers and phrasal adjuncts must precede their respective sister nodes, so a complex F-head must precede its complement in order to satisfy BRANCHING RIGHT. If it follows, BRANCHING RIGHT is violated. Consider as an example the configuration in (3):

(3)   In violation of BRANCHING RIGHT –

Neither vP nor T_1^0 is a syntactic terminal; T' and vP are both (extended) projections of V^0 (T_1^0 is not a projection but a head). The right edge of T' and the right edge of vP do **not coincide**:

The complex head blocks
Right-alignment
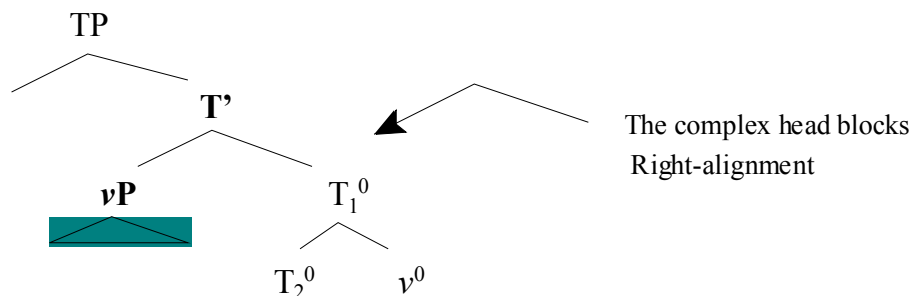
In (3), we are looking at a head-final TP, in which v has moved and adjoined to T. Consequently, neither vP nor its sister node T_1^0 is a syntactic terminal. At the same time, vP and T' are both extended projections of the same head V^0. Neither vP nor T' is a perfect projection of V^0, but they are extended projections, which is a valid type of projection. Thus, in order to obey BRANCHING RIGHT, their right edges should coincide, which is not the case in (3); hence, the constraint violation. Note that BRANCHING RIGHT does not have anything to say about the alignment of T_1^0 and T'. T_1^0 is not a projection but a head, and a segment of the category T^0. If T_1^0 is not a projection in the first place, then T' and T_1^0 can not both be projections of the same head. (T' is a projection of the category T^0, and this category is constituted by the two segments T_1^0 and T_2^0.) So, what BRANCHING RIGHT dislikes about (3) solely concerns the alignment of T' and v'; that their right edges do not coincide. On the other hand, (4) satisfies BRANCHING RIGHT by delivering just this, resulting in a precedence of the complex T-head.

(4)   No violation of BRANCHING RIGHT –

The right edge of T' and the right edge of *v*P **coincide**:
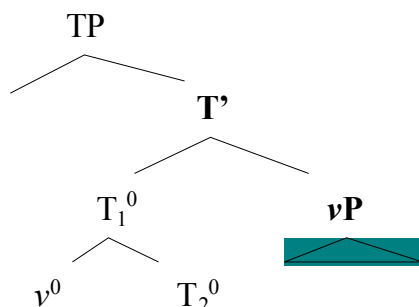
Altogether, the two sister nodes T_1^0 and *v*P are inputs for BRANCHING RIGHT, because neither one of the nodes is a syntactic terminal. Each one dominates further syntactic nodes. Nevertheless, BRANCHING RIGHT has no demand on the alignment of T' and T_1^0, since T_1^0 is not a projection. Still, BRANCHING RIGHT wants right-alignment of T' and *v*P, because they are both (extended) projections of the same head V^0. The correct alignment is given in (4) but not in (3). Therefore, the complex v^0-T_1^0 must precede its complement or else BRANCHING RIGHT is violated.

This demand for precedence does not hold for the lowest head, that is, the base head, of a syntactic tree, even if that head is complex. Take the triple of a complex lexical head, its selected complement and their mother node. Here, neither of the two daughters is a projection of the same head that the mother is a projection of. The complex head is not, because it is not a projection at all, and the selected complement is not, because it is a projection of another head. Therefore, a 'complex' base head of an extended projection, the one which is at the bottom of the tree, could still follow its complement without violating BRANCHING RIGHT.

What does this all mean on a broader scale? It means that grammars which give priority to BRANCHING RIGHT won't move a head *right*wards in(to) the functional layer. If the language in question prefers an [F^0 - complement]-order anyhow, then there is not much of a threat. But if the grammar is a head-final language, then it will either withdraw from the movement altogether, or – if that is even less harmonic – the grammar will choose *left*ward head movement instead.

Here is the claim to be fleshed out in the two remaining sections. It is in particular the category TP, as a target for V-raising, which is affected through this newly recognized pressure imposed by BRANCHING RIGHT. Recall the discussion of TP in chapter 3, where we primarily focused on HEAD LEFT >> HEAD RIGHT grammars, with the general question of how the dynamics between {HEAD LEFT/RIGHT, LEX HEAD EDGE, CASE LEX, GEN SUBJECT, BRANCHING RIGHT} determine the absence vs. presence of verb- and/or subject- movement into TP. Obviously, in a HEAD LEFT >> HEAD RIGHT grammar, the fact that BRANCHING RIGHT favors leftward V-movement into TP is invisible, since leftward orientation of 'v^0 -T^0' is given in any case. Let us now take a second closer look at HEAD RIGHT >> HEAD LEFT-grammars. Which different TP-types does the system derive, and what is the distinguished role of BRANCHING RIGHT within the decision process?

Section 6.2 first addresses the possible uniform SOV-grammars, which maintain a head-final directionality in TP. This illustrates that a violable BRANCHING RIGHT constraint does not entail that (complex) functional heads always precede their complement. Even if they are complex, they may still follow. In parallel to what we have seen with respect to the specifier, BRANCHING RIGHT imposes a preference for a leftward orientation, but it does not guarantee that such an orientation will ultimately be realized. The remaining section 6.3 will later demonstrate how, by prioritizing BRANCHING RIGHT, a HEAD RIGHT >> HEAD LEFT grammar with verb movement into TP ultimately responds to the constraint and pushes 'T^0-v^0' to the left. This instantiates another type with 'mixed head directionality', one which combines 'true' post-positions with surface SVO-order, as we have in the Kru languages.

6.2   The possibility of fully head-final grammars

The system distinguishes three different types that maintain their general preference for [complement - head] in TP. All coincide with respect to the configuration of the lexical layer: vP is head-final, with [$_{vP}$ spec [complement - v^0]] -order, and the subject is base-generated in Spec, vP. Recall that the system excludes any head-final vP-grammar that does not base-generate the subject inside vP; see the discussion in section 3.6. Furthermore, in all three types, T^0 follows vP. The distinction lies in whether (a), nothing moves into TP, (b), only the subject moves into TP,

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or (c), both the subject and the verb move into TP. The three choices are depicted in (5).[4]

(5)   Three varieties of a fully head-final grammar:

a.
```
        TP
        |
        T'
       /  \
     vP     T⁰
    /  \
 Subj    v'
        /  \
     Obj     v⁰
```

b.
```
        TP
       /  \
    Subj    T'
           /  \
         vP     T⁰
        /  \
   t_Subj    v'
            /  \
         Obj     v⁰
```

c.
```
        TP
       /  \
    Subj    T'
           /  \
         vP     T⁰
        /  \    /  \
   t_Subj   v'  T⁰   v⁰
           /  \
        Obj     t_V
```
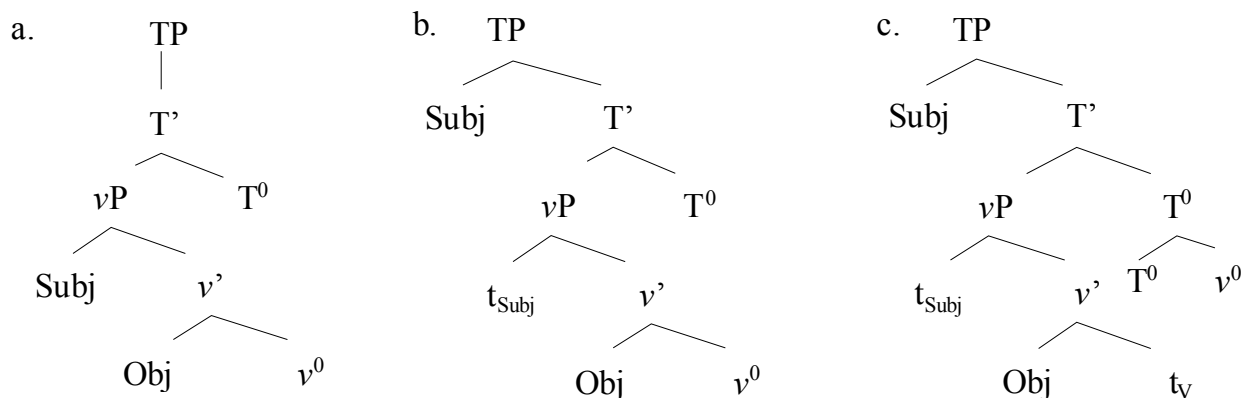
Before we look at the concrete constraint interaction responsible for the distinction between (5a), (b) and (c), the following should be highlighted. As long as phrasal adjuncts align left of v^0 and adverbs are phrasal, all three types ultimately yield the same surface order 'S - O - V/T'. Only the placement of the adverbs in pre-verbal position might differ. This broad left-orientation of phrasal adjuncts and specifiers is, without any further restrictions on the current system, expected by BRANCHING RIGHT. This is because a right-peripherally aligned phrasal adjunct (or specifier) violates BRANCHING RIGHT (in addition), but it does not change the overall structure in any way that any of the other constraints could benefit from the violation. In contrast, a phrasal adjunct that is aligned at the left edge of v'/V' or vP/VP obeys BRANCHING RIGHT. What is particularly significant in this equation is that (5a), (5b) and (5c), regardless of whether v^0 actually moves to T^0 in the syntax, instantiate a configuration in which v and T are syntactically and morpho-phonologically *string*-adjacent, without any specifier copy or overt adjunct intervening between v's and T's base positions. This makes it extremely difficult to decisively distinguish the three types on empirical grounds.[5]

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[4] Be reminded that the structures with the object in the complement of v are simplified; the object is in fact contained in VP, VP being the actual complement of v.

[5] As depicted in the structure in (5c), in a HEAD RIGHT >> HEAD LEFT grammar, the system, under the strictest

We argued in chapter 3 that the absence of v-to-T movement enables a grammar to fill T^0 with independent formatives in the syntax. The point is that in a uniform [spec [comp - head]] - setting, even if T is syntactically independent, it is still easy for the grammar to merge T and V phonologically.

Ironically, Dryer 1992:98f observes an asymmetric division facing broad typology, noting that the combination 'VO & pre-verbal tense/aspect particles' is significantly more common than the combination of 'OV & post-verbal tense/aspect particles'. In Dryer's evaluation, "tense/aspect particles tend to precede the verb in both OV and VO". But precisely because of the superficial similarity of fully head-final TP-grammars, it appears to be worthwhile to remain cautious, before putting forward any generalization.

For example, recall the case of Korean, for which Yoon 1994 explicitly proposes that 'affixal' T has a syntactically independent status on a par with true particles. If Yoon is right, then here we have a case in which T counts in the syntactic representation as a free particle, and still what we see on the surface is an affix. On a more general level, this also means that a generalization about the rareness of syntactically independent tense/aspect particles, where this is based on large typological surveys, is particularly threatened by the nontrivial likelihood of under-reporting. See here also Baker 2002:324 comment on such possibility: "Normal word order principles say that the tense/aspect auxiliary should come right after the verb in these [SOV] languages, so it could easily be mistaken for a tense suffix rather than a particle".

Beyond the danger of under-reporting, there is furthermore the following factor. Precisely because of the direct adjacency of V and T, which is never interrupted, either by adjoined adverbs or even by an abstract syntactic copy, there might be a diachronic tendency for T-particles to develop into affixes over time. Such 'descended' affixes could also constitute

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interpretation, adjoins the raised head to the right of the adjunction host, not to the left. This as such changes the relative order of v^0 and T^0 in the context at stake. However, it would be misleading to interpret this fact at face value, so differentiating between a 'V - T(-suffix)'-order on the one hand, and a 'T(-prefix) - V'-order on the other. As we can see in English, where the absence of (overt) verb movement into the inflectional layer is a well defended analysis, 'T^0 - v^0' -order does not translate into a T-prefix for those contexts in which T is an affix. Therefore, the relevant aspect is the string adjacency between T and V. This string adjacency is given in all uniformly head-final configurations without further complication and independent of the relative order of T^0 and v^0.

syntactically independent heads, such that we have instances of 'phrasal' affixes.[6]

Importantly, this does not necessarily force us to conclude that, syntactically, there is only one uniform SOV-type. The fact that in a $[_{TP}$ (spec) $[_{vP}$ spec [complement - $v^0]]$ $T^0]$ -setting, the raising of V to T does not alter the string adjacency, is a consequence of that setting, which in turn approximates the corresponding grammar's +/- verb movement up to a point where they are close to equal. However, this is not the same as saying they are exactly equal.

The main point here is not to highlight upon the distinction between (5a), (5b) and (5c). Rather, the intent is to highlight that the system derives the possibility of a fully head-final TP as such. That is, even though BRANCHING RIGHT favors left-peripheral complex functional heads (as well as left-peripheral specifiers and adjuncts), the system does not exclude the possibility of consistently head-final structures. Thus, there is no need to introduce any additional movement triggers in order to derive the basic pattern 'S - O - V-T' in languages which also have pre-nominal genitives, 'PP - N'-order, post-positions, and generally right-peripheral functional heads – in languages which are pre-dominantly head-final. The following shows a few examples, each of which could correspond to any one of the three types depicted in (5).

First, in (6), we see Basque, whose preference for [complement - head]-order in nominal extended projections we have already illustrated in chapter 4 (4.3). (6a) presents a transitive main clause, (6b) a ditransitive clause, both illustrating 'S - O - V - Aux'-order. Note that Basque is an ergative language, such that the AGENT subject is marked with ergative case, and the THEME object with absolutive. In the ditransitive context, similar to what we have seen in German, the dative GOAL precedes the THEME in the basic order (cf. Cheng & Demirdache 1993:72, de

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[6]One may wonder whether the text's argumentation becomes circular considering that, in chapter 3, we featured a perspective on verb movement into TP which focuses onto the absence vs. presence of free T particles rather than on adverb placement. Now, we are saying that the distinction between T particles and affixes fades out in a uniformly head-final grammar, precisely if adverbs (and specifiers) do not intervene between T and V on any syntactic level.

We should recall however that the ultimate claim of chapter 3 is the idea that syntactic structure (co-)determines morpho-phonological structure, and *not* vice versa. Therefore, the presence of possibly intervening adverbs (and specifier copies) can in fact ('from the inside out') influence the morphological shape of T. This is not the same as claiming that ('from the outside in') the position of adverbs provides decisive empirical evidence for the absence vs. presence of verb movement.

Rijk 1969). (Basque's agreement system is very rich; the verb agrees with every argument, and every argument can be *pro*-dropped; cf. Laka 1993:24). (6c) gives us a subordinated clause with the declarative complementizer in clause-final position. See Laka 1993:30, Cheng & Dermirchade 1993:74 for the analysis of a head-final verb phrase and inflectional layer in Basque; for a detailed description of Basque, see Ortiz de Urbina 1989:

(6)   Basque ((a), (b) from Cheng & Demirdache 1993:72; (c) from Ortiz de Urbina 1993:198):

    a.   Ni-k$_S$ liburu-a-]$_O$ **irakurri$_V$** **dut$_T$**

        I-*erg*   book-the-*abs*   read   3Sg-Aux-1Sg

        "I read the book."

    b.   Ni-k$_S$ Jon-i$_{IO}$ liburu-a-]$_O$ **ema-n$_V$** **d-ieza-io-ke-t-]$_T$**

        I-*erg*   Jon-*dat*   book-the-*abs*   give-ASP   3Sg.*abs*-Aux-3Sg.*dat*-MOD-1Sg.*erg*.TENSE

        "I can give the book to Jon."

    c.   [Jon$_S$ bihar etorriko$_V$ d$_T$ **-ela$_C$**] esan$_V$ **du$_T$**

        Jon   tomorrow come   Aux-that   said   has

        "He has said that Jon will come tomorrow."

In (7), we see basic 'S - O - V-T'-order in Turkish. Note that in Turkish, the THEME object follows the dative GOAL, as illustrated in (7a), which presents us with a ditransitive context. (7b) is an example of a post-positional phrase. Recall here also the exemplification of the Turkish directionality in nominal extended projections in chapter 4. For a detailed description of Turkish, and its uniformly head-final orientation, see Kornfilt 1997. See Kural 1997 for an explicit rejection of an LCA-based approach to Turkish, and a defense of a CP-structure with head-final V, I and C (Kural argues for a systematic V-to-I-to-C movement in Turkish; cf. Kural 1997:500).

(7)   Turkish (cf. Kornfilt 1997:90, 92):

    a.   Hasan$_S$ kitab-ı$_O$ Ali-ye$_{IO}$ ver$_V$ **-di$_T$**

        Hasan   book-*acc*   Ali-*dat*   give -PAST

        "Hasan gave the book to Ali."

b. Hasan$_S$ opera-ya$_{IO}$ [$_{PP}$ saat beÑten **önce$_P$**] **git$_V$ -ti$_T$**

Hasan   opera-*dat*   hour five-*abl*   before   go   -PAST

"Hasan went to the opera before five o'clock."

Finally, (8) adds an example of the 'S - O - V-T'-base order in Choctaw, a Muskogean language originally spoken in Mississippi, Alabama, and Louisiana. For a detailed description of Choctaw, revealing it as a grammar with a uniform [complement - head]-directionality, see Broadwell 1990. (8a) illustrates a transitive main clause, which furthermore exemplifies Choctaw's '*gen*-P - N'-order (see inside the nominative case marked subject). (8b) gives an example of a subordinated clause:

(8)   Choctaw (Broadwell 1990:25, 111):

a.   [Opah tikchi-it]$_S$ alla(-y<u>a</u>)$_O$ **i-p<u>a</u>ya$_V$ -ttook$_T$**

       owl   wife-*nom*   child(-*acc*)   3-call   -DISTANT PAST

"The owl's wife called the children."

b.   John-at [alikchi-it$_S$ Bill$_O$ **lhakoffichi$_V$ -tok<u>a</u>$_{T-C}$**]   anokfillih$_{V-T}$.

      John-*nom*   doctor-*nom*   Bill   cure   -PAST-COMP(diff.subject)   think

"John thinks that the doctor cured Bill."

On a more general level, the explicit claim is that there is only a universal pressure for an asymmetric (functional) head-alignment which is encoded in a *violable* constraint. Consequently, functional heads do not need to be left-peripheral, regardless of whether we are looking at a complex or a simple head.

In order to see under which ranking constellations either (5a), (5b) or (5c) wins, we have to be aware of which constraints each structure violates. In parallel to what we saw in the discussion of HEAD LEFT >> HEAD RIGHT -grammars, there is first the differentiation with respect to obedience to GEN SUBJECT, CASE LEX and LEX HEAD EDGE. Of the three constraints, (a), [$_{TP}$ __ [$_{vP}$ S O V] T], violates GENERALIZED SUBJECT because the specifier is missing in TP; (b), [$_{TP}$ S [$_{vP}$ t_S O V] T], violates CASE LEX since the subject in Spec, TP receives its case in a

lexically ungoverned position; and (c), [$_{TP}$ S [$_{vP}$ t_S O t_V] T-V], pays the price of violating LEX HEAD EDGE because the verb does not surface at an edge of perfect LexP. Beyond that, (c) incurs one more violation of HEAD LEFT, given the head-adjunction configuration within TP; and, as we know now, [$_{TP}$ S [$_{vP}$ t_S O t_V] T-V] also violates BRANCHING RIGHT, a fault not shared with the mirror image [$_{TP}$ S V-T [$_{vP}$ t_S t_V O]].

Nevertheless, neither (a), (b) nor (c) violates HEAD RIGHT, which would become the cost of starting to flip heads to the left. That is why all three structures can be optimal, and as such instantiate different types within the current system's factorial typology.

In short, the 'no movement into a head final TP' structure (i.e. (5a)) wins if both HEAD LEFT and GENERALIZED SUBJECT are ranked at the bottom of the constraint sextet. The 'subject movement only' structure (i.e. (5b)) becomes the ultimate choice, whenever HEAD LEFT shares its low prominence with CASE LEX. Finally, the 'subject- and verb movement' structure (i.e. (5c)) emerges as optimal, despite a relatively broader violation cost, if the triple LEX HEAD EDGE, BRANCHING RIGHT and HEAD LEFT is ranked below the triple of HEAD RIGHT, CASE LEX and GENERALIZED SUBJECT. These three different outcomes are exemplified in a nutshell in the three tableaux in (9 - 11), with candidate (a), (b), (c) corresponding to the discussed (a), (b) and (c):

(9)　　'No movement into a head-final TP' can win in uniform SOV:　　(relevant winners:)

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
L a. [$_{TP}$ __ [$_{vP}$ subject object v^0] T^0]					*	**
b. [$_{TP}$ subj [$_{vP}$ t_S object v^0] T^0]			*!			**
c. [$_{TP}$ subj [$_{vP}$ t_S object t_V] T^0-v^0]		*!		*		***
d. [$_{TP}$ subj T^0-v^0 [$_{vP}$ t_S object t_V]]	*!			*		**

(10) '+ subject-, – V- movement into a head-final TP' can win in uniform SOV:

	HEAD RIGHT	BRANCHR	GEN SUBJ	LEXHDED	CASE LEX	HEAD LEFT
a. [TP __ [vP subject object v^0] T^0]			*!			**
L b. [TP subj [vP t_S object v^0] T^0]					*	**
c. [TP subj [vP t_S object t_V] T^0-v^0]		*!		*		***
d. [TP subj T^0-v^0 [vP t_S object t_V]]	*!			*		**

(11) '+ subject-, + V- movement into a head-final TP' can win in uniform SOV:

	HEAD RIGHT	CASE LEX	GEN SUBJ	LEXHDED	BRANCHR	HEAD LEFT
a. [TP __ [vP subject object v^0] T^0]			*!			**
b. [TP subj [vP t_S object v^0] T^0]		*!				**
L c. [TP subj [vP' t_S object t_V] T^0- v^0]				*	*	***
d. [TP subj T^0- v^0 [vP t_S object t_V]]	*!			*		**

We may already take notice of the additional competitor (d): (d) minimally deviates from the general 'right-peripheral head'-preference by pulling the complex T-V-head to the left. As such, (d) loses under all three ranking constellations given above, because it fails upon HEAD RIGHT. But (d) is not hopeless, given that it manages to circumvent violation of GENERALIZED SUBJECT, CASE LEX and BRANCHING RIGHT. As we will see in the next section, this is what leads to the emergence of a fourth type. It can explain the basic word order of the Kru languages and the like, and thus, how basic [TP SVO] is possible within a grammar whose preference is head-finality elsewhere.

6.3   Mixed SOV and the 'left-peripheral head'- choice

How exactly do the Kru languages deviate from a uniform SOV-grammar? And why is it justified to recognize them as HEAD RIGHT >> HEAD LEFT grammars with a general preference

for right-peripheral heads? In the following, I will rely on Koopman 1984's detailed description of both Vata and Gbadi, whose analysis is already set within the Extended Standard Theory developed out of the Government & Binding framework of Generative Grammar (cf. Chomsky 1981, 1982; see Koopman 1984:2). Relevant for the topic at hand is that Koopman recognizes the Kru languages as grammars in which the Infl-node sticks out of the category set with respect to direction: Infl precedes its complement rather than follows, whereas a [complement - head]-order is preferred elsewhere.[7]

6.3.1 Right-peripheral V moves to left-peripheral T

Why is it reasonable to assume this particular mix in the directionality, and how does the current system derive it? First of all, the distinction between two positions for the verb, one the VP-internal base position, the other a shifted surface position becomes evident once one compares simple verb clauses on the one hand, and auxiliary-verb constructions on the other:

(12) Vata (cf. Koopman 1984:27, 28):

    a. 1_S **le$\$_{-T}$** b# sa$\$á_O$ b. 1_S **lì$_{V-T}$** sa$\$á_O$

        I **eat**   now rice   I **eat**-PERF rice

        "I am eating rice right now."   "I ate rice."

    c. 1 gblÌ n~ [O$\$$ **le$\$_{-T}$** sa$\$á_O$]

        I know NA s/he **eat**   rice

        "I know that she is eating rice."

(13) Vata (cf. Koopman 1984:28, 29):

    a.   wa$\$$ **l~$_T$** mÓ$_O$ **dlá$_V$**

        they PERF-Aux him   **kill**

        "They have killed him."

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[7]Koopman 2000:366-381 proposes an LCA-based analysis of predicate cleft constructions in Vata. Hence, by now, she apparently has committed herself to a theoretical standpoint that takes right-peripheral heads to be impossible.

b. ^{1}s **ká**$_T$ yO\$O\$$_O$ [slé-e\$ mlÍ$_P$] sa\$\$á$_O$ **nyE\$**

I   FUT-Aux child-DET house-DET in   rice   **give**

"I will give rice to the child in the house."

c.   yO\$O\$ gãgã n~ [kòfĭ$_S$ **nÍ**$_{Neg-T}$ mÓ$_O$ yé **yÉ**$_{(V}$]

child-DET think NA   Kofi NEG-Aux him PART **see**

"The child is thinking that Kofi did not see him."

As illustrated in (12) and (13), the grammatical subject is always directly followed by the finite verb. The finite verb itself precedes sentential adverbs, objects and prepositional phrases. This holds regardless of whether we are looking at a main clause
(cf. (12 a, b); (13a, b)) or a subordinated clause (cf. (12c), (13c)).

Note here that the Kru languages express within the verbal inflection both tense and aspect. Significantly, however, they lack Agr. That is, neither the verb nor the auxiliary carries inflectional markings expressing subject (or object) verb agreement (cf. Koopman 1984:73; 29ff). At the same time, the tense/aspect system is purely inflectional; while Koopman terms the corresponding suffixes tense 'particles', they are not independent but morphologically merge with either an auxiliary or a main verb (cf. Koopman 1984:30).

Infinitival verbs and main verbs under auxiliaries in contrast always follow objects and post-positional phrases. This suggests that V's base position is final within VP. As illustrated in (13) above, the combination of auxiliary and main verb then instantiates a 'sandwich configuration', in which the auxiliary stands to the left, the main verb to the right of the object/PP, similar to what we see in Germanic OV/Verb Second languages. The difference is that in Kru, the auxiliary does not follow an 'arbitrary' clause initial constituent but rather the nominative subject. (13c) shows that the sandwich occurs within the subordinated clause as well, and the auxiliary is not pressed to the outermost right of the clause. An infinitival sentence from Gbadi is given in (14). Here, the infinitival complement headed by the final complementizer *kà* is sandwiched into the object slot, embraced by the super-ordinated auxiliary and the main verb. The embedded infinite verb *p̀á* itself follows both the embedded subject and object:

(14)   Gbadi (cf. Koopman 1984:45):

I$ yS̀r   [yus   sI̱ka pG̱av kà] 1CÒiv

I   FUT-Aux   child   rice   **buy**   C   send

"I will send the child to buy rice."

Koopman 1984:42ff herself assumes that the Kru languages are grammars in which the verb systematically moves and adjoins to the Infl-node, unless an auxiliary is contained in Infl; and furthermore, that the Infl precedes VP, while V itself follows its complement, on a par with N, A, P and C (cf. Koopman 1984:62ff, 93f; see more data on this below). See in (15a) Koopman's original tree, showing the difference between Infl's and V's directionality, as well as the assumption of verb movement to Infl (the theory under which this tree was constructed has not yet identified the S-node as IP). My adaptation of Koopman's tree is given in (15b):
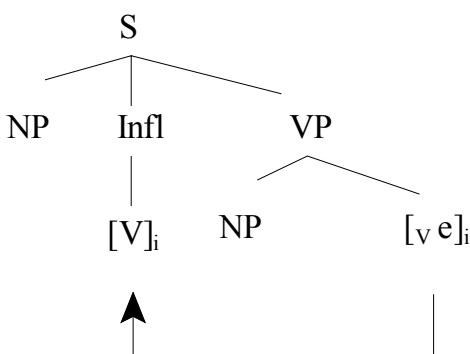
(15)   a. Koopman 1984:42:   b. My adaptation:
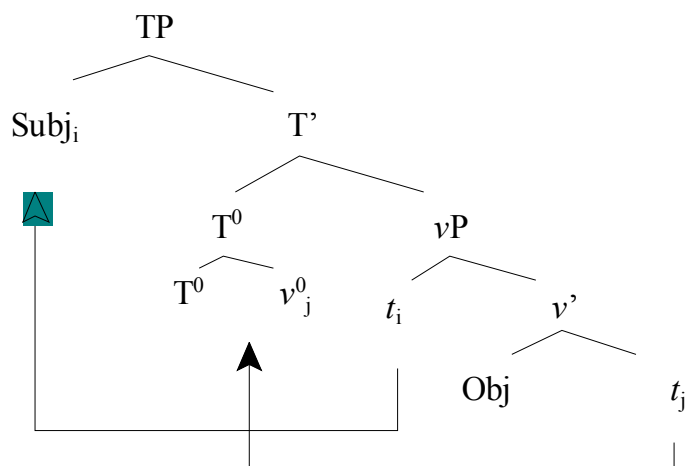
Translating Koopman's analysis into the current system, we say first that vP (and VP) is head final, due to a basic preference for [complement - head]. That is, we have the ranking HEAD RIGHT >> HEAD LEFT. At the same time, TP (= Koopman's Infl/S) has [head - complement] - order. I explain this as a direct consequence of systematic verb movement into it.

To see how this works, consider once more the system's reasoning of how verb movement into the inflectional layer comes about. It is the choice of maximally obeying both GENERALIZED SUBJECT and CASE LEX that causes this movement. Movement of the subject from

Spec, *v*P to Spec, TP happens in order to satisfy GENERALIZED SUBJECT, since the constraint wants a specifier not only in *v*P but also in TP. In turn, CASE LEX favors head adjunction of v^0 to T^0, in order to provide a (T-adjacent) lexical government of Spec, TP, in which the subject receives its (*nom*) case. Now, as outlined in 6.1 above, this head-to-head adjunction creates a complex head, which threatens BRANCHING RIGHT if it follows its respective complement. We thus obtain a simple answer for why the Kru languages abandon their general preference for head-finality within TP.

BRANCHING RIGHT is as important as the factors that enforce the complex T-node. That is, the need of having the subject in TP and of lexically *ep*-governing this subject causes a complex structure for the T-node – T attracts either *v* or Aux – and this in turn flips the directionality from elsewhere preferred [complement - head] to [head - complement]. The flip is the optimal conflict resolution, because GENERALIZED SUBJECT, CASE LEX and BRANCHING RIGHT are more important than HEAD RIGHT (and LEX HEAD EDGE). HEAD RIGHT is nevertheless still more prominent than HEAD LEFT, favoring [comp - head]-order wherever the complexity of a head is not at stake.

Altogether, the Kru languages must have one of the rankings in (16) in order to instantiate a type which contrasts a general preference for head finality with exceptional [head - complement]-order in TP, due to a generally complex T-node:

(16)   The Kru languages – pressing complex heads from right to left:
        a. BRANCH RIGHT, CASE LEX, GEN SUBJECT >> HD RIGHT, LEX HD EDGE >> HD LEFT
        b. BRANCH RIGHT, CASE LEX, GEN SUBJECT >> HD RIGHT >> LEX HD EDGE, HD LEFT

Be aware that (16) instantiates the only mixed type that the system allows within the group of HEAD RIGHT >> HEAD LEFT grammars (see appendix A for proof). That is, all we get is the possibility of head-final oriented grammars to press complex (functional) heads to the left if BRANCHING RIGHT outranks HEAD RIGHT.

The Kru type is also the only possible non-uniform pattern with respect to TP-structure. In the current system, only the prominence of *both* GENERALIZED SUBJECT and CASE LEX can lead to *v*-to-T raising, which means that verb raising into TP is contingent upon subject

movement. Consequently, the system excludes the possibility of head-final oriented grammars that have verb movement into TP but no subject movement, yielding basic 'V*fin* - S - O'-order. Keep in mind that this is a very welcome result: while we find SVO-languages like the Kru, V-first languages with a more general preference for head-final phrases are unattested.

See, then, in (17) a competition on a clause containing a single verb. Unlike what we have seen in the previous section 6.2, it is now the candidate (d) which is optimal; (d) throws all uniform SOV-candidates out of the competition, since they either fail on GENERALIZED SUBJECT (candidate (a)), CASE LEX (candidate (b)), or BRANCHING RIGHT (candidate (c)):

(17)   Vata (cf. Koopman 1984:27, 28):

   a. $[_{TP}$ ^{1} **leĝ-V** $[_{vP}$ b# $[_{vP}$ t_S saĝá t_V]]]

           I   eat   now   rice
        "I am eating rice right now."

(Comparison of relevant winners:)

	BRANCHR	CASE LEX	GEN SUBJ	LEXHDED	HEAD RIGHT	HEAD LEFT
a. $[_{TP}$ __ $[_{vP}$ subject object v^0] T^0]			*!			**
b. $[_{TP}$ subj $[_{vP}$ t_S object v^0] T^0]		*!				**
c. $[_{TP}$ subj $[_{vP}$ t_S object t_V] T^0-v^0]	*!			*		***
L d. $[_{TP}$ subj T^0-v^0 $[_{vP}$ t_S object t_V]]				*	*	**

The reasoning in clauses containing an auxiliary is parallel. What is crucial is the assumption that the auxiliary adjoins to T^0 as well. This creates a complex T-node which once more activates BRANCHING RIGHT. Within the current system, this follows straightforwardly, given that CASE LEX is higher ranked than HEAD RIGHT and LEX HEAD EDGE, and therefore bans substitution of any auxiliary verb under T^0. Only if the auxiliary maintains its lexical identity as a verb (i.e. if it does not become an instantiation of functional T as such) can it act as a 'lexical helper', circumventing the violation of CASE LEX in TP. In tableau (18), we are reminded that this does not mean that the auxiliary must be base-generated under VP. The pure system, without

any additional conditions, simply chooses Aux⁰-adjunction to T⁰ over substitution into T⁰.[8]

The overall effect is once more the 'sandwich'-structure, with T left of and the verb right of its complement. This time, the sandwich is indeed visible, and the verb thus shows its base position:

(18)   Vata (cf. Koopman 1984:28, 29):

   a.   [$_{TP}$ wa\$**l~$_{T-A}$**   [$_{vP}$ t_S mÓ **dlá$_V$**]]

              they PERF-Aux   him   kill

           "They have killed him."

(Comparison of relevant winners:)

	BRANCHR	CASE LEX	GEN SUBJ	LEXHDED	HEAD RIGHT	HEAD LEFT
a. [$_{TP}$ __ [$_{vP}$ subject object v^0] T$_{aux}$^{0}]			*!			**
b. [$_{TP}$ subj [$_{vP}$ t_S object v^0] T$_{aux}$^{0}]		*!				**
c. [$_{TP}$ subj [$_{vP}$ t_S object v^0] T^0-aux^0]	*!			*		***
☞ d. [$_{TP}$ subj T^0-aux^0 [$_{vP}$ t_S object v^0]]				*	*	**

On the above reasoning, keep in mind that the essential cause for why the Kru grammar presses the T-node to the left even in the presence of an auxiliary is *not* the fact that the auxiliary is a verb and as such a lexical head. The cause is that the T-node is complex, involving a head-to-head adjunction configuration. In the current system, it is only an additional bonus that the complexity is directly predicted in the sense that constraint interaction favors a solution in which the auxiliary maintains lexical status and as such adjoins to T⁰.

To distinguish between, on the one hand, complexity of the T-node and, on the other hand, lexical/verb status of the auxiliary as *one* possible reason that guarantees complexity is especially important in light of the general difficulty in classifying auxiliaries as either lexical or

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[8]Koopman 1984:79ff considers the two possibilities, that is, base-generation under VP (plus raising to Infl) and base generation under IP. She, then, tentatively opts for the latter for reasons of conceptual simplicity (cf. Koopman 1984:81), though without decisively rejecting the other choice.

functional. While for the Kru auxiliaries, Koopman 1984:81 doesn't make any explicit claim, and basically acknowledges both options as valid possibilities, on p.39f (fn.7), she criticizes Marchese 1979 for the assumption that Kru auxiliaries derive historically from main verbs. Koopman points out that it could as well be that at least certain auxiliaries in fact stem from inflectional particles rather than from verbs. Her example is the negative auxiliary *tá* which occurs in other Kru languages such as (Southern) Dida-kw and functions incidentally also as a particle. What is significant about this concrete example of a potentially 'functional' auxiliary is that it is one that expresses negation. This strongly suggests that the T-node is still complex, containing both Neg and T. Thus, even if in the case of *tá* or similar auxiliaries, the reason for head-to-head-adjunction in T might not be the lexical status of the auxiliary, as the construction could very well involve adjunction of a functional Neg-head to T. In the current system, this is enough to guarantee that the T-node precedes its verb phrase complement.[9]

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[9]Koopman 1984:30-33 locates Neg under Infl in general, together with Tense; she also considers the Infl-node at times even more complex. In Gbadi, for example, certain focus- and Q-elements suffix on the verb or the auxiliary, in the pre-VP position. Furthermore, 3rd Person pronouns cliticize *into* the V/Aux-T-complex as well; that is, they occur between the moved V-stem on the one side and the T-suffix on the other:

(i)   Gbadi (cf. Koopman 1984:33):

   a.   à   lì-nE\$ kã̀òkú   glìmÒ

          we eat-PAST yesterday agouti

          "We have eaten agouti yesterday."

   b.   à   lù̀-nE\$ kã̀òkú

          we eat+Cl-PAST yesterday

          "We ate it yesterday."

Be aware that a purely 'functional' T-node in the context of a negative auxiliary would imply that the grammar here accepts violation of CASE LEX: If no lexical verb adjoins to T, then the subject (which surfaces in Spec, TP for GEN SUBJECT) remains lexically ungoverned. This greater level of markedness is not very surprising.

Before we consider the other categories, a further comment is worthwhile. The systematic verb movement into Kru's inflectional layer is strongly evident through the two surface verb positions instantiated in the grammar. Nevertheless, any assumption of movement must be ultimately independent of the identification of a head-final verb phrase. One could, in theory, pair an LCA-based- derivation of the surface head finality of vP with a 'further movement into IP'-account. (This is basically the same as in other head-final grammars; as noted earlier, Koopman herself has by now re-analyzed parts of the Vata grammar assuming the LCA as an axiom.) Therefore, verb-raising into the inflectional layer requires in itself a principled explanation. This is provided here by the link to subject movement to Spec, TP and the resulting need for verb raising due to case assignment. We have not just now introduced the concepts that motivate movement, GENERALIZED SUBJECT and CASE LEX, in order to capture the verb raising in the Kru languages. Rather, we have seen in chapter 2, 3 and 4 various ways that the constraints contribute to the general understanding of directionality and movement.

However, consider the fact that the Kru languages move the verb into the inflectional layer, despite not having any overt morphological agreement (an aspect which leads Koopman to assume that Kru lacks Agr altogether; cf. Koopman 1984:73ff). This fact seriously compromises the idea that verb movement is determined by the strength of morphological agreement.

In particular, the Kru grammars provide a case which undermines the system presented by Vikner 2001, at least in its strongest form. Recall here the discussion at the end of chapter 3. There, we noted that Vikner 2001:12 defends the implicational universal: "a language has V^0-to - I^0 only if Person morphology is found in all tenses". This translates into the entailment that a language with weak agreement morphology should have *no* overt verb movement.

First, recall that in section 3.6, we alluded to the fact that auxiliary constructions are cross-linguistically more marked in various ways than constructions without auxiliaries, and that it remains a question for further research which (semantic) factors enforce the use of auxiliaries. Second, considering the factor of negation, there is also the question whether Neg directly adjoins to the T-node in Kru, or whether it rather constitutes an additional functional extension of V such that Neg-to-T or T-to-Neg-movement could block verb movement in a particular context. (According to Koopman 1984:31, the Kru languages have a "rather complex negation system", which makes it impossible to dive any deeper into the topic here.).

Furthermore, Vikner develops a system which is explicitly based on the correlation between '+/– strength of agreement morphology' on the one hand and '+/– verb movement into the inflectional layer' on the other. That is, the system derives the implication in question. Then, while this is the objective Vikner starts out with, and while his system is strong in that it captures all Germanic languages, it confronts its limits where we consider Kru. No matter how we define strength of agreement morphology, it is clear that the Kru languages, which lack overt agreement altogether, have to be recognized as 'weak' grammars with respect to agreement. Nevertheless, they systematically move the verb into the inflectional layer. Consequently, the Kru grammars straightforwardly falsify the universality of the implication that weak morphology entails V-in-situ, and they demand another explanation of why they have overt verb movement, an explanation that is not based on agreement morphology.

Let us go back to directionality and look at other categories. How legitimate is it to characterize the Kru languages as HEAD RIGHT >> HEAD LEFT -grammars, which prefer [complement - head]-order, except for complex T?

6.3.2   All heads but T are right-peripheral

According to Koopman 1984:62ff, 64ff, both NP and AP are head-final; and so are PP (p.66ff) and CP (p.68ff). First, let us look at NP. As illustrated in (19) and (20), the noun not only follows genitive case marked possessors but also any PP-complement:

(19)   a.   Vata (data cf. Koopman 1984:63):

[$_{DP}$ ___ [$_{NP}$ [kòfĭ nÍ(]$_i$ t_i **slée$**] D^0]

              Kofi GEN   house

       "Kofi's house"

       b.   Gbadi (data cf. Koopman 1984:63):

[$_{DP}$ _ [$_{NP}$ [bànyÒ nÊ]$_i$ t_i **Oùdù$_N$**] D^0]

                 Kofi   GEN   house

       "Kofi's house"

(20)   Gbadi (data cf. Koopman 1984:63):

    [$_{NP}$ [$_{PP}$ Oùdù kɣì   nà] **nyI$pÒ$_N$**]

        house   behind NA   someone

    "someone behind the house"

NÍ/nÊ are glossed as genitive by Koopman, which appears to suggest that the particle corresponds to a final K-head. In this case, genitive would not be abstract in Kru, but instead is instantiated by a post-positional case marker, hence *nÍ/nÊ* = K^0 in (19), as part of the possessor phrase. However, Koopman's later discussion of Vata, p. 106-108, treats *nÍ* on a par with *ná* (in Gbadi *nà*), and comes to the conclusion that neither one is a case marker. The point is that not only genitive phrases must be signaled with *nÍ*, but any pre-nominal dependent phrase must be marked as well, only in these cases with *ná* (*nà*) (see (20) for a Gbadi PP example). The distribution comes closest to that of, for example, the nominal marker *no* in Japanese, which likewise appears on post-positional phrases and all kinds of nominal complements that do not require case marking (see Fukui 1993:413; the resemblance is noted by Koopman 1984:107 herself). Still, in Japanese, there is only one nominal marker, while here we have a distinction between two different forms, one occurring on possessor phrases, the other on nominal complements such as PPs. According to Koopman 1984:108, while neither *nÍ* nor *ná* has anything to do with case, Vata makes a distinction between phrases contained in the specifier of NP (which are marked with *nÍ*), and those that occur in complement position (which are marked with *ná*). Trusting Koopman in her judgement, the minimal assumption here is that both *nÍ* and *ná* are F-heads which, in accordance with the Kru ranking HEAD RIGHT >> HEAD LEFT, follow their respective complement and are part of the phrase which is in complement- or specifier-position of the super-ordinated noun. This leaves open the question of why this latter noun marks all its dependent phrases by *nÍ/nÊ, ná/nà*, on a par with the question of what is the exact function of the nominal marker in Japanese and the like.

    At the same time, be aware that the current system precisely explains why the possessor phrase surfaces in Spec, NP, as Koopman assumes they do. Whether *nÍ/nÊ* is a case marker or a more general marker of dependent phrases, either way, the possessor has to receive genitive case, and according to the results we have discussed in chapter 4, the Kru languages, as HEAD RIGHT

>> HEAD LEFT grammars, are expected to place the genitive phrase in Spec, NP. Keep in mind that the one head-final choice which is a possible winner in nominal extended projections, and which wins under HEAD RIGHT >> HEAD LEFT, does not violate BRANCHING RIGHT. So, we expect that the Kru grammar here coincides with any other uniform SOV-grammar, and places a genitive phrase in Spec, NP, resulting in pre-nominal genitive. As we see, this appears to be correct.

Let us now consider D. In the structures in (19), an abstract final D-head is added. The presence of this D-head follows theory-internally, given the assumption that, in general, genitive is assigned to the possessor phrase by a functional extension of N (cf. chapter 4). But how legitimate is this abstraction in the specific case of the Kru languages? Significantly, at least Vata has an overt determiner *the* which indeed follows the nominal head (see (21a)); as shown in (21b), the determiner and the pre-nominal genitive phrase can co-occur:

(21)   Vata (data cf. Koopman 1984:63, 68):

   a.   [$_{DP}$ __ [$_{NP}$ kO$\text{\textcent}_N$] OO$]   *or*, alternatively: [$_{DP}$ __ [$_{NP}$ kO$\text{\textcent}_N$] **-Ò$_D$**]

                                man   the
              "the man"

   b.   [$_{DP}$ __ [$_{NP}$ [àbà nÍ(]$_i$ t_i gbÙ$_N$]**-Ò$_D$**]

                                Aba NI   cause   -the
              "Aba's reason"

Furthermore, both Vata and Gbadi have demonstratives which likewise occur post-nominally:

(22)   a.   Vata (cf. Koopman 1984:63):   b.   Gbadi (cf. Koopman 1984:63):

          kO$\text{\textcent}_N$ (mÈ$_{Dem}$ nyI$pÒ_N$ n$\text{\textcent}_{Dem}$

          man   this   man   this
          "this man"   "this man"

To conclude from the final position of the demonstrative that the Kru languages have a head-final DP is however less strong than to take the final determiner as evidence for such a structure.

Recall that we noted in chapter 4 that grammars can group demonstratives together with determiners. But in many languages, demonstratives belong to the class of adjectives. In Kru, the case is in so far unclear as adjectives follow the noun as well (cf. Koopman 1984:64).

With respect to the syntactic position of these adjectives, possibly including demonstratives, recall the discussion in chapter 4 on the general typological instability of adjective alignment in noun phrases. One structural possibility appears to be direct adjunction of a non-projecting adjective, that is A^0, to N^0. If this is the case in Kru, then the postulated ranking correctly predicts 'noun - adjective'-order. As we have seen for Basque in section 4.3, this is a consequence of a HEAD RIGHT >> HEAD LEFT ranking, which implies that any X^0 which adjoins to Y^0 is expected to adjoin to the right.

But what about the newly introduced impact of BRANCHING RIGHT, which, as claimed, is active in the Kru languages? Wouldn't it twist a complex N^0-A^0 to the left of a potential nominal complement? No, it would not. Here, we have to remind ourselves of something already noted in 6.1 above: a complex *base* head, that is, one at the bottom of the tree, can still follow its complement without violating BRANCHING RIGHT. This is because in the corresponding configuration, the sister of the complex head (N^0-A^0's complement, if there is one), and the mother node N, are *not* projections of the same head. Therefore, BRANCHING RIGHT doesn't enforce anything with respect to the order of the complement and the complex head N^0-A^0.

Then, consider nominal vs. adjectival predication in Vata and Gbadi. Both grammars provide subtle support for Baker's theory discussed in chapter 5, as well as for the Kru ranking here proposed. Recall that Baker distinguishes two kinds of Pred-heads in non-verbal predication, one selecting NP, the other AP. Furthermore, only A^0 is potentially capable of incorporating into $Pred^0$; N^0 per se is not. If A substitutes into Pred, prior to lexical insertion, then the result is a verb. In chapter 5 (5.1), we asked whether in some grammars, the adjective might in fact incorporate into $Pred^0$ in the syntax, *after* lexical insertion (this as a language-specific choice for lexicalizing Pred). The result in such scenario would be that the structures of adjectival predication and of verbal (unaccusative) predication entirely coincide, since the adjective (in $Pred^0$) would become the de facto head of the clause.

The Kru languages are an interesting case in this respect, since if the adjective incorporated into $Pred^0$, then its resulting 'verb-like' character would predict a 'verb-like'

directionality. That is, we would expect the following. In a context without an auxiliary, lexical Adj_{Pred}^0 moves and adjoins to T^0. In the current analysis, this is due to the strength of CASE LEX. In turn, the complex T-head, containing the adjective, precedes its PredP-complement, due to the strength of BRANCHING RIGHT. On the other hand, in a context with an auxiliary, the auxiliary is in TP and the Adj_{Pred}-head remains in situ, on the right of its AP-complement. Keep in mind that substitution into Pred does not create a complex head, thus there is no need for a left-peripheral orientation, as long as Adj_{Pred}^0 does not move into the functional layer. Thus, altogether, while the adjective is clause-final in the presence of an auxiliary, it immediately follows the subject in a context without an auxiliary.

Exactly this is the case, which suggests that the outlined incorporation-approach is correct. As illustrated by the Vata example in (23), adjectival predication in Kru does not involve any copula, and the adjective precedes an AP-adjoined modifier in clauses without auxiliary, but follows when one is present:[10]

(23)   Vata (data cf. Koopman 1984:65):

   a. $[_{TP}$ O\$ **tÉ**$_{T\text{-}Pred/A}$ $[_{PredP}$ $[_{AP}$ ma\$na\$$[_{AP}$ t_A $]]$ ***t*$_{Pred/A}$** $]]$

          s/he   strong   much
          "S/he is very strong."

   b. $[_{TP}$ O\$ **nÍ**$_{T\text{-}Neg}$ $[_{PredP}$ $[_{AP}$ ma\$na\$$[_{AP}$ t_A $]]$ **tÉ**$_{Pred/A}$ $]]$

          s/he   Neg-Aux   much   strong
          "S/he is not very strong."

A valid alternative possibility is that the predicate adjectives are verbs in the literal sense (as assumed by Koopman 1984:65), which could mean that the incorporation into Pred happens before lexical insertion. In that case, the PredP in (23) would be in fact a VP. The system's prediction in terms of directionality would be the same.

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[10]This is in crucial contrast to nominal predication, in which a copula is obligatory (cf. Koopman 1984:65).

Finally, let us have a look at PP and CP, which of both are head-final. In the case of PP, Koopman 1984:66-71 explicitly argues that Kru adpositions cannot be equated with nouns, nor with case markers, and that therefore, a category P exists in the corresponding grammars. Relevant for the issues at hand is that Koopman observes that the ad-positions are post-positions which follow their noun phrase complements. Given the Kru ranking HEAD RIGHT >> HEAD LEFT, this directionality is the expected one. All that is needed is to recognize that P, despite being classified here as a functional head, is not a syntactically complex one. Thus, it does not threaten BRANCHING RIGHT, and consequently, the next most prominent constraint, HEAD RIGHT gets its way. (24) shows two examples from Vata:

(24) Vata (data cf. Koopman 1984:68):

    a.   [$_{PP}$ [$_{NP}$ àbà] **gbÞ$_P$**]   b.   [$_{PP}$ [$_{DP}$ [$_{NP}$ slé] -e$] **mlÍ$_P$**]

               Aba   cause   house -DET in

               "because of Aba"   "in the house"

In the case of CP, we have already seen in (14) one Gbadi example of the complementizer *kà* which introduces non-finite clauses. As expected by the current ranking, *kà* follows its complement. The only apparent exception to the right-peripheral orientation of C is the head *n~* which precedes subordinated finite clauses, the latter themselves obligatorily surfacing in extraposed position. The contrast is illustrated in (25) with examples from Vata. In (a), we have a non-finite complement, which precedes the complementizer *k~*; the *k~*-complement precedes, as a whole, the super-ordinated verb. In (b), we see, by contrast, the subordinated finite clause at the right periphery, to the right of the super-ordinated verb, and *n~* precedes its respective complement:[11]

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[11]*N~* should not be confused with the pre-nominal marker *ná/nà*, the latter carrying different tones (the Kru languages are tone languages). See Koopman 1984:133 (fn.1) on this point.

(25)   Vata (cf. Koopman 1984:45, 86):

    a.   nnIk~   [yOO sa$ká nyE$**k~**] mlĆ

        I FUT-Aux-Tense   child-DET   rice   give **C**   leave

        "I will go give rice to the child."

    b.   n$ gùgù   **n~** [½ nÞ   lÂO..(]

        I   thought **NA** you do   work

        "I thought that you were working."

But is *n~* a complementizer? As Koopman 1984:85-98 shows, *n~* differs in significant ways from a complementizer of the 'that'-kind. Ultimately, she comes to the conclusion that *n~* can *not* be part of the subordinated finite complement. Instead, *n~* is best analyzed as a (semantically emptied) verb descended from the homophonous main verb *n~/la/lO* 'to say'. According to Koopman, in the structure of (25b), the finite complement of *n~* is base-generated in a position preceding *n~*, and the entire *n~*-complement originates left of the super-ordinated verb. The surface order is a result of extraposition, where extraposition targets finite complement clauses in general. Since *n~* is a (finite) verb itself, the construction involves two instances of extraposition:[12]

(26)   Vata (cf. Koopman 1984:96):

    ... *t*$_j$ gùgù [[*t*$_i$ **n~**] [½ nÞ   lÂO..(]$_i$]$_j$

    ....   thought   **NA** you do   work

Here, a slight structural modification of Koopman's analysis suggests itself. Consider that, as Koopman says, finite complement clauses extrapose in Kru (cf. (25b), (26)), while non-finite ones do not (cf. (14), (25a)). Consequently, *n~* has to be a finite verb in order to motivate extraposition. This implies that *n~* is not simply a semantically emptied V, but instead a

_____

[12]See Koopman 1984:§4.2 for her general reasoning as to of why finite clauses must be extraposed not only in Kru but in other languages as well. Keep in mind that extraposition violates BRANCHING RIGHT, and thus the cause thereof

(semantically emptied) [V + T]-complex. This again implies that the fact that *n~* precedes its finite complement could be a simple consequence of the general left-peripheral orientation of the complex T-node in the Kru-grammar. In such a scenario, the configuration in (25b)/(26) would involve only one instance of extraposition. That is, it would only involve the extraposition of the entire *n~*-complement which originates left of the super-ordinated verb *gùgù*.

If *n~* is a semantically empty verb (or a semantically empty *tensed* verb) rather than a declarative complementizer, then this is not at all a curious artefact. On the contrary, many African languages have 'complementizers' that derive from *verba dicendi* (see, for example, Bayer 1999). Hence, *n~* is in good company. Furthermore, as Koopmann 1984:85-98 shows in great detail, analyzing *n~* as a verb accounts for various details that set *n~* apart from 'true' complementizers like *that*.[13]

In short, Koopman finds sound reasons to not recognize *n~* as a complementizer, which then also means that *n~* does not provide any evidence for a left-peripheral C-node in Kru. In contrast, the assumption that the directionality is [$_{CP}$ (spec) [complement - C^0] is supported by more than just the the final complementizer *k~*. The Kru languages also have a Q-head *la$*. This Q-head appears at the right periphery in main clause *wh*-questions, in which the *wh*-phrase has fronted into Spec, CP:

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[13]For example, *n~* can precede not only embedded declarative clauses but also embedded interrogative *yes/no*-questions, a rather unexpected property if *n~* was a declarative complementizer on a par with *that*. In addition, *n~* is able to introduce both indirect and direct speech, a property which it shares with the homophonous verb *n~/la/lO*, its semantically content-ful counterpart. At the same time, it is impossible to embed *n~* under *n~/la/lO*. Instead, *n~/la/lO* selects a bare tensed clause and *n~* must be absent.

Furthermore, while *n~*-clauses can only be selected by certain verbs, if selected, then *n~* cannot be dropped. Nevertheless, unlike 'true' obligatory complementizers (e.g. French *que* and Dutch *dat*), which are part of the subordinated clause and thus must be repeated if two subordinated clauses coordinate, the same cannot be said about *n~*: *n~* introduces the entire coordinated structure as a whole. This is in opposition to the complementizer *k~* of infinitival complements, which *is* on a par with French *que* and Dutch *dat* and therefore must be repeated.

(27)   Vata (cf. Koopman 1984:37):

$[_{CP}$ **yÇ_{wh}** $[_{TP}$ kòfí$_S$ **l†$_{T-V}$** $[_{VP}$ t_S t_{wh} t_V]] **la$\text{$}$**]

        what   Kofi   eat   WH
    "What is Kofi eating?"

As illustrated in (27), the data are easily explained if we locate the clause initial *wh*-phrase in Spec, CP and the clause final Q-particle in C^0. In infinitival complement clauses, C^0 contains $k\widetilde{\ }$. Most relevant for us is the fact that C^0 follows its TP complement, as predicted by the current ranking. That is, the situation is parallel to the case of P (and D): even if C is a functional node, it is final in Kru, given that it is not syntactically complex. Consequently, BRANCHING RIGHT is satisfied under both a $[C^0$ - complement] and a [complement - C^0] -order, and HEAD RIGHT >> HEAD LEFT decides for the latter.[14]

    This completes our survey of the different categories in the Kru languages. We have seen that there is a directionality contrast between the T-node which precedes its complement, and the other categories, both functional and lexical, which follow their complements.

    We noticed that we can explain this contrast by admitting an analysis whereby the left-peripheral T-node is complex, due to verb raising, while the right-peripheral heads are either not complex, or they constitute the base head of the corresponding (extended) projection. The key observation was that the current system, without further addition or modification, predicts the possibility of a type with this directionality. The reason is the impact of BRANCHING RIGHT, which, after closer inspection, does not only demand left-peripheral orientation of phrasal specifiers and adjuncts, but also of complex functional heads.

    Beyond that, the system explains why the Kru grammar has systematic verb raising into TP, which in turn causes the complexity of the T-node. The reason is the combined impact of GENERALIZED SUBJECT and CASE LEX, one forcing the subject to move into Spec, TP, the other forcing the verb to move to T in turn, in order to provide a T-adjacent lexical governor of the

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[14]In an LCA-based theory, one has to motivate two CP-layers in order to account for the Kru-data: the first CP with Spec, CP as the target of *wh*-fronting, the second CP with Spec, CP as the target for IP-fronting. Koopman 2000:375 proposes a QP below a WhP. The QP is headed by the Q-particle, with Spec, QP attracting the clause. The *wh*-phrase then moves to the higher Spec, WhP.

subject, T's case assignee. We have also recognized that acknowledging case (and an EPP-related constraint) as the ultimate cause of verb raising is sensible in languages like the Kru ones, which exhibit a total absence of agreement features. I thus reject an analysis which declares verb raising to be contingent upon strong agreement.

On the level of broad typology, we have learned that the system correctly accounts for the typological possibility of languages that have a basic order 'S - V$_{fin}$ - O', but combines this with a preference for [complement - head]- directionality elsewhere (including a head-final verb phrase). At the same time, the system simultaneously *ex*cludes the possibility of languages with basic 'V$_{fin}$ - S - O'- or 'V$_{fin}$ - O - S'-order that prefer head-finality elsewhere. This is a further positive bonus of the approach, since the second option appears to be unattested.

Chapter 7 – Conclusion

This thesis has proposed a system of six general violable constraints on X-bar-Structure in order to account for variation in phrase structure directionality. The conflict between these six constraints, {HEAD LEFT, HEAD RIGHT, BRANCHING RIGHT, LEX HEAD EDGE, GENERALIZED SUBJECT, CASE LEX}, and the set of possible conflict resolutions that fall out of ranking the constraints predict a very restricted typology of basic word order. Variation is expected, but, besides the uniform cases, only a few non-uniform ones exist. As such, the strength of the approach is that it does not over-generate. At the beginning of this thesis, we noted that we find both languages with uniform and with mixed word order, but not every kind of 'mix' appears to be possible. Therefore, in the best case scenario, we want a theory that not only explains why variation occurs, but also why exactly this kind of variation exists and no other. The objective of this thesis was to strive towards this goal, and the proposed system provides a concrete example of how to approach the task.

The system ensures first the emergence of SVO- and SOV-languages that have uniform phrase structure directionality in the sense that all categories coincide with respect to the order of head and complement. Uniform SVO-grammars prefer [head - complement]- order across all categories. Uniform SOV-grammars prefer [complement - head]. In both cases, specifiers and phrasal adjuncts generally align on the left. Second, there is the system's central recognition that head-initial languages have a greater structural conflict to resolve inside their lexical projections than head-final oriented languages, caused by LEX HEAD EDGE. This constraint's demand to align a lexical head at the edge of a lexical projection is not satisfied in a head-medial configuration such as [spec [head - complement]]. However, there is no conflict if the preferred order is [spec [complement - head]]. We saw that the acknowledgment that head-initial oriented grammars are exposed to additional structural pressure explains why uniform SVO-languages are not the only [head - complement]-grammars that emerge; we also find VOS-languages (Tzotzil, Malagasy), VSO- languages (Mixtecan languages) and head-initial languages with a head-final verb phrase (German, Persian). These latter types appear as languages whose phrase structure directionality is mixed, not uniform, though we have seen that the ways in which mixed word

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order deviates from uniformity is systematic, and this systematic nature is captured by the proposed system. Systematic deviation from uniformity is also predicted to be possible in head-final languages, though to a lesser degree. BRANCHING RIGHT's prohibition of right-peripheral complex functional heads explains the emergence of [complement - head]- grammars that have a head-final verb phrase but basic 'S - V$_{fin}$ - O'-order due to leftward head movement of the finite verb into a TP with [spec [head - complement]]- structure (example: the Kru languages).

The proposed system altogether makes several predictions on phrase structure directionality and movement. The central results are summarized below.

First, on directionality in general:

(1)   The proposed system allows:

    i.   Uniform [spec [complement - head]]-directionality (uniform SOV)

    ii.   Uniform [spec [head - complement]]-directionality (uniform SVO)

    iii.   Grammars which project in a clause right-peripheral lexical heads and left-peripheral functional heads; specifiers and adjuncts are always on the left (German, Persian, the Kru languages...)

    iv.   Grammars with right-peripheral lexical specs and left-peripheral functional specs; heads, and adjuncts, are always on the left (VOS)

    v.   Grammars that systematically move lexical heads to the left of a left-peripheral lexical spec; heads, specifiers and adjuncts are always on the left (VSO)
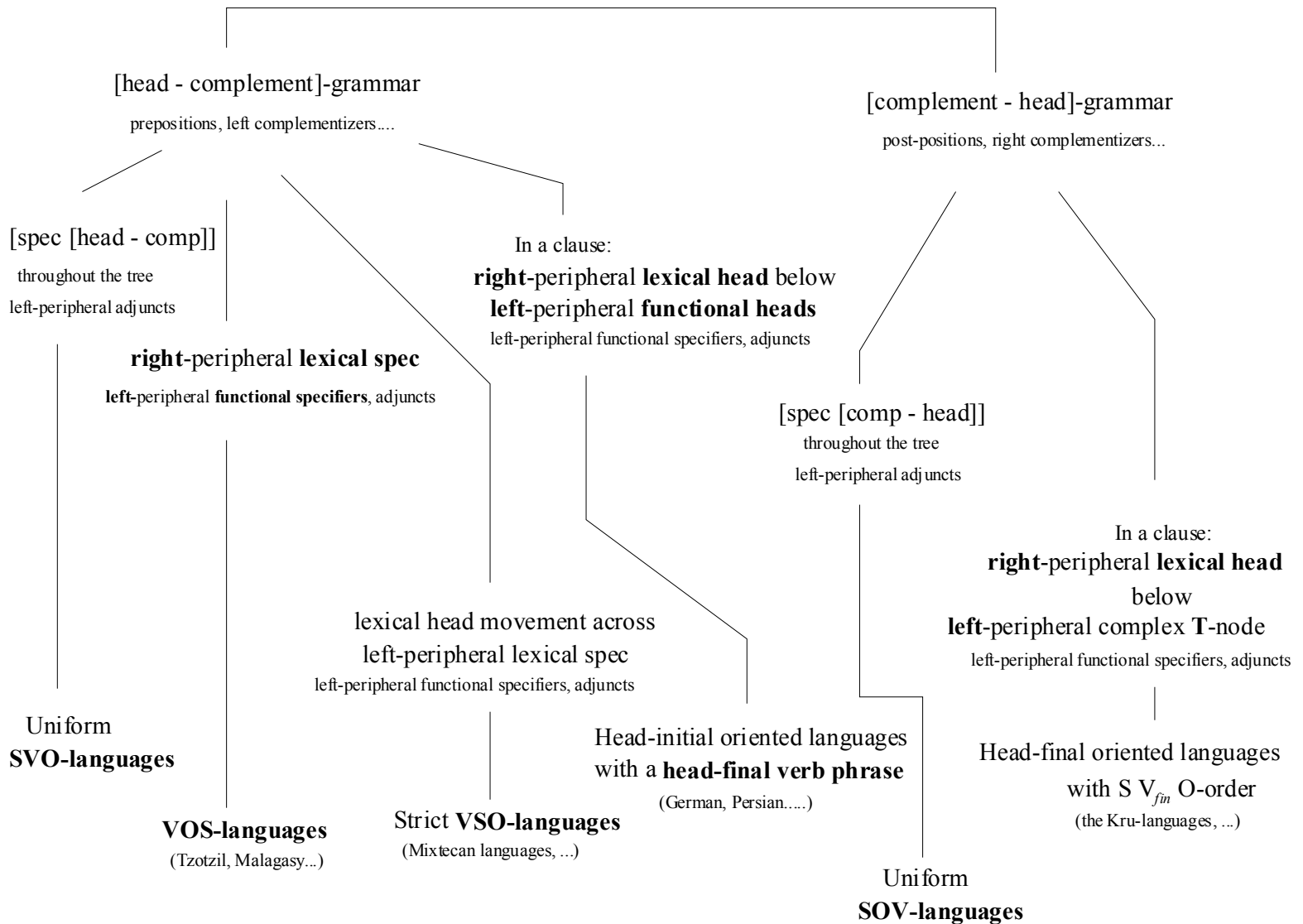
(2)   The proposed system *ex*cludes:

    i.   Uniform and non-uniform [[complement - head] spec]-directionality
           (- No underlying OVS)

    ii.   Uniform [[head - complement] spec]-directionality (- VOS-grammars are always
           mixed, and do not have right-peripheral specifiers in general)

    iii.   Grammars with left-peripheral lexical heads below right-peripheral functional
           heads (- No 'Reverse-German')

    iv.   Grammars with left-peripheral lexical specs and right-peripheral functional specs
           (- No 'Anti-Tzotzil')

These general results were derived and discussed before CASE LEX was introduced. They remain stable even after adding CASE LEX to the set, and also after considering all aspects of BRANCHING RIGHT. Including the Kru languages as another kind of mixed word order, the following two typological generalizations emerge from the proposed theory of mixed word order:

(3)   Only languages with a head-final verb phrase, i.e. underlying OV-languages, can show
        non-uniform head/complement orders across different categories.

(4)   Only languages with a head-initial verb phrase, i.e. underlying VO-languages, can have
        right-peripheral lexical specifiers.

Altogether, we obtain the following typology of phrase structure directionality:

(5)   The proposed system allows on directionality in general:

[head - complement]-grammar

prepositions, left complementizers....

[complement - head]-grammar

post-positions, right complementizers...

[spec [head - comp]]

throughout the tree
left-peripheral adjuncts

In a clause:
right-peripheral **lexical head** below
left-peripheral **functional heads**
left-peripheral functional specifiers, adjuncts

right-peripheral **lexical spec**

left-peripheral **functional specifiers**, adjuncts

[spec [comp - head]]

throughout the tree
left-peripheral adjuncts

lexical head movement across
left-peripheral lexical spec
left-peripheral functional specifiers, adjuncts

In a clause:
right-peripheral **lexical head**
below
left-peripheral complex **T**-node
left-peripheral functional specifiers, adjuncts

Uniform
SVO-languages

Head-initial oriented languages
with a **head-final verb phrase**
(German, Persian.....)

Head-final oriented languages
with S V$_{fin}$ O-order
(the Kru-languages, ...)

VOS-languages
(Tzotzil, Malagasy...)

Strict **VSO-languages**
(Mixtecan languages, ...)

Uniform
SOV-languages

CASE LEX was proposed in order to solve the '*TSVO'-puzzle. Beyond accounting for the
impossibility of languages with a basic 'T$_{[-aff]}$ - S - V - O'-order, we derived the following
results with respect to the distribution of verb- and subject movement into TP:

(6)   Typological predictions for finite verbal extended projections:

The absence of both verb- and subject- movement into the inflectional layer, TP, is possible both in grammars that prefer a [head - complement]-directionality, and in those that prefer [complement - head]. However, in [head - complement]-languages, the lack of movement into TP goes hand in hand with *mixed* directionality. Possible is:

i.   VOS-grammars that lack both verb- and subject-movement into TP.
        Mayan Tzotzil and Malagasy are '[$_{TP}$ __ T [$_{vP}$ VOS]]'-languages.
ii.   VSO-grammars that move the verb into an additional VP, but leave the subject in situ, and do not move into TP. Strict VSO-languages such as Mixtecan are
        '[$_{TP}$ __ T [$_{vP}$ VSO]]'-languages.
iii.   Head-final VP-grammars of the Germanic type include one variant that lacks both verb- and subject-movement into TP. Persian and German are
        '[$_{TP}$ __ [$_{vP}$ SOV] T]'-languages.

In uniform SOV-languages, the lack of both verb- and subject-movement into TP is possible as well (H'[$_{TP}$ __ [$_{vP}$ SOV] T]'), but it is impossible in uniform SVO-languages:

iv.   In SVO-languages, the subject always surfaces in Spec, TP (or higher).
v.   *'[$_{TP}$ __ T [$_{vP}$ SVO]]'.
vi.   A uniform SVO-grammar either moves both the verb and the subject into TP (French, Icelandic....); or:
vii.   At least the subject moves into Spec, TP or is directly base generated therein (English, Edo.....).

Comparing the verbal domain with the nominal domain, the system was able to explain why we find SVO-languages that have a pre-nominal genitive, but also those that have a post-nominal genitive. It also explained why VSO- and VOS-languages generally have a post-nominal genitive, and why SOV-languages mostly have a pre-nominal genitive. The system thus

predicted a typology which exactly matches the empirically attested distribution:

(7)   Possible combinations – 'the queen's palace' vs. 'the palace the queen's':

OV-languages   **SVO**-languages   **VS**-languages
                                                                    (VOS, VSO)

'**Gen-P – N**'   '**Gen-P – N**'

            '**N – Gen-P**'   '**N – Gen-P**'   '**N – Gen-P**'

(in the system: contingent upon left F in   (in the system: *always* expected **if**
both nominal *and* verbal domain)   grammar has **verb movement to T**)
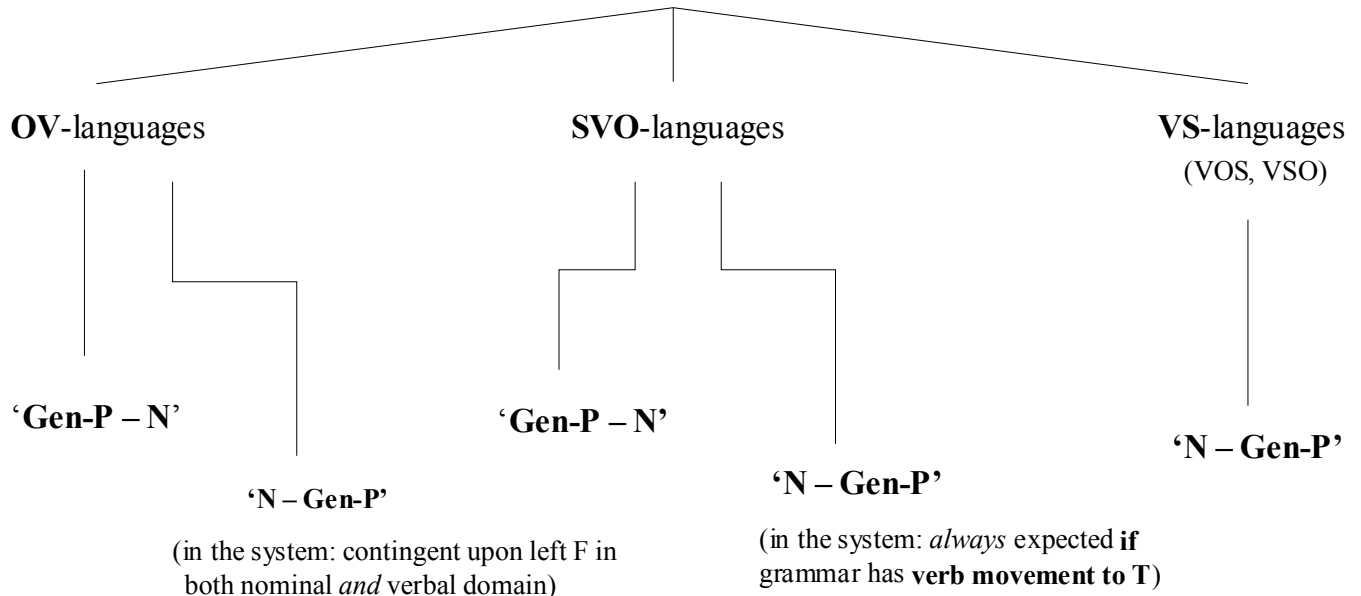
In addition, we obtained two implicational universals, one on the correlation of verb movement and noun movement, the other on the directionality conditions that enable a post-nominal genitive in an OV-language:

(8)   'Verb movement entails noun movement':

        If a uniform SVO-language has systematic verb movement into TP, then it has noun
        movement across any genitive phrase in Spec, NP:
        '+ V-movement into TP' ⊃ 'N - *gen*-P'

(9)   'Left-peripheral N entails left-peripheral F over V':

        An OV-language can have 'N - *gen*-P'-order only if
        it also has left-peripheral functional heads in both the verbal and the nominal domain.

Altogether, in order to obtain these results, it was essential to recognize the relevance of *edges* in the *lexical* domain of syntactic structure, the relevance of *asymmetry* in alignment, of *specifier*-positions in clauses, and of *lexical* heads in *case* assignment. Overall, it was crucial to acknowledge the violable nature of general constraints which interact with each other in more than one dimension of syntactic structure. It is precisely because of the network that the conflicts create that restricted variation is predicted to emerge.

After all, many question have been left open and many details have been ignored in favor of the 'bigger picture'. But I hope that I have nevertheless demonstrated what a restricted theory of basic word order could look like, and in which ways we can seek for it.

Appendix A – Factorial Typology

Chapter 2 introduced five different types (type A - E) that fall out of the ranking of {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCHING RIGHT, GENERALIZED SUBJECT}. Chapter 3 added CASE LEX to the set. The following shows the complete list of all types predicted by the factorial typology of the extended set. The list is organized by showing how the types A to E divide into several sub-types, once CASE LEX is taken into consideration.

I.   SVO-group – type D

      D1:   Uniform SVO-grammar that lacks verb movement into TP;
            subject moves to Spec, TP: '[$_{TP}$ S T [$_{vP}$ t_S VO]]'; '*gen*-P - N'-order

        1.   HEAD LEFT, BRANCHING RIGHT >>
             GEN SUBJECT, HEAD RIGHT >> LEX HEAD EDGE, CASE LEX
        2.   HEAD LEFT, BRANCHING RIGHT >>
             GEN SUBJECT >> LEX HEAD EDGE >> HEAD RIGHT >> CASE LEX

      D2:   Uniform SVO-grammar that lacks verb movement into TP;
             subject is base generated in Spec, TP:
             '[$_{TP}$ S T [$_{vP}$ __ VO]]'; '*gen*-P - N'-order, or 'N - *gen*-P'-order
             (depending on the ranking between CASE LEX and HEAD RIGHT)

        1.   HEAD LEFT, BRANCHING RIGHT >>
             HEAD RIGHT, LEX HEAD EDGE >> GEN SUBJECT, CASE LEX
        2.   HEAD LEFT, BRANCHING RIGHT >>
             LEX HEAD EDGE >> GEN SUBJECT >> CASE LEX**,** HEAD RIGHT

D3: **Uniform SVO-grammar that lacks verb movement into TP; subject moves to Spec, TP (subject copy is a right-peripheral specifier)**: '[$_{TP}$ S T [$_{vP}$ VO t_S]]'; '*gen*-P - N'-order, or 'N - *gen*-P'-order (depending on the ranking between CASE LEX, BRANCH RIGHT and HEAD RIGHT)

1.   HEAD LEFT, LEX HEAD EDGE, GEN SUBJECT >>
     HEAD RIGHT, CASE LEX, BRANCHING RIGHT
2.   HEAD LEFT, LEX HD EDGE >>
     HEAD RIGHT >> GEN SUBJECT >> BRANCHING RIGHT, CASE LEX

D4: **Uniform SVO-grammar that has verb movement into TP; subject moves to Spec, TP:** [$_{TP}$ S V-T [$_{vP}$ t_S t_V O]]; 'N - *gen*-P'-order

1.   HEAD LEFT, BRANCHING RIGHT >>
     CASE LEX, GEN SUBJECT>> HEAD RIGHT, LEX HEAD EDGE
2.   HEAD LEFT, BRANCHING RIGHT >>
     CASE LEX >> HEAD RIGHT >> GEN SUBJECT >> LEX HEAD EDGE

II.   VOS-group – type A

A1:   VOS-grammar; no movement into TP:
      [$_{TP}$ __ T [$_{vP}$ VOS]]; 'N - *gen*-P'-order

1.   HEAD LEFT, LEX HEAD EDGE, CASE LEX >>
     GEN SUBJECT >> BRANCHING RIGHT, HEAD RIGHT
2.   HEAD LEFT, LEX HEAD EDGE >> HEAD RIGHT >> CASE LEX >>
     BRANCHING RIGHT, GEN SUBJECT

III.   **VSO-group – type B**

B1:   **VSO-grammar; no movement into TP**
       (verb moves across the subject inside the lexical layer):
       [TP __ T [vP VSO]]; 'N - *gen*-P'-order

1.   HEAD LEFT, BRANCHING RIGHT >>
     CASE LEX, LEX HEAD EDGE >> GEN SUBJECT, HEAD RIGHT
2.   HEAD LEFT, BRANCHING RIGHT >>
     CASE LEX >> HEAD RIGHT >> LEX HEAD EDGE >> GEN SUBJECT

IV.   **Group of grammars with head-final verb phrase, and preference for**
       [head - complement] elsewhere – type C

C1:   **Head-final verb phrase below head-final TP; no movement into TP:**
       [TP __ [vP SOV] T]; 'N - *gen*-P'-order

       BRANCHING RIGHT, LEX HEAD EDGE, CASE LEX >>
       GEN SUBJECT >> HEAD LEFT >> HEAD RIGHT

C2:   **Head-final verb phrase below TP with [head - complement]-order;**
       subject moves to Spec, TP:
       [TP S T [vP *t*S OV]]; 'N - *gen*-P'-order in (1), '*gen*-P - N' -order in (2)

1.   BRANCHING RIGHT, LEX HEAD EDGE, GEN SUBJECT >>
     CASE LEX >> HEAD LEFT >> HEAD RIGHT
2.   BRANCHING RIGHT, LEX HEAD EDGE, GEN SUBJECT >>
     HEAD LEFT >> HEAD RIGHT, CASE LEX

C3: **Head-final verb phrase below TP with [head - complement]-order;**
subject moves to Spec, TP and verb moves to T:

[TP S V-T [vP tS O tV]]; 'N - *gen*-P'-order

BRANCHING RIGHT, GEN SUBJECT , CASE LEX >>
LEX HEAD EDGE >> HEAD LEFT >> HEAD RIGHT

V. **SOV-group – type E**

E1: **Uniform SOV-grammar that lacks verb- and subject movement into TP:**

[TP __ [vP SOV] T]; '*gen*-P - N'-order

HEAD RIGHT, BRANCHING RIGHT, LEX HEAD EDGE, CASE LEX >>
GEN SUBJECT, HEAD LEFT

E2: **Uniform SOV-grammar that lacks verb movement into TP;**
subject moves to Spec, TP: [TP S [vP tS OV] T]; '*gen*-P - N'-order

HEAD RIGHT, BRANCHING RIGHT, LEX HEAD EDGE, GEN SUBJECT >>
CASE LEX, HEAD LEFT

E3: **Uniform SOV-grammar that has verb movement into TP;**
subject moves to Spec, TP: [TP S [vP tS O tV] T-V]; '*gen*-P - N'-order

HEAD RIGHT, CASE LEX, GEN SUBJECT >>
LEX HEAD EDGE, BRANCHING RIGHT, HEAD LEFT

E4: **Mixed SOV-grammar that has verb movement into TP;**

subject moves to Spec, TP;

TP has [head - complement]-order due to head-adjunction:

[$_{TP}$ S T-V [$_{vP}$ t_S O t_V]]; '*gen*-P - N'-order

1. BRANCHING RIGHT, CASE LEX, GEN SUBJECT >>
    HEAD RIGHT, LEX HEAD EDGE >> HEAD LEFT
2. BRANCHING RIGHT, CASE LEX, GEN SUBJECT >>
    HEAD RIGHT >> LEX HEAD EDGE, HEAD LEFT

Appendix B – Proofs on Kayne 1994

This appendix shows that the LCA does not sufficiently restrict dominance relations of syntactic nodes. Additional stipulations are still needed, as this is required in an X-bar-Theory.

First, see how the LCA does not exclude adjunctions of heads to phrases. Recalling the theory, take a set A to be the 'set of pairs of non-terminal nodes such that the first asymmetrically c-commands the second', and let d(A) be 'the mapping from the non-terminals to the terminals they dominate'. Then, the LCA allows a syntactic structure if and only if the set A corresponds to a d(A) which constitutes a proper linear ordering of the set of terminals. We also have to recall that (a), a non-terminal that dominates no other non-terminal is a head (as opposed to every other non-terminal which counts as a projection) (cf. Kayne 1994:11); and that (b), adjunction splits a category into (two) segments, where single segments never c-command (only categories can). The differentiation made in (b) is crucial in order to allow at all for one 'specifier' per phrase (see Kayne 1994:15-17), which is, in Kayne's system, a projection adjoined to another projection. Let us recapitulate the original tree which makes this last argument; it is given in (1).

(1)   Cf. Kayne 1994:16:
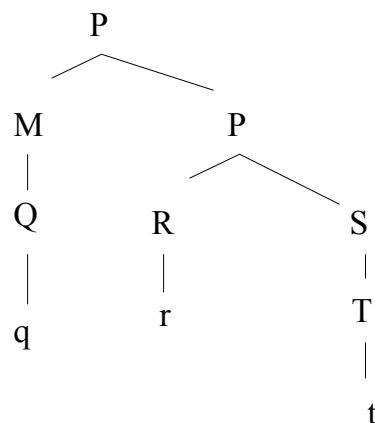
The tree in (1) corresponds to a proper linear ordering of the terminals, since A is {<M,P>, <M,R>, <M,S>, <M,T>, <R,T>}, with d(A) {<q,r>, <q,t>, <r,t>}. It establishes the possibility of a projection which contains a specifier (M) and a complement (S), and which has [spec [head - complement]]-order.

Now, take a tree that looks nearly like (1), but instead of adjoining an entire projection M to the projection P, we adjoin a *head* M. M corresponds to a head in the moment in which it dominates nothing but a terminal:

(2)

```
                    P
                  /   \
                M       P
                |      /  \
                m    R      S
                     |      |
                     r      T
                            |
                            t
```
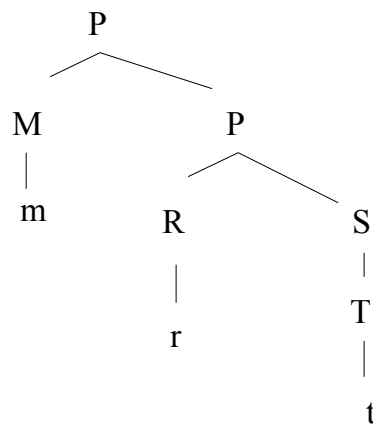
The tree in (2) still corresponds to a linear ordering of the terminals: A is unchanged and contains {<M,P> <M,R>, <M,S>, <M,T>, <R,T>} which is now mapped onto d(A) as {<m,r>, <m,t>, <r,t>}. The latter does not yield any contradiction. Therefore, we see that the LCA allows adjunction of bare heads to phrases. We need some further axiom if we want that the system excludes this option.

The situation does not differ much when we consider adjunction of phrases to heads. Kayne 1994:18-19 explicitly claims that the LCA derives that 'a non-head cannot be adjoined to a head'. However, as Kayne himself notes in footnote 10, the proof rests on the assumption that the head to which we illegitimately want to adjoin *has a complement*:

(3)   Cf. Kayne 1994:18:

```
                    L
            ┌───────┴───────┐
            M               P
        ┌───┴───┐       ┌───┴───┐
        U       M   R           S
        │       │   │           │
        W       m   r           T
        │                       │
        w                       t
```
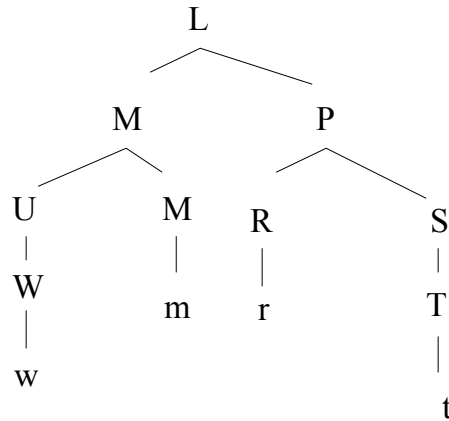
(3) is bad only because the following holds. On the one hand, the projection U, which has adjoined to the head M, c-commands the complement P, and thus, asymmetrically c-commands the content of P, that is, R, S and T;[1] on the other hand, P asymmetrically c-commands the content of U, that is, W. Consequently, d(A) contains both <w,r>, <w,t> *and* <r,w>, <t,w> which leads to a contradiction. As we see, the argument rests on the presence of the complement P. If we take it away, there is no violation of antisymmetry:

(4)
```
                    L
                ┌───┴───┐
                M
            ┌───┴───┐
            U       M
            │       │
            W       m
            │
            w
```

---
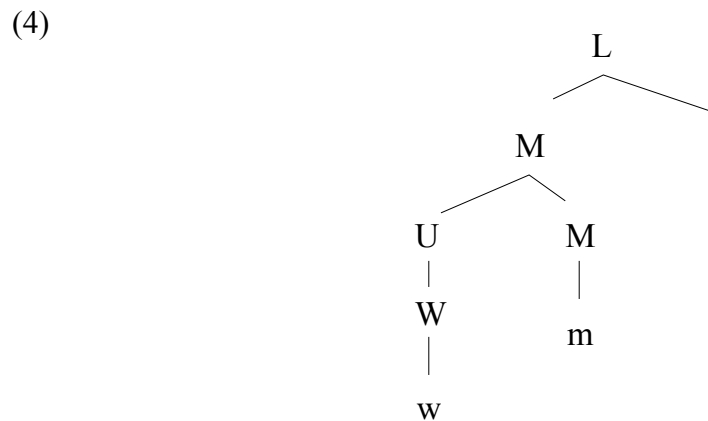
[1]For Kayne, M, being a segment, does not dominate U such that U c-commands not only M but also P

(cf. Kayne 1994:18).

In (4), the projection U has adjoined to a head which has no complement. Then, the set A only contains <U,M> which gives us the simple and fine linear order <w,m> of the corresponding terminals. (We could make U more complex; that wouldn't alter the result, as long as the internal content of U respects the LCA.).

Kayne plays down the relevance of the complement in the proof by noting that 'without complement structure, there would be no source for the adjoined phrase' (Kayne 1994:CHECK, footnote 10). But is it really that simple? Not quit, on the contrary, the possibility of (4) is actually more threatening for an LCA-based system than it seems at first glance. If nothing more is said, then we get a system which generally allows an optionality concerning the lowest projection XP of any syntactic structure. Say XP should contain both a head X^0 and a dependent phrase YP, then *two* configurations satisfy the LCA: *either* we can generate a projection of the form $[_{XP} [X^0 YP]]$, with YP in a right-peripheral complement position, which gives us a 'head - YP'-order; *or* we can left-adjoin YP to X^0, yielding $[_{XP} [YP X^0 _{X0}]]$, such that the linear order is 'YP - head'. If there is nothing else than the LCA to determine the legitimacy of the two structures, nothing prevents a languages from generating both options arbitrarily. (Note that in terms of an eventually required 'locality relation' between a head and its complement, both configurations do equally fine.) Now, take XP to be VP, then translated at face value, this boils down to saying that *all* languages should *optionally* generate both VO- and OV-order.

Finally, note that the LCA also doesn't say anything about the (im)possibility of projections without heads. In (5) below, we find a projection M that has adjoined to a projection W (thus, M constitutes the 'specifier' of W), only that W actually does not dominate a head. Nevertheless, the configuration does not violate antisymmetry (P constitutes a phrase below W, containing a head R and a complement S):

(5)

```
                    W
                  /   \
                 M      W
                 |     / \
                 Q    /   P
                 |   /   /  \
                 q  /   R    S
                       |    |
                       r    T
                            |
                            t
```
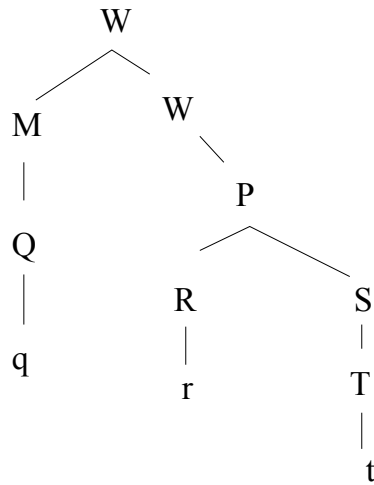
The ser A is {<M,W>, <M,P>, <M,R>, <M,S>, <M,T>, <R,T>}, which corresponds to *d*(A) containing <q,r>, <q,t>, <r,t>. This constitutes a linear order of the set of terminals, as desired *if* W actually contained a head.

Altogether, we see that, under a closer look, the LCA in fact does not restrict pure dominance relations of syntactic structure substantially more than X-bar-theory does. Hence, it actually does less than we might like it to accomplish. Certainly, this holds modulo the point that the LCA excludes projections with two heads, and modulo the fact that it successfully derives binary branching.

At the same time, the LCA restricts the *relation* of dominance and linear order in a grave manner. However, as argued in this thesis, it might be worthwhile to seriously consider a more flexible system as an alternative explanation.

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Curriculum Vita

1985 - 1988	Folkwang Hochschule Essen Werden (School of Arts), Germany. Major discipline Dance. Director Pina Bausch - Classical Ballet, Modern Dance, Folkloric Dances, Flamenco, Choreography.
1988	Master of Fine Arts (Dance)
1988 - 1991	Member of the Modern Dance Company *Neuer Tanz*, Düsseldorf, Germany. Directors Wanda Golonka and Va Wölff. Performances of *Leitz*, *Die böse Minute* ("The bad Minute"), *Die Schiefe* ("The Oblique"), *Räumen* ("Spaces/to leave, to clear"), *Das Gelage* ("The Feast").
1991 - 1998	University of Cologne, Germany. German Philology, Philosophy, Spanish Philology
1993 - 1998	Teaching Assistant, University of Cologne. "Syntax", "Semantics", "Morphology", "Phonology"
1994 - 1998	Reader for *Zeitschrift für Deutsche Sprachwissenschaft* ("Journal of German Linguistics")
1998	Magister Artium (Master of Arts)
1998 - 2003	Graduate Fellow student at Rutgers University. Ph.D. program in Linguistics.
Summer 2000	Teaching Assistant, Rutgers University, German Department.
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