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

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[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

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 (i̇ 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 [$_{AP}$ gut$_A$ [$_{PP}$ 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] [$_{AP}$ stolz$_A$ t_{PP}] ist$_{Pred}$]

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**.

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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

---

[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."

---

[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-θ-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 θ-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-θ-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 θ-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 θ-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 θ-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]

_____

[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

(24)   2-DEPENDENCY OF LEXICAL CASE (2-DEP-CASE):=   *ep* = extended projection

   œ*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"
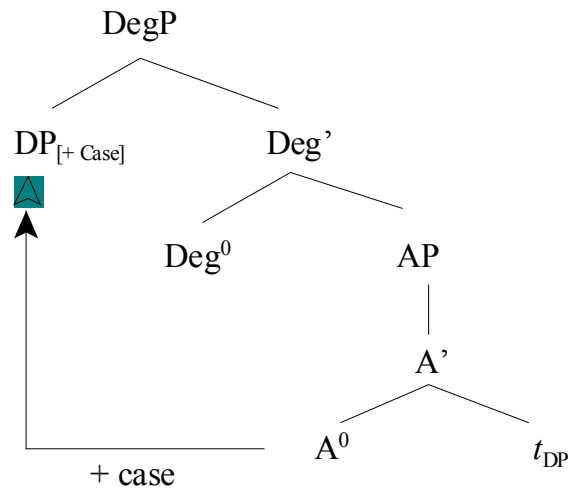
CASE could explain why corresponding grammars, despite lacking a determiner system, still project D as a genitive case assigner.

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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 i 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 1-DEP-CASE.

DP was in a (left-peripheral) complement-, or specifier position of A⁰:

(27)   German:

    a.   Er ist [DegP [DP seiner Freundin]*Dat* **zu**Deg [AP treuA *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 überdrüssigA *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.

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).

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:
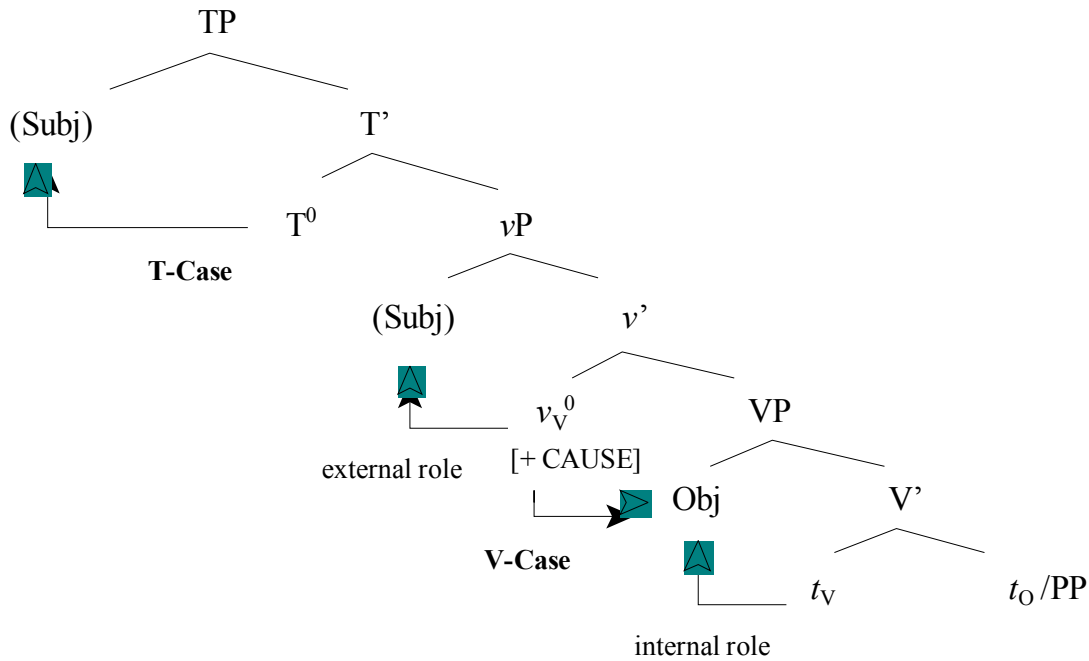
One additional conflict which blocks the default distribution arises in a context in which CAUSE is not accessible in the syntax. This can hold either because (a), there is no CAUSE element even in the lexico-semantic structure (unaccusatives); or (b), the CAUSE element is not syntactically represented (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]$_{\text{THEME-}nom}$ 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 *v*P-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

which constitutes the grammar.

[31]Note that this slightly deviates from Baker 2003:68, 85, who assumes that *v*P 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 THEMEi t_i V⁰] T⁰]				*	**	
b. [TP THEMEi T⁰ [VP t_i t_i V⁰]]			*!		*	*
c. [TP THEMEi V⁰-T⁰ [VP t_i t_V t_i]]	*!					***
d. [TP __ T⁰ [VP __ V⁰ THEME]]				**!		**
e. [TP __ T⁰ [VP THEMEi V⁰ t_i]]	*!		*	*		**
f. [TP __ T⁰ [VP __ V⁰ [VP' THEMEi t_V t_i]]				**!		***

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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$_{GOAL}$, 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, vP$_{GOAL}$ is in perfect vP$_{GOAL}$, 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, vP$_{GOAL}$. 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, vP$_{GOAL}$ 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 [$_{TP}$ __ [$_{vP}$ [dem Pianisten]$_{GOAL}$ [$_{VP}$ [ein Fehler]$_{THEME}$ t_V t^{38}] unterlaufen$_{vGOAL}$] ist$_T$]

          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	o	assigned to the internal THEME **in Spec, VP**
(structural *nom*; with T in T^0)		(= *inside* perfect VP)
V-case	o	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
vP$_{GOAL}$-shell (with Spec, vP$_{GOAL}$ 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, vP$_{GOAL}$, 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, vP$_{GOAL}$, 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 unterP [DP der Brücke]]   b.   [PP nebenP [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"

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[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.

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

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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)"

```
                              PP-2
                            /      \
                        PP-1        P'
                          |          |
                          P'         P⁰
                        /    \      entlang
                      P⁰      DP
                      an     /  \
                          der  Strasse
```
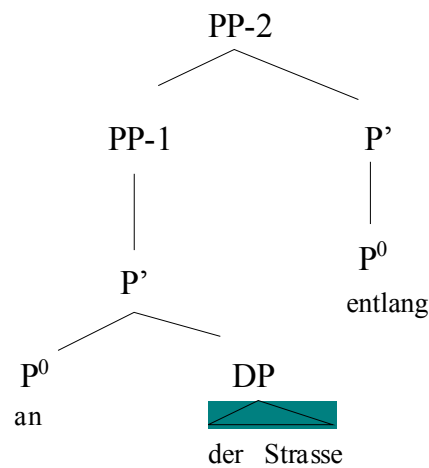
The combination of pre- and 'post'-position is taken to be an instance of a PP$_1$ embedded into another PP$_2$, with PP$_1$ originating in the specifier of the higher P$_2$. While PP$_1$ is a prepositional phrase, with P$_1$ preceding its complement, P$_2$ has no complement. On the surface, PP$_2$ looks 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

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　　　　　　　\

　　"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　　　　　　　\

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*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

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 [**zürück**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:=
        œsister 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: vP   mother: F'

two sisters: **Spec** v'   two sisters: $\mathbf{F_1^0}$ **vP**

                                                                                    v^0 F_2^0
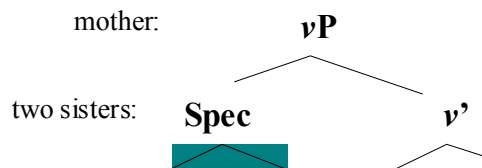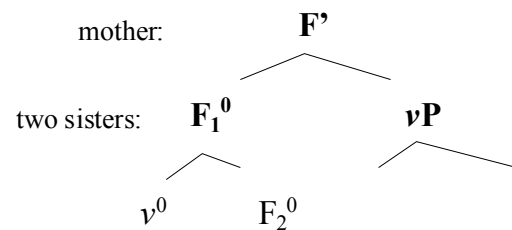
vP and v' are both projections vP and F' are both (extended) projections of
of the same head v^0;   the same head (which is the projector of ep);
Spec is not a projection of v^0 F_1^0 is not a projection at all

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 *v*P 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 *v*P 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 *v*P. Hence, it is true that out of the two sister nodes in (2a), only one, *v'*, is a projection of the same head as *v*P, 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, *v*P, one of the two sister nodes under F', is a projection of V^0. Thus, out of the two sister nodes in (2b), only *v*P 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.

---

[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):
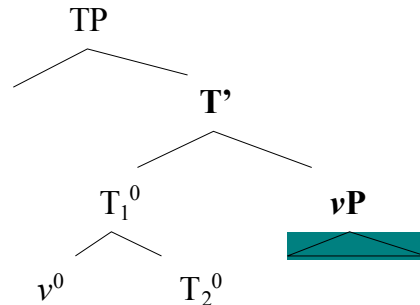
(3)   In violation of BRANCHING RIGHT –
Neither vP nor T_1^0 is a syntactic terminal; T' and vP are both (extended) projections of V^0 (T_1^0 is not a projection but a head). The right edge of T' and the right edge of vP do **not coincide**:

The complex head blocks Right-alignment
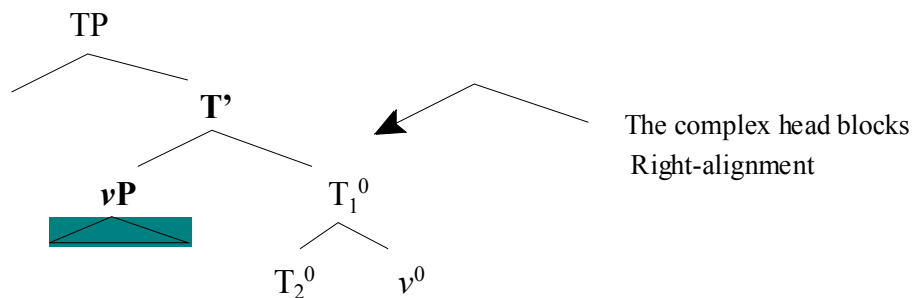
In (3), we are looking at a head-final TP, in which v has moved and adjoined to T. Consequently, neither vP nor its sister node T_1^0 is a syntactic terminal. At the same time, vP and T' are both extended projections of the same head V^0. Neither vP nor T' is a perfect projection of V^0, but they are 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**:

$$
\begin{array}{c}
\text{TP} \\
\diagup\diagdown \\
\text{T'} \\
\diagup\diagdown \\
\text{T}_1{}^0 \qquad \textbf{\textit{v}P} \\
\diagup\diagdown \\
\textit{v}^0 \qquad \text{T}_2{}^0
\end{array}
$$

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 $v^0\text{-}T_1{}^0$ 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,

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
```
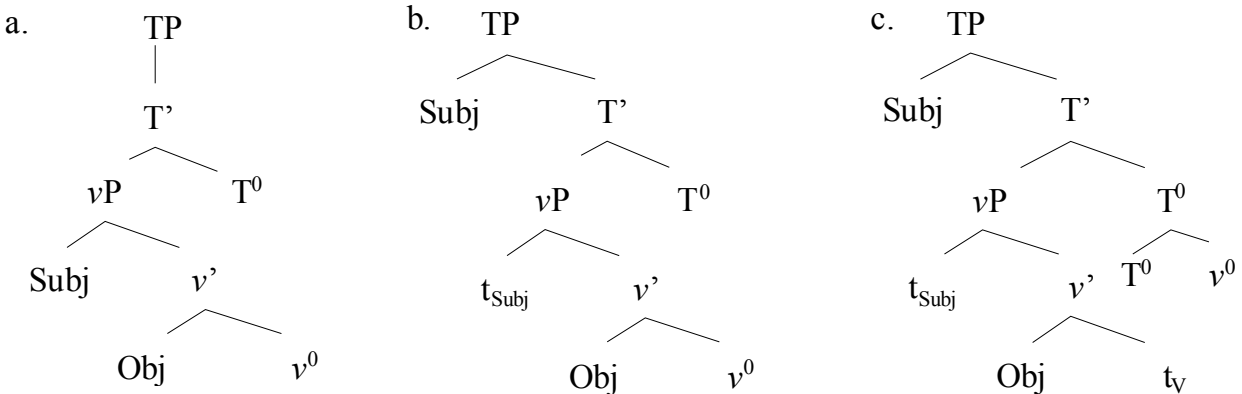
Before we look at the concrete constraint interaction responsible for the distinction between (5a), (b) and (c), the following should be highlighted. As long as phrasal adjuncts align left of v^0 and adverbs are phrasal, all three types ultimately yield the same surface order 'S - O - V/T'. Only the 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 $[_{TP} \text{(spec)} [_{vP} \text{spec [complement -} v^0]] T^0]$ -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-i $_O$ **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-i $_O$ **ema-n$_V$** **d-ieza-io-ke-t-i** $_T$

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-2$_O$ 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 beÕten **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(-ya̲)~O~   **i-pa̲ya~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~ -toka̲~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
☞ 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.   ½ɛ **leɟ-T** b/ saɓáo   b.   ½ɛ **lìv-T**   saɓáo
         I **eat**   now rice   I   **eat**-PERF rice
         "I am eating rice right now."   "I ate rice."

   c.   ½ɔgblÌ n~ [Oɟ **leɟ-T** saɓáo]
         I know NA   s/he **eat**   rice
         "I know that she is eating rice."

(13)   Vata (cf. Koopman 1984:28, 29):

   a.   waɟ **l~T**   mÓo **dláv**
         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.   ½ ká$_T$ yO\$O\$$_O$ [slé-e\$ mlÍ$_P$] sa\$ká$_O$ **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 *p ̣à* itself follows both the embedded subject and object:

(14)   Gbadi (cf. Koopman 1984:45):

I$ yS̄ᵣ   [yuₛ sIɺaS̄ p¦àᵥ kà] 1¦Ò̀Ìᵥ

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):
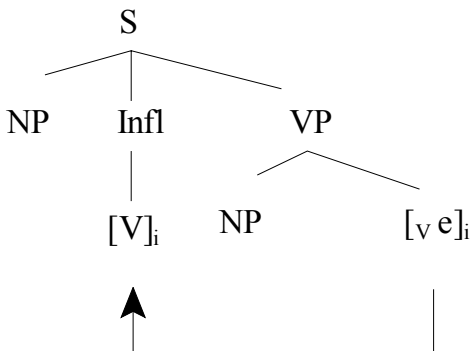
(15)   a. Koopman 1984:42:   b. My adaptation:
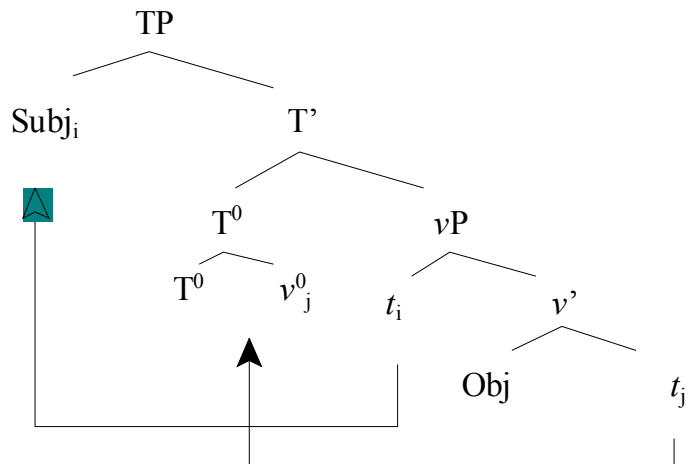
Translating Koopman's analysis into the current system, we say first that vP (and VP) is head final, due to a basic preference for [complement - head]. That is, we have the ranking HEAD RIGHT >> HEAD LEFT. At the same time, TP (= Koopman's Infl/S) has [head - complement] - order. I explain this as a 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, vP to Spec, TP happens in order to satisfy GENERALIZED SUBJECT, since the constraint wants a specifier not only in vP 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. $[_{\text{TP}}$ ½ **le$**$_{\text{-V}}$ $[_{vP}$ b/ $[_{vP}$ t_{S} sa$á 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. $[_{\text{TP}}$ __ $[_{vP}$ subject object v^0 $]$ T^0 $]$			*!			**
b. $[_{\text{TP}}$ subj $[_{vP}$ t_{S} object v^0 $]$ $T^0]$		*!				**
c. $[_{\text{TP}}$ subj $[_{vP}$ t_{S} object t_{V} $]$ T^0-v^0 $]$	*!			*		***
L d. $[_{\text{TP}}$ 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 Aux^0-adjunction to T^0 over substitution into T^0.[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 T^0.

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   lù-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 *v*P 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):

$[_{DP}$ __ $[_{NP}$ [kòfĩ 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 **Òùdù$_N$**] D^0]

        Kofi   GEN   house

"Kofi's house"

(20)   Gbadi (data cf. Koopman 1984:63):

   [$_{NP}$ [$_{PP}$ Oùdù k¦yì   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$N] OO$]   *or*, alternatively: [DP __ [NP kO$N] -ÒD]

                     man   the
           "the man"

   b.   [DP __ [NP [àbà nÍ(]i *t*i gbÙN]-ÒD]

                     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$N (mÈDem   nyI$pÒN   n¦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$_{T-Pred/A}$** [$_{PredP}$ [$_{AP}$ mana[$_{AP}$ t_A]] ***t*$_{Pred/A}$**]]

    s/he   strong   much

    "S/he is very strong."

b.   [$_{TP}$ O$ **nÍ$_{T-Neg}$** [$_{PredP}$ [$_{AP}$ mana[$_{AP}$ 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] **gbâ** 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~**] ml¦

          I FUT-Aux-Tense   child-DET rice   give **C**   leave

          "I will go give rice to the child."

    b.   n$ gùgù   **n~** [Á nâ   lÆO (]

          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~**] [Á nâ   lÆO (]~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

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[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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must be instantiated in a constraint which outranks BRANCHING RIGHT in the relevant grammars.

[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):

[$_{CP}$ **y**$\mathbf{|}_\textbf{wh}$ [$_{TP}$ kòfí$_S$ **l'**$_{T\text{-}V}$ [$_{VP}$ t_S t_{wh} t_V]] **la$**]

      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∼. 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

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)
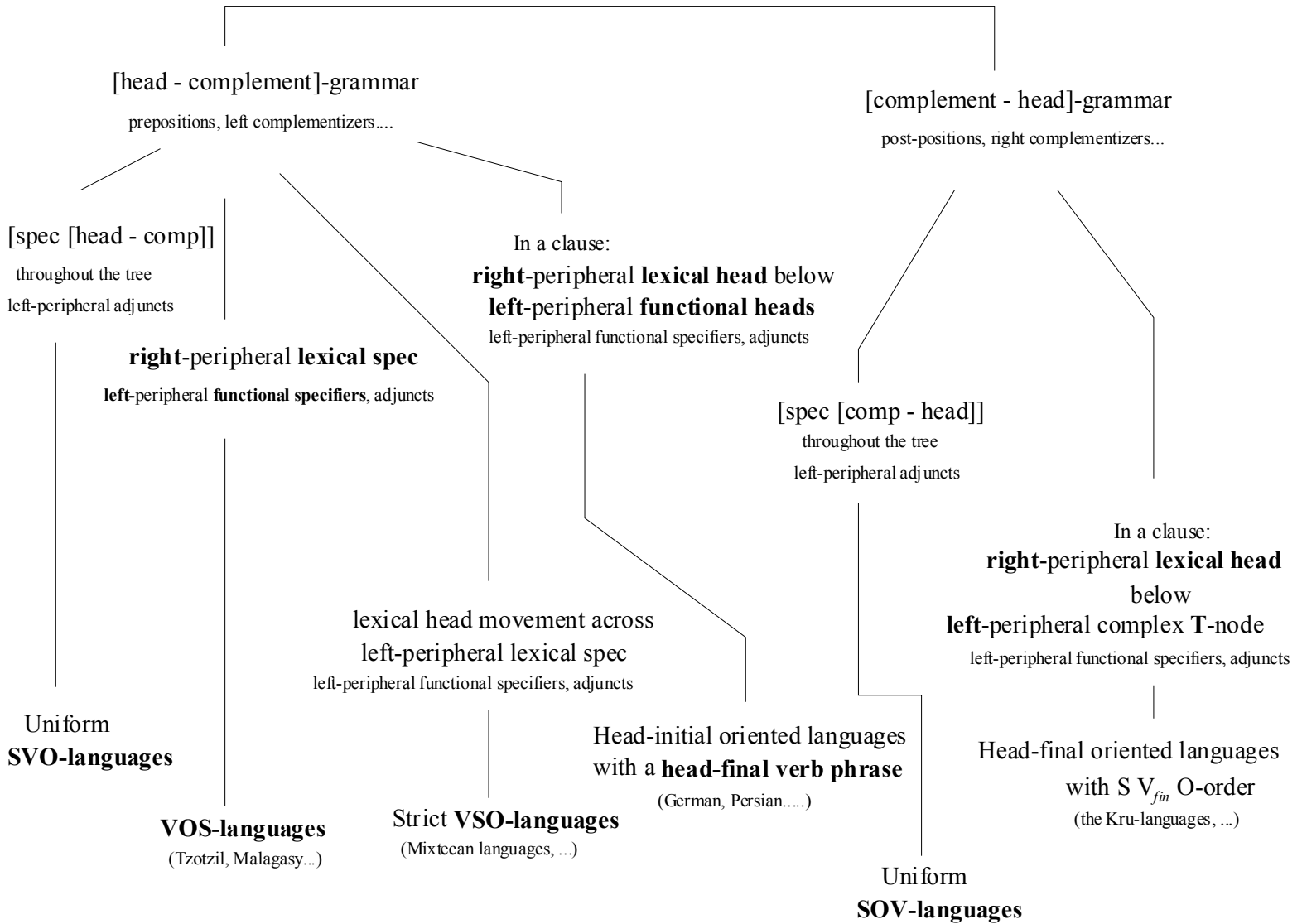
(2)   The proposed system *ex*cludes:

    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

In a clause:
right-peripheral **lexical head**
below
left-peripheral complex **T-node**

left-peripheral functional specifiers, adjuncts

lexical head movement across
left-peripheral lexical spec

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**)
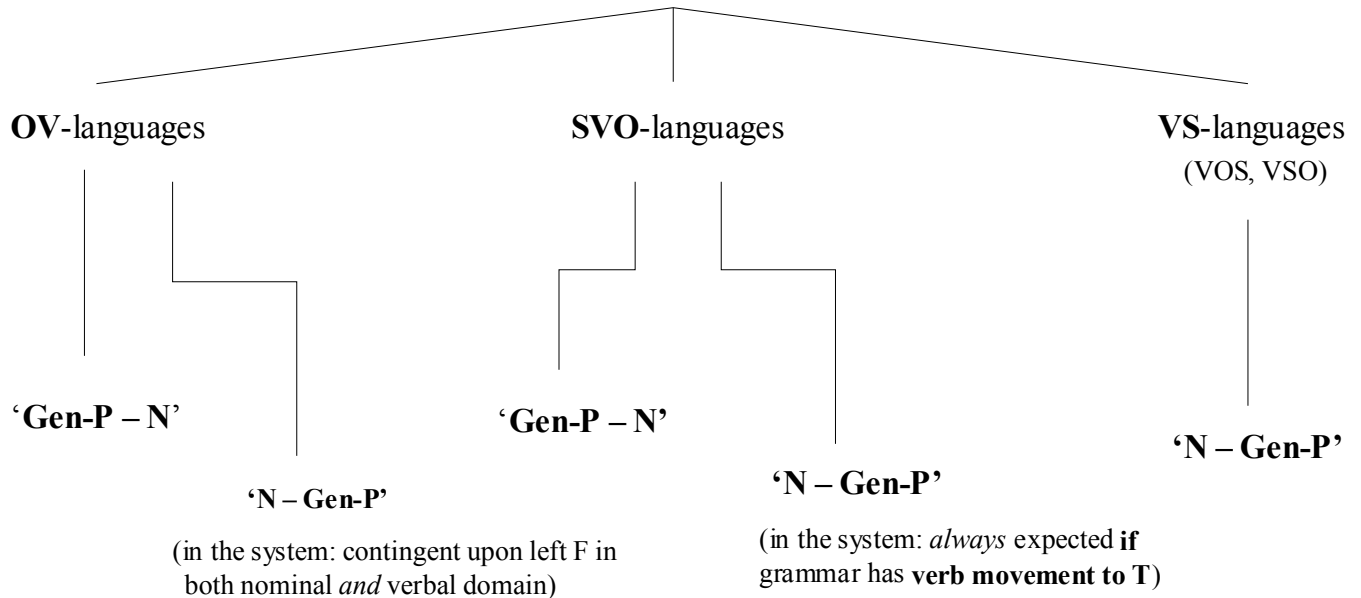
In addition, we obtained two implicational universals, one on the correlation of verb movement and noun movement, the other on the directionality conditions that enable a post-nominal genitive in an OV-language:

(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' Μ '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.

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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 *t*S O *t*V]]; '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 *t*S 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 *t*S O *t*V] 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:
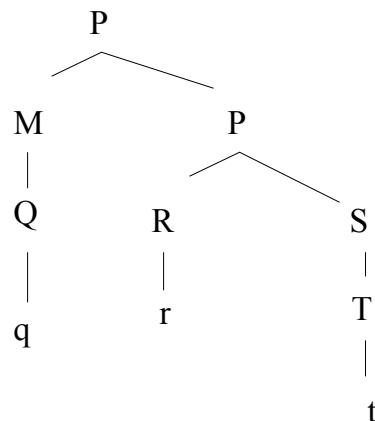
The tree in (1) corresponds to a proper linear ordering of the terminals, since A is {<M,P>, <M,R>, <M,S>, <M,T>, <R,T>}, with d(A) {<q,r>, <q,t>, <r,t>}. It establishes the possibility of a projection which contains a specifier (M) and a complement (S), and which has [spec [head - complement]]-order.

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
```
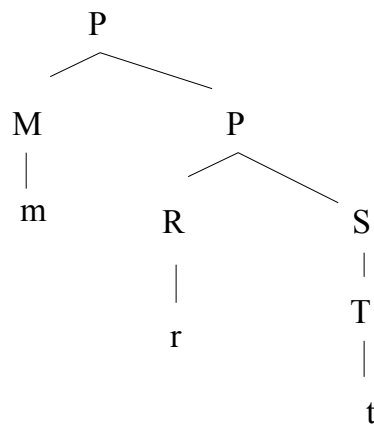
The tree in (2) still corresponds to a linear ordering of the terminals: A is unchanged and contains {<M,P> <M,R>, <M,S>, <M,T>, <R,T>} which is now mapped onto d(A) as {<m,r>, <m,t>, <r,t>}. The latter does not yield any contradiction. Therefore, we see that the LCA allows adjunction of bare heads to 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
```
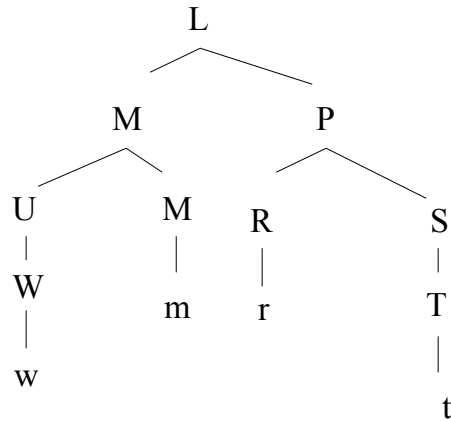
(3) is bad only because the following holds. On the one hand, the projection U, which has adjoined to the head M, c-commands the complement P, and thus, asymmetrically c-commands the content of P, that is, R, S and T;[1] on the other hand, P asymmetrically c-commands the content of U, that is, W. Consequently, *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
```

---
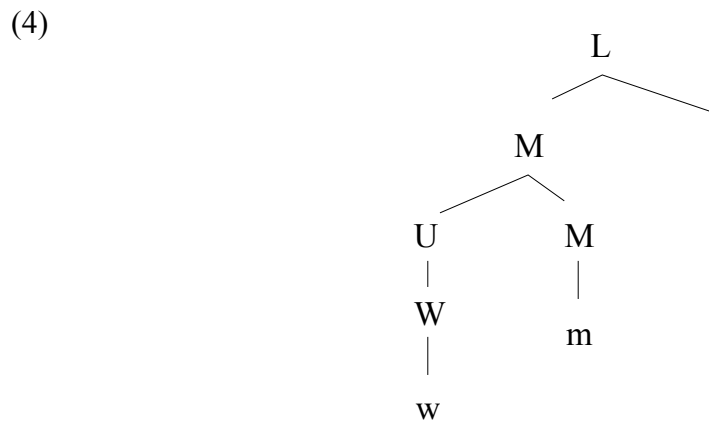
[1]For Kayne, M, being a segment, does not dominate U such that U c-commands not only M but also P

(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
```
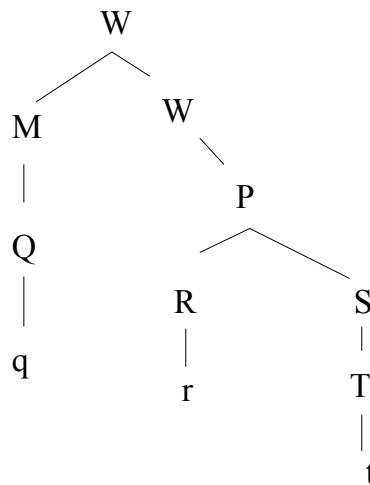
The ser A is {<M,W>, <M,P>, <M,R>, <M,S>, <M,T>, <R,T>}, which corresponds to *d*(A) containing <q,r>, <q,t>, <r,t>. This constitutes a linear order of the set of terminals, as desired *if* W actually contained a head.

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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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")
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