

Chapter 3 – The inflectional layer: Let's move

In the previous chapter, we have seen that LEX HEAD EDGE has a distinctive impact on the directionality of phrase structure. In this chapter, we will learn that the constraint furthermore has an impact on verb movement and subject movement out of the lexical layer. The reason is because it is by definition impossible to obey LEX HEAD EDGE if the verb surfaces inside a functional projection. In chapter 2, we recognized that in terms of directionality, this has a neutralizing effect. Even if the verb, a lexical head, happens to surface in FP, the directionality of this FP will be determined by the other alignment constraints, regardless of LEX HEAD EDGE's ranking position. For example, in a LEX HEAD EDGE >> HEAD LEFT >> HEAD RIGHT-grammar, FP is expected to have [_{FP} (spec) [Lex⁰+F⁰ - complement]]- order, regardless of the presence of Lex⁰ in FP and the possible presence of a left-peripheral specifier, even though the grammar is potentially willing to alter the directionality inside LexP. The point is that LEX HEAD EDGE can only be obeyed inside the lexical layer in any case, so there is no longer advantage to twisting the directionality once a lexical head has left that domain. But now, this exclusiveness of the lexical layer as a domain for possible LEX HEAD EDGE obedience has a second effect: If LEX HEAD EDGE is violated as soon as a lexical head surfaces in FP, a grammar that is eager to obey LEX HEAD EDGE will be eager to *resist* verb movement into FP.

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

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

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

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

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

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

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

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

3.1 Do we need to assume an inflectional layer?

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

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

3.1.1 The *TSVO-puzzle

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

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

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

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

- (1) Korean (Yoon 1994:253):

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

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

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

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

(2) Persian (Ghomeshi 1997:139):

hame-ye m* allem-â ye shâgerd-i-ro m* arefi **kard-and**
 all+EZ teacher+pl one student+indef+râ introduce did+3plS
 “Every teacher introduced a student”

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

(3) Tzotzil (Aissen 1987:189):

Ta x-nupun -ik xa 7ox xchi7uk s-malal ti tzeb 7une
 icp marry pl cl cl with A3 husband the girl cls
 “The girl had nearly married her [future] husband.”

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

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

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

(4) Niuean (Massam 2001:155):

- | | | | |
|----|---|----|--|
| a. | Ne kai e Sione e tau talo aki e huki.
Pst eat Erg Sione Abs Pl taro with Abs fork
“Sione ate the taros with a fork.” | b. | Ko e tele e Sione a Sefa.
Pres kick Erg Sione Abs Sefa
“Sione is kicking Sefa.” |
|----|---|----|--|

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

- a. **Pära** u-fattu i médiku agupa .
FUT 3SG-arrive the doctor tomorrow
“The doctor will arrive tomorrow.”

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

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

(6) English:

She **will** call you tomorrow.

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

- (7) Edo (Baker & Stewart 1999:18):
 Òzó **ghá** hàé íghó nè Úyì.
 Ozo FUT pay money to Uyi
 “Ozo will pay money to Uyi..”

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

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

Significantly, observed by Baker 2002:324, who relies on a large survey taken by Julien 2000, 2002, of “530 languages, representing 280 distinct genera drawn from every linguistic area” (Baker 2002:323), languages with a basic ‘T/Aux S V O’-order do *not* exist. Tense or aspect elements that could be identified as ‘free formatives’ are apparently only possible in basic patterns in which the subject does not intervene between T and V; that is, of the form

- (a) ‘S T_[-aff] V O’, (b) ‘T_[-aff] V O S’, (c) ‘T_[-aff] V S O’, (d) ‘S O V T_[-aff]’, and marginally (e) ‘S T_[-aff] O V’.⁶

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

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

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

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

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

Now, as Baker shows us, the absence of a combination ‘S V+T_[+aff] O’ and ‘Aux/T_[+particle] SVO’ can be identified as the absence of SVO-grammars that lack *both* overt verb movement and overt subject movement into the inflectional layer. His explanation thereof (Baker 2002:325ff) makes an argument for both the ‘building theory’ of morphology (cf. Baker 1988) and ‘syntactic merger’ (cf. Marantz 1984, Bobaljik 1994): Overt verb movement is word-building, in the sense that T⁰ contains an affix, rather than abstract information, to which V⁰ adjoins via ‘upward’ syntactic head movement. Absence of overt verb movement is merging, the affix stays in T⁰ in the syntax and merges with the verbal root at PF. Since syntactic merger is impossible across an intervening specifier containing the overt subject, absence of verb movement is only possible if the subject leaves VP in the overt syntax.

Baker’s explanation still leaves one question unanswered because it relies on the axiom that T and V *must* come together at least in some cases. But why shouldn’t a language systematically fill T⁰ with free morphemes (or, alternatively with auxiliaries)? If T⁰ were a

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

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

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

I do agree on the point of explanatory success. Moreover, we will see below that assuming that there is at least one *obligatory* inflectional head (T⁰) can be part of an approach to the problem at stake. Nevertheless, it is worthwhile to emphasize that declaring the absence of a ‘T SVO-type’ to be a mere accident doesn’t really solve the problem, since it undermines the conceptual strength of the theory. The systematic exclusion of a ‘T SVO’-language is particularly important for any theory which argues that the choice between overt verb movement and absence thereof is based on ‘economy’-considerations (cf. Minimalist Program, Chomsky 1995; likewise Optimality Theory, see below). What could possibly be less costly than the projection of an independent functional tense head, which neither requires overt movement nor merging, nor lowering (cf. Chomsky 1957), nor covert movement at LF (cf. Chomsky 1993), nor movement of features only (cf. Robert 1998), nor establishment of any ‘direct AGREE-relation’ (cf. Chomsky

⁷ Depending on how the grammar is restricted with respect to the base generation/treatment of auxiliaries, it could also pair ‘T_[+part] - S - V - O’-orders with ‘T_[+part] - Aux - S - V - O’, or even with ‘T_[+part] - S - Aux - V - O’.

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

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

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

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

3.1.2 Towards a solution: Relevance of Case

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

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

(Altogether, a T_{part} SVO-candidate would violate 1HSUBJECT, 1HHEAD LEFT, 2HHEAD RIGHT; an ST_{part} VO-candidate 2HHEAD LEFT, 2HHEAD RIGHT; an SV_{Taff} O-candidate 1HNO MORPHOLOGY, 1HHEAD LEFT, 1HHEAD RIGHT.)

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

(8) Axiom: In finite clauses (verbal extended projections), at least one inflectional functional projection is necessarily projected, which is TP.

T⁰ can contain tense as well as aspectual and mood information.⁹

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

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

⁹I take ‘finite’ here and below as an abbreviation for **a positive specification of T, with respect to either tense, aspect or mood, depending on which category the language expresses**. See Bok-Bennema 1991:192ff for Inuit as an example which primarily expresses only mood (instead of tense/aspect; Bok-Bennema locates mood under I⁰).

This leaves open the question on whether in non-finite verbal extended projections, TP is, could or must be projected. If it is, then T⁰ should contain a zero-specification (or ‘minus’-), accounting for the absence of tense/aspectual/mood information.

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

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

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

The point is that if TP is always projected, then this allows for the following interpretation. The presence of TP together with the absence of verb movement enables the lexicon to feed T⁰ with independent formatives, and *not* the other way around.

This reasoning implies that the syntax has a selective impact on what can be in the lexicon – here, by providing a general functional position for T, which in turn does not absolutely determine, but does narrow down the possibilities of T’s morphological shape. If the language does not move the verb to T in the syntax, then in consequence, free T-particle can emerge in the grammar. If, on the other hand, the verb systematically moves to T, then T must be purely affixal. Crucially, this selective impact of the syntax on the morphology is contingent on the fact that T⁰ is indeed always present, at least in those languages that morphologically reflect tense or aspect (or mood). Note that this condition *is* satisfied for the examples cited above, which have been argued to lack an inflectional projection. English expresses tense morphologically even in simple verb clauses. Zapotec does not express tense, but does express aspect (Broadwell 2001:198). German expresses both tense and aspect. Japanese and Korean express tense, and so on.

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

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

checked by the “[Agrs, T] amalgam” (Chomsky 1995: 121), thus, that two distinct syntactic heads actually share the work.

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

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

This is the basic backbone of the hypothesis we want to explore below. As such, the fact that languages move *v* to T such that T must be an affix (or an abstract head), or that they choose a configuration which is so local that T has the opportunity to merge with *v* (V) if it is an affix, this becomes a *consequence* of the grammatical functions T and *v* have to supply. This means that the status of T as either optionally or necessarily an affix *follows* from the need to move or to be close, rather than the other way around. (Thus, it is not the case that the need to move and or to be close follows from T’s status as an affix or an entity that has to be checked.). I would like to highlight that the system won’t solve the entire puzzle concerning the determination of T’s form, but it narrows the possible solutions. Leaving aside the option that, in a language with overt verb movement, T could contain either an affix or an abstract head, it predicts that now because the language prefers movement, the lexicon can not contain free tense morphemes. On the other hand, the system forecasts that in a language without overt verb movement, the lexicon can contain all three options, abstract T, affix T, as well as T as a free formative, without saying that it must necessarily make use of each of them. Also keep in mind that the system will predict the absence of a type ‘T SVO’, independent of the question how T⁰ would be filled. Altogether, the system recognizes a partial impact of both syntactic configuration and syntactic movement on morphology .¹²

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

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

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

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

(10) CASE LEX:=

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

ep = extended projection

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

" m -commands $\$$ if and only if all maximal projections dominating $\$$ also dominate " .

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

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

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

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

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

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

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

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



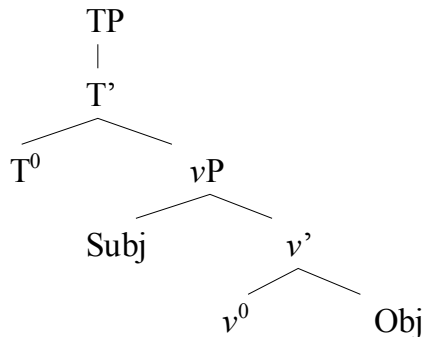
Note that ‘S T VO’-languages like English and Edo, which lack verb movement out of *v*P but let the subject surface in Spec, TP, correspond to the structure given in (11a), with T^0 and v^0 to the left of their complements. Thus, languages like Edo and English violate CASE LEX, despite the fact that,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

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

adjacency between v^0 and an *affixal* tense head has been noticed as a pre-requisite for merging the head and the affix phonologically; see for example Marantz 1984, and in particular Bobaljik 1994, 2002a. It is Bobaljik's concept of 'adjacency' which is taken up here. Adjacency in his understanding draws an essential difference in the grammatical status of syntactic adjuncts on the one hand, and of syntactic 'arguments' (my terminology), such as specifier and complement, on the other. Despite the fact that phonological merger requires adjacency, and is thus blocked by an intervening overtly filled specifier, merger *is* possible across an intervening overtly filled adjunct (cf. Bobaljik 1994:2, 2002a:216f). I use the same notion of adjacency, but for me, syntactic adjacency is not about providing a configuration that makes phonological merger possible; rather it is about having v (or more generally a lexical head) syntactically close to the case assigner it supports. This opens up a new perspective as to *why* adjuncts do not block adjacency. What is required is to acknowledge the function at stake: the lexical head has to support a *case* assigning head, and only for this reason, the relation between the two should be local. If we take for granted that case can be assigned to specifier- or complement-positions, but not to adjuncts, then it makes sense that an intervening adjunct is irrelevant for the configuration that CASE LEX restricts: CASE LEX is about the optimal surface configuration of on the one hand, the case assigner and its lexical supporter, and on the other hand, the position(s) of the case assignee(s) that the assigner and the supporter target *together*. For the harmony of this case configuration, it matters how *local* the combination of the functional and the lexical head is. But since we are looking at a case configuration, it is only natural to expect that locality is measured on the grounds of case-relevant positions. This is why a syntactic argument, as a potential case position, can interrupt locality, but an intervening adjunct cannot.

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

- (12) ‘T SVO’ violates CASE LEX – Both T and *v* *ep*-govern the subject (and the object) but T and V are not syntactically adjacent:



Note that the structure in (12) would correspond to a ‘T SVO’-grammar, which seems empirically impossible. The extended system captures this. This is because, as we will see below, even though both configurations in (11) and (12) violate CASE LEX, (12) is harmonically bound, whereas (11) can win under the right ranking.

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

- (13) Typological predictions for finite verbal extended projections:

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

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

¹³On terminology: ‘__’ indicates the absence of a position, here, the absence of Spec, TP.

- ii. VSO-grammars that move the verb into an additional VP, but leave the subject in situ, and do not move into TP. Type B-languages such as Mixtecan are ‘[TP ___ T [vP VSO]]’-languages.
- iii. Head-final VP-grammars of the ‘Germanic’ C-type include one variant that lacks both verb- and subject-movement into TP. Persian and German are analyzed as ‘[TP ___ [vP SOV] T]’-languages, which have a head-final TP due to the pressure of CASE LEX.¹⁴

In uniform SOV-languages, the lack of both verb- and subject-movement into TP is possible as well (T ‘[TP ___ [vP SOV] T]’). It is however *impossible* in uniform SVO-languages:

- i. In SVO-languages, the subject always surfaces in Spec, TP (or higher).
- ii. *‘[TP ___ T [vP SVO]]’.
- iii. A uniform SVO-grammar either moves both the verb and the subject into TP (French, Icelandic....); or:
- iv. At least the subject moves into Spec, TP (or is directly base generated therein) (English, Edo.....).

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

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

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

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

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

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

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

II - On Case:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.3 TP-structure in VOS and VSO languages

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

3.3.1 T-support without moving into TP

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

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

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

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

7i- s- pet lok’el 7antz ti t’ul -e.
cp A3 carry away women the rabbit cl
“The rabbit carried away the women.”

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

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

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

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

- a. **Ni** yax§ d~ nd§k~
 COM COM:eat he banana
 ‘He ate bananas.’

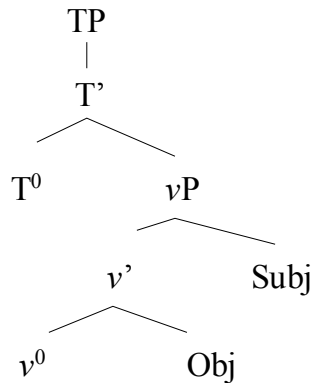
Below, we will further discuss complex verb constructions in Yosondúa Mixtec. It is crucial to be aware at this point that Yosondúa Mixtec’s basic order is either ‘ $T_{part} - V - S - O$ ’, or ‘ $V_T - S - O$ ’, with V_T expressing aspectual information by the tone of the nucleus. That is, the grammar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

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

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

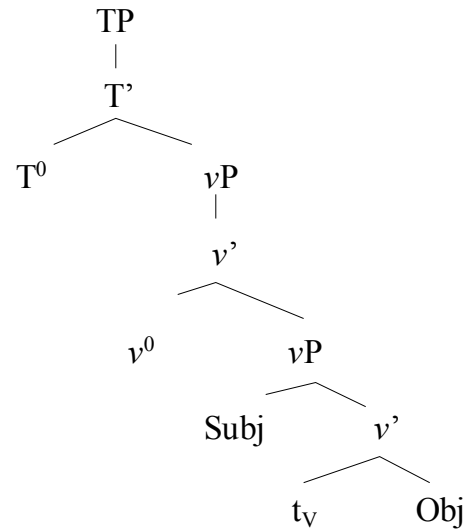
(16) Tzotzil (data cf. Aissen 1987:1):

[TP 7i-T [_{vP} s- pet_v 7antz ti t’ul -e]].
 cp A3 carry women the rabbit cl
 “The rabbit carried the women.”



(17) Yosondúa Mixtec (data cf. Farris 1992:55):

[TP Ni_T [_{vP} yax_S d~ nd_S~]]
 COM COM:eat he banana
 “He ate bananas.”



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

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

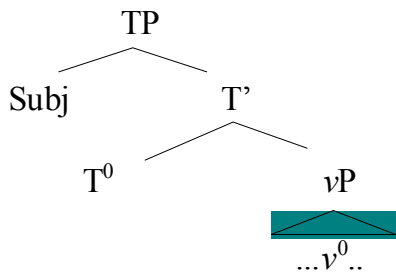
The more general claim is that TPs in VOS-languages correspond to the structure in (16), whereas in VSO-languages (of the Mixtecan type), a TP looks like (17). Then, in order to precisely understand how each becomes the optimal choice, we must know more than just that CASE LEX is unviolated. We must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

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

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

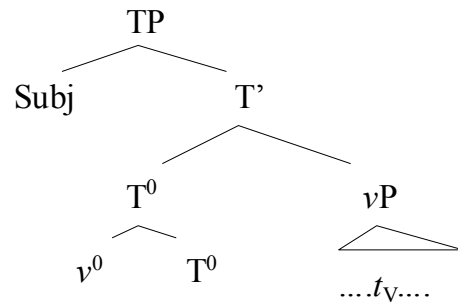
(18) a. Moving the subject only:

- Violation of CASE LEX



b. Moving both the subject and the verb:

- Violation of LEX HEAD EDGE;
additional violation of HEAD RIGHT



(17)), therefore both configurations obey CASE LEX on T's case assignment, even if that is absolutive. Furthermore, if V (in v⁰; or v itself) assigns ergative to the subject, CASE LEX is also satisfied with respect to this case assigner; as said, v_v ep-governs the subject in both (16) and (17). Also, keep in mind generally that the object is in fact contained inside VP, which is the actual complement of v⁰. Inside VP, the object must be in Spec, VP to receive accusative or absolutive case.

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

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

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

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

(19) On constraint evaluation – adjoining Y^0 to X^0 creates an additional HEAD RIGHT (or HEAD LEFT) violation:

HEAD LEFT:=

∅categories X^0 : \exists mother node y such that the right edge of X^0 and the right edge of y coincide.

HEAD RIGHT:=

∅categories X^0 : \exists mother node y such that the left edge of X^0 and the left edge of y coincide.

The point is that HEAD LEFT/RIGHT quantifies over every category X^0 , prohibiting the existence of a *mother node* such that the wrong kind of alignment holds. Now, in a configuration in which another head Y^0 adjoins to X^0 , not only does X^0 (now being constituted by two segments) have a mother node in X' , for which left- alignment will cause a violation of HEAD RIGHT (right- alignment a violation of HEAD LEFT), but also the adjoined head Y^0 has a mother node in X^0 , such that Y^0 necessarily aligns with one edge of this mother node (the other edge aligning with the second lower segment of X^0). Consequently, any complex head-adjunction configuration causes additional alignment violations, one for each adjoining head.²³

Hence, moving v to T does not only mean that we have to give up on LEX HEAD EDGE, it also implies that we have to pay more on HEAD RIGHT (or HEAD LEFT, if T is final). Which violation will count more for a VOS-grammar? Recall that we recognized basic ‘V - O - S’-order as a pattern that arises precisely because the grammar in question wants to obey LEX HEAD EDGE. For this reason only, it is willing to push the v P-specifier to the right, accepting the violation of BRANCHING RIGHT. But if LEX HEAD EDGE is the reason for a right-peripheral specifier, then moving v into TP must be unacceptable due to LEX HD EDGE. Otherwise, the entire configuration would finally end up with the violation which should be avoided by Spec, v P on the right.

Putting these pieces together, what we have now learned is the following. Basic VOS-languages are not only languages that want to obey LEX HEAD EDGE, they are also languages which are not willing to tolerate violation of CASE LEX. As such, ‘[_{TP} ___ T [_{vP} VOS]]’ is optimal

²³Three technical remarks: (a) The two segments constituting X^0 are evaluated as one head with respect to HEAD LEFT/RIGHT, since the constraints quantify over categories, not over segments. (b) The system predicts that Y^0 should adjoin to the left of a left-peripheral head, but to the right of a right-peripheral head. (c) Substitution of one head into another does not cause any additional violations, since no complex head configuration is created (V-to- v -movement necessarily results in a single v -node: v^0 lexicalized by V). The same is true for a V-head (and a v -head) which moves inside the lexical layer in order to create further VP-shells.

if the ranking of all six constraints at stake is one of the following.²⁴

(20) Basic VOS = [TP __ T [vP VOS]]

HEAD LEFT, LEX HD EDGE, CASE LEX >> GEN SUBJECT >> BRANCH RIGHT, HEAD RIGHT

The tableau in (21) demonstrates a competition based on this constraint ranking. Note that the closest competitor for the VOS winner (e) is (d), that is, the ‘[TP __ T [vP VSO]]’-configuration. Both candidates violate neither LEX HEAD EDGE nor CASE LEX; (e) only wins over (d) since it has fewer GENERALIZED SUBJECT violations:

(21) [TP __ T [vP VOS]] is optimal –

Comparison with relevant possible winners (all obey HEAD LEFT); ‘__’ indicates the absence of a specifier:

	LEX HD EDGE	CASE LEX	GEN SUBJECT	BRANCHR	HEAD RIGHT
a. [TP subj T ⁰ [vP t _S v ⁰ object]]	*!	*			**
b. [TP subj T ⁰ [vP __ v ⁰ object]]		*!	*		**
c. [TP subj v ⁰ -T ⁰ [vP t _S t _V object]]	*!				***
d. [TP __ T ⁰ [vP __ v ⁰ [vP subj t _V object]]]			**!		***
L e. [TP __ T ⁰ [vP v ⁰ object subject]]			*	*	**

It is also worthwhile to notice candidate (b). Candidate (b) ultimately loses, because, as explained above, it fails on CASE LEX. But we should be aware that (b) nonetheless manages to obey LEX HEAD EDGE. This holds despite the fact that (b) corresponds to neither of the three choices we have introduced in the previous chapter as ways of obeying LEX HEAD EDGE, in a grammar which prefers [head - complement]-directionality. The point is that, once we introduce the inflectional layer, and with it the possibility that the external argument could be base generated therein, we discover a fourth choice for satisfying LEX HEAD EDGE. This fourth and last choice does not alter

²⁴See Appendix A for one other ranking configuration, which leads to the same grammar.

the directionality of the preferred [spec [head - complement]] skeleton, and since it ultimately surfaces as an SVO-pattern, it might not be easy to distinguish empirically (for more on this point, see section 3.6). For now, it suffices to realize that the structure in (b) cannot beat ‘[_{TP} ___ T [_{vP} VOS]]’ due to the ranking of CASE LEX.

Turning now to the ‘[_{TP} ___ T [_{vP} VSO]]’-structure, claimed as the optimal configuration in VSO-grammars of the Mixtecan type, it does not violate CASE LEX or LEX HEAD EDGE.

Consequently, the logic of the emergence of VSO is basically the same as in VOS. Not only LEX HEAD EDGE, but also CASE LEX must be sufficiently high-ranked. The only difference is that BRANCHING RIGHT is high-ranked as well, crucially higher than GENERALIZED SUBJECT. That is, ‘[_{TP} ___ T [_{vP} VSO]]’ emerges under the ranking given in (22); the competition in (23) below demonstrates the win.²⁵

(22) Basic VSO = ‘[_{TP} ___ T [_{vP} VSO]]’

HEAD LEFT, CASE LEX, LEX HD EDGE, BRANCH RIGHT >> GEN SUBJECT, HEAD RIGHT

(23) [_{TP} ___ T [_{vP} VSO]] is optimal – Comparison with relevant possible winners (all obey HEAD LEFT):

	BRANCH RIGHT	CASE LEX	LEX HD EDGE	GEN SUBJ	HEAD RIGHT
a. [_{TP} subj T ⁰ [_{vP} t _S v ⁰ object]]		*!	*		**
b. [_{TP} subj T ⁰ [_{vP} ___ v ⁰ object]]		*!		*	**
c. [_{TP} subj v ⁰ -T ⁰ [_{vP} t _S t _V object]]			*!		***
L d. [_{TP} ___ T ⁰ [_{vP} ___ v ⁰ [_{vP} subj t _V object]]]				**	***
e. [_{TP} ___ T ⁰ [_{vP} v ⁰ object subject]]	*!			*	**

We see that the system produces both VOS- and VSO-languages in which neither the verb nor the subject moves into TP. Empirically, this is reflected by the fact that in both types, independent tense/aspect particles emerge quite frequently, as shown above. While this possibility might be

²⁵See appendix A for one other ranking configuration, which leads to the same grammar.

particularly puzzling for basic VSO if we analyze it exclusively as movement into the inflectional layer, it falls into place once we recognize the option of deriving VSO by VP-internal verb movement.

Finally, what about clauses which involve an auxiliary, or a modal? Let us go on a brief excursus, which discusses the system's treatment of auxiliaries/modals, in particular in grammars that lack verb movement to T. This is illustrated with a focus on the Mixtecan type.

3.3.2 Auxiliaries and modals in the absence of verb movement to T

To start, I assume that a 'modal + (non-finite) main verb'-configuration, in which the modal and the verb *share* the same subject, often count as just one clause, a single extended projection.²⁶

As such, the construction falls into the same class as a mono-clausal configuration 'auxiliary + V_{past participle}'. This gives us the basis to account for the following fact. VSO-languages of the Mixtecan type select the basic order 'modal - V - S - O'. See for example Yosondúa Mixtec in (24):²⁷

²⁶The assumption that corresponding configurations are mono-clausal can also be found in Wurmbrand 2001. But see, for example, Julien 2001 for the opposite claim.

²⁷Farris 1992:28 groups the construction under 'sentential complements', but then reports that "other subject complements optionally begin with the complementizer *x~*", "except for those occurring with *kãã* 'to be possible'". Furthermore, below, we will see that Yosondúa's ranking predicts a structure, in which the modal is directly substituted into T. Such an analysis finds support in the fact that the main verb nucleus reflects the specification of T by occurring obligatorily in potential aspect. This is thus on a par with the mono-clausal case of completive aspect in (15) above.

One further note in the background: The mono-clausal status does not extend to complex (infinitival) verb constructions, which not only involve two verbs but also two distinct subjects. Here it seems sensible to assume that the structure generally corresponds to two distinct extended projections/clauses. This then also means that the corresponding embedded infinitive clauses *could* show 'S - V - O'-order even under a 'strict'-VSO-ranking. Precisely when the subject has to receive case from outside the extended projection, such 'exceptional case marking' (cf. Bresnan 1970, Chomsky 1981) eventually requires stricter locality (i.e. forcing the subject into the top specifier of the embedded infinitive). Yosondúa Mixtec, however, does not seem to allow corresponding configurations in any case. Rather, non-co-referential subjects demand the presence of an intervening complementizer (Farris 1992:30ff), suggesting the subordination of a finite clause.

- (24) Yosondúa Mixtec (Farris 1992:29):
Kúã **kahu** d~ tãtã
 Con:be:possible pot:read he paper
 “He can read.”

Yosundúa Mixtec does not have true auxiliaries, but see the example in (25) from Greek. As mentioned in chapter 2, Greek seems to belong to the same class of strict VSO as Mixtec, and indeed, we have the basic order ‘auxiliary - V - S - O’:

- (25) Greek (Alexiadou 1999:51):
 An **ehun** idhi **mathi** kala i Kokini to sistima tus.
 if have already learnt well the-Reds-nom the system cl-gen-pl
 “If the Reds have already learnt their system well...”

Now, there is the question whether auxiliaries and likewise modals count as lexical heads. The answer has an impact on whether they are subject to LEX HEAD EDGE or not, and whether they can act as ‘lexical helpers’ for satisfaction of CASE LEX. The answer is far from obvious.

For example, van Riemsdijk 1998:11,12 categorizes both auxiliaries and modals as ‘semi-lexical’ heads, considering, among other things, their ‘closed-class’-character. One might also think of the fact that, for example, in English, modals have a ‘particle-like’ character, never taking up agreement. The same is true for the future auxiliary *will*. Thus, we could claim them to be instances of a *functional* Infl-head; see, among others, Roberts 1993:245, 309ff who assumes that all English modals are directly inserted into T⁰.

But then there is also the sense that auxiliaries and modals are still *verbs*. As such, at least auxiliaries have variants in which they act as main verbs, and both auxiliaries and modals potentially participate in derivational morphology.²⁸

In order to acknowledge this ambiguous character, I will explore the following hypothesis. Auxiliaries and modals are not ‘semi-lexical’ heads, but they can be, in the syntactic

²⁸The same is never true for adpositions, which Baker 2003:305 considers as one piece of evidence that P is not a lexical category, but genuinely functional. See more on adpositions in section 5.4.

representation, *either* lexical *or* functional heads. The ultimate decision on this is made by constraint ranking. This can be worked out as follows.

Both auxiliaries and modals are heads of the category V, and as such, they originate as lexical heads. Nevertheless, they are ‘hybrids’ in the following way. They have a potential to lose their status as lexical heads if they are directly substituted under T^0 . In this case, they ultimately project TP and thus become instantiations of T, so they count as functional heads. In order to maintain the lexical status even in a context in which the auxiliary/modal appears within an extended projection of another verb, it must *not* substitute into T^0 . There are two ways this could happen: either the auxiliary/modal is base generated under VP (heading a separate VP-shell, erected above the main VP- ν P), or it is directly adjoined to T^0 . The adjunction structure is imperative to maintain lexical status, since only in a head-to-head-adjunction configuration, the lexical head is still a distinct syntactic entity, and does not become the projector of T itself.²⁹

The auxiliary/modal can act as a ‘lexical helper’ for satisfaction of CASE LEX only if it maintains its lexical status; and only then it is evaluated on LEX HEAD EDGE. If, on the other hand, the auxiliary gives up its lexical status and substitutes into T^0 , it cannot be input for LEX HEAD EDGE, but it can cause a violation of CASE LEX, just as T does, if the subject is in Spec, TP. Therefore, the ultimate decision of how to treat the auxiliary/modal in the syntactic mapping will be the decision of a particular constraint ranking.

With this conception in mind, let us go back to the example of strict VSO and Yosondúa Mixtec. Will this type treat a (finite) modal/auxiliary as a lexical head, or will it substitute the auxiliary/modal under T^0 ?

We know that the type doesn’t want to violate CASE LEX. At the same time, the satisfaction of CASE LEX is already guaranteed, in strict VSO by ν P-internal verb movement. Therefore, direct substitution of an auxiliary or modal under T^0 won’t incur any violation of CASE LEX. On the other hand, maintaining the lexical status becomes too costly regardless of the exact structural solution. This is illustrated in the tableau in (26) below. See how candidate (c), which adjoins the auxiliary/modal directly to T^0 , causes a fatal LEX HEAD EDGE violation, whereas (b) loses, not because it fails on the higher ranked constraints LEX HEAD EDGE and CASE LEX, but

²⁹See section 3.5.3 for an example of a ‘multiple-auxiliary’-construction.

because base generation under VP adds additional violations of both HEAD RIGHT and GEN SUBJECT. Therefore, the optimal candidate (d) substitutes the auxiliary/modal under T⁰, causing it to lose its lexical status:

- (26) Yosondúa Mixtec (data cf. Farris 1992:29):
 [TP Kúã_T [vP kahu_v [vP d~ t_V tãtã]]]
 CON:be:possible pot:read he paper
 “He can read.”

The auxiliary/modal is best treated as a functional element, losing lexical status:

(relevant candidates – HEAD LEFT and BRANCHING RIGHT obeying:)

	CASE LEX	LEX HEAD EDGE	GEN SUBJECT	HEAD RIGHT
a. [TP __ T ⁰ [vP __ aux ⁰ [vP subj v ⁰ object]]]		*!	**	***
b. [TP __ T ⁰ [vP __ aux ⁰ [vP __ v ⁰ [vP subj t _V obj]]]]]			***!	****
c. [TP __ aux ⁰ -T ⁰ [vP __ v ⁰ [vP subj t _V object]]]		*!	**	****
L d. [TP __ T _{aux} ⁰ [vP __ v ⁰ [vP subj t _V object]]]			**	***

The above logic does not only apply to the strict VSO type. Parallel reasoning can be applied to the VOS-ranking, and as a matter of fact, to any grammar which lacks verb movement to T. The general outcome is that these grammars substitute a finite auxiliary or modal directly into T, at least, as long as no additional components are added to the theory. For strict VSO, we get the special effect that the ultimate structure is on a par with simple verb clauses, in the sense that the order of the main verb, S and O is still VSO. That is, we get ‘auxiliary/modal - V - S - O’, the correct result for languages of the Mixtecan type.

Before we close this section, candidate (a) of the tableau in (26), which corresponds to an ‘T-Aux - S - V - O’-order, deserves a further comment: (a) does not violate CASE LEX since T has, in Aux, a lexical helper adjacent which *ep*-governs the subject. The adjacency also enables T and Aux to phonologically merge into a finite auxiliary. At the same time, the candidate violates LEX HEAD EDGE, since the main verb, while surfacing inside lexical vP does not align at an edge

thereof. The reason for why the structure should not be left unnoticed is that it could give us the basic order ‘finite auxiliary - S - V - O’. The pattern is attested in the Celtic languages (in combination with a ‘ V_{fin} - S - O’-order in the absence of an auxiliary; recall 3.1).

Now, as we can infer from the tableau in (26), candidate (a) not only loses under the current ranking, but it is in fact harmonically bounded by the optimal candidate (as are all other candidates shown in (26)). The violation profile of (a) is identical to that of (d), but includes an additional violation of LEX HEAD EDGE. Therefore, given just the current constraints, (a) could never be a winner.³⁰

The empirical consequence of this, on the larger scale, is that the system, without any additional assumptions, does not produce a Celtic type. This, however, is not necessarily a bad result, for two reasons. First, as noted in 3.1, the Celtic pattern is in fact surprisingly rare once we look at the broader typology; as a matter of fact, it is only attested by the Celtic languages themselves (cf. Julien 2000:475-496). The most common variant of VSO appears to be the one here described as ‘strict VSO’, which is produced by the system’s factorial typology. The second reason is that McCloskey 1997:219 recently claimed (contrary to earlier work) that at least in Irish (and evidently also in Welsh), the subject actually does move out of VP and into the inflectional layer. Then, the VSO-order is derived by subsequent movement of the verb *through* an inflectional projection into a second higher FP (the lower inflectional projection contains the subject). If the structure is accurate, then there is a good chance that the Celtic grammars in fact fall, within the current system, under the class of SVO-languages plus verb movement into TP. Thus, they would correspond to an SVO-, not a VSO-type- ranking, and the surface ‘ V_{fin} - S - O’-order had to be derived by an additional constraint conflict (the driving force not being LEX HEAD EDGE; see in this respect also the discussion on Verb Second in section 3.5.3 below, as one example of verb movement beyond TP).³¹

³⁰Competitors which could win are not listed in (26), in order to keep the discussion easier to follow. We already know that VSO would not choose to raise the subject into a left-peripheral specifier of VP_{aux} or TP, either to avoid LEX HEAD EDGE- or CASE LEX- violation.

³¹On the question of what the final target position of the verb movement is, one possibility is C. See Schafer 1995 for an analysis of systematic verb-to-I-to-C-movement in the Celtic VSO-language Breton. See McCloskey 1996 on the

Altogether, in this section, we have seen two examples of how in [head - complement]-oriented languages, the absence of both subject- and verb-movement into TP goes hand-in-hand with the mixed directionality of the languages. In other words, it is precisely those grammars, of which we have learned in chapter 2 that they deviate from a [_{VP} spec [head - complement]]-directionality, which can fully reject movement into TP. The next section shows a further example, which goes a step beyond, not only not moving into TP and projecting a head-final VP, but pushing T to the right as well.

3.4 Emergence of a head-final TP in a [head - comp]-grammar

Consider the third mixed pattern derived in chapter 2, the [head - complement]-grammar with head-final verb phrase, exemplified by German and Persian: Can it lack both subject- and verb movement into TP as well? It can, but significantly, this goes hand-in-hand with not only a head-final verb phrase but a head-final TP in addition. Let us first discuss the example of Persian (on German, see section 3.5).

3.4.1 Right-peripheral V pulls T to the right

In (27) below, we see the TP structure, which I claim is optimal in Persian. Note on this that Persian does not deviate from the basic order ‘S - O - V’, regardless of the particular encoding of the tense/aspectual information. As illustrated in the example, the latter can be morphologically independent of the main verb, in which case it necessarily follows at the final end of the clause:

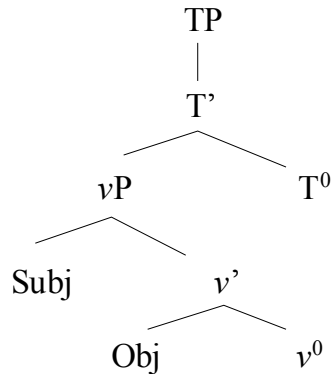
emergence of complementizers forming a phonological word with the following tense-element and the then following verb in Irish. However, McCloskey 1996 argues against an I-to-C-movement, in favor of a syntactic C-to-I-lowering.

(27) Persian (data cf. Ghomeshi 1997:139):

[_{TP} [_{vP} hame-ye m* allem-â ye shâgerd-i-ro m* arefi_v] **kard-and**_T]

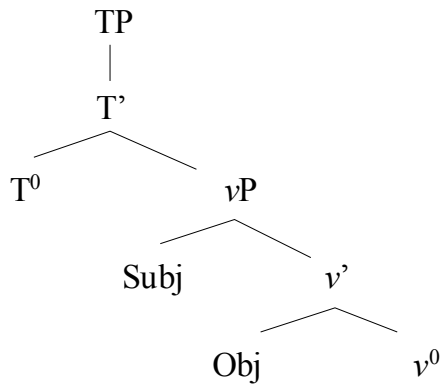
all+EZ teacher+pl one student+indef+râ introduce did+3plS

“Every teacher introduced a student”

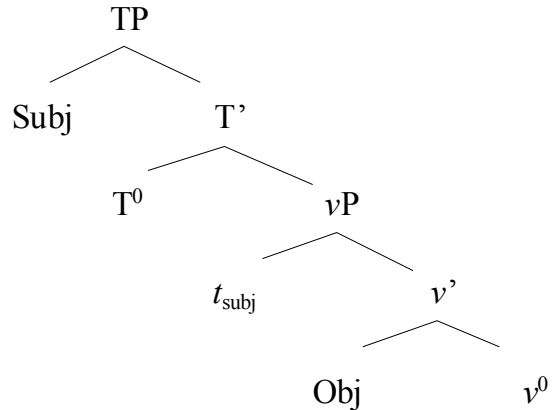


Recognize first that, in parallel to what we have seen in the last section, the configuration does not violate CASE LEX, despite the fact that the subject is in Spec, *vP*. The same reasoning that applied to (16) and (17) above, applies to (27) as well, since ‘[_{TP} __ [_{vP} SOV] T]’ is the exact mirror image of ‘[_{TP} __ T [_{vP} VOS]]’. In particular, ‘[_{TP} __ [_{vP} SOV] T]’ satisfies CASE LEX: T, which assigns nominative to the subject (or absolutive to the object), is adjacent to lexical *v*, which *ep*-governs the respective case assignee. Consequently, *v_v* (or *V*), *ep*-governs its own case assignee as well. The surprising aspect is that T⁰, a functional head, is on the right of its VP-complement. Given that we are talking about a HEAD LEFT >> HEAD RIGHT grammar, we rather expect a TP with [head - complement]-order. However, consider the alternatives:

- (28) a.³² No movement into TP,
but T⁰ is on the left:
◦ Violation of CASE LEX



- b. Moving only the subject;
T⁰ is on the left:
◦ Violation of CASE LEX



Having T⁰ on the left of vP without moving v⁰ to T⁰, violates CASE LEX. Note that this is independent of the positioning of the subject. Even if the subject is in Spec, vP and as such is lexically *ep*-governed, (28a) violates CASE LEX with respect to T's case assignment. There does not exist a lexical head syntactically adjacent to T which governs T's case assignee. The only chance to avoid a CASE LEX violation without shifting T⁰ to the right is to move v⁰ into TP, adjoining it to T⁰. However, this costs a violation of LEX HEAD EDGE.

Altogether, then, (27) is the optimal TP in a HEAD LEFT >> HEAD RIGHT grammar if not only LEX HEAD EDGE (and BRANCHING RIGHT) but also CASE LEX has the greatest priority among the constraints in question. Just as we have seen in VOS, satisfying CASE LEX must be even more important than GENERALIZED SUBJECT, even though GENERALIZED SUBJECT is strong enough to push the verbal head to the right:

- (29) Optimal '[_{TP} __ [_{vP} SOV] T]' in an otherwise [head - complement]-grammar:
LEX HD EDGE, BRANCH RIGHT, CASE LEX >> GEN SUBJECT >> HEAD LEFT >> HD RIGHT

³²Note that the structure in (28a) does not correspond to a possible winner. That is, the extended system does not derive any type corresponding to the pattern. See appendix A for a summary of all types.

The tableau in (30) demonstrates the success of the head-final TP. Be aware that the emergence of a right-peripheral *functional* head in a primarily head-initial language is solely the effect of the head-final lexical projection underneath. That is, the extended system still does not produce cross-patterns with right-peripheral F^0 over left-peripheral Lex^0 (it only allows the reverse, left F^0 over right Lex^0).

(30) Persian (data cf. Ghomeshi 1996:45):

[_{TP} [_{VP} Jiân barâdar-e xod-râ did_v] T⁰]

Jian brother self-râ saw+3Sg

“Jian saw his own brother.”

[_{TP} __ [_{VP} SOV] T] is optimal – Comparison with relevant possible winners (all obey BRANCH RIGHT):

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. [_{TP} subj T ⁰ [_{VP} t _S v ⁰ object]]	*!	*			**
b. [_{TP} subj T ⁰ [_{VP} __ v ⁰ object]]		*!	*		**
c. [_{TP} subj v ⁰ -T ⁰ [_{VP} t _S t _V object]]	*!				***
d. [_{TP} __ T ⁰ [_{VP} __ v ⁰ [_{VP} subj t _V object]]]			**!		***
L e. [_{TP} __ [_{VP} subject object v ⁰] T ⁰]			*	**	
f. [_{TP} subj T ⁰ [_{VP} t _S object v ⁰]]		*!		*	*

Furthermore, the ranking in (29), which predicts an absence of verb movement into TP, also derives a grammar which substitutes an auxiliary (or modal) directly into T⁰. By the same logic that applied to VOS and VSO, the configuration in (27) satisfies CASE LEX, and this satisfaction is not compromised by substitution of the auxiliary/modal for T. Adjoining it to T or base generating it under VP will only lead to additional violations, avoided by the substitution-candidate. This is shown in tableau (31), which focuses on different VP-final candidates (we know already that the bottom vP is optimally head-final under the current ranking); each one is

trying out alternative treatments of the auxiliary:³³

(31) Persian (data cf. Ghomeshi 1997:139):

[_{TP} [_{VP} hame-ye m* allem-â ye shâgerd-i-ro m* arefi_v] kard-and_T]
 all+EZ teacher+pl one student+indef+râ introduce did+3plS
 “Every teacher introduced a student”

The grammar lacks verb movement to T.

Then, the auxiliary is best treated as a functional element, losing lexical status:

(relevant candidates – all obey BRANCHING RIGHT)

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. [_{TP} subj aux ⁰ -T ⁰ [_{VP} t _S object v ⁰]]	*!			*	**
L b. [_{TP} __ [_{VP} subject object v ⁰] T _{aux} ⁰]			*	**	
c. [_{TP} __ [_{VP} subject object v ⁰] aux ⁰ -T ⁰]	*!		*	***	
d. [_{TP} subj T _{aux} ⁰ [_{VP} t _S object v ⁰]]		*!		*	*
e. [_{TP} __ [_{VP} __ aux ⁰ [_{VP} subject object v ⁰]] T ⁰]			**!	**	*
f. [_{TP} __ [_{VP} subj [_{VP} t _S object v ⁰] aux ⁰] T ⁰]			*	***!	

The classification of Persian as a ‘[_{TP} __ [_{VP} SOV] T]’-grammar is supported by the facts already illustrated. We find Persian examples of the form in (31), in which the tense information, in this case ‘simple past’ (see comment below), is expressed by an independent auxiliary, which bears the agreement morphology, and crucially follows the main verb at the final end of the clause. The construction is quite similar to English *do*-support, but unlike the latter, it is not syntactically ‘triggered’ by an intervening category such as negation.

³³For the discussion of a ‘multiple-auxiliary’-construction, see the German type-mate in section 3.5.3.

It should be noted that the Persian tense/aspectual system is rather complicated, and the distinct functions are not easily transfer-able into equivalent tenses in, for example, European languages. Regarding this point, see a criticism offered by Windfuhr 1979:83ff, as well as his observation that while Persian is often classified as a tense system, it seems in fact to be an aspect system (Windfuhr 1979:86). This makes it difficult to evaluate the exact (semantic) function of the auxiliary in (31), and why an equivalent is not needed in the example in (30), both of which are translated by Ghomeshi as ‘simple past’.³⁴

Also note that the winner (b) in (31) and the winner (e) in (30) have the same violation profile, meaning that the system potentially allows for a variation of the current kind to occur. Nevertheless, we should suspect that the use of an auxiliary, which is not semantically/functionally triggered, is restricted in other ways, as (for example) suggested by Grimshaw 1997:374, 386, through the constraint FULL INTERPRETATION (which bans the occurrence of semantically and functionally empty elements by requiring that lexico-semantic structure is parsed). Even if we assume that the Persian auxiliary in (31) is nothing more than a de facto spell-out of the T-information, on a par with T-particles, then there remains the question of why it is not needed in constructions like (30). (On English *do*-support, see also the brief discussion in section 3.6.2 below.)

Thus, there is definitely more to explore here which goes beyond the current focus. The central point for us in terms of syntactic representation and directionality is that a ‘[_{TP} __ [_{VP} SOV] T]’-analysis correctly captures the basic order variation. This includes alongside of ‘S - O - V_T’, the option ‘S - O - V - T’, with T constituting a syntactically independent ‘auxiliary’ head.³⁵

However, what about the position of the subject? Does the Persian subject really surface in Spec, *v*P, as suggested by the current analysis? Given that Persian is a basic verb-final and a scrambling language, detecting this is not so simple. We can find a crucial piece of evidence in

³⁴Ghomeshi 1996:155, 162 herself assumes the existence of a right-peripheral I-head in Persian, without commenting further on the issue.

³⁵See furthermore in section 6.2 the general reasoning on why in basic SOVT-languages, morphologically independent T-particles emerge less frequently.

Ghomeshi 1997. It, however, requires us to interpret the data in a slightly different way than Ghomeshi herself does, who assumes that the subject is in Spec, IP, but then runs into a problem with this view later on. We have to take a short excursus in order to make this point.

3.4.2 Staying in situ – the Persian subject

Consider the Persian example in (32) below. It shows an instance of what Ghomeshi 1997 calls ‘VP-level topicalization’ in the case of a ‘clitic binder construction’. The clause initial *-râ*-phrase *Jiân-o* is base generated in an VP-adjoined position and binds the clitic *sh* in the GOAL-PP. The point to be made in this section is that the subject *follows* the ‘VP-level-topic’ in the basic word order. This suggests that the subject remains in its vP-internal base position and does not move into TP.

(32) Persian (cf. Ghomeshi 1997:160, fn 33):

Jiân-o *bijan* ketâb-o be-sh dâd

Jian+râ Bijan book+râ to-3Sg gave+3Sg

“As for Jian, Bijan gave the book to him.”

Let us introduce the reasoning step by step. Ghomeshi 1997 discusses the morpheme *-râ*, and argues that *-râ* is an (oblique) case marker which appears on noun phrases. More precisely, it appears on indirect and direct objects, but also on adjunct-like noun phrases if they are “thematically licensed by being construed as a direct object” (Ghomeshi 1997:151). She further claims that the *-râ* appearance is tied to the satisfaction of a number of different properties “all correlating with high transitivity, such as definiteness, animacy or topic-hood” (Ghomeshi 1997:133).

Although I do not challenge any of the conclusions Ghomeshi draws with respect to the semantic properties an object noun phrase must have in order to be marked by *-râ*, her *syntactic* evidence that the corresponding phrases are necessarily in a higher position than direct objects lacking *-râ* is not absolutely decisive. As such, the claim to question is that *-râ*-phrases must be

adjoined to VP (or *vP*, in the current understanding of the lexical layer)³⁶. Let us briefly review her argument.

On the one hand, *-râ*-phrases seem to be generally more free to be moved out of their VP-internal base position; for instance, there is a greater freedom to scramble (Ghameshi 1997:147). On the other hand, with respect to the unmarked basic word order, an indefinite direct THEME object must follow an indirect GOAL object, whereas a direct object marked by *-râ* can precede the GOAL. Though Ghameshi presents the data in the text reporting that the *-râ*-DP precedes the indirect object in the unmarked case, she then explicitly notes in footnote 23, citing Karimi 1989:200, fn11, that in the case of *-râ*, both options are equally fine. Following this, I will add this additional example ((a'.)) to her data, which are shown in (33):³⁷

(33) Persian (cf. Ghameshi 1997:147):

- | | | | |
|----|-----------------------------------|-----|-----------------------------------|
| a. | Hasan-râ be ali moa'refi kard-am | a'. | Be ali Hasan-râ moa'refi kard-am |
| | Hasan+râ to Ali introduce did+1Sg | | to Ali Hasan+râ introduce did+1Sg |
| | "I introduced Hasan to Ali." | | "I introduced Hasan to Ali." |
-
- | | |
|----|---|
| b. | Be ali yek âdam-e xub moa'refu jard-am |
| | to Ali one person+EZ good introduce did+1Sg |
| | "I introduced a good person to Ali." |

All that the data decisively suggest is that *-râ*-phrases have a greater freedom to scramble, not that they *must* move, or that they must be adjoined to VP in all cases. Even an application of scrambling does not entail that a *-râ*-phrase is outside the verb phrase; see, for example, Haider & Rosengren 1998 for the option of VP-internal scrambling. (For Haider & Rosengren 1998:5, it is

³⁶In this sub-section, I will refer to *vP* also as VP, adjusting to Ghameshi's analysis which does not focus upon VP-internal layering.

³⁷Note on the examples in (33) (also below) that Persian is a *pro*-drop language, meaning that it can drop the subject. Following Ghameshi 1997:155, I assume that the subject's original position (here Spec, *vP*) then contains *pro*.

crucial that scrambling changes the base generated order.).³⁸

If *-râ* indeed marks the semantic ‘topic-like’ properties described by Ghomeshi, then its appearance might simply signal these properties directly in base position, as well as giving the corresponding phrase the ability to move away – a freedom which is not granted if an object is a genuine non-specific indefinite without any ‘topic’-quality. That is, indeed taking Information structure into consideration, as Ghomeshi does, *-râ* might be precisely a way to mark the Information structure in a way that is potentially independent of syntactic movement/ scrambling. Furthermore, the fact that subjects can never be marked by *-râ* (Ghomeshi 1997:145) could simply be due to the fact that, on the one hand, *-râ*, being a(n oblique) case marker, marks inherent *objective* case (on a par with other inherent object cases, only this one is more tightly connected to Information structure than some); and on the other hand, subjects might be intrinsic topics, so that there is no need to make this explicit by morphological marking.

Where are we going with this? We need to make another loop to understand. The next point is that I do follow Ghomeshi’s syntactic analysis of *-râ*-DPs which involve what Ghomeshi, following Karimi, calls a ‘clitic binder construction’ (cf. Ghomeshi 1997:152ff). As shown in (34)/(35), it is possible to have a *-râ*-DP co-referentially bind a second lower phrase, the latter functioning as either the object of a preposition or the possessor within another *-râ*- DP:

(34) Persian (cf. Ghomeshi 1997:152):

Sepida-ro beh-esh goft-am

Sepide+râ to+3Sg told+1Sg

“As for Sepide, I told her.”

(35) Persian (cf. Ghomeshi 1997:153):

Otâq-ro dar-esh-o bast-am

room+râ door+3Sg+râ closed+1Sg

“As for the room, I closed its door.”

³⁸Keep also in mind that in a theory in which the verb phrase has itself a layered structure, as is assumed here, there is more than one maximal VP-node which could be targeted by scrambling.

Ghameshi argues that clitic binder constructions are instances of ‘VP-level topicalization’, meaning that the topmost *-râ*-phrase is actually base generated in a VP-adjoined position, in which it must be thematically licensed through the binding of a co-referential 2-marked nominal argument, a *pro* contained in the lower bound phrase. VP-level topicalization contrasts with topicalization at the IP-level, which is also licensed through clitic binding, but, crucially, does not involve *-râ* marking:

(36) Persian (cf. Ghameshi 1997:161):

ân **zan-i-ke** darbâre-ash sohbat mi-kard-im: az xâne-**ash** radd mi-shod-am
 that woman+indef+rel about+3Sg talk cont+did+1plSg from house+3Sg pass cont+became+1Sg
 “That woman that we were talking about, I passed by her house.”

Obviously, if we don’t follow Ghameshi in her assumption that all *-râ* -phrases have to adjoin to VP (but only those that involve VP-level topicalization/co-referential clitic binding), one might ask the following: Why could the same base generation of a binding *-râ*-phrase not be construed at the IP- (here TP-) level? But recall that accepting Ghameshi’s interpretation of *-râ* as a *case* marker, this implies that the corresponding case, even if we say it is inherent and as such assigned at D-structure, must be assigned *within* the government domain of T, which we have assumed to be the domain of possible case assignment from the start. Correspondingly, the *-râ* phrase cannot be base generated above Spec, TP, whether in an adjoined position or in a topic- specifier.³⁹

How is all this relevant in order to determine the surface position of the subject? The examples in (34) and (35) are cases in which the subject is abstract *pro*, which means that its position could be either Spec, TP or Spec, VP without any visible difference. Now, look at a VP-

³⁹From a more conservative perspective, Ghameshi’s claim is still a stretch, since, if *-râ*-marking is case marking, then the *-râ*-phrase, being adjoined to VP, is not in a proper syntactic argument position. However, since this is at the heart of Ghameshi’s analysis (cf. Ghameshi 1997:156, 157), I will keep the proposed modifications to a minimum. It could lastly be true that inherent case marking is occasionally accepted in ‘non-standard’ configurations.

One interesting sub-point: *-râ*- case marking of a VP-adjunct violates CASE LEX, since the adjunct is not lexically *ep*-governed. Consequently, clitic binder constructions should be marked and only available if forced by constraints on Information structure/topic-hood.

level topicalization in a clause with an overt subject. The basic word order is the one we have seen in (32) above, here repeated in (37):

(37) Persian (cf. Ghomeshi 1997:160, fn 33):

Jiân-o *bijan* ketâb-o be-**sh** dâd ‘[VP-level topic]_i - S - ... clitic_i’
Jian+râ Bijan book+râ to-3Sg gave+3Sg
‘As for Jian, Bijan gave the book to him.’

The subject does not precede the VP-level-topic but rather follows it. Hence, as Ghomeshi points out herself in footnote 33, the ‘[VP-level topic]_i - S - ... clitic_i’-order challenges her analysis. Since she takes the subject to be in Spec, IP, she is forced to assume a not-otherwise motivated obligation to scramble the VP-topic to the top of IP, without providing any reason why this should hold.

However, once we arrange matters in a slightly different way, and recognize that *-râ* -phrases can appear within VP, but clitic *binding* involving *-râ* -phrases *is* VP-level topicalization, as argued by Ghomeshi, then the order ‘[VP-level topic]_i - S - ... clitic_i’ ceases to be problematic. This provides us with support for the claim at stake: Persian is a ‘subject-in- Spec, ν P’-language. The subject remains inside the lexical layer and does not move into the inflectional one.

Stepping back, Persian has revealed itself to be another example of a HEAD LEFT >> HEAD RIGHT- grammar which moves neither the verb nor the subject into TP, this time by electing ‘[TP ___ [ν P SOV] T]’ as the optimal choice. Once more, the total absence of movement correlates with a kind of mixed directionality, which deviates from the elsewhere preferred ‘default’ within the (verbal) lexical layer.

At this point, one might wonder about the classification of the Germanic OV-languages, such as German. Does German lack both subject- and verb movement into TP as well, and as such, pushes T to the right of a head-final ν P? In the following section, we will enter into a longer excursus on the analysis of the German inflectional layer, concerning both directionality and movement into this layer. This aims to acknowledge the difficulty as well some of the dispute that the German classification has faced in the past and still does. I return to the discussion of general typology in section 3.6.

3.5 German, T⁰-orientation and whether there is Spec, TP or not

Looking at German (and at the Germanic OV-languages in general), the basic word order, visible (only) in all subordinated clauses is ‘C_{complementizer} - S O V_{fin}’, or ‘C_{complementizer} - S O V Aux_{fin}’. The verb-final pattern is likewise maintained in embedded *wh*-questions, in which just the *wh*-phrase but not the finite verb fronts:

(38) German :

- a. ..., dass_C [der Butler die Gräfin **küßte**].
that the butler_{nom} the countess_{acc} kiss-PAST
“... that the butler kissed the countess.”
- b. ..., dass_C [der Butler die Gräfin **geküßt hat**].
that the butler_{nom} the countess_{acc} kissed has
“... that the butler has kissed the countess.”
- c. ..., wen_i C [der Butler *t_i* **küßen kann**].
whom the butler_{nom} kiss can
“... whom the butler can kiss.”

The extended system derives two different TP-types, either one of them could in theory instantiate the appropriate underlying structure of the patterns below the projection of the complementizer: ‘[TP ___ [vP SOV] T]’ or ‘[TP S T [vP *t_S* OV]]’. To be highlighted up front, German will be analyzed (on a par with Persian) as ‘[TP ___ [vP SOV] T]’. Nevertheless, be aware that the theoretical distinction between the two types is very subtle, and the alternative classification of German as ‘[TP S T [vP *t_S* OV]]’ is not at all unreasonable.⁴⁰

⁴⁰The following discussion implicitly takes the following for granted: In German Verb Second contexts (i.e. in main clauses), which show the derived order ‘(XP) V_{fin} S O’, ‘S V_{fin} O’, or ‘(XP) Aux_{fin} S O V’, ‘S Aux_{fin} O V’, the finite verb is either always in C⁰ (this is the ‘Symmetry hypothesis’ on Verb Second; cf. Koster 1975, den Besten 1977, Thiersch 1978, Schwartz & Vikner 1989, Vikner 1995:39f, among many others); or it is at least always within a ‘V2 target’-projection which is erected *above* IP (this is any version of the ‘Asymmetry hypothesis’, or ‘Difference thesis’ in which the Verb Second target may not be CP, but is nevertheless a projection above IP, e.g. a TopicP (cf. Müller &

Overall, a ‘[TP __ [vP SOV] T]’-analysis has two main advantages: the first one concerns head directionality, the second one the surface position of the subject. Let us discuss them in turn.

3.5.1 T-directionality in German

If German corresponds to a head-final TP (on top of a head-final vP), then this explains in a straightforward manner the fact that the finite verb, regardless of whether this is a main verb or an auxiliary, appears at the final end of the clause in all subordinated contexts in which no ‘Verb Second’-movement applies. Recall from tableau (31) above that, if nothing else is added, then the system of constraints wants the type in question to substitute an (finite) auxiliary or modal directly into T. The auxiliary loses its lexical status in this environment and becomes an instantiation of T:

(39) German :

a. ...weil [TP __ [vP hier ja doch [vP keiner Bescheid **weiss**_v] T⁰].
 since here indeed noone picture knows
 “... since nobody has a clue here anyway.”

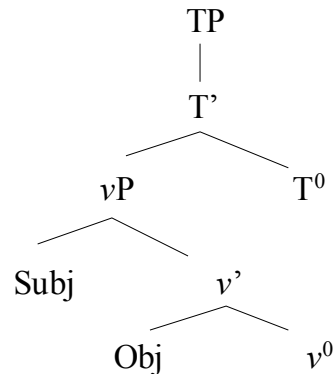
b. ...weil [TP __ [vP hier ja doch [vP keiner Bescheid **gewußt**_v] **hat**_T].
 since here indeed noone picture known has
 “... since nobody has had a clue here anyway.”

Sternefeld 1993:485) or MoodP (cf. Lohnstein 2000)). TP-structures of Verb Second contexts will be discussed in 3.5.3.

Both kinds of hypotheses are in theory compatible with both a right-peripheral as well as a left-peripheral inflectional head. In contrast, if one embraces another particular version of the ‘Asymmetry hypothesis’, namely the idea that a subject-initial main clause is in fact an IP, not a CP (cf. e.g. Travis 1984, 1991:349f), then I⁰ must be on the left of the verb phrase and cannot be right-peripheral.

For discussion of ‘subordinated’ clauses under so-called bridge verbs and those that alternate with *dass*- (‘that’)-complement-clauses, and the likelihood that these embedded V2-clauses are not complement-clauses but parentheses (and, as such, have independent status), see Lohnstein 2000:157 (following Reis 1995).

- c. ...weil [_{TP} ___ [_{vP} sie ihre Dissertation **beenden_v**] **muß_T**].⁴¹
 since she her dissertation finish must
 “... since she must finish her dissertation.”



The recognition of a right-peripheral T-head revives the [_{CP} (Spec) C [_{IP} (Spec) [_{VP} ... comp V] I] - analysis of German clause structure, which has been prominent at least in the past, eventually owing its attraction to the fact that it allows one to take the syntactic head-directionality simply at face value. Finality of I⁰ was assumed by, among many others, Fanselow 1987b, Grewendorf 1988:193⁴², v. Stechow & Sternefeld 1988:376, 380, Webelhuth 1992:73. It was in particular defended by Schwartz & Vikner 1989, Vikner & Schwartz 1991 and Vikner 1995:42, 152ff, though in this references it is explicitly paired with the idea that V⁰ moves to I⁰ in the syntax. Keep in mind that this is not the assumption here. Head-finality of TP is also still adopted in, for example, Mueller 1999:779 (in which he includes an additional BP between VP and TP as target for weak pronoun movement; see the discussion on the ‘Wackernagel’ position in 3.5.2). See also Bobaljik 2002a:230ff who argues for the presence of a right-peripheral Infl-head in all Germanic

⁴¹The assumption that both a finite auxiliary as well as a finite modal are base generated under T in German can also be found in Wurmbrand 2001:262ff, who observes that only under such base generation, an epistemic reading becomes available. (In addition, Wurmbrand assumes that any further non-finite auxiliary/modal is base generated under ModP, a functional modal phrase between TP and VP that can be iterated. This latter analysis has a structural parallel here as well, only, I will assume separate lexical VP-shells instead of ModP-shells; see the discussion in 3.5.3).

⁴²But see Grewendorf’s assumptions with respect to the distribution of auxiliaries below.

OV-languages (with the right-peripheral verbal head either moving to Infl in the syntax or merging with it at PF).⁴³

⁴³Given that in the current analysis, there is no verb movement into head-final TP, the arguments against ‘V-to-final-I’-movement presented by Haider 1993:62f, reporting Höhle 1991, do not apply. For a parallel rejection of syntactic movement, see also Kiparsky 1996:168 (cf. van Gelderen 1993, Reuland 1990).

Furthermore, see Vikner 1995:154-156 for a rejection of Haider 1993:60f, the latter arguing that the assumption of a final I-head is incompatible with the following contrast. While right-adjunction to a VP in topicalized position is possible, as in (i), it is nevertheless impossible to right-adjoin to a VP in base position *if* there is an auxiliary still following, as shown in (ii):

(i) [[dem Freund t_i versprochen] [dass er kommt]_i] hat er nicht.

the friend promised that he comes has he not

(ii) *..., weil er [[dem Freund t_i versprochen] [dass er kommt]_i] hat.

since he the friend promised that he comes has

(iii) ..., weil er [dem Freund t_i versprochen] **hat** [dass er kommt]_i .

since he the friend promised has that he comes

“(since) he has (not) promised to the friend that he will come.”

As pointed out by Vikner, indeed, the appropriate target of extraposition seems to depend on the *domain* in which the extraposition occurs. It is crucial to note that if we located the final finite auxiliary in (ii) and (iii) under VP, as opposed to T/I, this could not capture the contrast between (i) and (ii) in any better way. The opposition that the extraposed clause can occur on the right of the participle in (i), while not in (ii), would still remain.

An explanation for the generalization that extraposition must target a position higher than T’/I’, – where it can target VP if VP is topicalized –, is provided by Büring & Hartmann’s 1997a:72 proposal: “Finite sentences may not be governed by V or I”. Given this filter (which is reminiscent of Stowell’s 1981:146 Case Resistance principle), clauses have three options: They can be extraposed (to an adjunction site above T’), they can be topicalized alone, or they can be topicalized together with the verb (in which case we get extraposition to a (highest) VP, possible only in this domain). Note that Büring & Hartmann, who also accept the possibility of I being final in German, explicitly argue against an LCA-based approach to the distribution of extraposition, showing that an SOV-movement-analysis is better equipped to account for binding facts.

Now, this type of analysis has been challenged, and not only because of the recent influence of LCA-based-theories, but also due to another aspect: There is a serious difficulty in conceptually justifying a *right*-peripheral functional head in a grammar which elsewhere seems to allow only [F⁰ - complement]-order. For this reason, Vikner 2001:21,143, for example, departs from his earlier view. Adopting, even more radically, the assumption that functional heads are universally to the left of their XP-sisters, Vikner locates T⁰ (and Pers⁰) in the Germanic OV-languages on the left of their head-final VP-complement as well. Note that, acknowledging the current system, we are not forced in this direction. The awkwardness of a head-final TP in Germanic OV vanishes, once the system actually explains why the inflectional head takes a position on an unexpected side, as the current one does. That is, my proposal provides the conceptual reason behind this marked ordering that was missing so far, by locating it in the pressure of how T best assigns its case. This reopens the door for positing structures that capture the data more directly.

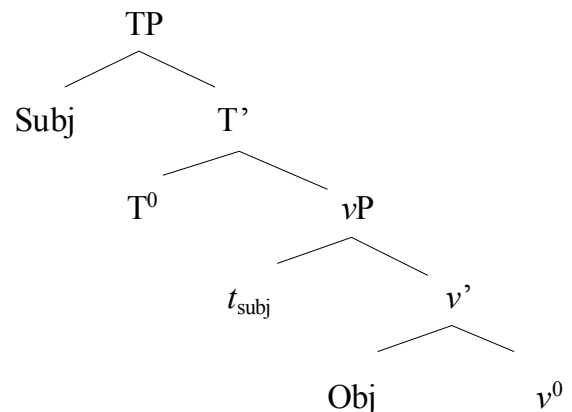
Nevertheless, let us suppose for a moment that we want to follow Vikner's empirical evaluation of German. Vikner 2001:21 classifies all Germanic OV-languages, except Yiddish, as grammars that project a head-initial TP above a head-final VP and moreover lack systematic verb movement into the inflectional layer. He furthermore does not deviate from his earlier assumption (cf. Vikner 1995:84) that the subject leaves its base position in Spec, VP and moves into the inflectional layer.⁴⁴

Keep in mind that extraposition, though by no means excluded by the current system, does violate BRANCHING RIGHT, and, as such, must be enforced by a (conspiracy of) higher ranked constraint(s). While this is not within the realm of this project, one line to explore could be the translation of Büring & Hartmann's filter into a constraint, which is violable and in conflict with BRANCHING RIGHT, since not all grammars extrapose clauses. Furthermore, as also pointed out by Büring & Hartmann 1997a:78, fn. 7, one might want to factor in the relevance of Truckenbrodt's 1994 prosodic condition. See more on extraposition in chapter 5 and 6. For more on the verbal complex, see below.

⁴⁴Vikner does not explicitly re-enforce the claim, but the discussion in 2001:241, 253 suggests an unchanged perspective. That the nominative subject surfaces in Spec, IP in German was also assumed by Grewendorf 1988 and Webelhuth 1992:69 (among others). See furthermore Bobaljik & Jonas 1996:219f who split the inflectional layer into AgrSP, TP (and AgrOP), and take the German subject to be at least in Spec, TP on the surface.

Significantly, the current system derives a type that parallels Vikner’s TP-structure. This is ‘[_{TP} S T [_{vP} t_S OV]]’. We thus do have the alternative option of interpreting German accordingly, meaning that the example in (40) could correspond to the following tree and be the outcome of the constraint ranking given in (41) below:⁴⁵

- (40) German – ALTERNATIVE mapping:
 ..., weil [_{TP} sie T⁰ [_{vP} t_{Subj} ihr Kissen liebt_v]]
 because she her pillow loves
 “..., because she loves her pillow.”



- (41) (If T was systematically abstract) German **could** be –
 Optimal ‘[_{TP} S T [_{vP} t_S OV]]’ in an otherwise [head - complement]-grammar:
 LEX HD EDGE, BRANCH RIGHT, **GEN SUBJECT** >> **CASE LEX**, HEAD LEFT >> HD RIGHT
- (42) German most probably **is** –
 Optimal ‘[_{TP} __ [_{vP} SOV] T]’ in an otherwise [head - complement]-grammar:
 LEX HD EDGE, BRANCH RIGHT >> **CASE LEX** >> **GEN SUBJECT** >> HD LEFT >> HD RIGHT

⁴⁵Vikner 2001:21, ch.2 argues for systematic verb movement into a head-initial inflectional layer in *one* of the Germanic OV-languages, namely Yiddish. See appendix A for one last type among the group of HEAD LEFT >> HEAD RIGHT grammars with a head-final verb phrase: This type equals the structure in (40) but has in addition systematic V-to-T-movement. This provides a possible analysis for Yiddish (following Vikner’s structural description thereof).

If we compare the ranking in (41) with the one in (42) ((42) being the Persian one which leads to optimality of ‘[_{TP} __ [_{vP} SOV] T]’), the difference between them is the ranking of GENERALIZED SUBJECT relative to CASE LEX. If a violation of GENERALIZED SUBJECT is less acceptable than a violation of CASE LEX, but at the same time verb movement into TP is out of the question due to LEX HEAD EDGE, then the grammar will prefer to move only the subject. Since in this scenario, the subject receives its case without a lexical *ep*-governor, the configuration violates CASE LEX, regardless of whether T and *v* are syntactically adjacent. Under a HEAD LEFT >> HEAD RIGHT ranking, then, T⁰ is optimally on the left of its complement. The competition is demonstrated in the following tableaux:

(43) [_{TP} S T [_{vP} t_S OV]] is optimal – Comparison with relevant possible winners (BRANCH RIGHT - obeying):

	LEX HD EDGE	GEN SUBJ	CASE LEX	HEAD LEFT	HEAD RIGHT
a. [_{TP} subj T ⁰ [_{vP} t _S v ⁰ object]]	*!		*		**
b. [_{TP} subj T ⁰ [_{vP} __ v ⁰ object]]		*!	*		**
c. [_{TP} subj v ⁰ -T ⁰ [_{vP} t _S t _V object]]	*!				***
d. [_{TP} __ T ⁰ [_{vP} __ v ⁰ [_{vP} subj t _V object]]]		*!*			***
e. [_{TP} __ [_{vP} subject object v ⁰] T ⁰]		*!		**	
L f. [_{TP} subj T ⁰ [_{vP} t _S object v ⁰]]			*	*	*

[_{TP} S [_{vP} t_S O V] T] cannot win against [_{TP} S T [_{vP} t_S O V]], since HEAD LEFT is ranked above HEAD RIGHT:

	LEX HD EDGE	GEN SUBJ	CASE LEX	HEAD LEFT	HEAD RIGHT
a. [_{TP} subj [_{vP} t _S object v ⁰] T ⁰]			*	**!	
L b. [_{TP} subj T ⁰ [_{vP} t _S object v ⁰]]			*	*	*

The second tableau illustrates clearly that the ‘[_{TP} S [_{vP} t_S OV] T]’-candidate cannot win against ‘[_{TP} S T [_{vP} t_S OV]]’ if the ranking is HEAD LEFT >> HEAD RIGHT. (This does not mean that ‘[_{TP} S [_{vP} t_S OV] T]’ is a fatal loser. It can be optimal under HEAD RIGHT >> HEAD LEFT; see

chapter 6 (6.2) for discussion.) An important aspect of the system to recognize here is that it instantiates a particular dependency between subject movement into the inflectional layer and directionality of the corresponding functional head, in a grammar with mixed directionality. This factor is significant particularly from the perspective of language change.

Think for a moment of the progression from a VP-head-final language into a uniform SVO-language. The system suggests an involvement of not only verb movement but also subject movement into TP. That is, it is the emergence of a ranking that favors subject movement which, as a consequence, pulls the inflectional head to the left. Once the grammar (due to a further ranking change) starts moving the verb into TP, ‘V - O’-order emerges as well. Going backwards, there is also the opportunity to enforce the head-finality of the verb phrase, and with it ‘O -V’-order. This happens via a ranking change which leads to suppression of subject movement, which pushes T to the right. As the discussion proceeds, we will see that German, in several respects, has properties of both types. In chapter 4, I will in fact claim that the modern language descends from a ‘[_{TP} S T [_{VP} *t*_S OV]]’-grammar present in Old/Middle High German. In a broader scheme then, we might keep in mind that the Germanic OV-languages are not only grammars that synchronically lie somehow between a uniform SVO and an SOV-language, but they can potentially be seen as diachronically changing from ‘OV’ to ‘VO’, and as they are on that path, they enforce either one of the patterns.

Let us take a brief further excursus on this dimension of language change. Kiparsky 1996:140 observes a particular asymmetry in syntactic change, namely that “OV base order is commonly replaced by VO, whereas the reverse development is quite rare”. This seems well founded, at least within the history of the Indo European languages (Kiparsky 1996:141f). The full OV-to-VO shift has not only taken place for the Germanic VO-languages, that is, English, Mainland Scandinavian, Icelandic and Yiddish, but extends beyond that (Baltic, Slavic).

Now, while Kiparsky 1996:168f explores the possibility that the OV-source grammar has a final complex V/I-category,⁴⁶ he crucially takes the emergence of a left-peripheral I-head (*not* C) above a still head-final VP as the first step towards the change to VO. As we see here, the

⁴⁶Hence, instead of [_{IP} ... [_{VP} ... OV] I], he assumes [_{I/VP} ... O V/I]. This goes together with his general assumption that separate F can only be left-peripheral.

current system provides an essential motivation for such an emergence of left T – by tying it to another one, the occurrence of systematic subject movement from Spec, *v*P to Spec, TP.

My claim that Modern German descends from an ‘[TP S T [*v*P *t*_S OV]]’-type in Old/Middle High German, but is now ‘[TP __ [*v*P SOV] T]’, does not challenge Kiparsky’s empirical claim that there is a diachronic imbalance of tending to go from OV to VO and not vice versa. Both the source grammar and the target grammar *are* SOV with respect to VP-internal directionality. But the idea that T-finality got reinforced achieves a better understanding of the following empirical fact. While both the group of the Germanic VO-languages and the Germanic OV-languages were, in the Middle Ages, on the verge of switching from SOV to uniform SVO-grammars, German (and corresponding siblings) did *not* make the final transition. On the contrary, German rather re-enforced the ‘S - O - V - Aux’-pattern in non-Verb-Second contexts within the early stage of New High German. Hawkins 1983:227 (and fn.14) notes “a significant increase in V + Aux structures” in Early New High German, placing both non-finite and finite forms consistently at the end of subordinated clauses. This happened despite the Verb Second phenomenon, through which the grammar was (and is) heavily exposed to verb movement and, thus, should have had a substantial trigger to motivate a full change to ‘... V - O’. The classification of Modern German as ‘[TP __ [*v*P SOV] T]’, in recognition of a ‘[TP S T [*v*P *t*_S OV]]’-source, helps us account for this potentially unexpected stability towards underlying ‘OV’.

But let us go back to the possibility that even Modern German is an ‘[TP S T [*v*P *t*_S OV]]’-grammar. Not yet considering the contrast in terms of subject localization, the analysis clearly requires the following additional assumption. On the one hand, T must always be abstract and independent tense particle must be absent. The latter is surely the case, but in the best scenario, we want to understand why; we however *also* want to know this under a ‘[TP __ [*v*P SOV] T]’ - classification, and we will come back to this point in 3.5.3. On the other hand, the ‘[TP S T [*v*P *t*_S OV]]’-analysis demands a distinct structural integration of auxiliaries and modals. Every auxiliary/modal, including the finite one, must be inserted under VP and cannot be directly substituted into T⁰. The latter would yield the wrong order (recall the examples in (38) above). We could achieve this outcome by, for example, invoking a constraint such as V-in-V⁰ which is violated “by every verb which is not inserted under V⁰”, as proposed by Vikner 2001:166, and ranking it at least above HEAD LEFT. But we have noted already that we can do without this

additional stipulation in the case of an ‘[_{TP} ___ [_{VP} SOV] T]’ -analysis.⁴⁷

There is another point, which may demand recourse to a constraint like V-IN-V⁰ in any case, even under a ‘[_{TP} ___ [_{VP} SOV] T]’-classification. German finite auxiliaries and modals generally behave syntactically like main verbs, a fact which seems, at first sight, to justify Vikner’s analogous treatment of the two groups. That is, as pointed out by Grewendorf 1988:218f, 305f (among others), German lacks the behavioral contrast between finite auxiliary/modal and finite main verb which can be observed in English. This suggests that only in English is the finite auxiliary/modal directly substituted into T (I).

We must keep in mind, though, that some of the tests Grewendorf relies on to show the missing contrast might be non-applicable to German for some other (not necessarily well understood) reasons. This concerns in particular the VP-deletion test. The original test goes like this. As we can see in (44a), in English, VP-deletion does not involve the finite modal. At the same time, the parallel is impossible in a coordination that involves only main verbs (cf. 44b); instead of stranding the main verb in the second conjunct, *do*-support is required (cf. 44c):

- (44) English:
- a. Lola can [_{VP} *t*_S solve every math assignment], and Marilyn can *e*_{VP} too.
 - b. *Lola solves every math assignment and Marilyn solves too.
 - c. Lola T [_{VP} *t*_S solves every math assignment], and Marilyn does *e*_{VP} too.

The data seem to neatly confirm that the modal is outside VP picking up the tense information in T, while the main verb is generally part of VP and does not raise into the inflectional layer. Consequently, in the case of VP-deletion without an auxiliary/modal, *do*-support is necessary in order to spell out the tense. There is no parallel in German. Stranding the finite modal is impossible, seemingly showing that it is part of VP, just as the main verb is:

⁴⁷Vikner 2001:177f, 183f assumes that in all Germanic OV-languages, auxiliaries and modals are all base generated under VP, each one taking a separate VP-shell. He accounts for this by his V-IN-V⁰ constraint.

- (45) German:
- a. *..., weil Lola jede Mathematikaufgabe lösen kann, und Marilyn auch kann.
 since Lola every math assignment solve can and Marilyn too can
 - b. *..., weil Lola jede Mathematikaufgabe löst, und Marilyn auch löst.
 since Lola every math assignment solves and Marilyn too solves
 - c. ..., weil Lola jede Mathematikaufgabe lösen kann und Marilyn auch.
 since Lola every math assignment solve can and Marilyn too
 “... since Lola can solve every math assignment and Marilyn too.”

However, recall that the desired analysis of German is ‘[_{TP} __ [_{VP} SOV] T]’. This means that (45a) could be bad, not because the modal is in VP, but because German entirely lacks true VP-deletion, given that the subject is on the surface *part* of the constituent that be deleted under such a process. Alternatively, VP-deletion could be ruled out for entirely independent reasons.

Certainly, a structure with the subject outside and the modal inside VP looks like a more appealing approach, since it also captures the fact that (45c) is possible. This would point towards the ‘[_{TP} S T [_{VP} *t*_S OV]]’-analysis (and only leave open the question of why there is no equivalent of *do*-support). But it is not enough of an answer either. In main clauses, in which it is obvious that both the subject *and* the finite verb must have left VP (eventually occupying Spec, CP and C⁰), VP-deletion is still unavailable:

- (46) German:
- a. *Lola kann jede Mathematikaufgabe lösen und Marilyn kann auch.
 Lola can every math assignment solve and Marilyn can too
 - b. *Lola löst jede Mathematikaufgabe und Marilyn löst auch.
 Lola solves every math assignment and Marilyn solves too
 - c. Lola kann jede Mathematikaufgabe lösen und Marilyn auch.
 Lola can every math assignment solve and Marilyn too
 “Lola can solve every math assignment and Marilyn too.”

Therefore, while there definitely is no contrast between (45a), (46a) and (45b), (46b), it is not clear whether this reveals anything about the actual position, or base generation of the finite auxiliary/modal in the subordinated context. Lastly, we should factor in that constructions like (45c, 46c), in which only one single phrase is stranded in the second conjunct, are possible in many languages, including in English, and the stranded phrase then doesn't have to be interpreted as the subject, but can also be an object or a PP. In that sense, it is doubtful that such constructions have anything to do with VP-deletion, and whether access to them is restricted by the language-specific surface content of the verb phrase.

Beyond doubt, both the German finite main verb and the finite auxiliary/modal have the same ability of moving to C^0 . This holds for all Germanic Verb Second languages. No Verb Second grammar shows any contrast as, for example, English does. English lacks Verb Second, but in *wh*-contexts, it moves the finite auxiliary/modal to C^0 . Nevertheless, it is unable to move the main verb, invoking once more *do*-support in simple verb clauses. We have to keep this in mind and will come back to it in 3.5.3, where I will suggest that the missing contrast is directly related to the Verb Second phenomenon.

So far, we have seen that the system offers two possible analysis of German in terms of T-directionality. It is not immediately evident, then, whether T is on the right or on the left of *vP*, and both localizations have been claimed in the literature. There are however some subtle explanatory advantages of a '[_{TP} __ [_{vP} SOV] T]' -classification, given on the one hand its greater structural simplicity, and on the other the understanding of the fact that German has (so far) resisted the diachronic change into a uniform SVO-grammar. Let us now discuss the positioning of the subject.

3.5.2 Where is the German subject?

The second main advantage of the '[_{TP} __ [_{vP} SOV] T]' -analysis is that it derives the subject's position to be in Spec, *vP* on the surface. This directly follows Haider's work, where he repeatedly defended the claim that the German subject is part of VP. See in particular Haider 1993:ch.6, where the lack of several subject-object asymmetries, the potential of including the subject in VP-topicalization (though more on this below), and the fact that the subject can be part of an idiom, are all explained by the absence of a need for the German subject to move into (or to

be in) an Infl-specifier. This is in contrast to, for example, English, in which the nominative subject is always in the inflectional layer and thus has less freedom.⁴⁸

There is a contrast between German and Dutch in these respects. As pointed out by Haider 1993:188ff, the evidence for the claim that the Dutch subject is part of VP is less clear than it is for German, potentially implying that the Dutch subject is in Spec, IP (TP). This might suggest that, while German is ‘[TP ___ [vP SOV] T]’, Dutch is ‘[TP S T [vP t_S OV]]’.⁴⁹

One corollary of this contrast is the distinct behavior of German vs. Dutch with respect to expletive constructions that involve an ‘associate’ nominative subject, including transitive expletive constructions (TECs). While Dutch allows TECs in both subordinated and main clauses, with the expletive seemingly occupying an inflectional specifier, German rejects TECs in the subordinated context altogether and tolerates the expletive only in the Verb Second target specifier. This opposition is illustrated in (47) vs. (48):

(47) Dutch (data in (a) cf. Bobaljik & Jonas 1996:214; (b) cf. Haider 1993:195)

a. ... dat [TP **er** T [vP veel mensen dat boek gisteren gekocht hebben]].
 that there many people the book yesterday bought have
 “... that many people bought the book yesterday.”

b. Gisteren heeft_i [TP **er** t_i [vP doch iemand Klaas verhaftet]]
 yesterday has there PRT somebody Klaas arrested
 “Yesterday, somebody arrested Klaas.”

⁴⁸Keep in mind that Haider’s approach differs from the current one in that it rejects the existence of a German inflectional layer altogether. In section 3.1 above, we have noted the explanatory advantages for general typology of assuming that the inflectional layer cannot be absent.

⁴⁹There is, however, a considerable uncertainty whether the Dutch vP is head-final, or whether Dutch has in fact already developed into an SVO-language with head-initial vP. This is because, on the one hand, Dutch optionally reverses a clause final verb cluster into an order that parallels the one observed in VO-languages (see Vikner 2001:66ff for data. Vikner 2001:87 still assumes Dutch to have a head-final VP. See 3.5.3 below on the rigidity in German.). On the other hand, PP-extraposition seems to be quite easily available in Dutch (see Zwart 1993:55f. See chapter 5, 5.1 for the true marginality in German.). I therefore hesitate to make any specific claim on the concrete specification of Dutch.

- (48) German:
- a. *..., dass [TP **es** [vP jemand einen Apfel gegessen_v] hat_T]
 that there somebody a apple eaten has
 - b. ..., dass [TP ___ [vP jemand einen Apfel gegessen_v] hat_T]
 that somebody a apple eaten has
 - c. *Gestern hat **es** jemand einen Apfel gegessen.
 yesterday has there somebody a apple eaten
 - d. **Es** hat jemand einen Apfel gegessen.
 there has somebody a apple eaten
 “... (that) somebody has eaten an apple.”

Haider interprets German’s inability to license the expletive in the inflectional domain as a direct consequence of the missing specifier. Within the current system, analyzing German as ‘[TP ___ [vP SOV] T]’ means associating the grammar with the ranking LEX HD EDGE, BRANCH RIGHT >> CASE LEX >> GEN SUBJECT >> HD LEFT >> HD RIGHT. As such, (48a) must be ungrammatical, since it leads to violation of CASE LEX, a violation which can be avoided by omitting the expletive and violating the lower ranked GENERALIZED SUBJECT instead.

Recall here that one of our initial assumptions was to recognize Spec, TP as an intrinsic case position, meaning that whenever it is realized, it has to receive case. Even if the expletive as such does not need to be case marked (cf. Chomsky 1995:288), and can enter into an A-chain with the lower associate in Spec, vP, and then transmitting the case down to the associate that is in need, T (in a (*nom*, *acc*) system) syntactically directs its case towards Spec, TP as soon as it exists and contains an XP that is not case marked. Thus, case is assigned to a lexically ungoverned position; hence the violation of CASE LEX:⁵⁰

⁵⁰This presupposes that in an A-chain, case is always assigned to the head of the chain; cf. Chomsky 1995:116.

(49) No chance for a TEC if it leads to violation of CASE LEX:

	LEX HD EDGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
L a. [_{TP} ___ [_{VP} subject object v ⁰] T ⁰]			*	**	
b. TEC: [_{TP} Expl _i T ⁰ [_{VP} subject _i object v ⁰]]		*!		*	*

One further remark on the grammaticality of (48d), as opposed to (48c): For Haider 1993:135, configurations like in (d) are good, and ones like (c) are bad, because German licenses in general at most one functional specifier, the one in the Verb Second target projection. For him, the expletive is taken to be directly base generated in this higher specifier. Such a view is not compatible with the idea that the expletive is cross-linguistically base-generated within the inflectional layer in any kind of ‘expletive – associate’-construction.

For example, Vikner 1995:186 assumes that the expletive originates in Spec, IP, from where it (in some grammars) obligatorily raises to Spec, CP in the Verb Second context (the associate- noun phrase is taken to be in Spec, VP in TECs; cf. Vikner 1995:189f). Now, to assume such an obligatory raising might seem unnecessary as long as we only consider German. But there is the fact that Icelandic for example shows the same contrast as the one depicted in (48c) vs. (d) (cf. Vikner 1995:185), and still Icelandic allows TECs in the subordinated context (Vikner 1995:189). Even if we could explain this by making context- and/or language specific distinctions in the analysis of structural complexity, as soon as we allow the expletive to originate both in the inflectional layer and in the Verb Second target projection, we face the dilemma of why there isn’t any language that uses two expletives at a time, one base generated in each specifier.

Therefore, we should stay open to the possibility that the expletive is, in any ‘expletive – associate’-construction, in fact tied to base-generation within Spec, TP, meaning that the German access to the corresponding configurations in the Verb Second context (and only here) tells us something about the potential existence of this position exclusively in *this* context. I come back to this point in 3.5.3.⁵¹

⁵¹ Lastly, keep in mind that the existence of an inflectional specifier cannot yet be a sufficient condition to allow TECs. Many languages move the subject into TP (IP), but they still do not have TECs.

Now, given that the German subject is base generated in Spec, ν P and doesn't need to move out, what about the possibility that it *optionally* raises into the inflectional layer? I will discuss two approaches, both of which have exploited the idea of syntactically optional subject movement in German. The first one concerns meaning differences of indefinite subjects which come along with distinct localization with respect to certain adverbs, the second one addresses the fact that a non-pronominal subject can either follow or precede weak pronouns.

Diesing 1992, building on Kratzer 1989, recognizes that bare plural subjects receive a generic or specific interpretation whenever they precede modal particles such as *ja doch* in German (see (50a)). However, they are interpreted existentially if they follow this element (cf. (50b)):

(50) German (cf. Diesing 1992:368):

a. ..., weil Kinder ja doch auf der Straße spielen.

since children PRT PRT on the street play

“... since children play in the street.”

GENERIC reading

On these ‘sufficient conditions’, see also Chomsky 1995:371ff, for whom TECs arise in a grammar that is able to license *two* TP-specifiers, linked into one (nominative) subject chain. (The precise proposal, put fourth in the Minimalist Program, is that (a), T must be strong, ensuring subject movement to Spec, TP *or* expletive insertion; and (b), T must be able to tolerate a single unforced violation of Procrastinate, enabling both subject movement *and* expletive insertion; see Chomsky 1995:375.) Thus, here both the expletive and the associate are in fact taken to surface within TP. One development of this line of reasoning can be found in Bobaljik & Jonas 1996, who maintain the claim of Agr-projections, and so locate the expletive in AgrSP, Spec, the associate in TP, Spec, and attribute the occurrence of TECs to the language specific availability of Spec, TP-licensing. While appealing, the classification of German as a general TEC language, and, in turn, the assumption that the German subject must surface at least in Spec, TP in *all* contexts (cf. Bobaljik & Jonas 1996:218ff), has to struggle with the empirical evidence for ‘subject-in-VP’ pointed out by Haider.

It is crucial to note that whether TECs are due to a grammar’s ability of licensing two TP-specifiers at a time, or due to a potential split of TP into two projections, or simply due to the ability of licensing a particular case chain between expletive in Spec, TP and associate in Spec, ν P, – in all these scenarios, tying the expletive in any ‘expletive - associate’-construction to Spec, TP, then the concrete access to the TEC raises and falls with the grammar’s willingness to project Spec, TP at all.

- b. ..., weil ja doch Kinder auf der Straße spielen.
 since PRT PRT children on the street play
 “... since there are children playing in the street.” EXISTENTIAL reading

Diesing explained this contrast by locating the subject in Spec, IP in pre- *ja doch* position, but in Spec, VP post- *ja doch*, the modal particle consistently marking the VP-border. The proposal, then, builds on Heim 1982, according to whom a clause’s logical representation is a tripartite structure (Quantifier [restrictive clause] › [nuclear scope]) in which the third part constitutes the nuclear scope, that is, the domain of existential closure. Diesing argued for a direct mapping of the syntactic structure onto the semantic one, with the VP constituting the domain of existential closure. Arguing that subject movement from Spec, VP to Spec, IP is optional in German (cf. Diesing 1992:371), Diesing put forward the perspective that German is as such capable of expressing certain meaning differences via the absence vs. presence of movement in the syntax.

Recall here the discussion of the German verb phrase in chapter 2 (2. 3.3), where we already noted a similar change of meaning depending on whether an adverb is placed before a (bare plural) object or after it. Diesing 1992:369 herself acknowledges the fact that *any* position above/outside VP logically maps onto the restrictive clause, and recognizes scrambling as another way of moving an argument out of the nuclear scope.⁵²

This raises the following question. If scrambling is another way of moving a DP out of the nuclear scope, and scrambling is frequently described as a syntactically optional movement, and the subject movement across the modal particle is syntactically optional, then why not say that the subject scrambles out of its Spec, VP base position rather than moving to Spec, IP?

⁵²Since Diesing’s proposal, the ‘split tree’-hypothesis has been explored in various ways. See, for example Lenerz 2001 for discussion, including his own application (cf. Lenerz 2001:258), which correlates the syntactic (logical) bifurcation of the clause with a specific understanding of background-focus structure. Once more, the tree is split at the VP-border: everything inside VP is F-part material, everything in CP, IP and anything scrambled constitutes B-part.

Lenerz’ split formally differs from Diesing’s in only one respect, but it is not insignificant: Scrambling, for Lenerz, targets adjunction to VP, but for Diesing, it is adjunction to IP. Consequently, Lenerz needs a more fine grained definition of where the B-part starts, disregarding elements that are ‘neither included nor excluded’ in VP.

But this is not the reasoning pursued here. Rather, in section 2.5.1, we have already pointed out the advantages of allowing variable adjunction position for certain adverbs, including the ability to adjoin inside VP/vP.⁵³

Following Haider & Rosengren 1998:55, the potential of taking more than one syntactic position can be recognized as a direct consequence of the distinct syntactic status of an adverb as opposed to an argument that is bound by thematic structure. Furthermore, we suggested that this possibly (though not necessarily) induces meaning differences with respect to logical scope or background-focus structure. Therefore, following Haider 1993:231, there is an adequate alternative explanation of the contrast in (50). The distinct logical mapping is not due to the subject taking two different positions, but rather due to the modal particle being adjoined at different heights of the tree, signaling distinct ‘cut-off’-points for the logical split into restrictive clause and nuclear scope.

The important point is the following. The claim that there is a mapping relationship between the syntactic tree and the logical representation is distinct from the claim that it is always and exclusively one particular VP-node which marks the beginning of the nuclear scope. The truth of the first claim does not necessarily entail the truth of the second. That is, we can acknowledge that there is at times a direct correspondence of the German syntactic tree and the logical (tripartite) form (and/or a background-focus partition), but we can still consider the node which marks the beginning of the nuclear scope to vary depending on context, and to possibly be overtly signaled by suitable adverbs.

It is significant that we don’t (yet) have a concrete theory which explains why a particular syntactic node should exclusively act as the one that splits the tree. That is, why does it have to be VP (or vP), and not V-bar? In fact, the lack of such a theory enables Bobaljik & Jonas 1996:219 to identify the pre- *ja doch* subject position as Spec, AgrSP, the subject position post- *ja doch* as Spec, TP. Thus, for them, the tree is split at the TP-border, TP now marking the beginning of the nuclear scope. While this seems fine as far as it goes, it should make us wonder whether the ease of declaring another node means, in fact, that there is actually no single node that consistently

⁵³Keep in mind that the vP is structured in itself, splitting into at least two distinct shells, vP and VP (the latter containing the object). Therefore, adjoining an adverb inside vP does not necessarily entail adjunction to V-bar.

marks the splitting site.

The difficulty of finding the one-and-only node that correlates to the logical split point is intensified by the difficulty of tying a particular adverb to a particular syntactic position. We have already made this point for the object in 2.5.1, and the same holds for the subject as well. While it does seem that there exists a certain hierarchy among adverbs, there is still some considerable variability in adjunction sites. In the example in (51a), *ja doch* precedes the subject, *normalerweise* ‘usually’ follows. But, as demonstrated in (51b), the reverse is easily available too:

(51) German:

- a. ..., weil **ja doch** mein Bruder **normalerweise** auf der Straße spielt.
since PRT PRT my brother usually on the street plays
- b. ..., weil **normalerweise** mein Bruder **ja doch** auf der Straße spielt.
since usually my brother PRT PRT on the street plays
“... since my brother usually plays on the street.”

In both examples, the subject is squeezed between the two adverbs. Therefore, even if the subject has moved across *normalerweise* in (51a), and across *ja doch* in (51b), the other adverb in the corresponding pair must be adjoined to a distinct node. This shows that both adverbs have more than one possible syntactic position.

Next, consider (52a) vs. (52b), where the manner adverb *sorgfältig* ‘carefully’ either precedes or follows the subject. Unlike what we have seen in (50), *ja doch* starts off the sequence in both (52a) and (52b). Still, only in (b) is the reading existential; in (a), it is generic:

(52) German:

- a. ..., weil **ja doch** Akten **sorgfältig** gelesen werden.
since PRT PRT files carefully read are
“... since files are read carefully.”
- GENERIC reading

- b., weil hier **ja doch sorgfältig** Akten gelesen werden.
 since here PRT PRT carefully files read are
 "... since there are files being read carefully." EXISTENTIAL reading

The data in (52) are significant because they cause a problem not only for Diesing but also for Bobaljik & Jonas. For Diesing, *ja doch* marks the VP-border, which in turn splits the tree into restrictive clause and nuclear scope. Consequently, both (a) and (b) should have an existential reading, but only (b) in fact does. On the other hand, for Bobaljik & Jonas 1996:218f, the manner adverb *sorgfältig* adjoins to VP, *ja doch* adjoins to TP, and TP is the ‘cut off’-point. They too predict that once more, both clauses should be read existentially, the wrong result.⁵⁴

The dilemma in the end is this: In order to pin-point the one-and-only node that splits the tree, we rely on the diagnostics of adverb placement. But adverbs in German are not syntactically frozen in one particular position. Hence, they cannot signal any exclusive node. This is not at all a fatal result. Rather, once we realize that adverbs can take distinct positions, it is just a small step to the recognition that the grammar thus obtains an efficient and economic tool to prepare for the semantic/pragmatic mapping without the additional burden of syntactic movement. It can signal the split by adjoining the adverb either above or below the subject, instead of moving the subject.⁵⁵

Another reason to consider optional subject movement into IP in German has been put forward in the literature. This is the relative order of the subject and weak personal pronouns. As pointed out by Lenerz 1977, 1992, Müller 1999:789ff, Haider & Rosengren 1998:70ff (and many others), weak pronouns, first, obey a very strict order restriction in German, which is ‘NOM - ACC - DAT’. They must also precede other (non-pronominal) object arguments

⁵⁴(52b) is also a good counter-example against Bobaljik & Joans’ claim that the subject is in all contexts at least in Spec, TP in German, – based on their own assumption that the manner adverb is adjoined to VP.

⁵⁵This doesn’t mean that movement could never be the tool to pull an argument out of the nuclear scope. Imagine a situation in which argument A must be syntactically linked above argument B (due to thematic hierarchy), but we want to map B into the restrictive clause and A into the nuclear scope. If tree splitting is indeed the right idea, then in this scenario, moving B across A, either overtly or on LF, is the only way to go.

(as well as PPs, which they would precede in any case).⁵⁶

Now, Müller highlights the fact that the non-pronominal subject can either precede or follow weak pronouns, without making any distinction in terms of markedness between the two options. This relative freedom is illustrated in (53a) vs. (53b).⁵⁷

(53) German (cf. Mueller 1999:789, 792):

- a. ..., dass **Fritz es** der Frau wahrscheinlich zum Geburtstag schenken wird.
that Fritz_{nom} it_{acc} the woman_{dat} probably for birthday give will
“... that Fritz will give it to the woman probably on (her) birthday.”
- b. ..., dass **es Fritz** der Frau wahrscheinlich zum Geburtstag schenken wird.

(54a-d) shows that the same variability is not found with objects. In (a), we see that a dative noun phrase cannot precede the accusative pronoun, but rather must follow it (we must have ‘ACC_{Pron} - DAT’ as in (53a, b)). This holds even though the unmarked order is ‘DAT - ACC’ in the case that both objects are non-pronominal (cf. 54b). Finally, (54c) vs. (d) demonstrate that the order between two object pronouns is fixed to ‘ACC_{Pron} - DAT_{Pron}’ as well (if the subject were also pronominal, it would have to precede the sequence; thus ‘NOM_{Pron} - ACC_{Pron} - DAT_{Pron}’):

(54) German ((a) cf. Mueller 1999:792):

- a. *..., dass Fritz **der Frau es** wahrscheinlich zum Geburtstag schenken wird.
that Fritz_{nom} the woman_{dat} it_{acc} probably for birthday give will
- b. ..., dass Fritz **der Frau das Buch** wahrscheinlich zum Geburtstag schenken wird.
that Fritz_{nom} the woman_{dat} the book_{acc} probably for birthday give will

⁵⁶Stressed pronouns pattern with full noun phrase arguments in their freedom to move or to not move.

⁵⁷See however Haider & Rosengren 1998:73 (who take the subject to be in VP), who claim that the weak pronouns are “strongly preferred” at the left-periphery, hence in pre-subject position. Consulting my own native speaker

- c. ..., dass **es** **ihr** Fritz wahrscheinlich zum Geburtstag schenken wird.
 that *it_{acc}* *her_{dat}* Fritz_{*nom*} probably for birthday give will
- d. *..., dass **ihr** **es** Fritz wahrscheinlich zum Geburtstag schenken wird.

Müller's interpretation of the data follows the idea that weak pronouns are tied to a fixed domain, traditionally called the 'Wackernagel' position. In the spirit of Johnson 1991 and Thiersch 1978 (Müller 1999:788), his analysis, set in Optimality Theory, proposes a constraint PRON CRIT (= 'pronoun criterion'), which forces the weak pronouns into a domain B at surface structure. This domain B is a projection BP located between TP and VP (cf. Müller 1999:779).⁵⁸

The relevant aspect of Müller's approach is the way he accounts for the non-pronominal subject's freedom to either precede or follow the weak pronouns. The assumption is that subject movement from Spec, VP to Spec, TP is optional. Given that the pronouns have to move to Spec, BP (in case there are more than one, the others adjoin to BP; cf. Müller 1999:790), then, if the subject stays in situ, it follows the Wackernagel domain; if it moves to Spec, TP, it ends up in front. Müller achieves this optionality by a 'global tie' between an EPP-constraint (demanding the *nom* subject to move) and STAY (rejecting the move); cf. Müller 1999:788, 792.

judgments, I agree with Müller that there is no significant difference between (53a) and (53b).

⁵⁸Müller ensures the relative order among the weak pronouns by combining (a), the premise that the underlying base order is always for any argument set 'SUBJ (= NOM) - DIRECT O (= ACC) - INDIRECT O (= DAT)' (cf. Müller 1999:779), with (b), a constraint on parallel movement (PAR MOVE; cf. Müller 1989), which ensures that the raised pronouns will preserve their base order relation within BP.

See Haider & Rosengren 1998:71f for an independent argumentation against the premise in (a): If the order of weak pronouns reveals general base order, then the unmarked order 'DAT - ACC' of non-pronominal noun phrases must be the result of scrambling (as assumed by Müller 1999:779). Such a view is problematic once we take a side look at Dutch. In Dutch, we likewise find the unmarked order of 'NOM - DAT - ACC' with non-pronominal noun phrases. At the same time, unlike in German, scrambling of the direct object across either the indirect object or the subject is strictly prohibited (see also Haider & Rosegren 1998:61f). Nevertheless, weak pronouns must be ordered into 'NOM - ACC - DAT' as well. Hence, at least in Dutch, the pronoun sequence cannot reveal general base order, since Dutch lacks the (scrambling) mechanism to derive 'DAT - ACC' for the corresponding non-pronominal forms. For Haider & Rosengren, this suggests that in German as well, weak pronouns are exposed to an independent order restriction which can overwrite underlying thematic hierarchy.

Let us briefly pursue Müller’s line of reasoning. We could follow Müller’s proposal by stipulating a global constraint tie between CASE LEX and GEN SUBJECT. However, there is an empirical reason for being cautious with respect to Müller’s judgment that weak pronoun placement reveals optional subject movement. There is also a conceptual reason for hesitating to account for the optionality, *if* it indeed holds, through the use of the concept of a ‘global tie’.

On the empirical side, if Müller’s view is correct, then the subject should have only two possibilities. That is, it can either precede the entire sequence of weak pronouns or it can follow the entire sequence. This is because the weak pronouns must all move to Spec, BP (or adjoin to BP), where they cluster together between Spec, TP and Spec, VP. Now, while there is a true tendency for the weak pronouns to cluster, nevertheless, we can construct examples in which a ‘ACC_{Pron} - subject - DAT_{Pron}’ - sequence sounds pretty much as perfect as the corresponding versions without ‘subject sandwiching’:

(55) German:

- a. ..., weil **es** mein Vater **ihr** auf keinen Fall vor Weihnachten verraten wollte.
 since it_{acc} my father_{nom} her_{dat} by no means before Christmas tell wanted
 “... since by no means did my father want to tell it to her before Christmas.”
- b. ..., weil **ihn** Karla **euch** doch schon an ihrem Geburtstag vorgestellt hat.
 since him_{acc} Karla_{nom} you_{dat} PRT already at her birthday introduced has
 “... since Karla introduced him to you already at her birthday.”

According to Müller, examples as in (55) should be impossible.

Furthermore, given pure optionality of subject movement, as well as Müller’s strong vote on a *general* ‘NOM - ACC - DAT’ base order (cf. Müller 1999:779), the nominative subject should always be able to either precede or follow weak pronouns, without any difference in terms of markedness. But this prediction is likewise not borne out. If the selecting verb in question is an unaccusative ‘dative’ verb, for which the unmarked base order is ‘DAT - NOM’, then the

nominative subject cannot precede a weak dative pronoun, but rather must follow.⁵⁹ This is shown in (56a) vs. (56b) below. The same holds for idioms which include a nominative subject, seemingly linking it into a lower case position as well. (56c) and (56d) give an example of a nominative subject that can only follow a weak accusative pronoun:

(56) German:

- a. ..., weil **ihm ein Fehler** aufgefallen ist.
 since him_{dat} a mistake_{nom} noticed is
 “... , since he noticed a mistake.”
- b. *..., weil **ein Fehler ihm** aufgefallen ist.
- c. ..., weil **ihn der Schlag** getroffen hat.
 since him_{acc} the stroke_{nom} hit has
 “... since he just stood gaping.”
- d. *..., weil **der Schlag ihn** getroffen hat.

If we acknowledge the facts in both (55) and (56), it is not at all clear anymore whether the subject moves optionally across the weak pronouns. Rather, it seems that there is more flexibility with respect to the domain the pronouns have to occur in, and this domain is dependent on context.

From a general typological perspective (cf. Schachter 1985:25), it is very common for pronouns to show distributional peculiarities. This includes both their internal relative ordering, which often does not coincide with the argument order instantiated otherwise, as well as their external localization within the clause, which frequently does not match the positioning of full noun phrases. This is especially true when weak pronouns have developed into clitics, which they commonly do. Thus, it should not surprise us if the apparent optionality occurring in weak pronoun placement in German has little to do with the subject moving. Instead, we should expect

⁵⁹See section 5.3 for the claim that the dative phrase is indeed in a higher case position than the nominative ‘subject’.

foremost that it has everything to do with the weak pronouns themselves, their domain of occurrence in fact being the one that has to be further explored.⁶⁰

Even if subject movement was indeed optional in German, there is the controversy as to whether using a ‘global constraint tie’ is the proper theoretical way to derive this (see, for example, the criticism in Baković & Keer 1998, Ackema & Neeleman 1998:482f, Vaux 2002).⁶¹

The main problem of the recourse to ‘global ties’ is that, on a more general level, it weakens the theory considerably, in a way that should not be underestimated. At the minimum, once we introduce the concept, we need a meta theory which tells us which constraints can be tied and which one cannot. Otherwise, we are in danger of overgeneralizing and of predicting very unlikely typologies (cf. also Baković & Keer 1998:14). Imagine for example a grammar in which HEAD LEFT and HEAD RIGHT are tied. It would be a language that can optionally and thus randomly generate *both* [head - complement]- and [complement - head]- structures; an unattested and rather curious type. Furthermore, what about the option of three or more constraints tying,

⁶⁰On the question of how to define this domain, it seems best to withhold from any stipulation, and to leave the question for further research. The point is that, looking at the bigger picture, it seems highly desirable to aim for a theory which falls out of a broader typological investigation of both weak and clitic pronoun distribution, and which can relate them in a systematic way. This is an immense project in its own right, far beyond of what concerns us here. See Grimshaw 2001b for an Optimality theoretic proposal on how to derive the ordering among Romance clitic pronouns by morpho-syntactic alignment constraints. This might offer a basis for further cross-linguistic exploration.

⁶¹The concept of ‘global tie’ is not the “standard optimality-theoretic device to derive optionality” that Müller 1999:792 claims it to be; and it is crucially not part of the original theory proposed by Prince & Smolensky 1993. Müller cites Prince & Smolensky 1993:50, but Prince & Smolensky do not introduce the concept of a ‘global tie’.

Optimality Theory as such recognizes ‘ties’ only on a descriptive level: For example, in a factorial typology of three constraints A, B, C, we could observe that both the ranking $A \gg B \gg C$ and the ranking $B \gg A \gg C$, make the same optimal choices, meaning that they collapse into the same type. Classifying a language X as the corresponding type, we cannot know whether the grammar’s actual ranking is $A \gg B \gg C$, or $B \gg A \gg C$. Hence, on a descriptive level, we can associate the type with the ranking $A, B \gg C$, constraint A and B here being ‘tied’. This does *not* mean that there exists an actual tie. As soon as $A \gg B \gg C$ and $B \gg A \gg C$ make distinct optimal choices, thus, as soon as two constraints in fact conflict on a structural matter, then, the factorial typology can only give back two distinct types, one associated with the ranking $A \gg B \gg C$, the other with $B \gg A \gg C$. See Grimshaw & Samek-Lodovici 1998:214ff on the importance of this conception in terms of explanatory power.

giving back more than just two optima?⁶²

Stepping back, neither the empirical evidence from adverb- nor from weak pronoun-placement, seems ultimately decisive enough to convince us that subject movement from Spec, *vP* to Spec, TP must be optional in German. On that matter alone, it might be worthwhile to avoid the introduction of ‘global ties’ and with it the risk of jeopardizing the theory in a way we might not be able to successfully control.

In sum, we have seen so far that, while there is the theoretical option of casting German either as a ‘[_{TP} ___ [_{vP} SOV] T]’- or a ‘[_{TP} S T [_{vP} *t*_S OV]]’- grammar, there are both synchronic and diachronic factors which suggest a ‘[_{TP} ___ [_{vP} SOV] T]’-classification.

In the last sub-section on German, we want to come back to the question of why the language has no independent T-particles and how this might be related to the phenomenon of Verb Second. To keep in mind, this puzzle arises under both an ‘[_{TP} ___ [_{vP} SOV] T]’- and an ‘[_{TP} S T [_{vP} *t*_S OV]]’- analysis, since in both cases, the grammar lacks verb movement into TP.⁶³

⁶²Be aware though that Baković & Keer’s alternative proposal of how to derive optionality in OT, namely by a distinction of inputs and faithfulness thereto (see also Baković & Keer 2001), is not easily applicable to the potential case of optional subject movement. This is because it is unclear how to distinguish more than one input here.

If further research revealed that subject movement is optional in German, then a more adequate approach could be to extrapolate upon the line of reasoning pursued by Ackema & Neeleman 1998:483 (following Kroch 1989). There, optionality is taken to be an effect of the *co*-occurrence of distinct grammars which belong to different varieties of registers of the language. Recall in this respect the claim that German is in fact descended from a ‘[_{TP} S T [_{vP} *t*_S OV]]’-grammar. Looking at it from the perspective of language change, we might think of the possibility that both grammars, one electing ‘[_{TP} ___ [_{vP} SOV] T]’, the other ‘[_{TP} S T [_{vP} *t*_S OV]]’ as optimal, are still simultaneously present in the ‘head of one idiolect speaker’. This then causes the effect of ‘optional subject movement’. (This idea is not so absurd, considering that any bilingual speaker must be in the mental possession of two grammars at a time.)

⁶³One last general note on ‘[_{TP} S T [_{vP} *t*_S OV]]’: ‘Pure’ cases of the corresponding type could be languages, in which ‘S T_{-aff} O V’ does emerge. In section 3.1 above, we noted that Julien 2000’s data base indeed attests the pattern. There is thus interesting space for further research to explore.

Lastly, keep in mind that in the potential scenario of an ‘[_{TP} S T [_{vP} *t*_S OV]]’-analysis, then in the case of a pure affix, T⁰ must be abstract, and there is not much of a conceptual possibility that it contains the actual affix. This is because phonological merger, according to Bobaljik 1994, is impossible across (syntactic) arguments (though, there is still the

3.5.3 On the absence of T-particles and its connection to Verb Second

Recall first the overall logic of the current system. While in the presence of verb movement to T^0 , the tense/aspect system must be purely affixal, in the absence thereof, it *can* include free tense/aspect particles. The system does not say that free tense particles have to occur in the absence of movement. Therefore, strictly speaking, the case of Germanic OV does not provide negative evidence. However, we might still wonder about the reason.

Intriguingly, the Germanic OV-languages are *not* languages that lack verb movement. While they might not move the verb into TP in embedded clauses, they do all have Verb Second. That is, in main clauses, all tenses participate in ‘verb-through- T^0 -to- C^0 ’-movement (or into whatever is the head of the Verb Second target projection). Consequently, for all tenses, there ultimately *is* verb movement into TP, and thence, the T-system should be purely affixal.

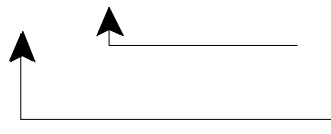
But extrapolating the reasoning from the inflectional layer into the higher Verb Second layer in the above way is only valid under the following premise. It must be indeed the finite *verb* which has to undergo Verb Second.

In light of the complexity of the problem, this is not the place to dive into the question of what ultimately drives the Verb Second movement; for a recent discussion of the literature and a new proposal which identifies the target projection as a mood/type phrase MP, see Lohnstein 2000. But there is one interesting aspect of the debate to contribute to here. The most familiar types of V2-analyses assume that the first cause thereof is the pressure to fill C^0 in the absence of a complementizer (going back to den Besten 1977, Koster 1975; see also Vikner 1995:41ff, and references therein). That is, in any main clause context, Verb Second movement is about filling an otherwise empty CP-layer (and otherwise empty C^0). This yields the pattern, in which the finite verb follows an arbitrary clause initial constituent XP in all independent declarative sentences (XP can be the subject):

concept of ‘affix hopping’; cf. Chomsky 1957, 1991: 421. Interestingly, with respect to German, the assumption of abstract T^0 in fact faces less problems with respect to Germanic ‘irregular forms’. For example, German has many verbs for which a stem vowel change signals simple past tense (*er geht* ‘he walks’ vs. *er ging* ‘he walked’). In these cases, it is not that easy to separate the affix from the stem.

(57) Verb Second as filling CP:

[_{CP} Spec C⁰ [.....



moving the finite verb

moving XP

— leads to the patterns:

(a) Declarative:

(a.i) XP V_{fin} - S O; XP Aux_{fin} - S V O in Germanic VO languages

(a.ii) XP V_{fin} - S O; XP Aux_{fin} - S O V in Germanic OV languages

(XP can be any phrase (except certain particles), including S or O)

(b) Interrogative:⁶⁴

(b.i) *wh*-XP V_{fin} -

(c) Imperative:

(b.ii) V_{fin} -

V_{fin} -

I am not about to challenge this view. However, quite in parallel to the leading question of this chapter, there is the puzzle of why the pressure is not simply resolved by inserting an independent functional head instead of raising the finite verb.

One aspect we shouldn't forget in the equation is that many languages express distinctions between particular types/clausal moods not only in the subordinated clause by complementizer-like particles, but also in root clauses. For example, many grammars insert free Q-morphemes into C⁰ in main clause questions (see Cheng 1991:18ff for an overview). Beyond that, we find languages that mark, once more in the main clause, further moods/types and the speaker's attitude by free morphemes. These particles seemingly occupy C⁰, or alternatively a mood head, as well. This is, for example, true for Japanese:

⁶⁴In both interrogative *yes/no*-questions and imperative clauses, the finite verb occurs in clause initial position; it is not uncommon to still assume that an abstract operator is present in Spec, CP; see e.g. Vikner 1995:49 for discussion.

(58) Japanese (data cf. Schachter 1985:58):

a. [CP ___ [TP Kore wa hon desu] **ka**_C]]

this TOP book is Q

“Is this a book?”

b. [CP ___ [TP Kore wa hon desu] **yo**_C]]

this TOP book is STATEMENT

“(I am telling you) this is a book.”

One approach that explicitly recognized the relevance of the finite *verb* in the Verb Second phenomenon was Taraldsen 1986 (see also Holmberg 1986), who based his analysis on an idea originally proposed by Kayne 1982. Taraldsen 1986:16ff distinguished the verbal head from all other categories by the following property:

(59) Only V instantiates non-argument status.

Considering (59), the finite *verb* moving into the topmost head is understood as a function granting the corresponding clause independent predicate status. With V in C⁰, the corresponding clause loses its capability of being an argument.

It is not the intent here to promote the above claim as the actual cause of Verb Second. The intent is rather to recall the relevance of a *predicate* head as one (sub-) factor within the puzzle of what has to be in the Verb Second target projection and why.

The merit of this with respect to the topic at hand is obvious. If Verb Second is also about moving V into C⁰ (or M⁰), this immediately explains why it is not an option to fill C⁰ by a free morpheme, or to simply raise abstract T or to move a free tense/aspect particle. It explains why it must be ‘*verb-through-T-to C/M*’-movement instead. Consequently, there emerges a sound reason for German having a purely affixal tense/aspect system.

Significantly, acknowledging the relevance of a verbal head in Verb Second, as opposed to a functional one, immediately enables us to capture a second phenomenon, and connect it to the absence of free tense particles. This is the fact that in all Verb Second languages, auxiliary and modal verbs seem to behave like main verbs and there is nothing like *do*-support in the context of

Verb Second.

Notice here that Vikner 2001:166f, 177f (for whom auxiliaries/modals only have predicate status, and thus, lexical status, if they originate within VP), claims that the VP-base generation of auxiliaries/modals is not only true for all Germanic OV-languages, but for the Mainland Scandinavian VO-languages as well. It is also true that Mainland Scandinavian has no independent tense particles, nor does it have *do*-support. Hence, while Mainland Scandinavian and English pair up in both [head - complement]-order and their lack of systematic verb movement into TP, Mainland Scandinavian still differs with respect to both the syntactic behavior of auxiliaries/modals and the morphemic status of T. But Mainland Scandinavian also differs to English in having Verb Second. Thus, there seems to be a direct correlation: It is the Verb Second phenomenon as such which lies behind the absence of free T particles and the fact that auxiliaries/modals syntactically behave like main verbs.

Let us look a little closer at the syntactic treatment of auxiliaries and modals that is predicted by the logic of the current system. We have already noted above that the classification of German, or any other Germanic OV-language, as type ‘[_{TP} S T [_{VP} *t*_S OV]]’ would require the additional assumption that (finite) auxiliaries/modals are generally base generated under VP. This is not yet predicted by the current constraint set, but must be captured by additional means, as, for example, via a constraint like V-IN-V⁰. We also noted that this additional component is not necessary in the case of an ‘[_{TP} ___ [_{VP} SOV] T]’-analysis.

Now, we just recognized that the Verb Second phenomenon superimposes, by its own dynamics, a demand that finite auxiliaries/modals do not lose their lexical status, and thus cannot be directly substituted into T⁰. However, the additional demand arises, strictly speaking, *only* in the Verb Second context, and not in subordinated clauses. Therefore, analyzing German as ‘[_{TP} ___ [_{VP} SOV] T]’, and considering in addition nothing more than the prioritized burden of invoking a verbal head in the Verb Second context, we get the following prediction. Finite auxiliaries/modals directly substitute into (final) T⁰, *unless* they have to undergo further movement into the Verb Second target projection, in which case, they must maintain their lexical status and adjoin to T⁰ instead. (Keep in mind here the original minimal assumption on how a finite auxiliary/modal can maintain its lexical status. It is just the obligation of adjoining to T instead of substituting into it. That is, the finite auxiliary/modal doesn’t necessarily need to be

base generated under VP).⁶⁵

Thus, considering the structure of main clauses and what they demand, we do not need to revise the structure of subordinated clauses proposed in (39) above. But there is still some more to learn about independent clauses. Recall once more the logic of the German ranking: In subordinated clauses, the subject remains within *vP* in order to avoid violation of CASE LEX; moving the subject to Spec, TP, a CASE LEX violation could only be circumvented by moving the verb into TP as well. But this would lead to violation of the even higher ranked constraint LEX HEAD EDGE, and is thus not a valid option. Now, in the Verb Second context, we acknowledged the necessity of moving the finite *verb* all the way up into the corresponding target projection above TP. For the purpose of a concrete illustration, let us assume a hypothetical constraint ‘V2’ which comprises the request of a predicate head surfacing in C⁰ in any independent clause. V2 must be ranked at least above LEX HEAD EDGE.⁶⁶

⁶⁵Shouldn’t we see some kind of morphological reflection of such context-dependent opposition between adjoining to T and substituting into it? Not necessarily. Recall here that any kind of generative Verb Second analysis assumes the finite verb to move into an additional projection above the inflectional layer in *at least* non-subject-initial main clauses. But there, we do not see any morphological reflection of the additional V/T-to-F_{V2} -adjunction either; rather the morphological shape of the finite verb in clause final and in second position does not alter, despite that clause-finally, there is no adjunction to F_{V2}.

On the other hand, if we shift perspective, the system here just further reflects how modals and auxiliaries fall somehow in between a true lexical and a true functional category. However, in the current understanding, this is not caused by their ‘semi-lexical’ identity, but instead by the fact that they can be either lexical or functional within the syntactic representation.

Further, to add the restriction that (finite) modals/ auxiliaries are always base generated under VP in all Verb Second languages, *might* ultimately be the most adequate way to go. As said before, we could enhance the system by this additional component. The analysis would differ only slightly with the finite auxiliary/modal then being on a structural par with further non-finite auxiliaries/modals (see the discussion on complex verb constructions below). The analysis explored in the text is just the structurally most minimal that the system allows, and it is one which leads to an adequate pattern match in the case of a ‘[_{TP} ___ [_{vP} SOV] T]’- classification.

⁶⁶A hypothetical definition of V2 could be:= “Independent status of a clause *c* must be instantiated by the presence of a predicate head in the head of the projection realizing clause type/mood.” Keep in mind though that the Verb Second phenomenon is eventually triggered by more than just the factor focused on here.

The obvious effect of this scenario is this: If the finite verb ends up in C^0 , then satisfaction of CASE LEX becomes in fact available *despite* moving the subject to Spec, TP. Certainly, CASE LEX is satisfied with or without movement to Spec, TP. Both Spec, vP and Spec, TP are lexically *ep*-governed by T-adjacent v if v is in C^0 . Therefore, the subject could stay in Spec, vP if a specific context demands this. Nevertheless, the default is now to move the subject to Spec, TP, given that, as such, both CASE LEX and the next lower ranked GENERALIZED SUBJECT can be maximally satisfied. The tableaux in (60) and (61) illustrate the situation for both a ‘single verb’- and an ‘auxiliary + main verb’- configuration.⁶⁷

(60) German:

[_{CP} Gestern küsste_{v-T-Ci} [_{TP} **der Butler**_j t_i [_{vP} t_j t_i die Gräfin]]
 yesterday kissed the butler the countess
 “Yesterday, the butler kissed the countess.”

Comparison with relevant candidates (all obey BRANCH RIGHT):

	V2	LEXHDEDG	CASELEX	GEN SUBJ	HD LEFT	HD RIGHT
L a. [_{CP} XP v^0 -T ⁰ -C ⁰ [_{TP} subj t_{V-T} [_{vP} t_S t_V obj]]]		*				*****
b. [_{CP} XP v^0 -T ⁰ -C ⁰ [_{TP} __ t_{V-T} [_{vP} subj t_V obj]]]		*		*!		*****
c. [_{CP} XP C ⁰ [_{TP} __ [_{vP} subject object v^0] T ⁰]]	*!				**	*

⁶⁷Remember that once the finite verb leaves vP , its trace becomes irrelevant for LEX HEAD EDGE such that it can be medial, satisfying HEAD LEFT instead of the lower ranked HEAD RIGHT. In turn, the trace of T is left-peripheral as well. On so-called ‘separable verbal prefixes’, which seem to reveal that the verbal trace is still in final position, see section 5.4.

Furthermore, notice that the main clause optima are in general more marked than the subordinated optima, given that LEX HEAD EDGE *is* violated. Hence, ‘using V2’ in order to avoid HEAD LEFT violations, or to satisfy CASE LEX and GENERALIZED SUBJECT simultaneously is not an option.

Finally, on the second tableau in (61): Candidate (a) wins over candidate (d), proving that, if nothing else is added to the system, the finite auxiliary optimally simply adjoins to T⁰ in the Verb Second context, and is still not base generated under VP.

(61) German:

[_{CP} Gestern hat_{V-T-Ci} [_{TP} **der Butler**_j *t*_i [_{VP} *t*_j die Gräfin geküßt_v]]

yesterday has the butler the countess kissed

“Yesterday, the butler has kissed the countess.”

Comparison with relevant candidates (all obey BRANCH RIGHT):

	V2	LEXHEDG	CASELEX	GEN SUBJ	HD LEFT	HD RIGHT
L a. [_{CP} XP aux ⁰ -T ⁰ -C ⁰ [_{TP} subj <i>t</i> _{V-T} [_{VP} <i>t</i> _S obj <i>v</i> ⁰]]]		*			*	*****
b. [_{CP} XP aux ⁰ -T ⁰ -C ⁰ [_{TP} __ <i>t</i> _{V-T} [_{VP} subj obj <i>v</i> ⁰]]		*		*!	*	*****
c. [_{CP} XP T _{aux} ⁰ -C ⁰ [_{TP} __ <i>t</i> _T [_{VP} subj obj <i>v</i> ⁰]]]	*!			*	*	***
d. [_{CP} XP aux ⁰ -T ⁰ -C ⁰ [_{TP} subj <i>t</i> _{V-T} [_{VP} <i>t</i> _S <i>t</i> _V [_{VP} <i>t</i> _S obj <i>v</i> ⁰]]]		*			*	*****!

Importantly, the claim that, in the Verb Second context, it is after all preferred to move the ‘subject’ to Spec, TP does not mean that it must be the nominative subject. That is, in chapter 5, we will see that in the case of unaccusative ‘dative’ verbs, it is the ‘dative subject’ which takes the hierarchically highest position inside the verb phrase. It is then the dative phrase which qualifies for a potential move to Spec, TP in independent clauses. See section 5.3 for details.

Why is it significant that Spec, TP emerges in the Verb Second context? Here are two reasons: First, recall the previously discussed acknowledgment that in any ‘expletive - associate’-construction, the expletive is base-generated in Spec, TP. The recognition of a main/subordinated-contrast with respect to the availability of an inflectional specifier explains why German has TECs in main clauses, while it doesn’t allow them in subordinated contexts. That is, in examples like the one in (48d) above, repeated here as (62), the expletive can indeed originate in Spec, TP, since Spec, TP can be the head of an A-chain without violating CASE LEX:

(62) German:

[_{CP} **Es**_j hat_{V-T-Ci} [_{TP} *t*_j *t*_i [_{VP} **jemand**_j einen Apfel gegessen]]].

there has somebody a apple eaten

“Somebody has eaten an apple.”

Second, there is VP-topicalization. One of Haider’s arguments in favor of his claim that the German subject does not need to move into the inflectional layer is that we can construct examples in which the subject is part of a topicalized verb phrase (this VP occupying Spec, CP). While this is indeed the case, the argument has one crucial flaw. Clauses with full-VP-topicalization are *always* marginal. That is, they are often rejected (depending on the speaker), and they are mostly ungrammatical with transitive verbs. Even in those cases that sound relatively good – i.e. with, as highlighted by Haider 1993:152, both unaccusative and unergative *intransitive* verbs – the subject must be indefinite, and acceptability can vary depending on the speaker and the example chosen.⁶⁸

(63) German :

a. *_[VP der Butler die Gräfin geküßt] hat doch mit Sicherheit nicht.

the butler the countess kissed has PRT with certainty not

b. *_[VP ein Butler die Gräfin geküßt] hat doch mit Sicherheit nicht.

a butler the countess kissed has PRT with certainty not

c. [_{CP} [_{VP} *t_j* die Gräfin geküßt]_k] hat_{ci} [_{TP} der Butler_j *t_i* [_{VP} doch mit Sicherheit nicht [_{VP} *e*]_k]]

the countess kissed has the butler PRT with certainty not

“Kissed the countess, the butler hasn’t done this – certainly not.”

⁶⁸The examples are constructed such that ‘a sufficient amount of adverbs’ remains in the non-topicalized part. As pointed out by Haider 1993:153, even in those cases, in which full-VP-topicalization is accepted, some material *must* remain to the right of the the finite verb; otherwise, the clause becomes ungrammatical. This however does not always help, as we can see in the current data sample.

Furthermore, on (64): The head-finality of a German unaccusative VP (64b, c), which contains nothing but V^0 and an object THEME-argument, follows by the strength of GENERALIZED SUBJECT. Even if the THEME is base generated in the complement of V^0 , it still optimally moves to Spec, VP, in maximal obedience to GENERALIZED SUBJECT. See here the more detailed discussion on German unaccusative constructions in chapter 5 (5.3). On the other hand, the intransitive unergative vP (64a) is head-final, since, zooming in on the vP -internal structure, v is still the sister of VP (with v the extension of a V-head without internal argument); see 5.3 thereon as well.

- d. ^{??}[_{VP} Franzosen Spaghetti gegessen] haben hier doch sicherlich nicht.
 French pasta eaten have here PRT certainly not
 “That French have eaten pasta here, this is quite certainly not true.”

(64) German (data in (a, c) cf. Haider 1993:152):

- a. [?][_{VP} ein Außenseiter gewonnen] hat hier noch nie.
 a outsider won has here yet never
 “That an outsider has won here, this never happened.”

- b. [?][_{VP} Pflanzen_i t_i vertrocknet] sind hier noch nie.
 plants dried-up are here yet never
 “That plants dried up here, this never happened.”

- c. ^(?)[_{VP} Akten_i t_i verschwunden] sind hier noch nie.
 files lost are here yet never
 “That files were lost here, this never happened.”

These facts remain mysterious if we maintain that the subject never has any intention of leaving the lexical layer. Full-VP-topicalization should be as good as partial-VP-topicalization is. The latter, illustrated in (63c), has neither a star nor a question mark.

One might object that partial-VP-topicalization does not necessarily mean that a full *vP*, just minus the extracted subject, has been fronted, as suggested by the structure in (63c). Indeed, the exact analysis of what kind of constituent is fronted in German partial-VP-topicalization, and whether this can involve former extraction (= ‘remnant movement’) or not faces quite a dispute (see for example Fanselow 2002 contra Müller 2002, and references therein). Therefore, one could alternatively aim to argue that constructions as in (63c) involve the clause initial construction of a ‘root’-VP.⁶⁹

⁶⁹Here, the higher *vP*-layer would not be part of the topicalized portion. Be aware though that this would open up the unanswered question of why and how V-to-*v*-movement can be circumvented in the context at stake.

Above all, keep in mind in such a scenario that even if the topicalized VP contained nothing but the object, the VP

But the point here is a bit different. It is not so much that we need to be able to account for the grammaticality of partial-VP-topicalization by the recourse to an analysis involving subject-extraction. It is more crucial that we need to account for the ungrammaticality of full-VP-topicalization. The latter remains a mystery as long as we insist that the subject is exclusively, even in the Verb Second context, part of VP (vP).

Therefore, it is not the current claim that the cases of partial-VP-topicalization entail that the subject must have left VP in order to derive them. Instead, the claim is that the obvious marginality of full-VP-topicalization is due to the preference for the subject to move out of the lexical layer in any Verb Second context. More precisely, if we acknowledge that the grammar, while being unable to license Spec, TP in all subordinated contexts, obtains that ability in the main clause, then we can understand the following. Suppression of the TP-specifier might still be in reach in the main clause as well, but it is ungrammatical except for a subset of cases. In these marginal cases, independent factors/constraints are able to once more overturn GENERALIZED SUBJECT in TP (as this is generally done by CASE LEX in the subordinated clause). Only then can the subject be part of the topicalized verb phrase.⁷⁰

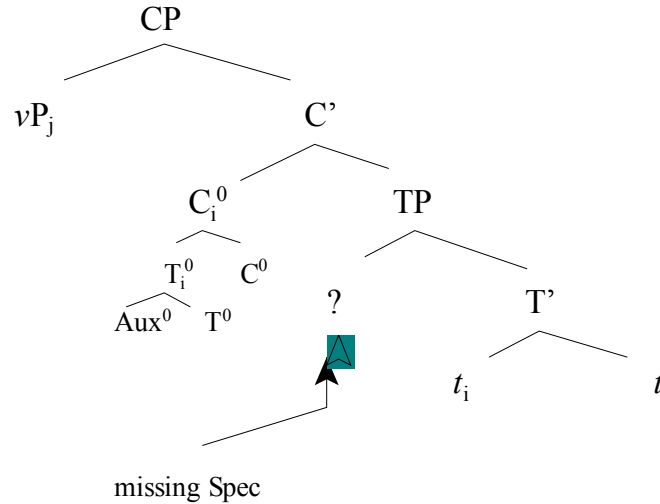
Altogether, the cases of full-VP-topicalization are often ungrammatical and mostly marginal, because the corresponding structures all miss the TP-specifier, a specifier the grammar would prefer to have in the Verb Second context:

would still be predicted to come out head-final. This follows by the impact of GENERALIZED SUBJECT, which motivates movement of the object from the complement position to Spec, VP. (That is, we then had only VP-internal movement, inside the topicalized constituent.).

⁷⁰There is an unresolved component here, starting with the general property of ‘marginality’ and the question of how clauses can be at all ‘nearly but not fully’ grammatical. This, however, is a quite intriguing problem not only for Optimality Theory but for generative grammar theories in general, and goes way beyond the scope of this investigation.

In the case at hand, it makes it particularly difficult to get a grasp on which concrete factors/constraints could ultimately motivate the renewed violation of GENERALIZED SUBJECT in Spec, TP. The task gets further complicated since, on the one hand, the acceptance level in ‘full VP’-topicalization seems to vary by (a) the speaker, and (b) the choice of the verb and the VP content; and, on the other hand, it is far from clear what the actual candidate set is in the case of VP-topicalization. Considering that VP-fronting eventually serves the function of focusing the entire predicate/event, it seems

(65) Missing TP-specifier in a Verb Second context causes marginality:



There is yet another aspect to become aware of with respect to the minimal tolerance towards violating GENERALIZED SUBJECT in German. We just acknowledged that the grammar allows to suppress the TP-specifier even in the main clause. Given the ‘[TP __ [vP SOV] T]’-analysis, based on the ranking LEX HD EDGE, BRANCH RIGHT >> CASE LEX >> GEN SUBJECT >> HD LEFT >> HD RIGHT, we also know that GENERALIZED SUBJECT is more generally violated within TP in all subordinated contexts. That is, with respect to basic word order, we observe a minimal tolerance on violating GENERALIZED SUBJECT in the inflectional layer, because satisfaction would lead, at the minimum, to a violation of the higher ranked CASE LEX.

Significantly, equal tolerance is not given within the lexical layer. That is, while it seems possible to withhold the subject, or better, the thematically highest argument, from moving to Spec, TP, nevertheless, the highest argument must move at least up to the highest VP-specifier. Consider here the structure of complex verb constructions which contain more than one finite auxiliary/modal:

most likely that pragmatic constraints are the ones that come into play.

(66) German :

- a. ..., dass [TP ___ [VP **der Butler**_j [VP *t_j* die Gräfin geküßt_v] **haben**_v] wird_T].
 that the butler the countess **kissed** **have**₂ **will**₁
 “... that the butler **will**₁ **have**₂ **kissed** the countess.”

Pattern in the subordinated context mirrors the English order:

S O V - **Aux**_n - **Aux**₂ - **Aux**_{n-1}

- b. [CP Morgen wird_{V-T-Ci} [TP **der Butler**_j *t_i* [VP *t_j* [VP *t_j* die Gräfin geküßt_v] **haben**_v]]
 tomorrow will the butler the countess kissed have
 “Tomorrow, the butler will have kissed the countess.”

Under the assumption that only the finite auxiliary/modal substitutes into (or, in independent clauses, adjoins to) T⁰, then any residual, non-finite one has to be base-generated under VP. Let us assume that any such auxiliary/modal originates in a separate VP-shell.

Now, given that GENERALIZED SUBJECT is ranked above HEAD LEFT in German, and given that there is no higher ranked constraint in the current set which could suppress the existence of a VP-specifier (such as CASE LEX does in TP), we expect that each auxiliary VP-shell must have a specifier. How? Simply by moving the thematically highest argument at least up to the highest Spec, VP. Recall the power of LEX HEAD EDGE: its ultimate impact is that all auxiliary/modal - shells are predicted to be head-final, the relative order among them mirroring the one we observe in SVO-languages like English. As we can see in (66) above, the expectation matches the German pattern. The logic is illustrated in the tableau in (67):

(67) German – complex verb construction:

- ..., dass [TP ___ [VP **der Butler**_j [VP *t_j* die Gräfin geküßt_v] **haben**_v] wird_T]
 that the butler the countess **kissed** **have**₂ **will**₁
 “... that the butler **will**₁ **have**₂ **kissed** the countess.”

(relevant candidates – BRANCHING RIGHT obeying):

	LEXHDEGE	CASE LEX	GEN SUBJECT	HEAD LEFT	HEAD RIGHT
a. [TP subj T _{aux} ⁰ [VP t _S aux ⁰ [vP t _S object v ⁰]]]	*!	*		*	**
L b. [TP ___ [VP subj [vP t _S object v ⁰] aux ⁰] T _{aux} ⁰]			*	***	
c. [TP ___ [VP ___ [vP subj object v ⁰] aux ⁰] T _{aux} ⁰]			**!	***	
d. [TP ___ [VP ___ aux ⁰ [vP subj object v ⁰]] T _{aux} ⁰]			**!	**	*
e. [TP ___ [VP subj aux ⁰ [vP t _S object v ⁰]] T _{aux} ⁰]	*!		*	**	*
f. [TP ___ T _{aux} ⁰ [VP ___ aux ⁰ [vP subj object v ⁰]]			**!	*	**

The point here is that while German allows violations of GENERALIZED SUBJECT, such violations must still be *minimal*.

We can test the prediction that the subject must raise at least up to the highest VP-specifier in the following way. Take again the cases of full-VP-topicalization, and let us focus on those that are the least marginal, that is, on the ones which involve unergative, or unaccusative intransitive verbs. If the hierarchically highest argument has to move at least into the correspondingly highest Spec, VP, then it should be impossible to strand a non-finite auxiliary in clause final position. As we can see in (68) and 69) below, the prediction is indeed borne out:

(68) German:

a. ..., dass [TP ___ [VP ein Aussenseiter_j [vP t_j gewinnen_v] können_{V-2}] wird_{T-1}].
 that a outsider win can_{inf-2} will₁
 “... that an outsider will be able to win.”

b. ??[[VP Ein Aussenseiter_j [vP t_j gewinnen_v] können_{V-2}]] wird hier nicht.
 a outsider win can_{inf-2} will₁ here not
 “That an outsider is able to win, this won’t happen here.”

c. *[vP Ein Aussenseiter gewinnen_v] wird hier nicht können
 a outsider win will₁ here not can_{inf-2}

(69) German :

- a. ..., dass [TP ___ [VP Akten_j [VP *t_j* verschwunden_V] sein_{V-2}] werden_{T-1}].
that files lost be₂ will₁
“... that files will be lost.”
- b. ???/*[VP Akten verschwunden_V] werden nicht sein.
files lost will₁ not be₂

Let us sum up, and then turn back to general TP-typology. We have undergone a longer journey in order to assess whether German is of type ‘[TP ___ [vP SOV] T]’ or of type ‘[TP S T [vP *t_S* OV]]’. Both analysis are possible, and while it is after all not that obvious which one is the adequate one, we have acknowledged several arguments in favor of ‘[TP ___ [vP SOV] T]’. These arguments concerned both T-directionality and the localization of the subject.

Overall, in terms of the system’s internal dynamics, we have seen, on the concrete example of ‘[TP S T [vP *t_S* OV]]’, how subject movement into Spec, TP without simultaneous verb movement leads to violation of CASE LEX, independent of directionality. Nevertheless, we have also discussed the three ways that a HEAD LEFT >> HEAD RIGHT grammar can avoid this CASE LEX violation by moving nothing into TP. Crucially, this is contingent upon the language embracing particular structural deviations from a [spec [head - complement]]-VP. That is, the grammar must precisely fall into one of the three mixed directionality types we have learned about in chapter 2.

We have furthermore seen concrete examples of how the absence of verb movement into TP – which is, in the mixed directionality types at stake, always rooted in the goal of satisfying LEX HEAD EDGE – enables the occurrence of free tense/aspect particles. This holds even in VSO-grammars, which seemingly move the verb into the inflectional layer, but were here unmasked as VSO-cases, involving verb movement below TP. We have finally also seen that the equation of ‘absent verb movement into TP’ and ‘possible occurrence of T particles’ is ultimately not challenged by grammars which lack the former, but still systematically move the verb *through* TP in a set of contexts that involve all tenses.

In the next section, we seek to understand why HEAD LEFT >> HEAD RIGHT grammars, crucially unlike HEAD RIGHT >> HEAD LEFT grammars, can never lack both verb and subject

movement into TP if their directionality is uniform, and thus, why SVO-languages always have their subject in Spec, TP on the surface (or higher).

3.6 Why there is no ‘TSVO’-language

When it comes to the structural distinctions between possible uniform SVO- and SOV-grammars, my extended system derives a particular contrast between the two groups, which is directly related to the question of why we cannot find any ‘TSVO’-languages:

Recall that we admitted, along with the ‘subject-is-base generated-in-Spec, ν P’-option, the conceptual possibility that the subject is base generated in the inflectional layer (cf. Chomsky 1986), here Spec, TP. That is, we did not rule out either of the two options with respect to the generation of possible candidates.

Now, as a matter of fact, SOV-grammars, or more precisely HEAD RIGHT >> HEAD LEFT grammars are not able to make use of the second possibility, meaning that they have to base generate the subject in Spec, ν P. At the same time, depending on the ranking of the entire constraint set at stake, they can come out as a language, which furthermore leaves the subject within VP on the surface. On the other hand, uniform SVO-languages, that is, HEAD LEFT >> HEAD RIGHT grammars without any mixed directionality patterns, are able to use the option of base-generating the subject in Spec, TP, although unable to leave the subject in situ if it is base generated in Spec, ν P.

Therefore, the system derives a fundamental difference between the possible constitution of a basic SVO-grammar on the one hand and a SOV-grammar on the other. SOV entails the necessity of the subject to be base-generated within the lexical layer, and the potential to leave it there on the surface. In opposition, SVO entails only the potential of the subject to be base-generated within the lexical layer and the necessity of moving it out on the surface. Looking at it from a broader typological perspective, this is a very welcome result. We know that SVO- and SOV-languages are rather different in whether they allow ‘free word order’-variation such as scrambling and the like. Many SOV-grammars do, while SVO-grammars are less willing. Generative research has already recognized that there might be a direct connection between directionality (more precisely head/complement- order: VO vs. OV) and the permitting of (free) movement/ variation (see, for example, Fukui 1993, Saito & Fukui 1998, Haider and Rosengren

1998). The current system reveals that there might be yet another component to it. This is the outlined opposition of being potentially able to case govern all arguments inside the lexical layer, or lacking this capability.

Let us then first look at HEAD RIGHT >> HEAD LEFT grammars. We will not focus on them in this section (see more on the possible TP-distributions in SOV-languages in chapter 6); but we want to understand why they always base-generate the subject in Spec, *v*P, and furthermore why they don't have to move it into TP.

3.6.1 Uniform SOV – the subject can stay in situ

With respect to the option of 'subject-in-situ', we have already seen two examples thereof. Persian and German. As HEAD LEFT >> HEAD RIGHT grammars, these languages lack both verb and subject movement into TP and optimally favor a '[_{TP} __ [_{vP} SOV] T]'-configuration (where in German, this is restricted to a non-Verb Second context). The same configuration, a head-final TP above a head-final *v*P, without any lexical movement into the former, can certainly be the optimal choice for a HEAD RIGHT >> HEAD LEFT grammar as well. It emerges whenever both the violation of CASE LEX (as a consequence of moving solely the subject into TP), and of LEX HEAD EDGE (as a consequence of moving the verb in support, in order to provide lexical *ep*-government of Spec, TP) is a greater threat than the violation of GENERALIZED SUBJECT, which is the cost of not moving the subject into Spec, TP. That is, '[_{TP} __ [_{vP} SOV] T]' is optimal in a uniform SOV-languages if the ranking is among the following:

(70) Uniform SOV lacks both verb and subject movement into TP *if*:

HEAD RIGHT, BRANCH RIGHT, LEX HEAD EDGE, CASE LEX >> GEN SUBJECT, HEAD LEFT

We will discuss the internal logic of the system with respect to HEAD RIGHT >> HEAD LEFT rankings in greater detail in chapter 6, where we will discover that there is yet another component to it. For now, it is sufficient to know that, once GENERALIZED SUBJECT and HEAD LEFT are ranked as in (70), '[_{TP} __ [_{vP} SOV] T]' is the preferred TP:

(71) [TP ___ [vP SOV] T] wins in HEAD RIGHT >> HEAD LEFT

(relevant candidates):

	HEAD RIGHT	CASE LEX	LEX HD EDGE	GEN SUBJ	HEAD LEFT
a. [TP subj [vP t _S object v ⁰] T ⁰]		*!			**
b. [TP subj [vP t _S object t _V] T ⁰ -v ⁰]			*!		***
L c. [TP ___ [vP subject object v ⁰] T ⁰]				*	**

Why, on the other hand is there no HEAD RIGHT >> HEAD LEFT type such that the ‘external’ argument is really base generated inside the inflectional layer, in Spec, TP? Think about what the corresponding configuration ‘[TP S [vP ___ OV] T]’ accomplishes with respect to the current constraint set, and what it does not accomplish. Just like the winner (c) in (71), ‘[TP S [vP ___ OV] T]’ violates HEAD LEFT twice and GENERALIZED SUBJECT once, the latter in this case for the absent specifier in vP. But on top of that, ‘[TP S [vP ___ OV] T]’ furthermore violates CASE LEX, since there does not exist a lexical *ep*-governor of the case assignee in Spec, TP, regardless of the fact that T is adjacent to v. Therefore, even if ‘[TP S [vP ___ OV] T]’ is a possible candidate, it is still not a possible pattern, because it is harmonically bounded by ‘[TP ___ [vP SOV] T]’. As such, it is unable to win, no matter how the constraints are ranked:

(72) [TP S [vP ___ OV] T] cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
) a. [TP ___ [vP subject object v ⁰] T ⁰]					*	**
; b. [TP subj [vP ___ object v ⁰] T ⁰]			*!		*	**

Just the same holds for the pattern which differs from ‘[TP S [vP ___ OV] T]’ solely by moving the verb into a head-final TP: ‘[TP S [vP ___ O t_V] V-T]’. Even if it is a possible candidate, it is harmonically bounded by the alternative ‘[TP S [vP t_S O t_V] V-T]’, which base-generates the subject inside vP, and then moves the verb and the subject into TP. Both structures violate LEX HEAD EDGE, since the lexical head surfaces in a functional projection, both share the same amount of

HEAD LEFT violations, and they both violate BRANCHING RIGHT (see chapter 6 for why the latter is the case). But in addition to that, a head-final ν P without specifier violates GENERALIZED SUBJECT, a head-final ν P plus specifier does not. Hence, once more we find a structure which base-generates the subject inside ν P beating the structure which does not, under any ranking:

(73) $[_{TP} S [_{\nu P} _ O t_V] V-T]$ cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHDED	GENSUBJ	HEAD LEFT
) a. $[_{TP} \text{subj } [_{\nu P} t_S \text{ object } t_V] T^0-\nu^0]$		*		*		***
; b. $[_{TP} \text{subj } [_{\nu P} _ \text{object } t_V] T^0-\nu^0]$		*		*	*!	***

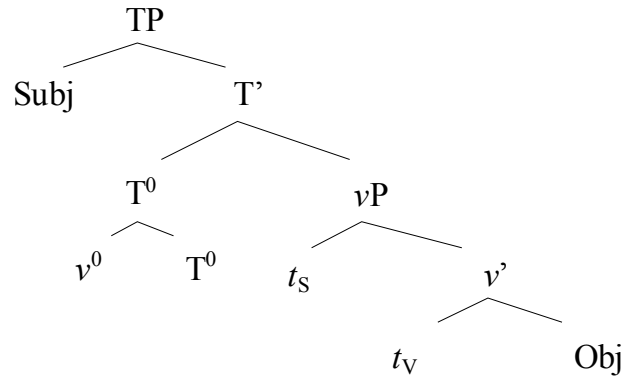
The conclusion to draw is this: An SOV-language, and on a broader scale, any grammar with a head-final VP, *must* be a language which base-generates its subject within the lexical layer, in Spec, ν P, and depending on ranking, it can be a grammar which also leaves the subject therein.

3.6.2 Uniform SVO – the subject must leave VP

Why does the situation differ in SVO-languages, that is, in uniform HEAD LEFT >> HEAD RIGHT grammars? Let us first think of what *is* a possible pattern.

One possibility is that not only is the subject base-generated in Spec, ν P and moves to Spec, TP, but the verb moves as well. This is the pattern which is well established in the generative literature for languages like French (cf. Emonds 1978, among many others). It is the pattern of uniform SVO-languages, which, under the perspective pursued here, have purely affixal tense aspect systems. Assume here the TP-structure in (74):

- (74) French (data cf. Pollock 1989:367):
 [TP Jean embrasse _{v-T} [_{vP} souvent [_{vP} _{t_S} _{t_V} Marie]]]
 John kisses often Mary
 “John often kisses Mary.”

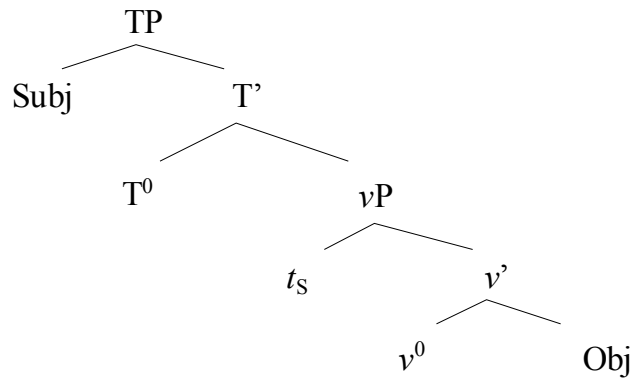


Note first that the configuration in (74) does not violate CASE LEX. So far, we have only featured the possible winners which avoid a CASE LEX violation by holding the subject back inside the lexical layer and not moving it into TP. But certainly, it is also possible to move *both* the subject and the verb into TP, and, by adjoining *v* to T, to provide a lexical *ep*-governor for the subject which is trivially adjacent to T (if T is the primary assigner of the subject’s case). Furthermore, the structure does well on HEAD LEFT, BRANCHING RIGHT and GENERALIZED SUBJECT, as it does not deviate from [spec [head - complement]]. But, crucially, it is worse than the ‘mixed directionality’ cases we have seen in 3.3 and 3.4, 3.5 on LEX HEAD EDGE.

Now, in chapter 2, we have characterized uniform [spec [head - complement]]-grammars, which do not deviate therefrom inside *vP*, as languages that are indifferent towards the threat of a LEX HEAD EDGE violation. Considering the inflectional layer, and with it the impact of CASE LEX, as well as the theoretical possibility that the subject could be base generated in Spec, TP, we discover that there is a little more to it. Compare (74) with the structure in (75), which can belong to an English TP, given that the verb has not moved into TP:

(75) English (data cf. Pollock 1989:367):

[_{TP} John T [_{vP} often [_{vP} *t_S* kisses Mary]]]



We know that the configuration in (75) violates CASE LEX, but, importantly, it *also* violates LEX HEAD EDGE, given that the verb surfaces in one of its perfect projections but not at an edge thereof; both the subject trace and the object block head-edge alignment. What, then, is the difference between (74) and (75) in terms of constraint profile, such that both are possible winners, depending on the ranking?

We said that (75) violates CASE LEX, so ‘[_{TP} S V-T [_{vP} *t_S* *t_V* O]]’ can win if the grammar in question not only prefers to obey HEAD LEFT, BRANCHING RIGHT and GENERALIZED SUBJECT, all that at the cost of LEX HEAD EDGE, but furthermore, it wants to satisfy CASE LEX. But how does ‘[_{TP} S T [_{vP} *t_S* V O]]’ become a winner? We already have the answer at hand, since we have been aware of [_{TP} S V-T [_{vP} *t_S* *t_V* O]]’s violation profile since its introduction as an alternative competitor. The structure in (75) violates HEAD RIGHT twice, but the one in (74) has *more* HEAD RIGHT violations. This is because adjunction of *v*⁰ to T⁰ adds a third one. (Recall the discussion in 3.3: for both *v*⁰ and its copy, there exists a mother node such that *v*⁰, or the copy, illegitimately aligns with the left edge of that mother node, and the same is true for the category T⁰.)

Therefore, the extended system derives two uniform SVO types which both base generate the subject in Spec, vP and move it into Spec, TP. In the first type, the verb moves as well, in order to avoid violation of CASE LEX, at the cost of HEAD RIGHT. As a consequence, its tense/aspect system has to be purely affixal. Languages like French, then, are the result of one of the following ranking choices (see appendix A for yet another ranking constellation which leads

to the same grammar):

- (76) Optimal $[\text{TP S V-T } [_{\text{VP}} t_S t_V \text{ O}]]'$: + verb movement/ + subject movement
 HEAD LEFT, BRANCH RIGHT, CASE LEX, GEN SUBJECT >> HD RIGHT, LEX HEAD EDGE

See in the tableau (77), how moving both the subject and the verb into TP is optimal if both LEX HEAD EDGE and HEAD RIGHT are ranked at the bottom. Candidate (c) wins over the other candidates (d), (e) and (f) that satisfy CASE LEX as well, since the grammar does not care very much about LEX HEAD EDGE; and (c) wins over the other LEX HEAD EDGE violator (a), because the grammar cares less about disobeying HEAD RIGHT than about causing a CASE LEX violation.

- (77) French: $[\text{TP Jean embrasse}_{\text{v-T}} [_{\text{VP}} \text{ souvent } [_{\text{VP}} t_S t_V \text{ Marie}]]]$ – Comparison with relevant candidates:

	CASE LEX	HD LEFT	BRANCHR	GEN SUBJECT	LEX HD EDGE	HEAD RIGHT
a. $[\text{TP subj } T^0 [_{\text{VP}} t_S v^0 \text{ object}]]$	*!				*	**
b. $[\text{TP subj } T^0 [_{\text{VP}} _ v^0 \text{ object}]]$	*!			*		**
L c. $[\text{TP subj } v^0\text{-}T^0 [_{\text{VP}} t_S t_V \text{ object}]]$					*	***
d. $[\text{TP } _ T^0 [_{\text{VP}} _ v^0 [_{\text{VP}} \text{ subj } t_V \text{ object}]]]$				*!*		***
e. $[\text{TP } _ [_{\text{VP}} \text{ subject object } v^0] T^0]$		*!*		*		**
f. $[\text{TP } _ T^0 [_{\text{VP}} v^0 \text{ object subject}]]$			*!	*		**

On the other hand, if both LEX HEAD EDGE and CASE LEX are ranked at the bottom, then a uniform SVO-language emerges which base generates the subject in Spec, vP , but then moves nothing but this subject into TP. Consequently, since there is no verb movement into the inflectional layer, the language has the ability to insert free tense particles into T^0 . Languages like English and Edo (recall the examples in 3.1) can be the result of one of the following ranking choices (see appendix A for yet another ranking constellation which leads to the same grammar):

(78) Optimal $[\text{TP S T } [\text{vP } t_S \text{ V O}]]'$: – verb movement/ + subject movement
 HEAD LEFT, BRANCH RIGHT, GEN SUBJECT >> HEAD RIGHT >> LEX HD EDGE, CASE LEX

Here, the optimal structure likewise maintains a [spec [head - complement]]- configuration in both vP and TP, since violating LEX HEAD EDGE is acceptable, just as it is in the previous type. However, the verb stays in situ, because it is more important to maximally obey HEAD RIGHT than to succeed on CASE LEX. This is demonstrated in the tableau in (79):

(79) English: $[\text{TP John T } [\text{vP often } [\text{vP } t_S \text{ kisses Mary}]]]$ – Comparison with relevant candidates:

	GEN SUBJ	HD LEFT	BRANCHR	HEAD RIGHT	LEX HD EDGE	CASE LEX
L a. $[\text{TP subj T}^0 [\text{vP } t_S \text{ v}^0 \text{ object}]]$				**	*	*
b. $[\text{TP subj T}^0 [\text{vP } _ \text{ v}^0 \text{ object}]]$	*!			**		*
c. $[\text{TP subj v}^0\text{-T}^0 [\text{vP } t_S \text{ t}_V \text{ object}]]$				***!	*	
d. $[\text{TP } _ \text{ T}^0 [\text{vP } _ \text{ v}^0 [\text{vP subj t}_V \text{ object}]]]$	*!*			***		
e. $[\text{TP } _ [\text{vP subject object v}^0] \text{ T}^0]$	*!	**				
f. $[\text{TP } _ \text{ T}^0 [\text{vP v}^0 \text{ object subject}]]$	*!		*	**		

Before we ask about the structural option of base-generating the subject in Spec, TP, let us look briefly at auxiliaries and modals.

Here is a preview of the conclusion: Whereas an SVO-grammar without verb movement into TP substitutes the auxiliary/modal into T^0 , an SVO-grammar with verb movement into TP adjoins it to T^0 . As such, the finite auxiliary/modal counts as a functional head and becomes an instantiation of T itself only in the former case. How is this significant, considering that the contrast in structure is subtle? If we compare English and French, then the system's prediction of the contrast is directly reflected in the auxiliary/modal morphology of the two languages.

In the 'verb movement'-grammar of French, auxiliaries and modals systematically inflect for agreement, and we find infinitival forms (see, for example, Pollock 1989:389f). Meanwhile, in

the ‘strictly V in situ’-grammar English, at least all modals (such as *can*, *must* etc.; i.e. those that have no main verb variant, and thus never project an extended projection by themselves) do not have any ability to inflect for agreement and they can not occur in the infinite form. See for comparison of the two auxiliary systems also Roberts 1993.

Let us look at how the structural contrast comes about. Above, we distinguished the ‘ $[_{TP} S V-T [_{VP} t_S t_V O]]$ ’-type from the ‘ $[_{TP} S T [_{VP} t_S V O]]$ ’-grammar by their opposite attitudes towards violating HEAD RIGHT vs. CASE LEX. This same factor determines their respective treatment of auxiliaries and modals.

On the one hand, if an SVO-grammar lacks verb movement into TP and is therefore least concerned about CASE LEX, then it will furthermore prefer to substitute an auxiliary or modal into T^0 , withdrawing the lexical status of this element. Substitution does not improve the structure with respect to CASE LEX, since the auxiliary/modal now counts as a functional head which instantiates T^0 and thus projects a TP. Hence, there is still no lexical *ep*-governor in sight for the subject in Spec, TP. At the same time, and this is most relevant for the ‘ $[_{TP} S T [_{VP} t_S V O]]$ ’-grammar, substitution spares additional violations of HEAD RIGHT which arise if an auxiliary/modal maintains its lexical status and adjoins to T^0 . See the corresponding conflict in tableau (80).⁷¹

⁷¹If we wanted to take adverb placement into consideration, then the outcome that a $[_{TP} S T [_{VP} t_S V O]]$ -grammar directly substitutes an auxiliary/modal into T^0 would account for the fact that the auxiliary/modal precedes the adverb, in opposition to a main verb, and despite the lack of verb movement into TP.

See, for example, Pollock 1989:398 for the assumption that English modals are generated in T^0 ; see Grimshaw 1997:382 on the assumption that English finite auxiliaries are generated in I^0 ; see Vikner 2001:177ff on the assumption (plus an Optimality theoretic derivation thereof) that both modals and finite auxiliaries are inserted directly under T^0 .

(80) English: [TP He may [vP often [vP t_S forget the keys]]] – Comparison with relevant candidates:

(Keep in mind that no candidate violating HEAD LEFT or BRANCHING RIGHT can win under the ranking at stake)

	GEN SUBJECT	HEAD RIGHT	LEX HD EDGE	CASE LEX
L a. [TP subj T _{aux} ⁰ [vP t _S v ⁰ object]]		**	*	*
b. [TP subj T _{aux} ⁰ [vP __ v ⁰ object]]	*!	**		*
c. [TP subj aux ⁰ -T ⁰ [vP t _S v ⁰ object]]		***!	**	
d. [TP __ T _{aux} ⁰ [vP __ v ⁰ [vP subj t _V object]]]	*!*	***		

On the other hand, an SVO-grammar like French, which does not like to violate CASE LEX, stays away from substitution, and instead adjoins the auxiliary/modal to T⁰:

(81) French:

[TP Je vais_{V-T} [vP t_S changer l'ampoule]]]

I will change the light bulb

“I will change the light bulb.”

(Comparison with relevant candidates:)

	CASE LEX	GEN SUBJECT	LEX HEAD EDGE	HEAD RIGHT
a. [TP subj T _{aux} ⁰ [vP t _S v ⁰ object]]	*!		*	**
b. [TP subj T _{aux} ⁰ [vP __ v ⁰ object]]	*!	*		**
L c. [TP subj aux ⁰ -T ⁰ [vP t _S v ⁰ object]]			**	***
d. [TP subj aux ⁰ -T ⁰ [vP t _S t _{aux} [vP t _S v ⁰ object]]]			**	****!
e. [TP __ T _{aux} ⁰ [vP __ v ⁰ [vP subj t _V object]]]		*!*		***

Two remarks on the competition in (81): First, note that the winner (c) simply adjoins the auxiliary to T⁰, without base generating it in a separate VP plus subsequently moving it into TP.

This is because, once we follow the internal logic of the system, then previous base generation of the auxiliary under VP is harmonically bounded by the winner. Candidate (d) has the same

violation profile as (c), but violates HEAD RIGHT one additional time.⁷²

Either way, the crucial property of an auxiliary/modal which does not itself project TP is that it becomes a ‘*helping verb*’ in a new case theoretic sense: It can help T, where T assigns case to the subject, by acting as a lexical governor thereof which is syntactically adjacent to T. As such, it circumvents the violation of CASE LEX. Nevertheless, we should also be aware that the winner in (81) has the same plus one additional violation compared with the optimal form – ‘[TP S V-T [_{VP} t_S t_V O]]’ – for simple verb clauses. (Compare (81c) with the optimal candidate (c) in tableau (77) above; the latter violates LEX HEAD EDGE only once.). Therefore, using an auxiliary as ‘*helping verb*’ cannot be the default choice for all tenses, but rather it must be forced by the semantic/functional needs to express, or to differentiate particular tenses/aspects.

Finally, let us take one further very brief excursus on the classification of English as a grammar that substitutes auxiliaries/modals directly into T⁰. In the current system, this substitution is rooted in the desire to minimize HEAD RIGHT violations, while caring little about the violation of CASE LEX. Significantly, this same structural preference can play a part in the explanation of *do*-support.

Recall that according to Grimshaw 1997, the use of ‘light’ *do* in English is a use of a ‘semantically and functionally stripped’ element, which as such violates the general constraint FULL INTERPRETATION (:= “lexico-semantic structure is parsed”; cf. Grimshaw 1997:374). Therefore, its use must be motivated by a particular context that builds up a greater structural pressure and in turn justifies the violation of FULL INTERPRETATION.

Consider then that configurations which require *do*-support, such as *wh*-fronting (‘what did you eat?’) or negation (‘she does not agree’), are contexts that demand that an abstract T be spelled out overtly within TP, or an affixal T be picked up by a carrier in TP.⁷³

⁷²One could manipulate this result by assuming that, in order to maintain the lexical status of an auxiliary/ modal, it *must* be base generated under VP. In that case, candidate (d) would be the ultimate winner). The approach in the text seems slightly preferable, since it is structurally simpler. Recall here also the discussion of German in 3.5.3 above.

⁷³Whether T⁰, in the case of a ‘non-phrasal’ (‘true’) affix, contains the affix or is abstract, in both these conceptual scenarios, there is plenty of room to discover why, in a grammar without verb movement to T, i.e English, contexts such as *wh*-fronting or negation could demand that T be treated differently.

If we now recognize *do*-insertion as an instance of substitution into T^0 , on a par with the finite auxiliaries and modals of the grammar, and if we furthermore take into account FULL INTERPRETATION, which should be ranked below HEAD RIGHT in English, then the system directly accounts for the fact that *do*-support is superior to the spelling out/picking up of T by v -to-T-movement. The latter would increase HEAD RIGHT violations, which can be avoided by the less costly *do*-substitution:

(82) English: [_{TP} She does_T [_{NegP} not [_{vP} t_S forget_v the keys]]] – Comparison with relevant candidates:

	GEN SUBJECT	HEAD RIGHT	FULLINT	LEX HD EDGE	CASE LEX
L a. [_{TP} subj T_{do}^0 [_{NegP} not [_{vP} t_S v^0 object]]]		***	*	*	*
b. [_{TP} subj v^0 - T^0 [_{NegP} not [_{vP} t_S t_V object]]]		****!		*	

Notice that including a constraint like FULL INTERPRETATION is not in fact imperative in order to account for the winning of candidate (a) over (b); (a) would win over (b) in (82) also without any additional constraint. However, FULL INTERPRETATION or some alternative is necessary in order to capture that *do*-support does not occur in contexts in which T is abstract/affixal but there isn't any negation or the like. That is, without FULL INTERPRETATION, we get the prediction that there should be a free variation between constructions like 'she comes' and 'she does come'.⁷⁴

On the one hand, a *wh*-context might require head movement to C (possibly along the lines of Grimshaw 1997's proposal), but an affixal T^0 cannot move, nor can an abstract T^0 . On the other hand, in negation, either an affixal T cannot merge with v across an intervening negation marker (cf. Bobaljik 1994:5f) or, if abstract, it cannot be checked against v where the intervening negation (NegP) disrupts locality. Similarly, in contexts of emphasis ('... but I am telling you she DID come. '), we could suspect that the emphasis is an instance of a particular stress on T^0 , which cannot be realized by abstract/affixal T.

⁷⁴Roberts 1993:293f in fact notes that *do*-insertion seemed to be freely available in 16th century English. One possibility of interpreting this would be to say that the phenomenon of *do*-support does not involve any additional constraint such as FULL INTERPRETATION but rather the following holds.

What we observe in Modern English as an Emphasis contrast in the presence vs. absence of *do* in simple-main-verb clauses is just the outcome of economizing the optionality between the two constructions. As such, we tie *she does*

Despite this, in the presence of an auxiliary or modal, or a tense particle, T is already overtly spelled out and picked up by a morphologically independent carrier, and this carrier imposes as many HEAD RIGHT violations as *do*-substitution does. Therefore, *do*-support becomes obsolete and never occurs (we have ‘she will not forget it’, not ‘*she does not will forget it’).

One last remark, which brings us back to the use of auxiliaries in both English and French. Once we bring FULL INTERPRETATION into the picture, one might ask whether the use of auxiliary verbs in ‘Aux + main V’-constructions is in fact an instance of ‘semantic under-parsing’ as well. The point is that auxiliary verbs usually have a main verb variant. This main verb variant expresses a meaning that the auxiliary in an auxiliary construction doesn’t have, or better, doesn’t preserve. Note here that Vikner 2001:179 denies the parallel by observing: “When *have* (or *be* or a modal verb) is inserted under Tense⁰, it still makes a semantic contribution to the clause, even if it does not assign a thematic role. When *do* is inserted under Tense⁰, it makes no semantic contribution to the clause at all.” (See here also Grimshaw 1997:383 on the assumption that auxiliary verbs, but not light *do*, have semantic content and are part of the input.). However, does Vikner’s evaluation really capture the entire picture? It is certainly the case that finite auxiliaries and modals still make a semantic contribution to the clause (and that auxiliary *do* evidently makes none). But, with respect to finite auxiliaries, the question is, which *kind* of semantic contribution they make. Compare for example the use of the main verb *have* in (83a) with the auxiliary verb *have* in (83b):

- (83) English:
- a. Mo has a cat.
 - b. Mo has finished all her assignments.

Whatever the exact semantics the auxiliary in (83b) contributes beyond pure tense (evidently aspect; see comment below), it certainly does not express ‘ownership’ in the same way as (83a).

The same contrast is clear in a grammar like French as well. Thus, the ‘semantic under-parsing’ we may observe in English cannot be reduced a syntactic distinction and to the fact that

come to an emphatic context, *she comes* to a non-emphatic one. Nevertheless, such a reasoning would stir up the question of why more grammars without verb movement don’t have something similar to the phenomenon of *do*-support.

the English finite auxiliary is directly substituted into T^0 , while the French one is not. In the discussion of French above, we noted that the use of an auxiliary as a lexical helper for case assignment is, in terms of alignment, more costly than verb movement to T, and that therefore the operation of an auxiliary must be forced by the semantic/functional need to express different tenses/aspects. Here, we discover that ‘Aux + V’-constructions might not only be more marked in terms of a potentially greater structural complexity (this depending on how a particular grammar chooses to integrate the auxiliary into the syntactic structure) but also because auxiliary constructions require some kind of semantic under-parsing which will violate FULL INTERPRETATION. One question for further research is then to ask what the positive counter-factors are which can overturn the markedness and lead to the use of an auxiliary verb in the first place. Obviously, this question does not only concern the syntax but also the semantics of corresponding constructions. Here, the point is that ‘Aux + V’-constructions, in opposition to simple-verb-constructions, usually convey a combination of both tense and aspectual information (or, they emerge in passive, as opposed to active, configurations). Hence, one key to their emergence might be precisely their ability to support a specification of T in more one than one dimension.

Let us go back to general typology. We have exhausted the structural options of uniform SVO-grammars which base generate the subject in Spec, ν P and then move it into Spec, TP. What does the system say about HEAD LEFT >> HEAD RIGHT grammars that base generate the subject outside the lexical layer, in Spec, TP?

First, if a grammar has verb movement into TP, then, no matter how we rank the constraints, base generating the subject therein can never be more harmonic than *moving* the subject from a lower base position in Spec, ν P. The logic here is the same as in the case of the ‘mirror image’ head-final TP. Both ‘ $[_{TP} S V-T [_{\nu P} t_S t_V O]]$ ’ and ‘ $[_{TP} S V-T [_{\nu P} _ t_V O]]$ ’ violate LEX HEAD EDGE, since the lexical head surfaces in a functional projection, both incur the same number of HEAD RIGHT violations, but on top of that ‘ $[_{TP} S V-T [_{\nu P} _ t_V O]]$ ’ violates GEN SUBJECT; as such, it is harmonically bounded by the alternative with a subject trace inside ν P:

(84) [TP S V-T [vP __ t_V O]] cannot win under any ranking:

	HEAD RIGHT	BRANCHR	CASE LEX	LEXHdED	GENSUBJ	HEAD LEFT
) a. [TP subj v ⁰ -T ⁰ [vP t _S t _V object]]	***			*		
; b. [TP subj v ⁰ -T ⁰ [vP __ t _V object]]	***			*	*!	

But let us think about HEAD LEFT >> HEAD RIGHT grammars which do not move the verb into TP. LEX HEAD EDGE gives a [vP __ v⁰ object]- configuration a structural advantage over [vP subj v⁰ object]. As we have discussed this in detail in chapter 2, the former does not violate LEX HEAD EDGE, whereas the latter does. We also know that the same does not apply to a head-final verb phrase, where LEX HEAD EDGE is satisfied regardless of the presence or absence of a VP-specifier. Therefore, in [head - complement]- grammars, and only there, the base generation of the subject inside the inflectional layer can harmonize the overall configuration in one particular way: if the verb surfaces inside the verb phrase, it can avoid the LEX HEAD EDGE violation which would result from a ‘subject-in- vP’- base generation.

Thus, what we are discovering here is a fourth way of satisfying LEX HEAD EDGE in a HEAD LEFT >> HEAD RIGHT grammar. This last choice does not alter uniformity, since it neither changes the directionality of the X-bar-skeleton, nor does it lead to an alteration of an ‘S - V - O’- surface order. Furthermore, it is necessarily tied to a willingness to disobey CASE LEX, since it is a choice which accomplishes LEX HEAD EDGE satisfaction by exiling the subject in a functional specifier position which is not lexically governed.

Therefore, the extended system allows for a third uniform SVO-type, which differs only slightly from the ‘[TP S T [vP t_S V O]]’-grammar discussed above. ‘[TP S T [vP __ V O]]’ also lacks verb movement into TP, and as such is a grammar which allows for the occurrence of free tense/aspect particles. The only distinctive feature is that ‘[TP S T [vP __ V O]]’ lacks the subject copy inside the verb phrase. The configuration is optimal under the ranking constellation given in (85). The following competition in (86) demonstrates how the selection is taken.⁷⁵

⁷⁵See appendix A for yet another ranking constellation which leads to the same grammar.

(85) Optimal ‘[_{TP} S T [_{VP} __ V O]]’: – verb movement/ subject in Spec, TP
 HEAD LEFT, BRANCH RIGHT, LEX HD EDGE >> GEN SUBJECT >> CASE LEX, HEAD RIGHT

(86) Base generating the subject in Spec, TP – *only* possible in a uniform SVO-grammar that lacks verb movement into TP:

Comparison with relevant candidates – all obey HEAD LEFT and BRANCHING RIGHT:

	LEX HEAD EDGE	GEN SUBJECT	CASE LEX	HEAD RIGHT
a. [_{TP} subj T ⁰ [_{VP} t _S v ⁰ object]]	*!		*	**
L b. [_{TP} subj T ⁰ [_{VP} __ v ⁰ object]]		*	*	**
c. [_{TP} subj v ⁰ -T ⁰ [_{VP} t _S t _V object]]	*!			***
d. [_{TP} __ T ⁰ [_{VP} __ v ⁰ [_{VP} subj t _V object]]]		**!		***

Now, to distinguish a ‘[_{TP} S T [_{VP} __ V O]]’- from a ‘[_{TP} S T [_{VP} t_S V O]]’- grammar is tremendously hard on empirical grounds. The only difference between the two types is the absence vs. presence of an abstract element. Any language like English or Edo, that is, uniform SVO-grammars without verb movement into TP such that they allow for the emergence of free T-particles, could fall under either of the two types. The nontrivial task is to formulate reliable tests that indicate either the existence or the non-existence of a copy in Spec, vP.

Sportiche 1988 argues that floated quantifiers accomplish just this, that they indicate the existence and location of a subject trace. According to Sportiche, quantifiers like French *tous* and English *all*, which quantify over the subject and can appear in post-auxiliary position (as in ‘they_i have all_i taken her advice’), provide direct evidence for the claim that the language base generates its subject inside VP.

One interesting observation in this respect might be the following: Yoruba is an African SVO-language which also has free T-particles, indicating that it lacks verb movement to T⁰. See (87) with the particle *yóò* expressing future tense (the example is provided by Oluseye Adesola) :

(87) Yoruba:

[_{TP} Alex yóò_T [_{VP} ___ ra iwé]].

Alex FUT buy book

“Alex will buy a book.”

Significantly, Yoruba lacks floated quantifiers (cf. Adesola, Baker (pc)). One could interpret this as an indicator for the lack of a subject copy in the Yoruba *vP*: it is only if a lower base position exists that a quantifier can be stranded. This would mean that Yoruba is of type ‘[_{TP} S T [_{VP} ___ V O]]’, while English is of type ‘[_{TP} S T [_{VP} *t*_S V O]]’.

But, while this gives us some room to explore in future research, we should be cautious. This is because the proposal that floated quantifiers decisively and cross-linguistically, indicate the existence of a VP-internal subject trace has been criticized (cf. Bobaljik 2001). If floated quantifiers are not linked to Spec, *vP* across all grammars, obviously, we cannot be sure that their absence in Yoruba tells us anything about the absence of Spec, *vP*.

From a broader perspective, considering that the distinction is so subtle, empirically, the emergence of ‘[_{TP} S T [_{VP} ___ V O]]’-grammars might play only a minor role. But conceptually, the factorial possibility of the pattern has some relevance.

One primary incentive of this overall investigation is to demonstrate how the impact of a constraint such as LEX HEAD EDGE (in its interplay with general alignment constraints and those that require a subject) can help us to understand why certain mixed patterns in phrase structure directionality are possible, while others are not. In chapter 2, we distinguished three major classes of such mixed types, all emerging in grammars that have a general preference for [head - comp] - orders. In this sense, it seems theory-internally important to give the overall system as much structural freedom as possible, such that we obtain some means to see how stable the results ultimately are. Let us consider, therefore, allowing the possibility that the subject, or better, the thematically highest argument, can be base-generated outside the lexical layer. Then, we have to recognize that this provides yet another structural opportunity of satisfying LEX HEAD EDGE in a [head - complement]-oriented grammar. Nevertheless, even then, the overall factorial typology still includes the ‘mixed’ types which we have derived in chapter 2. That is, the ‘right-peripheral specifier’- choice, the ‘head movement’-, and the ‘right peripheral head’-choice, all co-exist

together with the choice of exiling the subject in the functional layer – a welcome result.

Altogether, with ‘ $[_{TP} S T [_{vP} _ V O]]$ ’ and ‘ $[_{TP} S T [_{vP} t_S V O]]$ ’ on the one hand and ‘ $[_{TP} S V-T [_{vP} t_S t_V O]]$ ’ on the other, we have seen all uniform SVO-grammars that the system produces.⁷⁶

These three types share that the subject surfaces in Spec, TP in the basic word order. The last question to answer then is: Why can’t the subject stay inside the lexical layer? Why isn’t there any SVO-mirror image of ‘ $[_{TP} _ [_{vP} SOV] T]$ ’? This is also the question of why there is no ‘TSVO’-grammar. To recognize the cause thereof was the starting puzzle of this chapter.

The system’s answer to the question is simply this: While ‘ $[_{TP} _ T [_{vP} S V O]]$ ’ is certainly a possible structure, it does not constitute a possible type, since the structure is invariably less harmonic than the alternative which starts off equivalently but then moves the subject to Spec, TP.

‘ $[_{TP} _ T [_{vP} S V O]]$ ’ is the result of base generating, in a [head - complement] setting, the subject in a left-peripheral vP-specifier, and then moving nothing into TP, nor moving V within the lexical layer. Without verb movement into TP, the grammar is able to fill T^0 with independent particles. Hence, if ‘ $[_{TP} _ T [_{vP} S V O]]$ ’ were a possible type, then so should be a language with basic ‘T - S - V - O’-order. But, as the table in (88) shows us, there is no such language, because, crucially, ‘ $[_{TP} _ T [_{vP} S V O]]$ ’ is harmonically bounded by ‘ $[_{TP} S T [_{vP} t_S V O]]$ ’.⁷⁷

(88) $[_{TP} _ T [_{vP} S V O]]$ is harmonically bounded:

	GEN SUBJECT	HD LEFT	BRANCH R	HD RIGHT	LEX HD EDGE	CASE LEX
) a. $[_{TP} \text{subj } T^0 [_{vP} t_S v^0 \text{object}]]$				**	*	*
; b. $[_{TP} _ T^0 [_{vP} \text{subj } v^0 \text{object}]]$	*!			**	*	*

⁷⁶See appendix A for one further type, which almost equates with ‘ $[_{TP} S T [_{vP} t_S V O]]$ ’, the only difference being that the subject copy is a right-peripheral vP-specifier.

⁷⁷Be aware that ‘ $[_{TP} _ T [_{vP} S V O]]$ ’ is simultaneously harmonically bounded by ‘ $[_{TP} S T [_{vP} _ V O]]$ ’. Both structures violate HEAD RIGHT twice, both violate CASE LEX, both violate GENERALIZED SUBJECT once. But in addition to that, ‘ $[_{TP} _ T [_{vP} S V O]]$ ’ violates LEX HEAD EDGE.

Compare ‘[_{TP} S T [_{vP} t_S V O]]’ and ‘[_{TP} __ T [_{vP} S V O]]’: Both violate HEAD RIGHT twice. They also both violate LEX HEAD EDGE, since in neither of the two verb phrases, the verb surfaces at an edge of vP even if v_v does not leave the lexical layer. Furthermore, both violate CASE LEX.

‘[_{TP} S T [_{vP} t_S V O]]’ cannot obey CASE LEX for the reason discussed above. ‘[_{TP} __ T [_{vP} S V O]]’, on the other hand, violates CASE LEX with respect to T’s case assignment. This is because the case assignee in question (the subject if T assigns nominative, the object if T assigns absolutive) might be lexically *ep*-governed, but the lexical governor fails to be syntactically adjacent to T. Thus, so far, both competitors tie. But, then, on top of that, ‘[_{TP} __ T [_{vP} S V O]]’ violates GENERALIZED SUBJECT in TP, which ‘[_{TP} S T [_{vP} t_S V O]]’ does not.

Therefore, the conclusion to draw is this: ‘[_{TP} __ T [_{vP} S V O]]’ might be a possible candidate, but it is *not* a possible basic word order pattern, because the structure is harmonically bounded and, as such, cannot win under any ranking.

Altogether, the factorial typology derived by the extended system includes only SVO-grammars which either move the subject into Spec, TP or directly base generate it therein. As pointed out earlier, this gives us an interesting contrast between the possible constitution of an SOV-grammar on the one hand and an SVO-grammar on the other. Whereas SOV entails that the subject’s base position is inside the lexical layer and that this position can be maintained on the surface, any SVO-grammar must be a grammar in which the subject is at least in Spec, TP on the surface. Besides contributing to the understanding of how SOV- and SVO-languages often diverge beyond basic V/O-order, this fundamental distinction has another consequence for SVO: Free tense/aspect particles, where they emerge in a language which lacks verb movement into TP, *must* appear between the subject and the verb, and they can never precede the ‘S - V - O’-sequence. The result correctly captures the empirical findings.

This last point completes the illustration of the extended system and its impact on the distribution of TP (see more though on SOV in chapter 6). We have seen that the system not only contributes to a new understanding of how the syntactic structure and the dynamics of verb movement into TP can, in part, determine the morphological realization of the corresponding tense/aspect system (rather than vice versa); it furthermore explains why we do not find any ‘free standing’ tense/aspect particles, even if we embrace the conception that tense/aspect information is encoded

in syntactic functional heads. As a non-trivial bonus of the system, we should be critically aware that the overall factorial typology predicted does not include any ‘weird’ type that is unlikely to be attested (see Appendix A for proof). Hence, we do not have to pay for the gained explanations with the undesirable side effect of over-generalization.

Lastly, it is worthwhile to notice that an essential part of the answer to the ‘TSVO’-puzzle is played by the constraint LEX HEAD EDGE. While, here, its impact is not causing any ‘mixed directionality’ pattern, it infiltrates the basic word order typology in a more subtle way which leads to a contrast between ν P-head-final and ν P-head-initial grammars and their respective options of base generating and moving out the subject (it also leads, on a par with GENERALIZED SUBJECT, to an ultimate blocking of the unwanted ‘TSVO’; see previous footnote.).

More generally, we have seen that all constraints proposed in chapter 2 play a crucial role not only in the derivation of basic phrase directionality, but they furthermore have a direct impact on the distribution of systematic movement within the verbal extended projection. In the next chapter, we will see that this impact immediately carries over to nominal extended projection and systematic noun movement therein.

Before we go there though, as a last point, I want to briefly discuss one alternative Optimality theoretic perspective onto the inflectional layer, that is, Vikner 2001. This can be seen as an extended footnote, demonstrating more explicitly that, despite the vast progress in the Optimality theoretic research on basic word order typology and the explicit consideration of the role of a syntactic inflectional layer therein, there was still a need for an answer to the questions which we have raised and addressed in this chapter.

3.7 Why do it my way?

Consider Vikner 2001. In section 3.1 above, we noted that the corresponding Optimality theoretic system, without intending to solve the ‘*TSVO’-puzzle, in fact excludes the unwanted type. But unfortunately, it *also* excludes the insertion of free tense formatives in any other language without verb movement. We then want to understand why this is the case.

To begin with, be aware that Vikner’s system is specially designed in order to account for the absence vs. presence of overt verb movement into the inflectional layer. Rather than focusing on the connection thereof to the absence vs. presence of free tense/aspect particles, Vikner instead

links +/- verb movement directly to the morphological strength of agreement, more precisely to the strength of person agreement. For that matter, IP is here divided into PersP > TP (see Vikner 2001:140).⁷⁸

Now, why is there no room for the emergence of free T-particles even in the absence of V⁰-movement to T⁰, or to Pers⁰ (through T⁰)? The logic goes like this: First, in parallel to the assumptions made here, TP is projected even in the absence of overt movement (cf. Vikner 2001:147 (tableau 21)). Furthermore, Vikner axiomatically assumes that functional heads are universally left of their complement (Vikner 2001:143), and distinguishes several other points:

- (89) Cf. Vikner 2001:145,146, a functional head may
- a. be radically empty, in which case it violates the constraint OBLIGATORY HEADS (“violated by every completely empty X⁰”; an adaptation of Grimshaw 1997:377, Haider 1988:101)
 - b. contain only a feature, e.g. Pers⁰ and Tense⁰, but no phonetic material, in which case it violates none of OBLIGATORY HEADS, PRED-RIGHT (“violated by any V⁰ or Adj⁰ which is left of its XP-sister”), X⁰-RIGHT/X⁰-LEFT (“violated by any head which is left of its XP-sister / right of its XP-sister”)
 - c. contain phonetic material (or a trace thereof), in which case it violates X⁰-RIGHT and possibly also PRED-RIGHT.

Given (89), we get a scenario in which filling T⁰ by an abstract feature violates *no* alignment constraint, whereas filling it by phonetic material (or a trace thereof) violates at least X⁰-RIGHT. From this, we can infer the following:

Under a ‘V-in-situ’-ranking, the insertion of a tense/aspect particle into T⁰ is harmonically bounded by the candidate with an abstract feature therein. Here is why: A tense/aspect particle constitutes phonetic material, meaning that it must violate X⁰-RIGHT. On the other hand, having only an abstract feature in T⁰ violates nothing. Certainly, in addition to the alignment constraints mentioned above, Vikner’s system has constraints which enforce verb movement, and thus, phonetic material/a trace in T⁰. These are constraints on distinctive marking of person features and, crucially, on checking them (see Vikner 2001:141). If the marking/checking-constraints are

⁷⁸Note that Vikner 2001 is not concerned about the derivation of subject movement into IP, but we might assume that this is determined by an additional constraint interaction.

ranked appropriately, then we get the situation that the alignment constraints are violated in PersP and TP, by presence of phonetic material (the verb), or by presence of a trace. However, the system *only* accepts this in the case of syntactic verb movement. In the absence thereof, which means that the marking/checking-constraints are low ranked, then there is no component of the system which favors phonetic material in T⁰, only one that disfavors it. Consequently, having only an abstract feature in T⁰ becomes invariably more harmonic than inserting a T-particle: The T-particle violates X⁰-RIGHT, the abstract feature violates nothing.

But then, at best, we could have free T-particles in grammars *with* verb movement, not in those without verb movement where we actually want them. Altogether, Vikner's system excludes the possibility of 'T_{part} - S - V - O', but at the cost of predicting the total impossibility of free tense/aspect- particles in 'V-in-situ'- languages.

To be fair, Vikner has other motives in his analysis. As said, he intends to derive a causal connection between strength of affixal agreement morphology and syntactic verb movement. This perspective is part of a broadly discussed tradition. Vikner is not the first who has argued that verb movement, and the absence thereof, is driven by morphologically 'rich' vs. 'poor' agreement on the verb (see Pollock 1989, among many others). The strongest assessment of the correlation was to assume a bidirectional implicational universal (= the 'Rich Agreement Hypothesis' in its strongest form; e.g. Rohrbacher 1999, Vikner 1997, see Bobaljik 2002b:3 for terminology and discussion):

(90) Strongest version of the 'Rich Agreement Hypothesis':

"If and only if agreement morphology is rich, a grammar has (overt) verb movement into the inflectional layer."
(where 'rich' may be defined in various ways)

Nevertheless, the 'Rich Agreement Hypothesis' has faced strong dispute, and has been falsified by, for example, Bobaljik 2002b:4, who replaces it with a weaker unidirectional implicational universal:⁷⁹

⁷⁹Note that Bobaljik 2002b explains the assumed uni-directional implication by a correlation whose underlying perspective is parallel to the current proposal. That is, Bobaljik argues for a determination from syntax to morphology (and

(91) “If agreement morphology is rich, then (overt) verb movement to Infl occurs.”

Importantly, Bobaljik presents counter-examples from Germanic languages such as Tromsø and Faroese, which falsify the other half of the bidirectional implication. That is, Bobaljik’s evidence falsifies the following unidirectional implication:

(92) “If agreement morphology is weak, then there is no overt verb movement”.

Bobaljik provides an analysis which is designed in order to account for the first uni-directional entailment in (91). It motivates why overt movement occurs in languages with rich morphology (rich is here defined as “verbal inflection is rich if and only if finite verbs may bear multiple distinct inflectional morphemes”; Bobaljik 2002b:5). However, the analysis does not yet explain how +/- movement is triggered in grammars with poor morphology. In accordance with (91), such grammars can either move the verb to Infl, or not. Hence, there is a missing part of how this is determined. Furthermore, be aware that the approach requires a structural interpretation of, for example, German, in which Infl^0 , more precisely AgrS^0 and T^0 , are to the right of VP, and movement occurs there into. This is because German’s morphology is rich under Bobaljik’s definition (e.g. *küss - t - est* ‘kiss-PAST-2pSg; compare Bobaljik 2002b:3, 8, 15). Thus, there must be verb movement, and, in turn, T^0 and Agr^0 must be on the right of their complements in order to correctly account for the basic word order in subordinated clauses.⁸⁰

not vice versa). In short: ‘a more complex syntactic structure’ (= Infl is split into AgrS and T, instead of constituting one single node) Υ ‘a more complex morphological structure’ (= rich inflection = the finite verb may bear multiple distinct inflectional morphemes) Υ ‘necessary verb movement’.

With respect to the first entailment, there is a hidden problem: Strictly speaking, the more complex syntactic structure just *allows* for multiple inflectional morphemes, hence rich inflection, it does not enforce it. But then, it is possible that a grammar splits Infl, but still, the finite verb never bears rich inflection, and hence there is no trigger for necessary verb movement (in which case the explanation for the uni-directional breaks down).

⁸⁰Bobaljik 2002b does not discuss the necessity of right-peripheral functional heads. Keep in mind here that the finite verb surfaces at the final end of the clause in German subordinated clauses. If V^0 moves as high as into a left-peripheral AgrS^0 , then any object/PP must move even higher, otherwise it would not surface in front.

This isn't necessarily problematic, though it clashes with Vikner 2001's view that functional heads are universally on the left. At the same time, German has rich agreement morphology also in Vikner's assessment ("person morphology is found in all tenses"; Vikner 2001:12; 15 on German). Vikner ultimately argues against (91), and defends the second unidirectional implication in (92), defeating arguments on Tromsø and Kronoby which could falsify the generalization (cf. Vikner 2001:11f).

Vikner's analysis is strong in the sense that it covers all Germanic languages, explaining why a subset of them have verb movement and the others don't. It is furthermore complete by motivating entirely when a language moves V to T/Pers, and when it doesn't. That is, if a grammar doesn't distinguish person morphology in all tenses, then it never has verb movement into the inflectional layer (given the constraint ranking). On the other hand, if the grammar has rich agreement morphology instead, then, simplifying, it has verb movement if the 'checking'-constraint outranks the alignment constraints, and it doesn't if the ranking is the reverse (compare Vikner 2001:50).

As appealing as Vikner's system is, there is still a certain oddity to its ultimate assessment of the difference between surface SVO-languages and surface SOV-languages. Given that in Vikner's understanding, functional heads are universally on the left, then *all* languages with rich agreement morphology but with surface SOV-order must be languages without syntactic verb movement. Surface SVO-languages with rich agreement morphology, on the other hand, can be grammars with or without verb movement. If one's general intent is to reveal that syntactic movement is fundamentally co-driven by agreement morphology, then this outcome is at least quite surprising.

But, there is a more serious weakness. Given Vikner 2001, no grammar with poor (person) agreement morphology can ever have syntactic verb movement to Infl. Now, as we will see in chapter 6, the African Kru languages seem to falsify this entailment (cf. the description of Koopman 1984); and significantly, they do this in a less subtle way than the Germanic cases raised by Bobaljik 2002b. Vata and Gbadi do not express *any* agreement, and thus have 'poor'

Bobaljik 2002a:230ff explicitly argues for the presence of right-peripheral functional (and verbal) heads in Germanic OV-languages, as part of his explanation of Holmberg's Generalization.

agreement in practically any sense. Nevertheless, word order variation strongly implies that the languages have verb movement into the inflectional layer.

Beyond the task of solving the ‘*TSVO’-puzzle, it is also concerning the above that I have featured in this chapter another perspective into the inflectional layer, one in which the syntax has a partial impact on the morphology and not vice versa. Crucially, this impact is on the tense/aspect morphology, focusing away from agreement. Furthermore, the current system explains the absence vs. presence of systematic verb and subject movement by a conflict between alignment constraints, GENERALIZED SUBJECT and a constraint on case assigners. In the next chapter, we will now see that recognizing case as a factor involved will have an explanatory impact beyond movement in the verbal domain.

Chapter 4 – Getting in line: Nouns and genitive possessor phrases

This chapter will reveal that, without any major additions, the system established in the two previous chapters captures a systematic connection between the verbal and the nominal domains. This connection concerns both the directionality and the distribution of lexical head movement, where both factors are determined by the same set of constraints, {HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE, BRANCH RIGHT, GEN SUBJECT, CASE LEX}. We will see that a simple application of the system to the domain of nominal extended projections leads to typological predictions about the word order of nouns and their (possessor) genitive phrases which appear to match, and as such explain, the empirical findings.

The chapter is structured as followed: Section 4.1 introduces the chapter's theme, which is a puzzle concerning the word order typology of a nominal head and a genitive-case-bearing (possessor) phrase. The section draws an exact parallel between nominative case assignment in verbal extended projections and genitive case assignment in nominal ones. This enables the application of the extended system to the 'genitive-in-NP'-structure. In the subsequent sections, we will discuss in greater detail how the system predicts the contrastive typological distribution. 4.2 explains the dominance of pre-nominal genitive in SOV-languages. 4.3 distinguishes the pre-nominal genitive that is possible in uniform SVO-languages without verb movement into TP. The section furthermore illustrates why such grammars can also be languages with a post-nominal genitive. 4.4 continues by taking a parallel look at uniform SVO-languages that do have verb movement into TP. Section 4.5 discusses the emergence of a post-nominal genitive in '[head - complement]'- grammars with head-final vP (i.e. German, Persian). Finally, 4.6 explains why VSO- and VOS-languages always have a post-nominal genitive.

The chapter only considers genitive phrases that constitute possessors. The expectation is that the account as presented carries over to other genitive phrases as well, since the impact of CASE LEX concerns case-marking in general, and thus should be valid for all genitive case-marking in noun phrases. Nevertheless, there might be other factors that come into play such as thematic linking, in derived nouns, which go beyond the possible scope of this thesis.

4.1 N/gen-P-order and V/O directionality

What determines the relative order of a noun and a dependent genitive phrase? Quite surprisingly, when we consider some uniform SVO-languages, such as the ones in (1) to (4), we see that they do not share the same directional choice in NP as in VP:

(1) Swedish (cf. Holmes & Hinchliffe 1997:43):

- | | | | |
|----|-----------------------------|----|-----------------------------|
| a. | gårdens ägare _N | b. | *ägare _N gårdens |
| | [farm] _{Gen} owner | | owner [farm] _{Gen} |
| | “the farm’s owner” | | |

(2) English:

- | | | | |
|----|-------------------------------|----|------------------------------|
| a. | the man’s book _N | b. | *book _N the man’s |
| | [the man] _{Gen} book | | |

(3) Edo (Syntax Seminar, Rutgers University, Baker 1998):

- | | | | |
|----|-------------------------------|----|-------------------------------|
| a. | èbé _N né!né òkpíá | b. | *né!né òkpíá èbé _N |
| | book [the man] _{Gen} | | [the man] _{Gen} book |
| | “the man’s book” | | |

(4) Icelandic (data cf. Thráinsson 1994:167):

- | | | | |
|----|---|----|---|
| a. | dúkkur _N litlu stelpnanna | b. | *litlu stelpnanna dúkkur _N |
| | dolls [little girls-the] _{Gen} | | [little girls-the] _{Gen} dolls |
| | “the little girls’ dolls” | | |

In the Mainland Scandinavian languages such as Swedish, and in English, the possessor phrase bearing genitive case (here and below:= *gen-P*) precedes the nominal head. But in the African language Edo, and also in Icelandic, the *gen-P* follows the noun. Seeing the data in isolation, we could wonder if either of these are truly exceptional cases. However, the typological work on the topic shows that the overall distribution is even more intriguing.

Dryer 1992:91 compares on a broad scale how **VO**-languages order a noun and a dependent genitive phrase, and how **OV**-languages do it. He observes a substantial contrast

between the two groups. On the one hand, out of 124 genera of OV-languages, only 12 have ‘N - *gen-P*’-order; the remaining 112 having ‘*gen-P* - N’-order. On the other hand, we can find 30 genera of VO-languages with ‘*gen-P* - N’-order and 63 genera with ‘N - *gen-P*’-order. Why do OV-languages most frequently choose the pre-nominal genitive (- 90%), whereas VO-languages *tend* to prefer the post-nominal but more than 30% have a pre-nominal genitive?

Under a generative grammar-perspective, if we were to consider this as being about ‘subjects’, subjects permit themselves to be analyzed as *specifiers* (see Chomsky 1986:192ff, Stowell 1991:106). That is, taking into account the strong universal tendency towards *left*-peripheral specifiers, we could argue the following. We cross-linguistically identify a *gen-P* as a type of a subject, not by thematic association (perhaps) but with respect to case: we draw a parallel between case assignment to a subject in the verbal domain (*nom, erg/abs*) and genitive assignment to a possessor in the nominal domain. Thus, we pair the *gen-P* with the verbal subject rather than the object. Consequently, it should be no surprise that a *gen-P* precedes the noun in an SVO-language.

The reasoning is supported by one additional aspect: a closer look at the VO-group reveals that neither VOS- nor VSO-languages appear to have pre-nominal genitive, but rather they have overwhelmingly ‘N - *gen-P*’-order (see Dryer 1992:91, fn.10, cf. Dryer 1991)¹. So, it seems that where the subject follows the verbal head in the verb phrase, the *gen-P* follows the nominal head in the noun phrase.

Nevertheless, whether we compare the genitive phrase with the verbal subject or the object, the puzzle with respect to the SVO-languages remains either way. As illustrated in the data sample in (1 - 4), not all SVO-languages prefer ‘*gen-P* - N’-order. On the contrary, both the pre-nominal and post-nominal genitive are common in SVO-languages (Dryer 1992:fn.10).

Suppose that we are still interested in a unified treatment of genitive bearing possessor phrases and in the assumption that they are always in a specifier position, since this opens up a window to account for the emergence of pre-nominal genitive in SVO-languages. We need, then, an explanation for all those SVO-grammars within the 63 genera that have ‘N - *gen-P*’-order.

¹Compare also Hawkins’ 1983 Expanded Sample of 336 (+1000) languages, where we find only one language in the VOS/VSO-group (Hawkins’ V-first) with pre-nominal *Gen*; this is the VSO language Milpa-Alta-Nahuatl, which belongs genetically to an SVO-group.

What we need is an approach which gives us an explanation of:

- (i) Why does the genitive phrase follow the noun in many SVO-languages, even if the *gen-P* is in a specifier?
- (ii) Why do VSO- and VOS-grammars so systematically have a post-nominal genitive? Why isn't there any emergence of a *gen-P* in a left-peripheral specifier, which ends up preceding the noun?
- (iii) How is it at all possible that a few OV-languages have a post-nominal genitive, and can we formulate any structural pre-conditions for the occurrence of this pattern?

4.1.1 The solution to the '*gen-P/N*'-puzzle

The only additional assumptions needed in order to answer all of the above questions is to admit that (a), genitive case assignment in the nominal domain is indeed restricted to a (long-distance) [*spec*, head]-relation; and (b), the case assigner of genitive in nominal extended projections is a functional head, an extension of N^0 . Note that (a) and (b) are nothing more than the simple recognition of the following structural parallel in case assignment:²

- (5) Parallel between nominative and genitive case assignment:
Gen is to N what *nom* is to V. Both are functional cases, in the sense that the case assigner is a functional extension F^0 of the lexical head (N/V)'s extended projection.

What does the structural equation grant us? It enables CASE LEX to apply to both the verbal and the nominal domain in a uniform way. In general, both domains are not only manipulated by the alignment constraints HEAD LEFT, HEAD RIGHT, LEX HEAD EDGE and BRANCHING RIGHT, but

²Be aware that to say that grammars cross-linguistically assign *genitive* case to a dependent (possessor) noun phrase is certainly an abstraction. While this is common terminology in the literature which looks at languages with morphological cases, not all of these grammars in fact elect genitive as the case assigned in the nominal domain. As just one example, take the Eskimo languages (cf. Bok-Bennema 1991:30f), in which the genitive case assigned to possessor phrases in noun phrases is morphologically identical to the ergative case occurring on subjects of transitive verbs.

Keeping the abstraction in mind, if not made explicit otherwise, I continue to call the case a grammar assigns to a possessor phrase genitive case.

also by the needs imposed through CASE LEX. Now, if genitive case is assigned to a possessor by a functional head (call it $F_{[+gen]}$), then CASE LEX will demand structural closeness between this functional case assigner and a helping lexical head, here N^0 . This is because $F_{[+gen]}$ alone is unable to lexically *ep*-govern its case assignee and with it to obey CASE LEX – just as T is unable to satisfy CASE LEX without v 's (or V's) help. Furthermore, in both the verbal and the nominal domain, achieving the requirement of closeness is complicated by the fact that the case in question must be assigned to a specifier. Just as we have observed that Spec, vP blocks syntactic adjacency between T and v in a [head - complement]-setting, so does Spec, NP for $F_{[+gen]}$ and N under the same head directionality. In both domains, this can be resolved by different configurations, involving either lexical movement or not, and being independently preferred or rejected by the alignment constraints.

On the other hand, *unlike* in the verbal domain, specifier positions, and for that matter 'subjects', have little relevance in nominal extended projections apart from case assignment. This is because GENERALIZED SUBJECT is mute here. Consequently, there is nothing that favors the creation of specifiers per se, and as such, triggers the 'obligatoriness of subject positions' in the same way as in the verbal domain.

Altogether, it is the similarity and imbalance of constraint impact (*all constraints but* GENERALIZED SUBJECT are active in the nominal domain), which, in an intriguing way, leads to a factorial typology which becomes the key to answer the questions raised in (i)-(iii). Let me summarize up front how this works out.

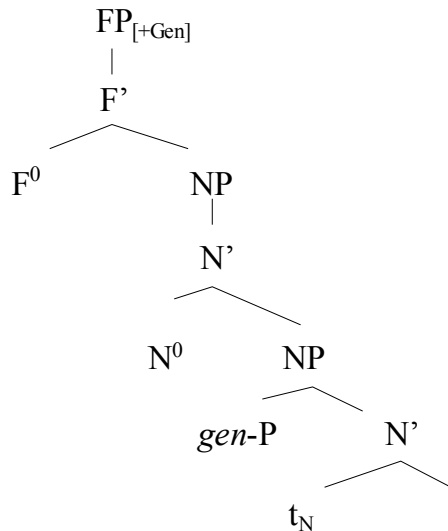
The fact that SOV-languages overwhelmingly have pre-nominal genitive, and both VSO- and VOS-languages generally have post-nominal genitive, while SVO-languages more or less evenly divide between the two basic orders, is directly related to the languages' behavior in the verbal domain. These differences are connected to the following contrast:

First, we have seen in chapter 3 that uniform SVO-languages either require verb movement into TP or reject it. Determination of the optimal choice involves the relative ranking of CASE LEX and HEAD RIGHT. Crucially, this ranking determines within the noun phrase the position of the genitive phrase, and whether lexical noun movement takes place or not. We will see that the system distinguishes only three possibly optimal head-initial configurations, which result in two different word orders; all other structures are harmonically bounded. Two of them

can win in a uniform SVO-grammar: The first (cf. (6b) below) places the genitive phrase into the specifier of the functional case assigner, leaving N^0 in situ and resulting in pre-nominal genitive. The configuration grants the least HEAD RIGHT violations (in a [head - comp]-setting), but at the cost of violating CASE LEX, since the genitive phrase is not lexically *ep*-governed. The second choice, given in (6a), locates the genitive phrase in Spec, NP, but then moves N^0 across into a second higher NP-shell. This guarantees the existence of a lexical head, syntactically adjacent to $F_{[+gen]}^0$, which governs the case assignee. Thus, it spares CASE LEX, but only through an increase in HEAD RIGHT violations:

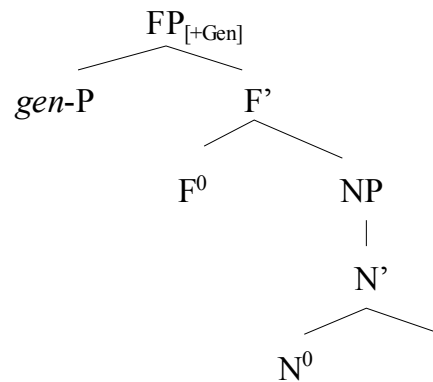
(6) The two configurations of genitive case assignment possibly chosen by an SVO-language:³

a. ‘N - *gen-P*’: violating 3H HEAD RIGHT



b. ‘*gen-P* - N’:

violating 2H HEAD RIGHT, 1H CASE LEX



³Given that (6a) and (6b) are the only possible optima in SVO-grammars, therefore N never moves to $F_{[+Gen]}$, at least not to optimize the configuration of genitive case assignment.

(6a) violates HEAD RIGHT three times, whereas (6b) does so only twice but then violates in addition CASE LEX. As such, the selection between the two structures is determined by the relative ranking of HEAD RIGHT and CASE LEX.

Now, not only does the system capture that either (6a) or (6b), and with it post- or pre-nominal genitive, can be the optimal choice of a uniform SVO-grammar, it also derives another generalization, which is the following (uni-directional) implication:

(7) Typological generalization I:

If a uniform SVO-language has systematic verb movement into TP, then it has noun movement across any genitive phrase in Spec, NP:

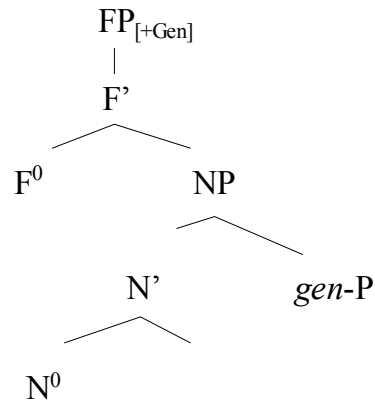
- '+ V-movement into TP' Y 'N - *gen-P*'
- 'Verb movement entails noun movement'

That is, the factorial typology allows for a uniform SVO-language that lacks verb movement to have either '*gen-P* - N'- or 'N - *gen-P*'-order, since both HEAD RIGHT >> CASE LEX and CASE LEX >> HEAD RIGHT are among the ranking options that cause such types. However, a uniform SVO-grammar which systematically moves the verb into TP, always has post-nominal genitive, because the type's derivation necessitates the CASE LEX >> HEAD RIGHT ranking. Therefore, languages like Icelandic ('+ V-to-I-movement', cf. Vikner 1995, 2001) and French are expected to have 'N - *gen-P*'-order.

Why is the option of pre-nominal genitive unavailable in VOS- and VSO-languages? The system's answer is the following:

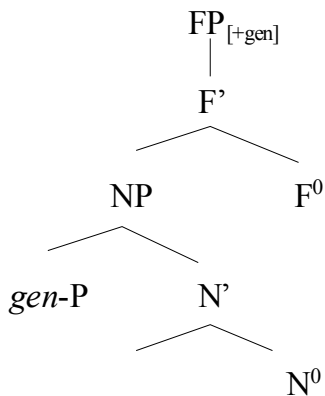
In the case of VSO, all possible ranking constellations once more involve CASE LEX >> HEAD RIGHT, such that (6a) must be the winner, and with it 'N - *gen-P*'-order. VOS recognizes a second alternative: BRANCHING RIGHT is so low ranked that the optimal solution is to place the *gen-P* in a right-peripheral NP-specifier. This is then in parallel to a right-peripheral lexical specifier in the verbal domain. The surface result is again 'N - *gen-P*'-order:

- (8) ‘N - *gen-P*’ by a right-peripheral lexical specifier in a VOS-grammar:
violating 2HHEAD RIGHT, 1HBRANCHING RIGHT



Now, what about OV-languages and their substantial resistance to having a post-nominal genitive? First, in HEAD RIGHT >> HEAD LEFT -grammars, and for that matter, in uniform SOV-languages, the system derives only one possible optimal configuration, which locates the genitive phrase in Spec, NP, and then satisfies CASE LEX without any noun movement. If both $F_{[+gen]}^0$ and N^0 are final, then N^0 can lexically govern the *gen-NP* from a position that is syntactically adjacent to $F_{[+gen]}^0$ without further ado:

- (9) The one configuration of genitive assignment chosen by uniform SOV-languages:
violating 2HHEAD LEFT



Given the exclusive optimality of (9), the surface result is always ‘*gen-P* - N’-order. How then, lastly, is it in rare cases possible for a *vP*-final grammar to have post-nominal genitive? Only in

the case that the language is in fact a non-uniform OV-language in the sense that it has left-peripheral functional heads in the verbal domain, does the system still allow for the occurrence of ‘N - *gen*-P’. That is, in a grammar such as German or Persian, with HEAD LEFT >> HEAD RIGHT ranking, the optimal choice can be the configuration we have seen in (6a), and not (9). This leads to post-nominal genitive, despite the fact that we are dealing with an OV-structure. Therefore, the system derives a second generalization:

(10) Typological generalization II:

- An OV-language can have ‘N - *gen*-NP’-order only if
 it also has left-peripheral functional heads in both the verbal and the nominal domain.
 - ‘Left-peripheral N entails left-peripheral F over V’

Thus, whereas (S)VO-languages can have pre-nominal genitive without any mixed head/complement-directionality, OV-languages with post-nominal genitive must have [head - comp]-patterns *throughout* the grammar – not only in their nominal but in their verbal extended projections as well.

Altogether, the system’s factorial typology predicts the following empirical typology:

(11) Expectations in the nominal domain – in relation to the verbal domain:

- i. SVO-languages without systematic verb movement into TP can have either pre-nominal or post-nominal genitive.
- ii. SVO-languages with verb movement into TP must have ‘N - *gen*-P’-order.
- iii. VSO- and VOS-languages must have ‘N - *gen*-P’-order.
- iv. SOV-languages must have pre-nominal genitive, unless they have left-peripheral functional heads in both the nominal and the verbal domain.
- v. Pre-nominal genitive in SVO-languages is a *functional* specifier.
- vi. Pre-nominal genitive in SOV-languages is a *lexical* specifier.
- vii. Post-nominal genitive is always a *lexical* specifier.

In general, the system encounters a parallel between nominative case assignment to a verbal subject and genitive assignment to a nominal possessor phrase. Just as the nominative subject can be case marked either in Spec, ν P or in Spec, TP, so can a genitive phrase be case marked either in Spec, NP or in Spec, DP.

The following sections illustrate the derivation of these results in greater detail, also asking how well they match the empirical findings. Though before we do this, let us discuss in brief the identity of the functional head that assigns genitive case.

4.1.2 D assigns genitive case

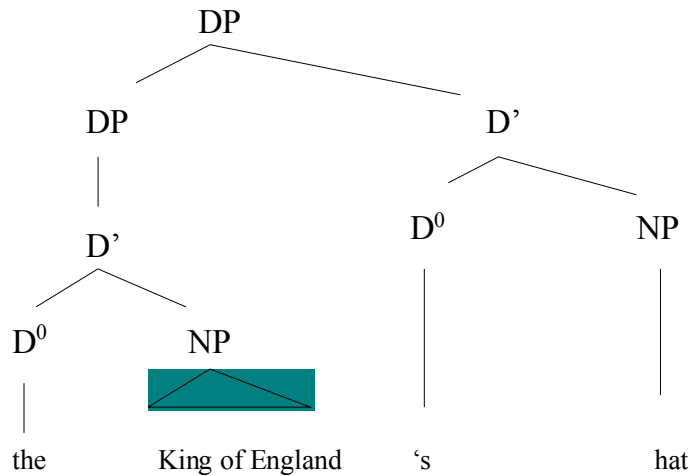
My hypothesis is that $F_{[+gen]}$ is D. That is, the system extrapolates upon Abney 1987 and his analysis of English noun phrases. Abney 1987's analysis rests on the assumption that (a), NPs are in fact complements of determiners (see also Fukui & Speas 1986, Stowell 1989, followed by many others; see Grimshaw 1991 on the assumption adopted here that D is a functional extension of N); and that (b), the English genitive possessor phrase is located in Spec, DP, a presence which influences the possible content of D^0 . More precisely, I will follow Franks 1995:13 (among others), and assume the following adaptation: In English, D^0 can be filled by a determiner, a demonstrative or a possessive pronoun (the latter cf. Giorgi & Longobardi 1991:155, 161). In a pre-nominal genitive construction, D^0 contains the clitic *-s*, which assigns genitive case to the possessor phrase in Spec, DP:⁴

⁴Abney 1987:20 himself does not assume that the *-s* clitic is in D. Rather, he takes D^0 to be filled by Agr-features. Furthermore, I follow Abney 1987, Grimshaw 1990:70ff in the assumption that English *of*-phrases are PPs. See a further comment on this choice in section 4.3.

(12) English (cf. Franks 1995:13):

[_{DP} [the king [of England]]]’_{SD} [_{NP} hat]]

‘[possessor] - **-s** - noun’



The analysis of *-s* as occupying D^0 captures on the one hand that *-s* cliticizes onto the entire genitive phrase. In (12), the genitive phrase contains itself a PP-complement; the *-s* clitic follows this PP. It also explains to us why the genitive phrase is incompatible with a determiner or a possessive pronoun. Both are banned by *-s*, just as a determiner bans a possessive pronoun and vice versa:

(13) English:

- a. [the butler]’_{SD} pillow
- b. the_D pillow
- c. his_D pillow
- d. *[the butler]’_{SD} the_D pillow; *the_D [the butler]’_{SD} pillow
- e. *[the butler]’_{SD} his_D pillow; *his_D [the butler]’_{SD} pillow
- f. *the_D his_D pillow; *his_D the_D pillow

Now, I extrapolate the idea that D is cross-linguistically the head that assigns genitive case to a possessor phrase; where the system in turn predicts that the possessor case assignee can surface

either in Spec, DP or in Spec, NP, as it predicts that T's case assignee, the nominative subject, can surface either in Spec, TP or in Spec, ν P. But why precisely D? Considering the huge body of generative work on noun phrases, more functional heads besides D have been proposed (see, for example, Bernstein 2001, Longobardi 2001 for an overview). What motivates the current identification?

My answer is primarily a conceptual one which takes up the theoretical questions we have asked about the inflectional layer in the previous chapter, and the 'IP'/TP-perspective we have defended. That is, if there is an 'independent' functional head assigning genitive case, then shouldn't we generally see its morphological realization in one form or another, one form crucially being an independent particle? Taking this concern seriously, the point is that it is not at all easy to gather conclusive evidence for the simultaneous and more general existence of more than one functional head, each one possibly filled with an independent particle, say D and further ones located between D^0 and N^0 . Be aware that I categorically exclude K as a candidate for $F_{[+gen]}$. K^0 , which has been proposed as a functional head erected above D^0 (cf. Bittner & Hale 1996:7, Travis & Lamontagne 1986), is itself a case marker. That is, it instantiates the case which is assigned *to* the noun phrase from outside. It is natural to expect that a case marker cannot itself assign case to another phrase, which means that K is intrinsically incapable of assigning genitive case.

Searching for heads between D^0 and N^0 , there is, on the one hand, the work initiated by Ritter 1991a, b who proposes (in an analysis on Hebrew noun phrases) a head Num. Ritter, however, primarily identifies Num^0 as a target of noun movement, and she provides evidence that the noun moves across a genitive phrase into a position *below* D^0 . But, then, considering the system introduced here, this noun movement could in fact be targeting a second *lexical* NP-shell, due to the goal of moving the lexical noun-head into a genitive governing position that is syntactically adjacent to D, the latter being the primary case assigner of genitive (cf. (6a) with $F_{[+gen]} = D$).

On the other hand, there is an abundant literature on Romance noun phrases, which on the grounds of adjective distribution, argues for several noun movement targets, all between D and N's base position (Cinque 1990a, 1993, 1999, Crisma 1993, Bernstein 1991, Valois 1991, among many others). However, as noted by Longobardi 2001:597, the primary success of that

research is to have established the existence of a potentially universal hierarchy of adjectives, which is respected cross-linguistically and among which the noun seems to take hierarchically different positions in different languages. This does *not* necessarily mean that the distinct localizations of the noun correspond to distinct (functional) heads between N and D, all simultaneously present universally. Another suitable interpretation is that, while grammars generally respect the hierarchy in their mapping onto the syntactic structure, they nevertheless choose different cut-off points with respect to the exact partition relative to the noun. For Longobardi, the string of post-nominal adjectives provides more conclusive evidence for at most *one* noun target between D and N's base position.⁵

Once more, this target position does not have to be a functional extension. A pre-adjectival position could likewise be caused by noun movement inside the lexical layer, in reaction to a language specific choice of base generating particular adjectives in Spec, NP such that the impact of LEX HEAD EDGE and/or CASE LEX enforces noun movement across the specifier into a position that is at the edge of lexical NP and syntactically adjacent to D.

Let me briefly clarify my standpoint on adjectives and the aspect of language-specific choice in their syntactic integration. Intriguingly, once we consider the broader typology, it appears that languages choose rather diverse ways of projecting an adjective into the nominal extended projection. This is because adjective directionality varies to a high degree: According to Dryer 1992:95, the ordering of noun and adjective does not form a 'correlation pair' at all with V/O-order. For that matter, the current take on the base generation of adjectives is to acknowledge multiple options. On the one hand, if the adjective itself projects a phrase, and thus aligns inside the nominal extended projection as an AP, then grammars can divide on whether they will adjoin such an AP to NP, or to N-bar (or even locate it in Spec, NP). On the other hand, it is also possible for a grammar to not let the adjective project, in which case A⁰ directly adjoins to N⁰ (see Basque as one potential example in 4.2). I take it that grammars eventually choose quite idiosyncratically between these options, which then results in an absence of systematic

⁵As Longobardi 2001:597 puts it: "[While] four intermediate heads are indicated as potential targets for N-raising [...] no individual language provides evidence for more than one such head, at least on the grounds of N-movement [...], so their number actually results only from a comparative perspective. [fn. 24:] In other words, language internal alternations concerning the surface appearance of N among the various positions [...] are likely not to exist."

distribution. Be aware, however, that this does not exclude the possibility that there exists a certain hierarchy between adjectives, which restricts how multiple adjectives have to be ordered with respect to each other. We can also still expect that, within a particular mapping dimension (say adjunction of AP to NP), the grammar's ranking of the alignment constraints enforces a consistent directionality (for example, adjoining AP to the left of NP, due to the impact of BRANCHING RIGHT).

Returning to the question of whether there is (cross-linguistically) a functional extension F between D and N, clearer evidence would be found in instances in which both D^0 and F^0 are simultaneously filled by independent heads. But the task of providing such cases is complicated by another empirical peculiarity: not everything that resembles an 'article' is necessarily a head, or a functional extension of N. That is, while determiners of the *the*-kind might be cross-linguistically instances of D-heads, the same does not always hold for demonstratives, nor quantifiers, nor possessive pronouns. All three classes can also be phrasal.

First, determiners should not be equated with demonstratives without further consideration. As pointed out by Dryer 1992:121, while in some languages, such as English, determiners and demonstratives seem to belong to the same category, it is about as common that they belong to different ones. In the latter case, demonstratives appear to be grouped with noun-modifying adjectives. Now, we just pointed out that grammars might vary greatly with respect to the syntactic integration of adjectives. This alone runs contrary to the idea of $F_{[+gen]}$. Furthermore, whichever structural integration a grammar implements, if the demonstrative is an adjective, it evidently does not instantiate a functional extension F^0 of N.⁶ As a phrasal AP, the demonstrative could adjoin on a par with other APs, or alternatively, it could move into or be base generated in Spec, DP. For a generative 'movement-to-Spec, DP'-approach to Romanian and Modern Greek demonstratives, see, for example, Giusti 1997:107ff. (Giusti however assumes the corresponding base position to be an Agr-specifier.)

Importantly, the same categorial adjective/phrasal status can hold for quantifiers and possessive pronouns as well. See once more Giusti 1997:115 for the identification of Italian numerals as APs. Furthermore, see Giorgi & Longobardi 1991:155 for the grouping of Italian

⁶See though, for example, Abney 1987:208 on the assumption that it is A^0 which takes NP as its complement,

possessive pronouns such as *mio* ‘my/mine’ with adjectives, which explains that they take position in the adjective hierarchy and can occur both pre- and post-nominally:

(14) Italian (cf. Giorgi & Longobardi 1991:161):

- | | | | |
|----|--------------|----|--------------|
| a. | il mio libro | b. | il libro mio |
| | the my book | | the book my |
| | “my book” | | “my book” |

The recognition that demonstratives, quantifiers and possessive pronouns can be phrasal also makes comprehensible the observation that they can occur in pre-nominal position even in a grammar which is uniformly head-final. If the corresponding elements are adjoined phrases (or specifiers), then the grammar’s uniformity rather expects them in a left-peripheral position, not only in a [head - complement]-, but also in a [complement - head]-language. Turkish, for example, which is consistently head-final throughout the grammar (see chapter 6, 6.2, for clause data), nevertheless has pre-nominal quantifiers. This is shown in (15a). (15b) gives us an example of Turkish post-positions, and (15c) illustrates the Turkish pre-nominal genitive. (Note that Turkish imposes agreement on the noun within the genitive relation.):⁷

(15) Turkish ((a, b) cf. Kural 1997:504, 503; (c) cf. Kornfilt 1997:185):

- | | | | | | |
|----|--------------------|----|------------------------------|----|---|
| a. | üç ki _N | b. | Ahmet tarafıdan _P | c. | Hasan- da kitab _N - da |
| | three person | | Ahmet by | | Hasan- <i>gen</i> book-3Sg |
| | “three people” | | “by Ahmet” | | “Hasan’s book” |

On the other hand, take cases like English, French or German. Here, determiners, demonstratives and possessive pronouns can be identified as heads erected above N^0 . But the point is that the heads in these languages appear to all fall under the same category D (for the assumption that possessive pronouns are base generated in D^0 in both French and English, see, for example,

where AP is an optional projection between DP and NP.

⁷Turkish has no definite determiner, though the numeral *bir* ‘one’ can also function as an indefinite article (cf. Kornfilt 1997:106). In the latter case *bir* still precedes the noun, though unlike a numeral, it follows other adjectives and as such seems to be adjoined below them (where *bir* otherwise, on a par with other numerals, adjoins above).

Giorgi & Longobardi 1991:155, 161). This evaluation at the very least straightforwardly explains why determiners, demonstratives and possessive pronouns are in complementary distribution: they compete for one position D^0 , and because of this, cannot occur simultaneously. Recall the English example in (13f) above, and see a German one in (16):⁸

(16) German:

- a. der Mann a'. dieser Mann a'°. mein Mann
 the man this man my man
- b. *der dieser Mann; *dieser der Mann
 the this man; this the man
- c. *dieser mein Mann; *mein dieser Mann
 this my man; my this man
- d. *mein der Mann; *der mein Mann
 my the man; the my man

In the end, the above obstacles all bring us back to the likelihood that $F_{[+gen]}$ is D. Thence, D is understood as a category label which encodes, on a broader level, the information on presence vs. absence of semantic reference, specificity and identity. As such, D^0 can be filled not only by definite determiners but also by indefinite ones, demonstratives, quantifiers and possessive heads (if the grammar in question groups them all under D).

Altogether, if $F_{[+gen]}$ is D, then the syntactic head obtains a genuine identity with functions that are independent of sole genitive assignment, *and* with a morphological realization that can generally be formative-like, and is not necessarily abstract. This last aspect is essential since, as mentioned above in section 4.1.1, as long as it concerns just genitive assignment, the possible winners in the nominal domain never move N^0 into $FP_{[+gen]}$.

This scenario still allows for the following possibility. Given the stipulated conflating character of D, then, zooming in on the components in D, $F_{[+gen]}$ might equate not with D as a

⁸That German possessive pronouns fall under D is supported by the fact that they take the same gender and case endings as the indefinite determiner *ein*.

whole, but with one of the components therein. As such, if further research decisively revealed that a specific language splits D into more than one functional extension, then case assignment could become the job of the particular extension that contains the component in question.⁹

Attributing genitive case assignment to D is still not uncontroversial for the following reason. As pointed out by Dryer 1992:121, many languages lack determiners (articles) entirely. The assumption that $F_{[+gen]}$ is universally D forces us to postulate that an abstract D^0 is projected, at least in the presence of a genitive phrase, even in a language which otherwise lack independent evidence for a DP. Certainly, if it was, for example, Poss in D which is responsible for genitive case assignment, then the D-head in question would not need to encode any (in)definiteness-specification. Nevertheless, it should contain the possessive component in abstract form.

We do in fact find languages which seem to lack a determiner system, and at the same time, nouns in possessive constructions show both agreement and additionally, possessive specific morphology. This could suggest that DP is exclusively projected in genitive configurations. One example is Classic Nahuatl (cf. Baker (pc.)), in which the presence of a

⁹One particularly special example might be the exceptional case of Hungarian. As pointed out by Szabolcsi 1994, in Hungarian, a possessor phrase can receive either dative or nominative case, depending on its position. The possessor carries dative case if it precedes the definite determiner, and nominative when it follows the definite determiner. In both cases, the noun is followed by a possessive suffix and shows agreement morphology:

(i) Hungarian ((a) Bernstein 2001:539, (b) Giusti 1997:96):

- | | | |
|----|-----------------------------------|---|
| a. | az én-] vendég-e-m | ‘ Det - [possessor] _{nom} - noun’ |
| | the I- <i>nom</i> guest- Poss-1Sg | |
| | “my guest” | |
| b. | Mari-nak a kalap-ja | ‘[possessor] _{dat} - Det - noun’ |
| | Mari- <i>dat</i> the hat-Poss.3Sg | |
| | “Mary’s hat” | |

According to Szabolcsi 1994, only the dative possessor occupies Spec, DP. Nominative case appears to be received in a specifier below DP, which, for Szabolcsi, is an Agr-projection, given the agreement on the noun. Note though also the possessive-suffix, which is merged with the noun in both (a) and (b).

Either way, Hungarian could be a case, in which two functional extensions of N are assigners of two different cases: For example, Poss⁰ as a first extension assigns nominative, D^0 as a second functional head assigns dative.

genitive phrase not only imposes agreement on the nominal head but also the occurrence of a possessor-suffix *-uh* (= [w]; [w] phonetically deletes after final consonants). The suffix is absent in noun phrases without possessor:

(17) Classic Nahuatl:

a. te -tl	b. no- te -uh	c. i- te -uh cihua-tl
stone - <i>absolute</i> marker ¹⁰	1Sg- stone - <i>poss</i>	3Sg- stone- <i>poss</i> woman
“a/the stone”	“my stone”	“the woman’s stone”

Notwithstanding these facts, the same cannot be said about languages like Japanese or Latin, which like Nahuatl lack a determiner system, but do not show any ‘possessor’-morphology of the above kind. Therefore, while we below explore the working hypothesis that genitive is assigned by D in nominal extended projections, we should still stay alert for the following possibility:

- (18) a. Working hypothesis: $X^0_{[+gen]}$ is always D.
- b. Possible modification of the working hypothesis:
 $F_{[+gen]}$ is D, but languages that lack determiners altogether cannot project D^0 , and therefore, genitive case must be assigned by N itself.

If (18b) holds, then D is the primary case assigner of genitive only in grammars that have DP, and only in those languages D^0 must be projected whenever a genitive phrase is present.¹¹

¹⁰The “absolute”-marker, which is *-tl* after open syllables, *-tli* after closed syllables, and *-li* after *-l*, attaches to any Nahuatl common noun, and is dropped in possessive constructions (or replaced by the ‘possessive’-suffix). Note that the absolute marker seems to be a *functional* element, given that it disappears in noun-incorporation contexts (cf. Baker, pc.). This might suggest that a functional extension is projected even in ‘plain’ noun phrases.

¹¹If the language does *not* morphologically encode the determiner-like functional information in *any* context, this is distinct from the reasoning defended for TP in chapter 3, where we noticed that the critical cases discussed in the literature still morphologically express tense and/or aspect and/or mood in one or the other form. Also note that, despite being interesting, this is not the place to address the question on which factor(s) are, in such a scenario, responsible for a language to choose whether it projects DP or not. Lastly, it is also left for further research to explain the relevant question of why, if a grammar has DP, D becomes the necessary case assigner of genitive (but see some speculation thereon in 5.3).

Modifying the working hypothesis as in (18b) would alter the typological results of the system given in (11) only in one point. Generalizing over the subset of all languages that lack DP, it would still be predicted that the VOS- and VSO-types can only have a post-nominal genitive, and that SOV-types can only have a pre-nominal genitive unless they have left-peripheral functional heads in the verbal domain. The optimal structures would be the same as we have seen in 4.1.1, minus $FP_{[+gen]}$ (= DP). It would be furthermore derived that uniform SVO-types without DP can have either a pre-nominal or post-nominal genitive, where, ‘*gen*-P - N’-order corresponds to a structure with the genitive phrase in Spec, NP rather than in Spec, $FP_{[+gen]}$ /DP (the post-nominal genitive still as depicted in (6a), minus $FP_{[+gen]}$ /DP). The only difference would be that systematic verb movement into TP would no longer entail post-nominal genitive. In the next sections, we will explain at several points how this stability of the overall typology comes about.

It is important to maintain, under both the working hypothesis (18a) and its modification in (b) that genitive case assignment is restricted to a (possibly long-distance) [*spec*, head]-relation. This means that even if the genitive phrase is base-generated in the complement of N, it must move to Spec, NP (or Spec, DP) in order to receive its case.

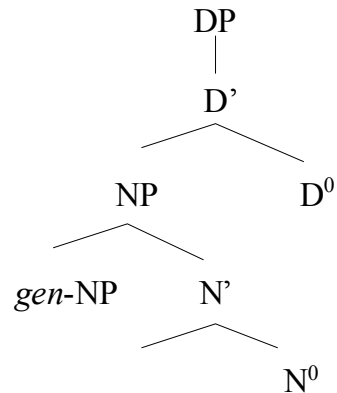
Let us now turn to the illustration and further discussion of the typological results, as they were summarized in (11) above. I start by having a closer look at why uniform SOV-languages allow only pre-nominal genitive, followed by the question of why uniform SVO-languages without systematic verb movement into TP can have either a post-nominal or pre-nominal genitive, and how the pre-nominal genitive differs structurally in both groups.

4.2 Pre-nominal genitive in SOV

Why do HEAD RIGHT >> HEAD LEFT -grammars all share one choice of assigning genitive case, resulting in ‘*gen*-P - N’-order? And why, for that matter, does the genitive phrase always surface in lexical Spec, NP? Let us have another look at the optimal configuration seen in (9). It is repeated in (19), with $F_{[+gen]}$ identified as D, and illustrated in an example from the SOV-language Basque (on Basque clause structure, see chapter 6, 6.2):

(19) Basque (cf. Eguzkitza 1993:167):

[_{DP} [_{NP} [_{NP} [Itziar -ren] liburu_N] -a_D]
 Itziar *gen* book the
 “Itziar’s book”



Note that in Basque, *-(r)en* as in (19), must be a case marker, which is, as such, part of the genitive phrase, as Basque generally realizes case through suffixes that merge with the last element of the noun phrase (cf., for example, Eguzkitza 1993):¹²

(20) Basque (cf. Saltarelli 1988:77):

liburu berri hari-ek
 book new that-Pl.*absolutive*
 “those new books”

The most straightforward structural interpretation appears to be that Basque projects a head-final KP above a head-final DP (cf. Goenaga 1984, Eguzkitza 1993:165), where K, as a suffix, merges with the last element of its complement by ‘phrasal affixation’ of the kind proposed by Yoon 1994 (see chapter 3). Then, the internal structure of a genitive phrase is for example:

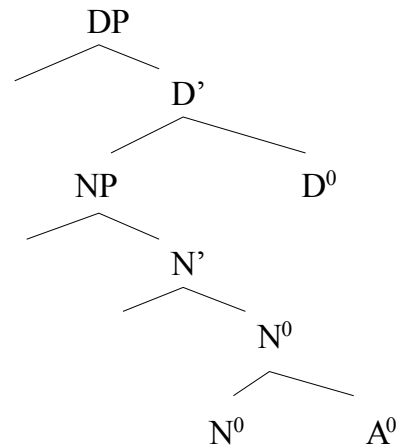
(21) Basque (cf. Eguzkitza 1993:167):

[_{KP} [_{DP} [_{NP} liburu_N] -a_D] -ren_K] erosket-a
 book the *gen* purchase-the
 “the purchase of the book”

¹²The only plausible alternative would be that *-en* is a post-position. But see, for example, Eguzkitza 1993 who comes to the conclusion that the ‘genitive’ marker is really a case marker, on a par with the so-called ‘grammatical’ cases of the grammar, absolutive, ergative and dative (see Eguzkitza 1993:164ff, 185).

Another significant point to make about Basque is that the adjective follows the noun, as we can also see in (20). This post-nominal adjective position is not uncommon in (uniform) SOV-languages. Nevertheless, it might surprise us on a theoretical level, as long as we take Basque adjectives to be projected into the noun phrase as phrasal APs. Consider BRANCHING RIGHT, or, more generally, whichever principle enforces left-peripheral alignment of phrasal adjuncts. If *berri* corresponds to an AP and adjoins on the right of NP, this would violate BRANCHING RIGHT. In this scenario, it is quite obscure what could be the constraint that could overrule BRANCHING RIGHT. However, there is no puzzle if we, as suggested above, acknowledge that some grammars do not let the adjective project but rather adjoin A⁰ directly to N⁰.¹³

- (22) Basque (data cf. Saltarelli 1988:77):
 [KP [DP [NP liburu_N berri_A] hari_D]-ek_K]
 book new that -Pl.*abs*
 “those new books”



Now, right-adjunction of the adjectival head, as opposed to left-adjunction, follows by Basque’s ranking HEAD RIGHT >> HEAD LEFT. (It as such carries over to other SOV-languages with ‘noun - adjective’ -order, where due to A⁰ -adjunction to N⁰.) Recall the general point, that head-to-head-adjunction increases head alignment violations. That is, the complex nominal head in

¹³Thinking in terms of directionality, one might also be tempted to alternatively acknowledge Abney 1987:208’s proposal, and to consider the possibility that in some grammars, A⁰ is a (first) extension of N⁰. In a uniform SOV-language and a HEAD RIGHT >> HEAD LEFT -ranking, the adjective would come out on the right of the nominal head.

Nevertheless, such a conception would not be innocent at all, considering that this would mean that a lexical head (N) extends into a distinct lexical head (A). This, at least, stirs up one serious question, namely what the categorial status of the entire extended projection should be.

(22), ‘ N^0 - A^0 ’, violates HEAD LEFT twice, once because the category N coincides with the right edge of the mother node N-bar, and once because A^0 coincides with the right edge of the mother node N^0 . But if A^0 adjoined on the left of N^0 , such that A’s left edge coincided with the left edge of the mother node N^0 , this would incur one violation of HEAD RIGHT instead of HEAD LEFT. So, with this latter structure we end up with one HEAD RIGHT and one HEAD LEFT violation, which is worse under the ranking HEAD RIGHT >> HEAD LEFT. Therefore, if A^0 is adjoined to N^0 in Basque, then by HEAD RIGHT >> HEAD LEFT, A^0 is expected to adjoin on the right side, which results in ‘noun - adjective’-order.

Let us, then, go back to the structure in (19), $[_{DP} _ [_{NP} \textit{gen-P} [\dots N^0]] D^0]$, and the question of why it is the best way of assigning genitive case in a HEAD RIGHT >> HEAD LEFT-grammar. First, the configuration obeys CASE LEX. This is because D, assigning genitive to Spec, NP, has a lexical helper in N which governs Spec, NP from a position that is syntactically adjacent to D^0 . We also know that neither HEAD RIGHT¹⁴, nor BRANCHING RIGHT nor LEX HEAD EDGE is violated; the latter due to the fact that N surfaces at an edge of its perfect lexical projection NP. Furthermore, GENERALIZED SUBJECT is vacuously satisfied, despite the fact that Spec, DP is non-existent. In the nominal domain, with GEN SUBJECT mute, there is no need to have Spec, DP, at least not for GEN SUBJECT.

Now, think about the alternative structures. If the genitive phrase surfaces in Spec, DP without N moving into DP as well, then the corresponding configuration violates CASE LEX, regardless of whether the *gen-P* leaves a copy in Spec, NP or not. On the other hand, if N^0 adjoins to D^0 (in the syntax), in order to provide an D-adjacent lexical governor of Spec, DP, then this causes additional violations, starting with LEX HEAD EDGE. This alone is enough to show us that a structure which has both the *gen-NP* and N inside DP cannot win against (19) in a HEAD RIGHT >> HEAD LEFT grammar, even if CASE LEX is obeyed. The point is that (19) not only satisfies CASE LEX but also LEX HD EDGE, BRANCHING RIGHT, HEAD RIGHT, and maximally HEAD LEFT.

Thus, the reason why (19) is the only optimal choice in a HEAD RIGHT >> HEAD LEFT language is really that, unlike in verbal extended projections, GENERALIZED SUBJECT is mute for

¹⁴The attentive reader might note: HD RIGHT is violated if N^0 has no complement. I’ll come to this point below.

nominal projections, and with it the demand for ‘subject’ positions beyond the one specifier in which case can be assigned. Therefore, there is much less of an overall conflict to resolve, and consequently, there is less variation in the factorial typology.

Altogether, it does not matter whether a uniform SOV-language actually moves the subject into Spec, TP, and whether this is accompanied by verb movement into TP or not. The different types of SOV still share (19) as their optimal choice in the nominal domain. Regardless of the exact ranking of CASE LEX, GEN SUBJECT, BRANCHING RIGHT and LEX HEAD EDGE, all that they need to share is HEAD RIGHT >> HEAD LEFT.

This reasoning is illustrated in table (23), followed by a tableau in (24). First, (23) shows us how the candidate (a), $[_{DP} _ [_{NP} \textit{gen-P} [\dots N^0]] D^0]$, which corresponds to (19), harmonically bounds the alternative, fully head-final structures ((23) is not a tableau; the constraints remain unranked):

(23) $[_{DP} _ [_{NP} \textit{gen-P} [\dots N^0]] D^0]$ harmonically bounds any other head-final DP:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD RIGHT	HEAD LEFT
) a. $[_{DP} _ [_{NP} \textit{Gen-P} [\dots N^0]] D^0]$						**
; b. $[_{DP} \textit{Gen-P} [_{NP} _ [\dots N^0]] D^0]$		*!				**
; c. $[_{DP} \textit{Gen-P} [_{NP} t_G [\dots N^0]] D^0]$		*!				**
; d. $[_{DP} \textit{Gen-P} [_{NP} t_G [\dots t_N]] N^0-D^0]$	*!		*			*** ¹⁵
; e. $[_{DP} _ [_{NP} _ [_{NP'} \textit{Gen-P} [\dots t_N]] N^0] D^0]$						***!

Tableau (24), then, demonstrates that ‘ $[_{DP} _ [_{NP} \textit{gen-P} [\dots N^0]] D^0]$ ’ beats the other possible winners, as soon as HEAD RIGHT is ranked above HEAD LEFT:

¹⁵See chapter 6 on why lexical head movement into a head-final FP violates BRANCHING RIGHT.

(24) $[DP _ [NP \textit{gen-P} [\dots N^0]] D^0]$ beats the possible head-initial winners if $HD \textit{RIGHT} \gg HD \textit{LEFT}$:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HEAD RIGHT	HEAD LEFT
L a. $[DP _ [NP \textit{Gen-P} [\dots N^0]] D^0]$						**
b. $[DP \textit{Gen-P} D^0 [NP _ [N^0 \dots]]]$		*!			**	
c. $[DP _ D^0 [NP _ N^0 [NP \textit{Gen-P} [t_N \dots]]]]]$					*!***	
d. $[DP _ D^0 [NP' [N^0 \dots] \textit{Gen-P}]]]$			*!		**	

Notice that the exclusive optimality of a head-final NP, which thus results in pre-nominal genitive, would not change even if the language in question was actually lacking DP. That is, if the modification (18b) of the working hypothesis is true, then, a language with $HEAD \textit{RIGHT} \gg HEAD \textit{LEFT}$ ranking and without DP still has no reason to deviate from an optimal $'[NP \textit{gen-P} [\dots N^0]]'$ -choice. The same reasoning as in the verbal domain applies, and with it the point developed in chapter 2: $LEX \textit{HEAD \textit{EDGE}}$, which is the first factor to cause deviations from an otherwise preferred spec/head/comp-ordering in the lexical layer, is satisfied in any head-final LexP, including NP, even if a specifier is present. Furthermore, a $'[NP \textit{gen-P} [\dots N^0]]'$ -configuration clearly satisfies $CASE \textit{LEX}$ as well, even if N is the case assigner: the *gen-P* is still lexically *ep-governed*. Hence, as long as $HEAD \textit{RIGHT} \gg HEAD \textit{LEFT}$, $'[DP _ [NP \textit{gen-P} [.. N^0]] D^0]'$, or $'[NP \textit{gen-P} [.. N^0]]'$ is optimal, and the result will be a pre-nominal genitive.

But let us think about the complement position of N^0 . If in all contexts in which the only dependent phrase present is the genitive phrase, that genitive phrase has to surface at least as high as Spec, NP in order to be in a legitimate position to receive case (by hypothesis, genitive case can only be assigned to a specifier), then what if anything is in the complement of N^0 ?

Recall that when we introduced $HEAD \textit{LEFT}$ and $HEAD \textit{RIGHT}$ in chapter 2 (2.2), we noticed that this constraint pair imposes upon any grammar a general preference to link a single argument into the complement instead of the specifier. This is because a head that lacks a complement incurs one violation of $HEAD \textit{LEFT}$ and one of $HEAD \textit{RIGHT}$, whereas a head/complement-structure violates either $HEAD \textit{LEFT}$ or $HEAD \textit{RIGHT}$ but not the two of them simultaneously. Therefore, if nothing else forces the genitive phrase to be directly base generated

in a specifier, then, for the sake of HEAD LEFT/RIGHT, the system will favor base generating the genitive phrase in complement position, from where the *gen-P* moves into Spec, NP (or, depending on ranking, to Spec, DP) for case:

(25) Basque:

[_{DP} [_{NP} [gizon -a -ren]_i [_{t_i} etxe_N]] -a_D]
 man the *gen* house the
 “the man’s house”

The complement position of N is filled by a copy of the *gen-P*:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HEAD RIGHT	HEAD LEFT
L a. [_{DP} __ [_{NP} Gen-P [_{t_G} N ⁰]] D ⁰]						**
; b. [_{DP} __ [_{NP} Gen-P [__ N ⁰]] D ⁰]					*!	**

If we think about what could force the genitive phrase not to be base-generated in the complement, the only reason that might come to mind is 2-linking. For example, if one expected a hierarchical distinction between an object-2-role- (such as THEME) and a subject-2-role linking (such as AGENT or POSSESSOR), then this could mean the following: ‘By axiom, possessor genitive phrases cannot originate in the complement of N⁰ (only THEMES can), because subject-2-roles require linking into a higher position, a specifier’. In such a scenario, a genitive possessor phrase should be base-generated in all candidates at least as high as Spec, NP, meaning that all candidates would share one HEAD RIGHT- and one HEAD LEFT violation in NP. (Basically, the same necessity to violate both HEAD LEFT and HEAD RIGHT in NP is given in any context without any dependent phrase, say, in ‘[_{DP} the_D [_{NP} guy_N]]’.). Regarding the set of grammars in which F_[+gen] is the genitive case assigner, imposing this axiom onto the system would not alter the factorial typology.¹⁶

¹⁶It would slightly alter the predictions on the distribution of pre- vs. post-nominal genitive in SVO-grammars

Nonetheless, we should keep in mind that it is not that clear that a possessor phrase even receives a 2-role. See, for example, Higginbotham 1983:395 who notes that in a possessor-construction such as *a cat's toy*, there is no thematic selection involved. See also Grimshaw 1990:70ff who (building on Emonds 1985) claims that, while certain types of nouns have an argument structure in the same way as verbs do, nouns are nevertheless in general “defective 2-markers”. Grimshaw accounts for a variety of phenomena in the behavior of nouns based on the assumption that nouns are precisely unable to 2-mark their arguments. In order to do so, they need a preposition such as English *of*, which rather than being an instantiation of case, functions as a ‘transmitter’ of 2-assignment. Only by 2-identification of N’s and P’s argument structure, does the noun manages to 2-mark (on 2-identification, see Higginbotham 1985, Li 1990). In this conception, any case-marked phrase in the nominal extended projection, including the possessor phrase, must be a phrase without a 2-role.

Furthermore, Baker 2003:165 proposes the ‘Reference-Predication Constraint’ (RPC). The RPC is an essential part of Baker’s theory of the nature of the lexical categories V, N and A, the theory being adopted here. Now, by the RPC, N cannot assign any 2-role to Spec, NP: “No syntactic node can both 2-mark a specifier and have a referential index”. While this does not say anything positive about 2-marking in the noun phrase, nevertheless, it still entails that if N can assign a 2-role, then the only target thereof can be its complement position. This in turn implies that a noun can assign at most one 2-role, and a noun phrase can contain at most one noun phrase carrying a 2-role. Strictly speaking, this also means there is no room for a hierarchical distinction in nominal 2-linking. Basically, the RPC is only compatible with three conceptual options: Either (a), all roles, including those that express POSSESSOR- and AGENT- relations, have to be received in the complement position of N, or (b), N can only assign THEME-roles (to its complement), or (c), N cannot assign any 2-roles at all. (b) and (c) entail that, at least, genitive phrases which correspond to possessors (or agents) are not 2-marked.¹⁷

without DP (and without any functional extension as the assigner of genitive case).

¹⁷Note that such a case- but not 2-marked phrase would not violate the ‘Visibility Condition’ (cf. Chomsky 1995:119), which makes 2-marking contingent upon case marking but not vice versa. Also note that the recognition of a genitive phrase carrying no 2-role does *not* entail that this phrase couldn’t express a participant of the noun’s ‘lexical conceptual structure’ (*lcs*; see Grimshaw 1990:5). If the noun has an argument structure (see Grimshaw 1990:ch.3 for the

Altogether, there appears to be a fair possibility that genitive (possessor) phrases originate in the complement of N, in the absence of any other dependent phrase. Hence, without featuring any explicit claim, I tentatively assume so below, given that this is the system-internal prediction.

Going back to directionality, and the pre-nominal genitive in SOV-languages, the complement position is relevant for another reason. This is an aspect we would miss if we simply took the pre-nominal genitive in OV-languages as due to the fact that the [comp - head]-structure is parallel in both *vP* and NP. That is, if we did not locate the *gen-P* in Spec, NP, cf. ‘[DP ___ [NP *gen-P* [comp N⁰]] D⁰]’, with the complement filled by either a copy of that *gen-P*, or another phrase (or with an absent complement), and instead assumed that the *gen-P* to surface in the complement, then the following would be left unexplained. Considering SOV-languages which allow a second nominal dependent such as a PP in addition to the genitive phrase, this second dependent in the complement intervenes between the genitive phrase and the noun, in a clear parallel to the corresponding [spec [complement - head]]-order within *vP*. This is illustrated in (26) with Japanese, and in (27) with Basque:¹⁸

(26) Japanese (data cf. Fukui 1993:413):

[DP ___ [NP John-no [pp New York -dep]-no koogi_N] D⁰]
 John_{Gen} New York in lecture
 “John’s lecture in New York”

(27) Basque (data cf. Eguzkitza 1993:169;fn.6):

[DP ___ [NP Villasanteren [pp Axularri buruzko_P] liburu_N] -a_D]
 Villasante-*gen* Axular-*dat* about-ko book the
 “Villasante’s book about Axular”

claim that only complex event nominals do), then the genitive phrase could still *correspond* to a ‘subject’-2-role without being itself an actual argument. See here again Grimshaw 1990:118ff, 134, and the proposal that nominalization suppresses the external argument of the underlying base verb, which in turn enables, in English, the licensing of a possessive NP as an ‘a(rgument)-adjunct’, where the a-adjunct precisely *corresponds* to the subject of the base verb without itself carrying any 2-role (for one example, see Grimshaw 1990:134: *the government’s* imprisonment of refugees).

¹⁸Fukui 1993:412 notes that Japanese allows free scrambling within the noun phrase, on a par with the situation in a verbal extended projection. Furthermore, Fukui glosses the nominal marker *-no*, which suffixes onto any NP-internal phrase, with ‘genitive’. On Japanese and Basque clause structure, see chapter 6 (6.2).

With the complement intervening between the *gen-P* and the nominal head, the pre-nominal genitive of SOV-languages differs significantly from the pattern possible in SVO-languages. To see this, let us proceed to the next section. This section discusses the potential emergence of a pre-nominal genitive in SVO-languages, a possibility which is contingent upon the lack of verb movement into TP.

4.3 SVO and another kind of pre-nominal genitive

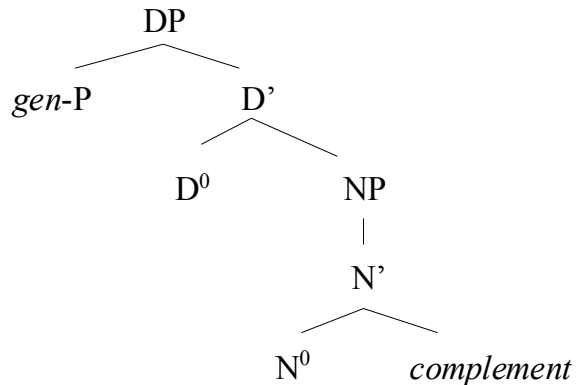
If an SVO-grammar with ‘*gen-P* - N’-order allows for the co-occurrence of a second dependent phrase, such as a PP, this PP must follow the noun. Therefore, the following two examples, Danish in (28), and English in (29), can be captured by the tree structure given below:

(28) Danish (cf. Allan, Holmes & Lundskaer-Nielsen 2000:29):

[DP [en dreng-] -SD [NP hund_N t_{Gen}]]
 [a boy]_{Gen} dog
 “a boy’s dog”

(29) English:

[DP [the king]’ SD [NP book_N [PP about turtles]]]
 [the king]_{Gen}



Given the current analysis, the only elements that can intervene between the genitive phrase and the noun are adjectives that are adjoined to NP, as in, for example,

[DP [the queen]’ SD [NP [AP attractive] [NP husbands_N]], and the functional head (D) which we

have identified as the primary assigner of genitive case. In an SVO-structure with a pre-nominal genitive, D intervenes, since the associated structure has a [spec [head - complement]] - directionality and the genitive phrase is located in Spec, DP.

Furthermore, note for Danish that, as in English, we find the *-s*-clitic, which cliticizes onto the last element in the genitive phrase, and blocks the ordinary determiner of the ‘possessed’ noun from occurring. This suggests that the Danish *-s* is also located in D^0 , D being the extension of the ‘possessed’ noun.¹⁹

(30) Danish (cf. Allan, Holmes & Lundskaer-Nielsen 2000:29):

[_{DP} [en af mine venner-] -_S [_{NP} far_N *t*_{Gen}]]
 [one of my friends]_{Gen} father
 “the father of one of my friends”

How, then, does the configuration in (29) win in an SVO-language, and why must the grammar lack verb movement into TP? And why, furthermore, does the lack of verb movement into TP not entail that an SVO-grammar must have a pre-nominal genitive (corresponding to (29)), but rather, that such grammar could also be a language with post-nominal genitive?

Just as we have seen this in the reasoning above on SOV, with GENERALIZED SUBJECT mute in the nominal domain, the overall harmony struggle does not include any general preference for specifiers apart from case assignment. At the same time, due to CASE LEX, there is still the need to locate the genitive phrase in a specifier which is lexically governed from a position that is syntactically adjacent to the supported D-head. There is also still a desire to have the lexical head at an edge of its own perfect projection, due to LEX HEAD EDGE, and BRANCHING RIGHT, HEAD LEFT and HEAD RIGHT are all applicable.

Then, just as we have discussed in the two previous chapters, obedience to LEX HEAD EDGE, as well as to CASE LEX, puts more pressure on a grammar which generally favors a [spec

¹⁹The Danish definite determiner, ‘-(e)n’ or ‘-(e)t’ is added as a suffix to the end of the noun, such as, for example, *mand-en* ‘man-the’ (cf. Allan, Holmes & Lundskaer-Nielsen 2000:30). In parallel to what we have discussed in chapter 3, this does not necessarily indicate N-to-D-movement, but could very well be due to phonological merger of syntactically adjacent D and N. Crucial to our current concerns is that nouns following a genitive never take a determiner-suffix (see *far* in (30); not *far-en* (check *n*)). We find, however, constructions of the form *vinter-en-s afslutning* ‘winter-the-s end = the winter’s end = the end of winter’ (cf. Allan, Holmes & Lundskaer-Nielsen 2000:28).

[head - complement]]-skeleton. It is this aspect which puts more potentially optimal candidates on the map of a HEAD LEFT >> HEAD RIGHT grammar. But with a GENERALIZED SUBJECT not relevant, there is one less component in the overall conflict, and thus, we have even fewer possible winners than in the verbal domain. Let us first see how we end up with three potentially optimal [head - complement]- configurations, while the other structural parallels to possible TP-winners are harmonically bounded. Among these potential winners is only one pre-nominal genitive:

(31) Less variation for ‘subject’-positions in the nominal domain: (relevant candidates)

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD RIGHT	HEAD LEFT
) a. [_{DP} Gen-P D ⁰ [_{NP} __ N ⁰ compl]]		*			**	
) b. [_{DP} __ D ⁰ [_{NP} __ N ⁰ [_{NP} Gen-P t _N compl]]]					***	
) c. [_{DP} __ D ⁰ [_{NP} N ⁰ compl Gen-P]]			*		**	
; d. [_{DP} Gen-P D ⁰ [_{NP} t _G N ⁰ compl]]	*!	*			**	
; e. [_{DP} Gen-P N ⁰ -D ⁰ [_{NP} t _G t _N compl]]	*!				***	
; f. [_{DP} __ D ⁰ [_{NP} Gen-P N ⁰ compl]]	*!	*			**	

First, whereas in the verbal domain the current system allows two kinds of uniform SVO-patterns without lexical head movement into the inflectional layer, in the nominal domain, the two possibilities collapse into one: Candidate (a) harmonically bounds candidate (d), meaning that if the genitive phrase receives its case in Spec, DP, it either moves there without passing through Spec, NP, or, if it is not base generated in complement position, it is directly base-generated in Spec, DP. The reason is LEX HEAD EDGE, which gains greater power, once the independent motivator of specifier-generation, GENERALIZED SUBJECT, is vacuously satisfied in any case.

Furthermore, with GENERALIZED SUBJECT inactive, the choice of obeying both LEX HEAD EDGE and CASE LEX by doing N-movement inside the lexical layer, across the genitive assignee

in Spec, NP, becomes more harmonic as well. Consider candidate (b), $[\text{DP} \text{---} \text{D}^0 [\text{NP} \text{---} \text{N}^0 [\text{NP} \text{Gen-P } t_N \text{ compl}]]]$, which is the structural parallel of the strict ‘VSO’-pattern. In the nominal domain, candidate (b) violates nothing but HEAD RIGHT, and as such, (b) harmonically bounds candidate (e), $[\text{DP} \text{Gen-P } \text{N}^0\text{-D}^0 [\text{NP } t_G \text{ } t_N \text{ compl}]]$, the latter being the structural parallel of moving both the subject and the verb into TP and resulting in ‘SVO’. Since (e) violates HEAD RIGHT as many times as (b) does, but violates LEX HEAD EDGE in addition to that, (e) cannot be a possible winner. The overall effect of this harmonic bounding in terms of basic order is that post-nominal genitive (‘N - *gen-P* (- PP)’) becomes a possibly optimal choice of uniform SVO-grammars, and not only of true ‘V-first’-languages. This holds despite the fact that we located the genitive phrase cross-linguistically in a specifier.

A final note on candidate (f): It is the structure which correlates with the ‘TSVO’-pattern, the latter being already harmonically bounded in the verbal domain. Sandwiching a case assignee between its primary case assigner (here D) and the lexical helper (here N) cannot win in the nominal domain either. If we want to violate CASE LEX, we had better do it in a way that does not threaten LEX HEAD EDGE.

Altogether, then, if we look at the three possible winners (a), (b) and (c), the following emerges from (31): Under HEAD LEFT >> HEAD RIGHT, we get a somewhat greater variation than in a HEAD RIGHT >> HEAD LEFT -grammar; just as in the verbal domain, this is caused by the greater struggle to obey LEX HEAD EDGE and CASE LEX. At the same time, we have less overall variation than in the verbal domain, and this is also due to the impact of LEX HEAD EDGE. That is, comparing (a), (b) and (c), we see that the optimal choice between them is a ranking matter of HEAD RIGHT, CASE LEX and BRANCHING RIGHT (because (a), (b), (c) only violate these three constraints). Nevertheless, despite the fact that LEX HEAD EDGE is fully respected by all potential winners, the constraint still plays an essential role in the election of this ‘elite’ set. As just outlined above, LEX HEAD EDGE is the determining factor which cuts off patterns that could constitute possible winners otherwise. This enables us to understand how uniform SVO-languages can have a post-nominal genitive.

Let us now look closer at the choice among the possible winners in a HEAD LEFT >> HEAD RIGHT grammar. This choice depends on the ranking of HEAD RIGHT, CASE LEX and BRANCHING RIGHT. This gives us the following sub-typology for all HEAD LEFT >> HEAD RIGHT

types derived by the extended system:

(32) HEAD LEFT >> HEAD RIGHT -grammars have either pre- or post-nominal genitive depending on:

a. BRANCH RIGHT >> HEAD RIGHT >> CASE LEX	[_{DP} Gen-P D ⁰ [_{NP} __ N ⁰ compl]]; pre-nominal <i>gen</i>
b. BRANCH RIGHT >> CASE LEX >> HEAD RIGHT	[_{DP} __ D ⁰ [_{NP} __ N ⁰ [_{NP} Gen-P t _N compl]]]; post-nominal <i>gen</i>
c. CASE LEX >> BRANCH RIGHT >> HEAD RIGHT	[_{DP} __ D ⁰ [_{NP} __ N ⁰ [_{NP} Gen-P t _N compl]]]; post-nominal <i>gen</i>
d. CASE LEX >> HEAD RIGHT >> BRANCH RIGHT	[_{DP} __ D ⁰ [_{NP} N ⁰ compl Gen-P]]; post-nominal <i>gen</i>
e. HEAD RIGHT >> BRANCH RIGHT >> CASE LEX	[_{DP} Gen-P D ⁰ [_{NP} __ N ⁰ compl]]; pre-nominal <i>gen</i>
f. HEAD RIGHT >> CASE LEX >> BRANCH RIGHT	[_{DP} __ D ⁰ [_{NP} N ⁰ compl Gen-P]]; post-nominal <i>gen</i>

The factorial typology above deserves one side remark. Note that out of the six logical ranking possibilities, four give us post-nominal genitive, and only two yield pre-nominal genitive. Why is that interesting? It can surely be misleading to directly compare the numerical distribution of ranking types, and the patterns they correspond to, with actual empirical typologies.

Nevertheless, it is a quite surprising result that the current system, without purposeful engineering, directly matches the numerical empirical typology reported by Dryer 1992: Recall that out of 93 VO genera 30 have pre-nominal genitive, 63 have post-nominal genitive. Thus, both the empirical and the factorial typology note a greater frequency of post-nominal genitive. Indeed, both times, the ratio is two to one.²⁰

Now, among the SVO-grammars derived by the current system, which types exactly have pre-nominal genitive? Crucially, only those that lack systematic verb movement into TP. That is, the ranking choices (32a) or (e), with CASE LEX ranked *below* HEAD RIGHT and BRANCHING

²⁰Note that this result finds a correlation, even if we consider all different TP-types with [head - complement]-order in vP/VP that the system derives.

The factorial typology comprises in this group altogether six types: four distinct types that have on the surface ‘S - V - O’ order (three of them without verb movement into TP, of which two can have either post- or pre-nominal genitive, one which can only have pre-nominal genitive; and the one with verb movement, which allows only post-nominal genitive). Furthermore, we find one type with the surface order ‘V - S - O’ (always with post-nominal genitive); and one type with ‘V - O - S’-order (always with post-nominal genitive). Hence, altogether, we have three types that must have post-nominal genitive, one type that must have pre-nominal genitive, and two types that can have either pre- or post-nominal genitive. See appendix A for the total list of types.

RIGHT, are found only in those SVO-types which are willing to violate CASE LEX not only in the nominal domain but in the verbal domain as well. Thus, in the previous chapter, we analyzed languages like English or the Mainland Scandinavian ones as grammars whose basic clause structure maps onto a TP with the subject surfacing in Spec, TP but with the verb remaining in situ. According to the current system, exactly these languages can have a pre-nominal genitive, where the genitive phrase receives its case in Spec, DP, and the noun does not move out of its base position. As illustrated in the examples above, English and the Mainland Scandinavian languages indeed have a pre-nominal genitive. See in the following tableau, how the configuration $[_{DP} \text{Gen-P } D^0 [_{NP} _ N^0 \text{ compl}]]$ becomes the ultimate winner:

(33) English:

$[_{DP} [\text{the king}]'_{SD} [_{NP} \text{book}_N [_{PP} \text{about turtles}]]]$

	BRANCHING RIGHT	HEAD RIGHT	CASE LEX
L a. $[_{FP} \text{Gen-P } F^0 [_{NP} _ N^0 \text{ compl}]]$		**	*
b. $[_{DP} _ D^0 [_{NP}' _ N^0 [_{NP} \text{Gen-P } t_N \text{ compl}]]]$		***!	
c. $[_{DP} _ D^0 [_{NP} N^0 \text{ compl Gen-P}]]$	*!	**	

Nevertheless, the system likewise derives that SVO-languages without systematic verb movement into TP do not necessarily have a pre-nominal genitive. Rather, among all possible rankings resulting in ‘S - V - O’ with V-in-situ, we also find the possibility of having CASE LEX and BRANCHING RIGHT ranked *above* HEAD RIGHT (see appendix A for proof).

Indeed, this is a welcome result. Recall the examples of Edo and Yoruba, which are SVO-languages without verb movement. Looking at their *gen-P/N*-distribution, however, Edo and Yoruba deviate from English: both have a post-nominal genitive. For Edo, we already saw one example, (3), in section 4.1 above. Yoruba is illustrated in (34), together with a corresponding competition (the example is provided by Oluseye Adesola):

- (34) Yoruba :
 [DP __ D⁰ [NP __ àga_N [NP iyá t_N t_{Gen}]]]
 chair mother_{Gen}
 “the mother’s chair”

	BRANCHING RIGHT	CASE LEX	HEAD RIGHT
a. [FP Gen-P F ⁰ [NP __ N ⁰ compl]]		*!	**
L b. [FP __ F ⁰ [NP __ N ⁰ [NP Gen-P t _N compl]]]			***
c. [DP __ D ⁰ [NP N ⁰ compl Gen-P]]	*!		**

Thus, we see that the system correctly offers a choice for (uniform) SVO-languages that lack systematic verb movement into TP: they can have either pre-nominal or post-nominal genitive. As we will see in the next section, the same is not true for SVO-grammars that have systematic verb movement into TP.

But before we go on to this point, let me briefly comment on whether (or how) a HEAD LEFT >> HEAD RIGHT - grammar can allow *both* pre- and post-nominal genitive simultaneously.

Chomsky 1986:194 classified not only pre-nominal noun phrases as genitive case marked, but post-nominal *of*-phrases as well in English. If this was correct, then English would be a language with basic ‘*gen-P* - N’ and basic ‘N - *gen-P*’-directionality. Within the present theory, this assumption runs contrary to the fact that the system does not produce such a result, at least not where the system is applied in its strictest form.²¹

In general, if constraints are in conflict on a matter, as HEAD RIGHT, CASE LEX and BRANCHING RIGHT are with respect to the genitive distribution, then the relative ranking between them will decide for one option only. Classifying English as a grammar with pre-nominal genitive, then, leaves us with the question: what are *of*-phrases? Now, beyond the system’s theoretical expectations, here is a simple reason against a categorization of the *of*-phrase as genitive case marked. If both ‘DP (’s)’ and ‘*of* DP’ were genitive phrases, then this would mean that one and the same grammar can express the same case on the same noun phrase

²¹On Modern (Standard) German, which appears to have pre-nominal genitive *if* the genitive phrase constitutes a

simultaneously in two different ways. This is, at best, an odd assumption, since, once we seriously extrapolate upon the idea, we have to ask ourselves why we elsewhere distinguish between two cases when they are morphologically distinct. For example, if genitive case can have two forms in English, then why don't we identify *he* and *him* as two variants of nominative (or, alternatively, accusative) case?²²

This still leaves two possibilities: either *of*-phrases are 'true' prepositional phrases, or, if *of* is a case marker, heading a KP, then the corresponding case is not genitive, but a different one, assigned by N itself to its complement. Be aware though that the line between a 'true' preposition and a preposition that is an instantiation of case, hence K, is, as I take it, a very fine one, and conceptually quite difficult to draw. This does not, as such, vote in favor of a KP-analysis nor of a PP-approach, but it makes it seriously more difficult to reject one over the other. Mainly for that reason, and since this is peripheral to the current focus, I leave the question open. For a PP-approach, see, for example, Abney 1987, and Grimshaw 1990.²³

Altogether, we have seen in this section, together with the previous one, how pre-nominal genitive in SOV-languages, analyzed as [DP ___ [NP *gen*-P compl N⁰] D⁰], differs from pre-nominal genitive in SVO-grammars, [DP Gen-P D⁰ [NP ___ N⁰ compl]], and how this seems the empirically correct approach. We have furthermore noted that the current system allows for SVO-languages that lack movement into TP to choose either pre- or post-nominal genitive, and

proper name, but post-nominal genitive elsewhere, see section 4.5.

²²Given that we do not consider the *-s* clitic in pre-nominal genitive an instantiation of case, but the assigner thereof (*-s* = D), we could speculate whether in both the pre- and the post-pattern, we are confronted with a genitive KP, it being the case that only K can be either abstract or contain *of*. But this is not a valuable solution, as long as we cannot say anything principled about the reason why K is abstract in the pre-nominal position.

Travis & Lamontagne 1986 suggest that K can be an empty category in an ECP-governed context (in which K can recover the necessary case features). As such, *of* is obligatory where KP is a sister of N as opposed to V (only V provides the [acc]-feature that K has to recover). By the same token, however, this should necessitate the insertion of *of* when the KP is in pre-nominal position. Yet, **of the queen's husband* is ungrammatical.

²³I take constructions of the form 'a cat of *the queen's*' to involve ellipsis, as suggested by, for example, Aoun et. al 1987:537. 'DP's' can represent 'DP's N' not only within an *of*-phrase but in other contexts as well; see, for example:

- (i) My brother's exhibition went well, but *my uncle's* didn't do so well.
- (ii) I visited my friend's cousin, and I saw *my mother's*, too.

'DP's' in such elliptic contexts could either correspond to a DP without NP-complement, that is to [DP [my uncle] s_D], or

that this again is empirically justified. Let us now turn to SVO-languages that have systematic verb movement into TP, and to the question of what this implies for their genitive distribution.

4.4 The systematic connection of verb and noun movement

Unlike ‘V-in-situ’ SVO-grammars, the SVO-type that moves the verb systematically into TP generally moves the noun phrase across the genitive phrase, resulting in post-nominal genitive. Why exactly does this hold?

Recall that we saw in chapter 3 how the derivation of the corresponding TP requires the violation of LEX HEAD EDGE and, crucially, the violation of HEAD RIGHT to a greater amount than any TP with the subject in Spec, TP and without verb movement. Since these latter TPs violate CASE LEX, one essential property of the ‘SVO/+verb movement’-type is to accept additional violation of HEAD RIGHT, in order to avoid violation of CASE LEX; which means that CASE LEX must be ranked above HEAD RIGHT. Furthermore, we know that in all uniform [(spec) [head - complement]]- grammars (the configuration which results in a basic ‘S - V - O’- surface), BRANCHING RIGHT must be ranked above both HEAD RIGHT and LEX HEAD EDGE. Otherwise, we get another TP-type.

Putting both pieces together, we see that any grammar which systematically moves both the verb and the subject into the inflectional layer must be a language with a post-nominal genitive. The tableau in (35) illustrates this point by comparing the two domains of TP and DP on the same constraint ranking:

to a DP plus NP containing a zero N^0 , that is $[_{DP} [my\ uncle]_{SD} [_{NP} e_N]]$.

(35) Correlation between verb movement into TP and noun movement across a genitive phrase in Spec, NP:

Relevant candidates; all HEAD LEFT obeying:

	BR-RIGHT	GEN SUBJ	CASE LEX	LEX HD EDGE	HEAD RIGHT
L a. [TP subject v^0 -T ⁰ [_{VP} t_S t_V object]]				*	***
b. [TP subject T ⁰ [_{VP} ___ v^0 object]]		*!	*		**
c. [TP subject T ⁰ [_{VP} t_S v^0 object]]			*!	*	**
d. [TP ___ T ⁰ [_{VP} ___ v^0 [_{VP} subject t_V object]]]		*!*			***
e. [TP ___ T ⁰ [_{VP} v^0 object subject]]	*!	*			**
a'. [_{DP} Gen-P N ⁰ -D ⁰ [_{NP} t_G t_N compl]]				*!	***
b'. [_{DP} Gen-P D ⁰ [_{NP} ___ N ⁰ compl]]			*!		**
L d'. [_{DP} ___ D ⁰ [_{NP} ___ N ⁰ [_{NP} Gen-P t_N compl]]]					***
e'. [_{DP} D ⁰ [_{NP} N ⁰ compl Gen-P]]	*!				**

The above logic gives us the implication introduced in section 4.1.1, repeated here in (36):

(36) [TP subj v^0 -T⁰ [_{VP} t_S t_V object]] Υ [_{DP} ___ D⁰ [_{NP} ___ N⁰[_{NP} Gen-P t_N compl]]]
 ‘+ verb movement into TP’ Υ ‘N - gen-P’

Note that the implication is uni-directional, meaning that we cannot conclude from a post-nominal genitive that the language in question has systematic verb movement as well. We have seen in the last section that SVO-grammars with ‘V-in-situ’ can have either pre- or post-nominal genitive.²⁴

²⁴We could still formulate the implication in (36) through its contra-positive, in which case we get an implication that goes from the nominal domain to the verbal domain.. If a [head - complement]-grammar has pre-nominal genitive, then it must lack systematic movement into TP:

Obviously, the logical connection drawn by the system gives us a generalization which has to verify itself over time; it cannot be empirically proven, but only falsified. Its validity will depend on how well it holds up in the progress of generative research. At the same time, the system recognizes and predicts a significant correlation between verb movement and noun movement, which seems to be a very worthwhile point of discussion, and can be used as a stimulus for further research.

In this respect, the following contrast is significant. The Mainland Scandinavian languages (such as Danish and Swedish) are SVO-grammars which lack systematic verb movement into the inflectional layer (they only have Verb Second movement in main clauses)(cf. Vikner 1995, 2001). As we have illustrated above, Danish and Swedish furthermore have a pre-nominal genitive. This situation differs from Icelandic: According to Vikner (among many others), Icelandic divides from its Germanic VO-relatives by having systematic verb movement into the inflectional layer. Significantly, it *also* differs from them in having a post-nominal genitive:²⁵

(37) Icelandic (data cf. Thráinsson 1994:167):

[DP __ D⁰ [NP __ dúkkur_N [NP [litlu stelplnanna] t_N t_{Gen}]]]
 dolls [little girls]_{Gen}
 ‘‘the little girls’ dolls’’

We noted earlier that the current structural interpretation of post-nominal genitive has a precedent in Ritter 1991a, b, who claimed that the post-nominal genitive in Hebrew is due to

(i)	[_{DP} Gen-NP D ⁰ [_{NP} __ N ⁰ compl]]	Y	[_{TP} subj T ⁰ [_{vP} (t _S) ... v ⁰ ...]]
	‘+ gen-P - N in [head - comp]	Y	‘- verb movement into TP ’

²⁵In Icelandic, along with the Mainland Scandinavian languages such as Danish, the definite determiner suffixes onto the noun, as, for example, *hús-ið* ‘house-the’. Once more, this does not necessarily indicate N-to-D-movement, but could also be due to phonological merger of syntactically adjacent D⁰ and N⁰.

Also be aware that Icelandic’s possessive pronouns are evidently phrasal, and as such adjoined (to NP). This is indicated by the fact that there is no complementary distribution between the possessive pronoun and the determiner: *hús-ið hans Haraldar* ‘house-the his Harold’s = Harold’s house’ is possible, but **hús hans Haraldar* is not (cf. Thráinsson 1994:167).

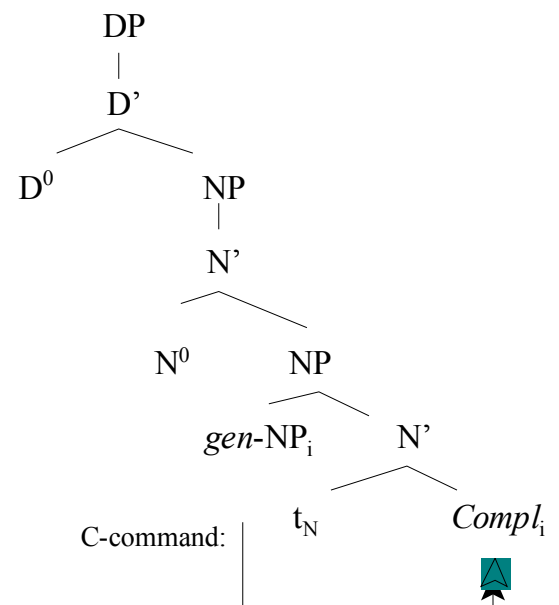
leftward noun movement across the genitive phrase in Spec, NP. The hierarchical relations are identical here, the only difference is the recognition of a different target position: the noun does not land in a functional projection NumP, but in a lexical noun phrase shell. Otherwise, as in Ritter's approach, the genitive phrase in Spec, NP c-commands any potential PP-phrase base-generated in the complement of N's base position. Now, one of Ritter's arguments in favor of such a c-command relation between the genitive phrase and the following complement is the binding relation between the two: the genitive phrase can bind an anaphoric expression in the complement position but not vice versa (cf. Ritter 1991a:44).

It might be worthwhile, however, to be somewhat cautious about inferring directly from binding relations to c-command. It is not always clear whether the ability/non-ability of binding is not (co-) determined by other factors such as linear order, or eventually more critically, by factors which have nothing to do with syntactic hierarchy but are of purely semantic nature. Nevertheless, keeping in mind this caution, we can still notice that the facts observed by Ritter for Hebrew have a straightforward parallel in Icelandic post-nominal genitive. The genitive phrase, which itself has to precede any additional PP-complement, can bind into the latter, but not vice versa; see (38) (the genitive phrase holds here an agent relation to the noun):

(38) Icelandic (data cf. Bondre-Beil 1994:107):

a. [DP ___ D⁰ [NP ___ lysingu_N [NP Maríu_i t_N [PP af sér_i]]]]
 descriptions Maria-gen of herself
 "Maria's descriptions of herself"

b. *lysingu sér_i af María_i



Next, let us consider French. In chapter 3, we identified French as an SVO-grammar with systematic verb movement into TP. French also has, along with all other Romance languages only a post-nominal genitive. That is, the function expressed in Icelandic by morphological case is taken up in the Romance languages by a *de/di*-phrase, which could either be a PP or a genitive case marked KP. Relevant for us is that the *de*-phrase follows the nominal head:

- (39) French:
 les_D valises_N [de la femme]
 the suitcases K-gen/P the women
 “the woman’s suitcases”

Before continuing further, it must be pointed out that the topic of Romance noun phrases is a huge one, given the abundant work present in the field (for an overview, see Longobardi 2001). This as such renders it beyond the scope of this dissertation to really enter into the discussion. Most important for our purposes here, is the fact that French, along with the other Romance languages, allows more than one *de*-phrase in post-nominal position. In the following example, the first *de*-phrase expresses a possessor, the second an agent.²⁶

- (40) French (a), Italian (b), Spanish (c) (Giorgi & Longobardi 1991:132, 133):
 a. les livres **de** Jean **de** mon auteur préféré
 b. i libri **di** Gianni **del** mio autore preferito
 c. los libros **de** Juan **de** mi autor preferido
 “John’s books by my favorite writer”

This availability of iteration sheds some doubt on whether *de*-phrases are in fact genitive case marked phrases, that is KPs, instead of true prepositional phrases. Furthermore, there is the question of how the order between several *de*-phrases is determined and how a simultaneous presence is structurally represented.

²⁶It might be worthwhile to point out that all native Spanish and Portuguese speakers I consulted rejected examples of the (40)-kind, and agreed that, in general, only one *de*-phrase per noun phrase is legitimate.

That being said, what is critical in light of ‘+ verb movement into TP Y N - *gen*-P’ is that neither French nor the other Romance languages have ‘*gen*-P - N’-order.²⁷

Therefore, if *de*-phrases are PPs and not genitive, then French doesn’t provide direct support for the implication from verb movement to noun movement, but at the same time, it does not falsify it. Furthermore, while it is much less clear how the linear order between several *de*-phrases is restricted, there is still a more robust preference for a *de*-phrase to precede a distinct prepositional phrase (cf. Longobardi 2001:569). Here, we also find the *de*-phrase to be able to bind into the following PP. All this is, at the minimum, consistent with the system’s predictions. The following shows the structures which are possible if we interpret the *de*-phrase as carrying genitive case:²⁸

(41) French:

a. [DP ___ le_D [NP ___ mari_{Nj} [NP [de la reine_i] t_N [PP dans son_{i/j} palace]]]]
 the husband *gen* the queen in her/his palace
 “the queen’s husband in her/his palace”

b. [DP ___ le_D [NP ___ livre_N [NP [du president_i] t_N [PP a propos de lui-même_i]]]]
 the book *gen*-the president about himself
 “the president’s book about himself”

²⁷ See Giorgi & Longobardi 1991:155, 161 on the assumption that French possessive pronouns such as *mon* ‘my’ etc. (also Spanish *mi* etc.) are determiners, whereas Italian possessive pronouns such as *mio* (also the French/ Spanish *mien/mio*- ‘mine’-series) are phrasal adjectives. The determiner-pronouns are analyzed as being base generated under D⁰. Thus, they precede the noun, but not because they are genitive case marked. AP-possessive pronouns can precede if they are adjoined to NP; once more, this has nothing to do with genitive case marking.

²⁸ The examples are provided by Marie Barchant (French), Sarah Teardo (Italian), Martin Boguszko (Spanish) and Valeria Lamounier (Portuguese). Note that in Italian, ‘backwards’ binding is available as well, cf. Giorgi & Longobardi 1991:162 ‘la descrizione di se stesso a Gianni,’ = “the description of himself to Gianni”.

In all four languages, postposing the *de/di*-phrase behind a distinct PP is possible (modulo intonation and heaviness considerations), though it seems this is most readily available in Italian. A potentially interesting parallel in this respect is that in Italian (also Spanish) clauses, we find frequently right-dislocation of the subject (see Samek-Lodovici

(42) Italian :

a. [DP ___ i_D [NP ___ mariti_N [NP [della regina_i] t_N [PP nel suo_i palazzo]]]]
the husbands gen-the queen in her palace
“the queen’s husbands in her palace”

b. [DP ___ il_D [NP ___ libro_N [NP [del presidente_i] t_N [PP a sè stesso_i]]]]
the book gen-the president about himself
“the president’s book about himself”

(43) Spanish:

a. [DP ___ los_D [NP ___ maridos_N [NP [de la reina_i] t_N [PP en su_i palacio]]]]
the husbands gen the queen in her palace
“the queen’s husbands in her palace”

b. [DP ___ el_D [NP ___ libro_N [NP [del presidente_i] t_N [PP sobre el/si mismo_i]]]]
the book gen-the president about himself
“the president’s book about himself”

(44) Portuguese:

a. [DP ___ os_D [NP ___ maridos_N [NP [da rainha_i] t_N [PP no seu_i palacio]]]]
the husbands gen -the queen in her palace
“the queen’s husbands in her palace”

If *de*-phrases are genitive, one approach to the availability of iteration that is worth considering might be the concept of ‘multiple specifiers’ (cf. Chomsky 1995:375). Alternatively, each *de*-phrase could occupy the specifier of a separate NP-shell. In both scenarios (with the hierarchy between the *de*-phrases organized by independent means, and D being able to assign genitive case more than once), the optimal candidate will be one that moves the nominal head across the highest NP-specifier, achieving syntactic adjacency of D and N, in order to satisfy CASE LEX at the cost of an additional HEAD RIGHT violation. The predicted basic order is ‘N - *gen*-P - *de*-P... - PP’. Another possibility is that only the first *de*-phrase in a sequence is a

genitive-case-marked KP, while any additional one is a PP. *de* would then be ambiguous between a case marker and a true preposition, and the pattern ‘N - *gen*-P - *de*-PP ...- PP’.

As a last point in this section, we want to understand why the predicted implication, ‘+ verb movement into TP Y N - *gen*-NP’, relies on the assumption that we are talking about grammars in which a functional head assigns genitive (rather than N itself), and why, if N is the assigner, then there is no implication but there is still the prediction that SVO-languages can have either pre- or post-nominal genitive. This draws upon the earlier point that languages which lack a determiner system might therefore lack DP, which in turn means that N has to assign genitive case itself, to Spec, NP.

This results would hold, because leftward lexical head movement inside the lexical layer is not only motivated by CASE LEX but also by LEX HEAD EDGE. Suppose that D is absent, so that no case assignment of D is involved. Then, there is no threat imposed on CASE LEX; in the sense that an NP-specifier could not intervene between D and its lexical helper N. There is, however, in [head - complement]- grammars, the threat of a specifier blocking the alignment of N⁰ at an edge of NP. The logic does not differ from the reasoning we have developed in chapter 2, and which by now should be familiar. In a [head - complement]-setting, a left-peripheral specifier prevents the head from surfacing edge-most, and, thus, yields a violation of LEX HEAD EDGE. This holds, unless the grammar turns towards one of the three choices that the system offers to circumvent the cost: the ‘right-peripheral head’-, the ‘right-peripheral specifier’-, or the ‘head movement’-choice.

Recall that we are looking at the nominal domain where GENERALIZED SUBJECT is mute. Therefore in an ‘SVO’-grammar, – in any grammar which prefers [head - complement]-order by HEAD LEFT >> HEAD RIGHT –, the ‘head movement’-choice has a greater chance of winning over an ‘N-in-situ’-solution. [_{NP} *gen*-P [N⁰ complement]] violates LEX HEAD EDGE (keep in mind that the complement could be filled either by the copy of the *gen*-P or by another phrase). Hence, in an SVO-grammar (which is unwilling to violate BRANCHING RIGHT for LEX HEAD EDGE), [_{NP} ___ N⁰ [_{NP} *gen*-P [*t*_N comp]] will win over [_{NP} *gen*-P [N⁰ comp]] if LEX HEAD EDGE is ranked above HEAD RIGHT. In contrast, ‘N-in-situ’ will win over the ‘head movement’-choice if the ranking is reversed:

(45) Pre- or post-nominal genitive, dependent on the ranking of HEAD RIGHT and LEX HEAD EDGE:

	LEX HD EDGE	CASE LEX ²⁹	BRANCHR	GEN SUBJ	HEAD LEFT	HD RIGHT
a. [_{NP} Gen-P [N ⁰ complement]]	*					*
b. [_{NP} __ N ⁰ [_{NP} Gen-P [t _N complement]]]						**

Both LEX HEAD EDGE >> HEAD RIGHT and HEAD RIGHT >> LEX HEAD EDGE are among the ranking choices that derive SVO-grammars without systematic verb movement into TP, but also among those that derive an SVO-grammar that has verb movement (recall chapter 3, and see appendix A). Therefore, there is no implication from verb movement to noun movement, but at the same time, either pre- or post-nominal genitive can be the basic nominal structure of an SVO-language without DP.³⁰

To sum up, based on the idea that genitive is a functional case in the nominal domain, and thus a correlate of nominative in the verbal domain, we have seen in this section how the system derives an entailment relation between verb movement into the inflectional layer and the necessity of noun movement leading to post-nominal genitive. We have thus acknowledged that, while it is impossible to empirically prove a universal entailment, there are both conceptual and empirical reasons to welcome the implication from verb to noun movement.

4.5 Conditions for ‘post-nominal genitive & OV’

Let us now turn to the question of how the system accounts for the marginal occurrence of post-nominal genitive in underlying OV-languages. Later, in section 4.6, we will discuss why strict V-first languages always have a post-nominal genitive. But firstly, here is why we should discuss the two phenomena in one sequence. In chapter 2, we learned about a few systematic ways of being a grammar with ‘mixed’ directionality. All these ways prefer on a more general level [(spec) [head - complement]]-configurations, but nevertheless deviate from a corresponding

²⁹Both configurations obey CASE LEX, even if N is the case assigner. N lexically *ep*-governs its assignee, whether it stays in situ or whether it crosses Spec, NP.

³⁰Obviously, the pre-nominal genitive should differ here to the one discussed in section 4.4, in the sense that no

[subject - verb - object]-pattern inside vP . Now, having introduced CASE LEX in chapter 3, and with it the TP-typology derived by the extended system, the overall prediction for the nominal domain is consistently as follow.

On the one hand, it is the [head - complement]- grammars, which switch to [comp - head] inside vP/VP , and hence are underlying OV (that is, type C-grammars), which can and do have a *post*-nominal genitive, as long as the ranking is CASE LEX >> HEAD RIGHT. Thus, post-nominal genitive is tied to the occurrence of [head - complement]- patterns elsewhere in the grammar.

On the other hand, in the nominal domain, [head - complement]-grammars that surface as VOS or VSO-languages will not deviate from the mixed directionality they choose in the verbal domain. That is, VSO- and VOS-grammars (type A and B), which seem to make a structurally unsystematic choice in verbal extended projections, are nevertheless systematic with respect to their post-lexical subject positions across VP and NP. This is because CASE LEX must be ranked above HEAD RIGHT or BRANCHING RIGHT in order to derive the corresponding types in the first place.

Altogether, the point is that both the unexpected occurrence of post-nominal genitive in OV, as well as the systematic occurrence thereof in strictly V-first is directly tied to the theory of what is a possible mixed word order? developed in this thesis.

Let us look first at post-nominal genitive in OV. In section 4.2, we have seen that the system does not give HEAD RIGHT >> HEAD LEFT- grammars any reason to have a post-nominal genitive. Languages which generally prefer [(spec) [complement - head]]- configurations favor a pre-nominal genitive. However, the situation is different for HEAD LEFT >> HEAD RIGHT- grammars with a head-final verb phrase. Such type C-grammars pattern in many of their structural choices with uniform SVO-grammars, which means that they can have either a pre-nominal genitive, corresponding to [_{DP} Gen-NP D⁰ [_{NP} __ N⁰ compl]], or they can have a post-nominal genitive, due to leftward noun movement across a genitive phrase in Spec, NP. How, then, does a particular choice come about?

functional head should be able to intervene between the genitive phrase and N.

4.5.1 Mixed head directionality and the preference for a post-nominal genitive

We know that the ‘right-peripheral head’-choice, which leads to a head-final *vP*, wins in a HEAD LEFT >> HEAD RIGHT-grammar only if LEX HEAD EDGE and GENERALIZED SUBJECT and BRANCHING RIGHT are ranked above HEAD LEFT. This implies two things:

On the one hand, if LEX HEAD EDGE is ranked above HEAD LEFT, and HEAD LEFT is above HEAD RIGHT, then by transitivity, LEX HEAD EDGE is above HEAD RIGHT. Now, just at the end of the previous section, we discussed the impact of a LEX HEAD EDGE >> HEAD RIGHT - ranking on the nominal domain in an SVO-grammar. We realized that, in the hypothetical case of a grammar lacking the DP-layer entirely (which means that N must assign genitive case), a LEX HEAD EDGE, HEAD LEFT >> HEAD RIGHT- ranking yields a language with post-nominal genitive. The same reasoning applies to any type C- grammar. Only here, in the absence of DP, a post-nominal genitive would be the only possibility, since, as we have said, LEX HEAD EDGE can never be ranked below HEAD RIGHT, or else we are not facing a type C grammar.³¹

On the other hand, when D is the assigner of genitive, the optimal choice (and with it the order of *gen-P* and N) will depend on the ranking of BRANCHING RIGHT, CASE LEX and HEAD RIGHT. Given that BRANCHING RIGHT is necessarily ranked above HEAD LEFT in type C, and thus, by transitivity, above HEAD RIGHT, there is no chance for a post-nominal genitive that corresponds to a genitive phrase in a right-peripheral Spec, NP. But there is a good chance for a post-nominal genitive due to leftward noun movement. All that is needed is for CASE LEX to be ranked above HEAD RIGHT. As discussed in chapter 3, this is the case in both Persian and German, which, to avoid violation of CASE LEX, do not use systematic verb movement into a head-final TP. The grammar’s ranking ‘LEX HEAD EDGE, CASE LEX, BRANCH RIGHT >> GEN SUBJECT >> HEAD LEFT >> HEAD RIGHT’ therefore predicts the emergence of post-nominal genitive, despite a head-final *vP*. This is precisely what we observe. (46) and (47) show examples of Persian and German,

³¹This also means that nominal extended projections are predicted to have [head - complement]-order in type C, with or without the extension of the system by CASE LEX:

In the nominal extended projection, with GEN SUBJECT mute, the ‘right-peripheral head’-choice can never win against the ‘head movement’-choice in a HEAD LEFT >> HEAD RIGHT-grammar. Even in the presence of a lexical specifier, crossing it by head movement and maintaining [head - complement] only violates HEAD RIGHT; pushing the head to the right violates HEAD LEFT.

demonstrating the basic ‘N - gen-P’-order. The corresponding competition is shown in (48):³²

(46) Persian (data cf. Ghomeshi 1996:11):

[DP __ D⁰ [NP __ kif-e_N [NP [in mard] t_N t_{Gen}]]]
 bag+EZ [this man]_{Gen}
 “this man’s bag”

(47) German:

[DP __ die_D [NP __ Ehemänner_N [NP [der Königin_i] t_N [PP in ihrem_i Palast]]]]]
 the husbands [the queen]_{Gen} in her palace
 “the queen’s husbands in her palace”

(48) Post-nominal genitive despite a head-final vP:

	LEX HD EDGE	CASE LEX	BRANCHR	GEN SUBJ	HD LEFT	HD RIGHT
a. [DP Gen-P D ⁰ [NP __ N ⁰ compl]]		*!				**
L b. [DP __ D ⁰ [NP' __ N ⁰ [NP' Gen-P t _N compl]]]						***
c. [DP __ D ⁰ [NP N ⁰ compl Gen-P]]			*!			**
d. [DP __ [NP Gen-P compl N ⁰] D ⁰]					*!*	
a'. [TP subject T ⁰ [vP __ v ⁰ object]]		*!		*		**
b'. [TP __ T ⁰ [vP __ v ⁰ [vP' subject t _v object]]]				*!*		***
c'. [TP __ T ⁰ [vP v ⁰ object subject]]			*!			**
L d'. [TP __ [vP subject object v ⁰] T ⁰]					**	

³²Persian does not have determiners but only demonstratives (and an indefinite enclitic, which can attach to singular and plural nouns, meaning ‘a certain, a particular; one of a class’; cf. Ghomeshi 1996:39). If the demonstratives are not of category D but rather A, then, the fact that they precede N could be due to AP-adjunction to NP (instead of base generation in D⁰). If that also meant that DP is absent in Persian, then the ‘N - gen-P’-order would be due only to the impact of LEX HEAD EDGE, as outlined above. Ghomeshi 1996 assumes the existence of DP in Persian; see also next footnote for an argument in favor of at least an abstract D⁰.

On German, note that adjectives always intervene between D and N, as in *der attraktive Butler* ‘the attractive butler’. I assume that adjectives generally project in German and, as APs, they adjoin to (the highest) NP.

As we see in the German example, the genitive phrase itself precedes any PP-complement. Once again, the relative binding relations are in accordance with what we expect (if binding ability is solely determined by c-command). This is illustrated in (49) (see also Haider 1993:23 who observes the phenomenon, and suggests exactly the same NP-shell structure as given in (49) and derived by the current system):

(49) German:

- a. [DP __ das_D [NP __ Buch_N [NP [des Präsidenten]_i t_N [PP über sich selbst_i]]]]
 the book [the president]_{Gen} about himself
 “the president’s book about himself”
- b. *das Buch seiner selbst_i [über den Präsidenten]_i

The post-nominal genitive in Persian requires one further remark: Notwithstanding that the surface patterns in Persian match the system’s expectations, it should be noted that Ghomeshi 1996 argues against the hierarchical relations given in (46) and in favor of an analysis in which the genitive phrase is in a right-peripheral Spec, DP (cf. Ghomeshi 1996:50). While this is incompatible with the current system, we have to ask whether Ghomeshi’s argument against an N-movement approach to Persian is decisive.³³

Before we look at the argument, I follow Ghomeshi 1996:37 in her assumption that the so-called Persian ‘Ezafe’-construction involves a process similar to compounding. In this construction, N⁰ dominates several heads (N plus, potentially more than one, N, A, or P) as long as all heads agree via the head-final ezafe vowel (glossed as EZ; see example (50) below). Consequently, noun movement across a possessor in an Ezafe-configuration will involve movement of the ‘compound-like’ complex head as a whole. As a result, the entire Ezafe-string

³³Ghomeshi explicitly argued against the application of Ritter’s (Hebrew) theory to Persian. Since Ritter’s structure is a configurational parallel of the current proposal, Ghomeshi’s binding argument discussed in the text challenges both approaches.

The same does not hold for her criticism that in ‘se-tâ ketâb-e hasan’ “three book Hasan = Hasan’s three books”, the definite reading is left unexplained, unless *hasan* has syntactic scope over the numeral. The definite reading can either be due to the direct localization of the numeral in D⁰, or due to the scope of an abstract D⁰ c-commanding the numeral in

ends up in front of the possessor:³⁴

(50) Persian (data cf. Ghomeshi 1996:35):

[DP __ D⁰ [NP __ [dust-e qadboland-e]_N [NP jiân t_N t_{Gen}]]]
 friend+EZ tall+EZ Jian_{Gen}
 ‘‘Jian’s tall friend’’

Now, according to Ghomeshi, the problem of an N-movement approach is the following. Once we embed a reflexive pronoun into the Ezafe-complex, a possessor can bind the reflexive. Elsewhere in the grammar, such binding is tied to c-command. This, then, apparently indicates that the possessor is in a hierarchically higher position than the reflexive pronoun, running contrary to the structure in (51).

(51) Persian (data cf. Ghomeshi 1996:45):

[DP __ D⁰ [NP __ [barâdar-e xod_i-e]_N [NP hasan-râ_i t_N t_{Gen}]]]
 brother+EZ self+EZ Hasan_{Gen}
 ‘‘Hasan’s own brother’’

Is it true that *hasan-râ* cannot bind the reflexive in an N-movement approach? Notice that the raising, which moves *xod* out of the surface scope of the possessor, is an instance of head movement and *not* of XP-A-movement. Furthermore, the copy of the head, that is, the lower base position is c-commanded by *hasan-râ* (the specifier and the complement both c-command the head of the lower NP). Consequently, the possessor can bind the reflexive via this base position, even if on the surface, *hasan-râ* is below *xod*.

an NP-adjoined position.

³⁴Ghomeshi 1996:34f distinguishes the Ezafe-construction, as a syntactic X⁰-to -N⁰-adjunction, from true compounds, the latter formed by derivational morphology. Taking up Karimi & Brame 1986, Lazard 1992, she, however, also notes that Ezafe-constructions can develop into true compounds, but then they lose the Ezafe-vowel.

If the construction indeed does not involve adjunction below the N⁰-level, then a question for the current system is why the adjoining X⁰ aligns at the right side and not at the left, the latter predicted by Persian’s ranking HEAD LEFT >> HEAD RIGHT. I have to leave the question open at this point.

In short, what we have to take into account is the possibility of reconstruction before the binding relation is evaluated. It is true that, if reconstruction applies to A-bar-movement only, it is not immediately obvious whether head movement can be subsumed under A-bar-movement in this respect without further ado. But we should still notice that the situation critically differs from the binding configurations seen before: In the earlier examples, it is always the genitive phrase in Spec, NP which binds a reflexive in the complement position, without any movement of one phrase passing the other. Furthermore, looking at German, we can find similar binding possibilities as in Persian, despite the fact that, as we have seen in (49) above, a genitive phrase is able to bind into a following PP (but not vice versa):

(52) German:

- a. [DP ___ die_D [NP ___ [**Selbst**_i-zerstörung]_N [NP [des Trinkers]_i t_N t_{Gen}]]]
 the self-destruction [the alcoholic]_{Gen}
 “the alcoholic’s self-destruction”
- b. [DP ___ die_D [NP ___ Zerstörung_N [NP [des Trinkers]_i t_N durch sich selbst_i]]]
 the destruction [the alcoholic]_{Gen} by him self
 “the alcoholic’s destruction by himself”

Altogether, we see that in both Persian and German, we find post-nominal genitive, but we also find a head-final *v*P. In spite of this superficial directional contrast, the occurrence of ‘N - *gen*-P’-order is not at all idiosyncratic. It rather correlates with the fundamentally head-initial character of both grammars seen in every phrase but VP/*v*P. What we arrive at here is the system’s generalization on the marginal co-occurrence of post-nominal genitive and OV-order. The co-occurrence is contingent upon the preference for [(spec) [head – complement]] outside *v*P. This generalization was introduced in section 4.1.1 above and is here summarized in (53):

- (53) Post-nominal genitive & OV Y [head - complement] in FP, where FP is an extension of N *or* V.

Before we turn to VSO and VOS, let us discuss the possibility of pre-nominal genitive in a type C-grammar.

4.5.2 Mixed head directionality and pre-nominal genitive

According to Giorgi & Longobardi 1991:146ff, Longobardi 2001:568 (among others), Modern German allows, in addition to the general post-nominal genitive, a pre-nominal genitive configuration as well, which is restricted to proper names. Two examples are given in (54a) and (54b):

(54) German:

- | | | | |
|-----|---|-----|---|
| a. | Martins Freund
Martin _{masc-gen} friend
“Martin’s friend” | b. | Sabines Freund
Sabine _{fem-gen} friend
“Sabine’s friend” |
| a’. | ??/* der Freund Martins | b’. | ??/* der Freund Sabines |
| c. | das Kissen meines Bruders
the pillow [my brother(masc)] _{gen}
“my brother’s pillow” | d. | das Kissen meiner Freundin
the pillow [my friend(fem)] _{gen}
“my friend’s pillow” |
| c’. | ??/* meines Bruders Kissen | d’. | ??/* meiner Freundin Kissen |

First, notice that the *-s* ending on the masculine proper name in (54a) also appears on other genitive masculine noun phrases (cf. *meines Bruders* in (54c)), though it is missing on genitive feminine noun phrases (see *meiner Freundin* in (54d)). Nevertheless, the *-s* ending does occur on the pre-nominal feminine proper name in (54b). Olsen 1991, Delsing 1993 and Lattewitz 1994 (among others) concluded from this that *-s* in the pre-nominal genitive construction cannot be a case marker (Delsing locates *-s* in D^0). As I understand it, however, this evaluation still does not falsify the assumption that the pre-nominal proper names have genitive case. Rather, consider that the construction indeed involves an *-s* suffix in D^0 which merges with the proper name. It should not surprise us if such *-s* suffix fuses phonologically with a masculine genitive *-s* case ending (where the female genitive form doesn’t have a morphologically-overt case ending

in the first place). Whether the pre-nominal proper names carry genitive case or some other (abstract) case, what we still need to ask is how they receive this case and why they occur in a position that precedes the nominal head.³⁵

Now, the point is that the Modern German pre-nominal genitive is restricted to a clear subset of noun phrases, that is, proper names. All other noun phrases, such as *meines Bruders* in (54c), or *meiner Freundin* in (54d), must occur post-nominally and are only marginally (if at all) acceptable if they precede the noun. On the other hand, proper names are definitely preferred in pre-nominal position and tend to be rejected post-nominally.³⁶

Thus, there seems to be a clear division between the application of the two constructions, and we do not get both pre- and post-nominal genitive for the same kind of noun phrase. Nevertheless, the system's up-front expectation is that a grammar chooses, depending on ranking, only one configuration for all contexts.

Importantly, (54c') and (54d'), beyond sounding pretty bad, have an *archaic* flavor to them. This might precisely be related to the fact that Old High German is a grammar with

³⁵The construction should not be confused with yet another dialectal variant of pre-nominal possessor phrases in which the possessor phrase carries *dative* case. Then, it generally precedes the noun (hence, it is not restricted to proper names), and D^0 is always filled by a possessive pronoun; for example:

- (i) [dem Vater]_{dat} sein Haus
the father his house
“the father's house”

I assume that the ‘possessor-dative’-dialect falls out of a ranking involving HEAD RIGHT >> CASE LEX, on a par with the case of Old High German (see discussion below). An open question is why the dialect chooses dative over genitive in the nominal domain.

Note also that in colloquial speech, some speakers of Standard German allow fronting of a PP to Spec, DP, as in (ii) (cf. Webelhuth 1992:118), a construction which does not involve case-marking at all:

- (ii) [DP [PP über Chomsky]_i] die_D [NP Gerüchte_{eN} t_i]] hat er nicht geglaubt.
about Chomsky the rumors has he not believed
“He didn't believe the rumors about Chomsky.”

³⁶Longobardi 2001:568 assumes that post-nominal genitive of proper names is unmarked as well. As a native speaker of German, I disagree with this judgment.

general *pre*-nominal, not post-nominal, genitive (cf. Hawkins 1983:335)³⁷:

- | | | |
|------|--|----------------------------------|
| (55) | Old High German (Nibelungenlied:1390): | in Modern German: |
| | a. eines chvniges lant | b. das Land eines Königs |
| | [a king] _{gen} lant | the land [a king] _{gen} |
| | “a king’s land” | “a king’s land” |

With this fact in mind, let us recall the discussion in chapter 3 (3.5), where we reasoned whether (Modern) German is a grammar with an $[_{TP} _ [_{VP} S O V] T]$ -structure, or an $[_{TP} S T [_{VP} t_S O V]]$ -structure. We opted for the former, but also pointed out that the grammar eventually descended from ‘ $[_{TP} S T [_{VP} t_S O V]]$ ’. Here is why:

As we have seen in section 3.5, $[_{TP} _ [_{VP} S O V] T]$ is the optimal choice under a ranking ‘**BRANCHING RIGHT**, **LEX HEAD EDGE** >> **CASE LEX** >> **GEN SUBJECT** >> **HEAD LEFT** >> **HEAD RIGHT**’. As we know now, since **HEAD RIGHT** is below both **BRANCHING RIGHT** and **CASE LEX**, this ranking constellation gives us a grammar with a post-nominal genitive.

The alternative TP-structure, $[_{TP} S T [_{VP} t_S O V]]$, can also be optimal in a grammar with post-nominal genitive. This is the result if the ranking is ‘**BRANCHING RIGHT**, **LEX HEAD EDGE**, **GEN SUBJECT** >> **CASE LEX** >> **HEAD LEFT** >> **HEAD RIGHT**’. Recall that the variation between the two TP-optima depends on the relative ranking of **GENERALIZED SUBJECT** and **CASE LEX**. **CASE LEX** can be ranked below **GENERALIZED SUBJECT** (resulting in ‘ $[_{TP} S T [_{VP} t_S O V]]$ ’) but still above **HEAD RIGHT**, predicting a post-nominal genitive.

The factorial typology does, however, include one further type. If, in the above ranking constellation, **CASE LEX** is demoted *below* **HEAD RIGHT**, then we obtain a grammar with ‘ $[_{TP} S T [_{VP} t_S O V]]$ ’-structure and pre-nominal genitive. That is, we get a grammar that has the same kind of mixed directionality in clauses as Modern German (modulo that T can only be abstract; recall the discussion in 3.5). The only difference is that possessor genitive phrases generally precede the nominal head, since ‘ $[_{DP} \text{Gen-P } D^0 [_{NP} _ N^0 \text{ compl}]]$ ’ is optimal. Let us

³⁷Hawkins likewise classifies Old High German as a grammar with basic OV, plus Verb Second/First order, furthermore with prepositions and initial determiners. Thus, Old High German is, like Modern German, not a case of a uniform SOV-grammar, but rather has systematic ‘head-initial’ properties.

assume that this is the ranking of Old High German. Then, (56) gives the ranking constellation, the tableau in (57) demonstrates how the pre-nominal genitive can beat the post-nominal genitive, in a HEAD LEFT >> HEAD RIGHT -grammar with head-final vP:

(56) Old High German:

LEX HD EDGE, BRANCH RIGHT, GEN SUBJECT >> HD LEFT >> HD RIGHT >> CASE LEX

(57) Old High German (Nibelungenlied:1390):

[DP [eines chvniges] D⁰ [NP ___ lant_N t_{Gen}]]
 [a king]_{gen} land
 “A king’s land”

	LEX HD EDGE	GEN SUBJ	BRANCHR	HD LEFT	HD RIGHT	CASE LEX
L a. [DP Gen-P D ⁰ [NP ___ N ⁰ compl]]					**	*
b. [DP ___ D ⁰ [NP' ___ N ⁰ [NP' Gen-P t _N compl]]]					***!	
c. [DP ___ D ⁰ [NP N ⁰ compl Gen-P]]			*!		**	
d. [DP ___ [NP Gen-P compl N ⁰] D ⁰]				*!*		
a'. [TP subject T ⁰ [vP ___ v ⁰ object]]		*!			**	*
b'. [TP ___ T ⁰ [vP ___ v ⁰ [vP' subject t _V object]]]		*!*			***	
c'. [TP ___ T ⁰ [vP v ⁰ object subject]]		*!	*		**	
d'. [TP ___ [vP subject object v ⁰] T ⁰]		*!		**		
L e'. [TP subject T ⁰ [vP t _S object v ⁰]]				*	*	*

Considering (56), and the diachronic change from Old High German to Modern German, we can now capture this change by recognizing a simple promotion of one constraint. Promoting CASE LEX into a higher constraint stratum has led from a pre-nominal to post-nominal genitive (and to

a stability of the head-final verb phrase pattern despite the otherwise head-initial orientation; recall the discussion in 3.5.1).

How is the above relevant with respect to the pre-nominal genitive of proper names in Modern German? While I have nothing insightful to say on how to implement this on a conceptual level, I nevertheless strongly suspect that the subset of proper name-noun phrases is a relic of the older stage of the grammar which had more systematically pre-nominal genitive. That is, for some reason, proper names are still case-marked in Spec, DP, and as such cause violation of CASE LEX, despite the fact that an additional violation of HEAD RIGHT and the resulting post-nominal genitive is now less costly.

This reason could conceivably be related to the fact that proper names are intrinsically referential expressions, which favor localization in Spec, DP. That is, in a possessor construction involving a proper name, the entire (super-ordinated) noun phrase must be interpreted as a definite one, with the proper name determining the reference. (See Longobardi 1994:622ff for the independent assumption that proper names in certain varieties of Romance must move into D⁰ in their own noun phrases if the determiner is absent)³⁸.

It should be highlighted though that we should be careful with respect to the assumption that a syntactic constraint is responsible for the special treatment of proper names in German. The justification of such constraint would ultimately depend on its typological validity. That is, we should in theory be able to find other VO-languages which prefer more generally a post-nominal genitive, but – by high ranking of constraint X – demand pre-nominal genitive for proper names only. If the phenomenon is a sole property of German and other Germanic OV-languages, then it might be exclusively related to the diachronic change from a pre- to a post-nominal-genitive grammar. I will have to leave the puzzle for further research, however. I also have to leave aside the fact that we can combine in German the pre- and post-nominal genitive into one construction (in (58), the higher *gen-P* must express an agent, the lower one a theme):

³⁸See also Delsing 1993 who suggests that the German pre-nominal proper name incorporates into the D-head of

- (58) German:
- a. Lolas Beschreibung ihres neuen Films
 Lola_{gen} description [her new movie]_{gen}
 ‘Lola’s description of her new movie’

That is, in German, D seems to be able to assign genitive case twice in the same nominal extended projection.³⁹

Altogether, we have seen in this section how the emergence of a post-nominal genitive in an OV-language is contingent upon a preference for [head - complement]-directionality beyond the nominal domain. Let us now lastly address the question of why the generality of post-nominal genitives in both VOS- and VSO-languages is directly related to the emergence of a V-first-pattern as such.

4.6 Uniformly post-nominal genitive in VSO and VOS

Why exactly do VSO- and VOS-languages only allow post-nominal genitive? The answer is simple, and there is not more to it than what we have already noticed.

In order to derive the TPs that have a basic word order ‘verb - subject - object’ or ‘verb - object - subject’, CASE LEX must be ranked above at least either HEAD RIGHT or BRANCHING RIGHT. As such, in the nominal domain, the pre-nominal configuration, [DP Gen-NP D⁰ [NP __ N⁰ compl]], can never win, but is necessarily beaten by either a post-nominal genitive construction which involves a right-peripheral specifier, or by the post-nominal genitive construction which is the result of N-movement.

In a VOS-language, a surface post-nominal genitive can correspond to either of the two structures. That is, either [DP __ D⁰ [NP N⁰ compl Gen-NP]], with a genitive phrase in a right-peripheral lexical NP-specifier, can be the ultimate winner, or the N-movement configuration, [DP __ D⁰ [NP __ N⁰ [NP Gen-NP t_N compl]]]. (One might take this as a reflection of how close VOS-grammars are to basic VSO-languages.)

the super-ordinated noun phrase.

³⁹Giorgi & Longobardi 1991:149 assume that pre-nominal genitive phrases in German are case-marked in the lexicon, not in the syntax.

In chapter 3 (3.3), we discussed how a $[_{TP} _ T [_{vP} V O S]]$ -grammar is derived by a ranking ‘HEAD LEFT, LEX HEAD EDGE, CASE LEX >> GEN SUBJECT >> BRANCH RIGHT, HEAD RIGHT’. With respect to the relative ranking of BRANCHING RIGHT and HEAD RIGHT, this means that the two constraints can be ranked either way, and the clause optimum will still be $[_{TP} _ T [_{vP} V O S]]$, and with it basic ‘V - O - S’-order. Nevertheless, CASE LEX must be ranked above both BRANCHING RIGHT and HEAD RIGHT, or else the outcome is another type.⁴⁰

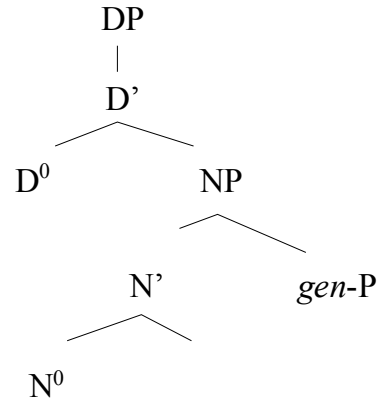
Then, in a VOS-grammar, the choice between post-nominal genitive by a right-peripheral NP-specifier or by leftward noun movement depends on whether in the full ranking, we have HEAD RIGHT >> BRANCHING RIGHT or the reverse. If BRANCHING RIGHT is below both HEAD RIGHT and CASE LEX, $[_{DP} _ D^0 [_{NP} N^0 compl Gen-NP]]$ wins (see the tableau below in (59)). If HEAD RIGHT is at the bottom, we have the same conflict resolution as in Persian, German, Icelandic etc. and $[_{DP} _ D^0 [_{NP} _ N^0 [_{NP} Gen-NP t_N compl]]]$ wins. In both scenarios, the language has post-nominal genitive. But, since CASE LEX can never be at the bottom of the triple in a VOS-grammar, ‘ $[_{DP} Gen-NP D^0 [_{NP} _ N^0 compl]]$ ’ can never be optimal; and hence, a VOS-grammar can never have a pre-nominal genitive.

That post-nominal genitive is due to a right-peripheral NP-specifier in VOS Tzotzil has been explicitly claimed by Aissen 1996:451, 454ff. (59) presents an example followed by the corresponding competition. The tableau in (59) also compares the nominal phrase with the verbal one, illustrating how in both domains, LexP ends up with the same directionality, and neither the subject nor the possessor phrase surfaces in the specifier of the relevant FP. Note that in the Tzotzil genitive construction, the nominal head agrees with the possessor through the same set of ergative markers used to cross-reference transitive subjects in clauses (so called ‘set A’-affixes):

⁴⁰See appendix A on one further ranking option which elects ‘ $[_{TP} _ T [_{vP} V O S]]$ ’ as the optimal candidate but doesn’t necessarily have CASE LEX >> HEAD RIGHT. In this constellation, BRANCHING RIGHT must still be ranked below both HEAD RIGHT and CASE LEX.

(59) Tzotzil (data cf. Aissen 1996:454):

[DP ___ D⁰ [NP s-p'in_N t_{Gen} [li Maruch-e]]]
 A3-pot [the Maruch-ENC]_{Gen}
 “Maruch’s pot”



Right-peripheral Spec, LexP in both the verbal and the nominal domain:

	LEX HD EDGE	HD LEFT	CASE LEX	GENSUBJ	HD RIGHT	BRANCHR
a. [DP Gen-P D ⁰ [NP ___ N ⁰ compl]]			*!		**	
b. [DP ___ D ⁰ [NP' ___ N ⁰ [NP Gen-P t _N compl]]]					***!	
L c. [DP ___ D ⁰ [NP N ⁰ compl Gen-P]]					**	*
d. [DP ___ [NP Gen-P compl N ⁰] D ⁰]		*!*				
a'. [TP subject T ⁰ [vP ___ v ⁰ object]]			*!	*	**	
b'. [TP ___ T ⁰ [vP ___ v ⁰ [vP' subject t _V object]]]				***!	***	
L c'. [TP ___ T ⁰ [vP v ⁰ object subject]]				*	**	
d'. [TP ___ [vP subject object v ⁰] T ⁰]		*!*		*		

Verification of whether the Tzotzil genitive phrase is indeed in a *right*-peripheral specifier or not is complicated by the fact that Tzotzil does not allow more than one dependent phrase to occur; only the single genitive phrase is legitimate (the genitive doesn't need to express a possessor

relation; cf. Aissen 1996:454, 455)⁴¹. If it is true that the *gen*-P indeed surfaces in a right Spec, NP, then Tzotzil draws a clear parallel between the lexical layer of its verbal and its nominal extended projections. Within the current system, this parallelism has a single cause and explanation: the impact of LEX HEAD EDGE.

It is also significant that Tzotzil’s nominal domain shows the same directionality split between the lexical and the functional layer that we have observed in the grammar’s verbal domain in chapter 2. The theory of ‘possible mixed directionality types’ developed in this thesis allows right-peripheral lexical specifiers, but any VOS-grammar which makes use of this option is nevertheless expected to prefer left-peripheral functional specifiers and adjuncts. Indeed, according to Aissen 1996:458, while Tzotzil has post-nominal genitive, Spec, DP can nevertheless be targeted by a possessor that constitutes a *wh*-phrase, as in English ‘*whose* N’. Crucially, such *wh*-possessors align on the left, not on the right. That is, whichever position the *wh*-possessor targets in the functional domain of the nominal extended projection – for Aissen, this is Spec, DP – the fronted position is a left-peripheral one, as predicted by a VOS-type-ranking:⁴²

(60) Tzotzil (cf. Aissen 1996:457, 458):

[_{DP} [buch’u] _{wh-gen}	D ⁰ [_{NP} x-ch’amal _N	<i>t</i> _{Gen}]] _i	i-cham	<i>t</i> _i
who	A3-child			<i>cp</i> -died
“whose child died?”				

Having explained why a VOS-language generally has post-nominal genitive, let us turn to VSO. Here, the system adds to the implication ‘verb- movement into TP Y post-nominal genitive’ a second one:

⁴¹This is not an idiosyncrasy of Tzotzil. Many languages allow only one dependent phrase (which carries ‘genitive’ case).

⁴²Obligatory fronting of a *wh*-possessor within the nominal extended projection is also true for German. We have *wessen Kind* ‘whose child’, not **Kind wessen*.

- (61) If a grammar moves the verb inside the lexical layer below TP, leading to
 $[_{TP} _ T^0 [_{VP} _ v^0 [_{VP} \text{subject } t_V \text{object}]]]$, then it necessarily chooses the equivalent
structure in the nominal domain, $[_{DP} _ D^0 [_{NP} _ N^0 [_{NP} \text{Gen-P } t_N \text{complement}]]] =$
‘**T - V - S - O**’ **Y** ‘**N - gen-NP - PP**’

In chapter 3, we have seen that verb movement inside the lexical layer, below TP, in combination with an absence of subject movement to Spec, TP, requires both HEAD RIGHT and GENERALIZED SUBJECT to be at the bottom of the hierarchy. This is because, while $[_{TP} _ T^0 [_{VP} _ v^0 [_{VP} \text{subject } t_V \text{object}]]]$ spares violation of HEAD LEFT, LEX HEAD EDGE, BRANCHING RIGHT and CASE LEX, it pays its price by violating HEAD RIGHT and GENERALIZED SUBJECT to a greater degree than potentially winning alternative structures do. As such, a $[_{TP} _ T [_{VP} V S O]]$ -grammar is a grammar which avoids BRANCHING RIGHT and CASE LEX violations on the cost of GENERALIZED SUBJECT and HEAD RIGHT. That is, in order to derive a $[_{TP} _ T [_{VP} V S O]]$ -grammar, we must have ‘HEAD LEFT, LEX HEAD EDGE, **BRANCH RIGHT**, **CASE LEX** >> GEN SUBJECT, **HEAD RIGHT**’, or else, we get another type.⁴³

As we have seen all along, for $[_{DP} _ D^0 [_{NP} _ N^0 [_{NP} \text{Gen-NP } t_N \text{compl}]]]$ to win in the nominal domain, only HEAD RIGHT needs to be lowest ranked. But if HEAD RIGHT and GENERALIZED SUBJECT are ranked below the rest of the set, then obviously, HEAD RIGHT is below BRANCHING RIGHT and CASE LEX. The tableau in (62) illustrates a corresponding competition on a Mixtecan example, and also compares the nominal with the verbal domain in this type:⁴⁴

⁴³See appendix A for one other ranking constellation that produces the VSO-type. Even in this second ranking variation, both BRANCHING RIGHT and CASE LEX must be ranked above HEAD RIGHT.

⁴⁴In chapter 3, we mentioned that the Celtic VSO-languages might in fact fall under the SVO-type that has both subject and verb movement into TP, but then results in an ‘V - S - O’-order by moving the verb into an even higher FP. Since the current system predicts that any grammar that has systematic verb movement into TP should have post-nominal genitive, so is such a VSO-type expected to have post-nominal genitive as well which is correct.

As for Yosondúa Mixtec, be aware that the grammar might lack a DP-layer, since it has no determiners. Noun movement across the genitive phrase in Spec, NP, and with it post-nominal genitive, is still predicted, but then is solely

(62) Yosondúa Mixtec (data cf. Farris 1992:16):

[DP ___ D⁰ [NP ___ s†h†_N [NP yS [NP [chaa] t_N t_{Gen}]]]
 child male man
 “the man’s son”

	LEX HD EDGE	HD LEFT	BRANCHR	CASE LEX	GEN SUBJ	HD RIGHT
a. [DP Gen-NP D ⁰ [NP' ___ N ⁰ compl]]				*!		**
L b. [DP ___ D ⁰ [NP' ___ N ⁰ [NP' Gen-NP t _N compl]]]						***
c. [DP ___ D ⁰ [NP' N ⁰ compl Gen-NP]]			*!			**
d. [DP ___ [NP' Gen-NP compl N ⁰] D ⁰]		*!*				
a'. [TP subject T ⁰ [vP ___ v ⁰ object]]				*!	*	**
L b'. [TP ___ T ⁰ [vP ___ v ⁰ [vP' subject t _v object]]]					**	***
c'. [TP ___ T ⁰ [vP v ⁰ object subject]]			*!		*	**
d'. [TP ___ [vP subject object v ⁰] T ⁰]		*!*			*	

The implication in (61) seems quite unspectacular within the internal logic of the current system. Also, on an intuitive level, it might not surprise us so much that basic ‘verb - subject - object’-order always correlates with post-nominal genitive.

However, it is easy and logically sensible to think of a system which does *not* impose this correlation, and which therefore predicts that the nominal and the verbal domain do not necessarily coincide structurally in a VSO-grammar. As a matter of fact, theories which motivate verb movement by, for example, the strength of agreement morphology (cf. Roberts 1985, Rohrbacher 1999, Vikner 2001, Bobaljik 2002b), or by the strength of functional features in I or T (cf. Chomsky 1995), such theories have little to say about whether the head movement in phrases of distinct lexical categories is connected in any systematic way. But considering the empirical typology and the apparent absence of VSO-languages with pre-nominal genitive, a

driven then by the impact of LEX HEAD EDGE.

system that is able to capture the correlation is definitely needed.

The same holds for a second generalization. Combining the system's predictions on VOS and VSO, we arrive at the empirically desirable entailment that '**basic VS languages have post-nominal genitive**'. Lastly, connecting (61) with the already established implication that 'verb-movement into TP Y post-nominal genitive', we ultimately derive another implicational universal, which, once more, has to prove itself over time:

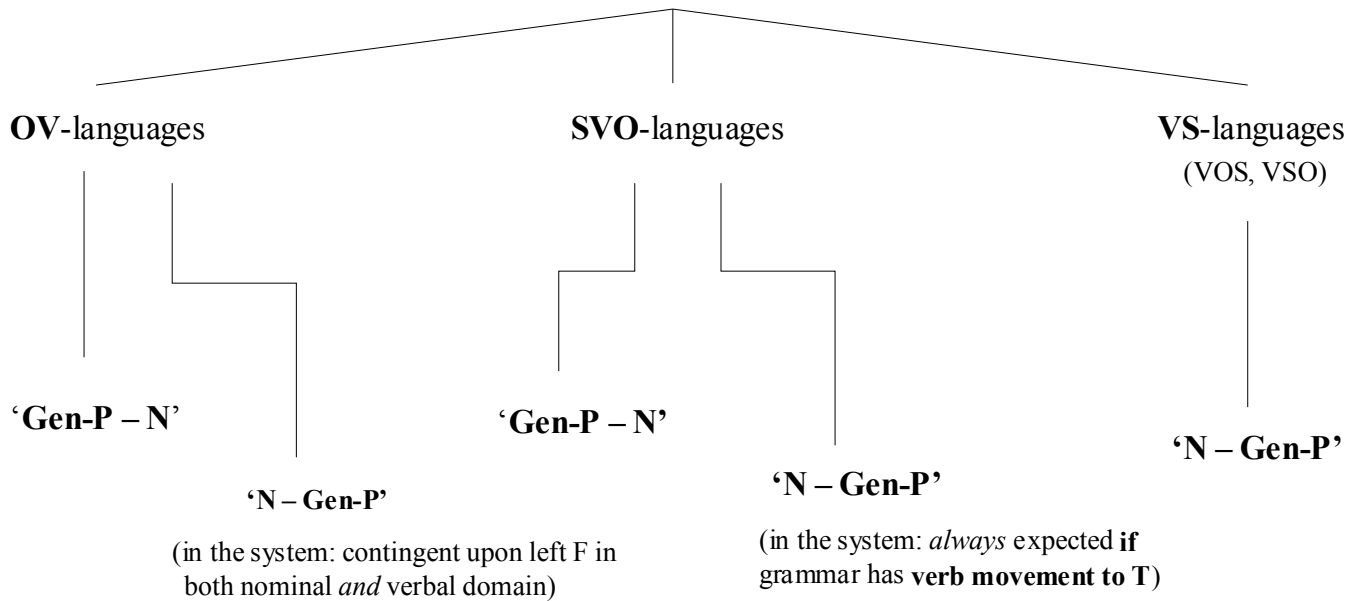
(63) Leftward **verb movement** across a lexical specifier **entails**

Leftward **noun movement** across a lexical specifier, but not vice versa.

This completes our exploration of the nominal domain and the distribution of (possessor) genitive phrases therein. We have seen that the extended system, beyond solving the '*TSVO'-puzzle in the verbal domain, is particularly powerful in the way it captures the typological correlations and differences in the directionality of verbal subjects on the one hand and genitive phrases on the other.

Altogether, the system not only explains why VOS and VSO languages always have a post-nominal genitive, but it also accounts for the fact that approximately one third of the SVO-languages have a pre-nominal genitive, while two thirds still have a post-nominal genitive. The system furthermore gives an answer for why, unlike basic VO-grammars, OV-languages make a much stronger 'correlation pair' in the sense that they seldom show post-nominal genitive. The predicted typology, which exactly matches the empirically attested distribution (cf. Dryer 1992:91, Hawkins 1983), is summarized in (64):

(64) The proposed system derives – ‘the queen’s palace’ vs. ‘the palace the queen’s’:



Beyond deriving these basic empirical facts, the system entails two generalizations, which recognize further aspects of the systematic nature in which languages implement superficially ‘mixed’ directionality. On the one hand, OV-languages with a post-nominal genitive have to prefer left-peripheral functional heads beyond the noun phrase context; on the other hand, (S)VO-languages with verb movement have noun movement, resulting in a post-nominal genitive.