Derivational Economy and the Analysis of V2 *

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1. Introduction

Generative analyses treat verb placement asymmetries in finite clauses in the Germanic "verb second" languages as a phenomenon reflecting differences in syntactic derivations. Descriptively, V2 is handled as verb movement to C, but views on the explanation of the phenomenon (reviewed in sections 3.-4.) diverge. There are three aspects to the problem which a comprehensive account must consider:

(i) to identify a "V2-parameter" that explains why finite verbs raise to C in some languages and not in others,
(ii) to account for the language-internal asymmetry: why V-to-C occurs in some clause types in but not in others,
(iii) to account for the "reverse side" of V2, i.e. the distribution of initial constituents in V2-sentences.

In this paper I develop an analysis of finite verb placement in German within the Minimalist framework of Chomsky (1993) that addresses the issues in (i-iii).

A key role is assigned to the economy factor ("least effort/last resort") in determining syntactic derivations. Movement, triggered by abstract morphosyntactic features of functional categories, may apply before or after the "Spell-Out" point that determines the input to the phonological component. Word order variation is a consequence of derivational asymmetries induced by universal economy principles, which interact with a parametrized property of triggers to determine whether a given movement happens in the syntactic derivation before or after "Spell-Out". In section 5., I show how the integration of economy into syntactic explanation yields a conceptually elegant analysis of the basic V2 asymmetry (ii). I propose that a finiteness feature F that is shared between finite complementizers and finite verbs is implicated in movement of finite verbs to C. Phrasal movement (iii) is driven by other independently parametrized features of C. The model permits a unified account of cross-linguistic and language-internal variation (i-ii) in terms of parametrization of F.

In section 6., I consider Zwart's (1993) arguments for an asymmetric approach to declarative V2, in which the verb lands in an Infl-head (AGR_S) lower than C in subject initial sentences (SU-V2). The claim is supported by the asymmetric properties of preverbal pronouns in declarative V2 which argue against a "generalized topicalization" treatment. Like Zwart, I consider economy to provide the key to understanding this asymmetry. However, Zwart's implementation of the asymmetric V2-analysis relies too heavily on unmotivated stipulations. In section 7., I suggest an alternative approach to declarative V2 in terms of a structural analysis for SU-V2 which unifies "symmetric" and "asymmetric" analyses of V2. Borrowing Haider's (1989) idea of "Matching Projections", SU-V2 clauses are viewed as single projection of two categories C and Infl (AGR_S), whose head hosts the finite verb. In derivational terms, simultaneous projection of functional heads in SU-V2 reflects the pressure of economy on operations that project structure.

2. Word order and derivation

The problem of word order variation is often thought of in cross-linguistic terms: how to account for the fact that one language has a certain order, e.g. SVO, of constituents that appear in a different order in another, e.g. SOV. Early approaches captured such variation by attributing the grammar of a language with a phrase structure rule governing the linear order of a verb and its object:

(1) a. VP –> V NP b. VP –> NP V

With the insight that phrase structure should be viewed as governed by universal principles (X'-theory) interacting with specific properties (parameters) and without the intervention of a rule component (cf. Chomsky 1981, 1986), recourse to (1) is no longer possible.

In the Principles-and-Parameters framework, this type of variation is attributed to "parametric variation" - grammars vary with respect to a specific property (parameter) which interacts with fixed principles of UG to yield the different serializations. The VO / OV variation is attributed to a "directionality parameter" that permits language-specific choice of the direction in which a head licenses its complement. The parameter might affect the government relation that licenses Θ-role and Case-assignment (Koopman 1984, Travis 1984); alternatively, left- and right-headedness are just properties of (classes of) lexical items in a language (Chomsky 1993). Although these alternatives replace rules with parameters, the difference between OV and VO languages is still encoded in basic phrase-structural configurations, as in (1):

(2) a. $[_{VP}$ V NP] b. $[_{VP}$ NP V]

A second aspect of the problem concerns word order variation within languages - words appear in different sequences in different constructions. One of the best studied examples is the the main / subordinate clause asymmetry in the placement of finite verbs in German and other V2-languages:

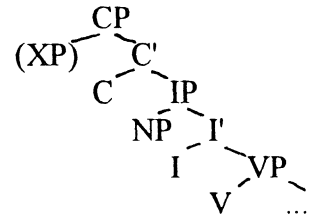
(3) a. *Sie <u>schreibt</u> heute ein Gedicht.*
she writes today a poem
b. *...daß sie heute ein Gedicht <u>schreibt</u>.*
that she today a poem writes

The treatment of this type of variation differs from the approach to cross-linguistic variation in terms of basic configurations just sketched. Most generative analyses of V2 start from the assumptions (4):

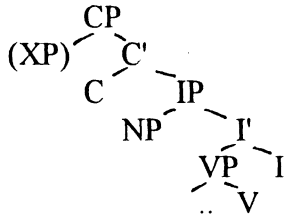
(4) a. The phrase structure of finite clauses does not vary language-internally.
b. The finite verb in a V2-clause is the same item as the finite verb in the corresponding verb-final clause.

Since Chomsky (1986), (5a) has become established as a working hypothesis about sentence structure of English. The basic clause structure of other languages may differ with respect to the order of VP-internal (2) or other major constituents. A common assumption about German is that I (Infl) follows rather than precedes its VP-complement (5b):

(5) a.



b.



But in each language, embedded and main clauses will have the same structure.

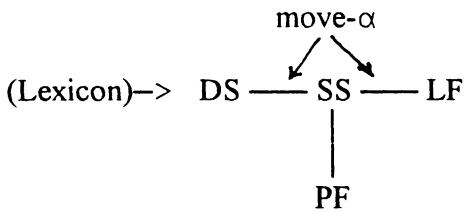
In the standard description of V2, the finite verb in V2-clauses occupies the C-position, while in verb-final clauses, it is dominated by V (or maybe I). The placement asymmetry reflects the linear order imposed by the hierarchical structure dominating the relevant positions in (5b). The V2 / V-final asymmetry would be accounted for by assuming that the finite verb in V2-clauses is an item of the category C, while the finite verb in verb-final clauses is a V (or I) element, so that the placement asymmetry follows from the location of the relevant category in the tree. However, this means adopting two categorizations, effectively two lexical entries, one for a "second position" verb, and one for a "final" verb, in conflict with (4b). So phrase-structure is not solely responsible for the V2-effect.[1]

Given the assumptions (4) and a structure (5), V2 is a classic example of a phenomenon that needs to be handled in terms of movement of constituents in a derivational model. The structure of VP in (5) expresses the idea that "underlyingly", German is an OV-language. Assuming that finite verbs have the category V, and corresponding constraints on the structural projection of lexical information, the finite verb in both examples (3) enters the phrase structure (5) in the position of the V-node. So, the finite verb of a V2 sentence can only reach the C-position by undergoing movement in the syntactic derivation. Hence, subordinate clause order is considered the "underlying order"; V2 is a "derived order".

3. V2 as V-movement to C

In the "T-model" of grammar assumed in Chomsky (1981,1986), the representation (structural description) of a sentence is viewed as a quadruple representation {D,S,L,P}, with each member satisfying level-specific principles. Three of these (D,S,L) are syntactic phrase-markers. The syntactic derivation, the mapping between DS and SS, and SS and LF, is mediated by movement operations ("move-α"):

(6)

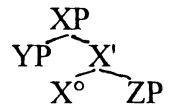


V2-structures arise through movement of the finite verb from the V-position (which it has to occupy at D-structure) to C before S-Structure; the position of the finite verb in the PF-string reflects its position in the S-Structure representation (crucially, the mapping from SS to PF does not involve move-α). The derivation DS-to-SS in subordinate clauses on the other hand does not involve movement of the verb to C: so the finite verb appears in final position in the PF-string.

3.1 X'-Theory and move-α

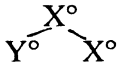
The derivational analysis of V2 depends on assumptions about phrase structure and the movement operation involved in syntactic derivations. X'-theory constrains the structural properties of representations at all levels. Following Chomsky (1993), each lexical category forms the 0-level head of a two-level projection (7). The sister of X° is its complement; the sister of the intermediate projection X' is the specifier of the phrase:

(7)

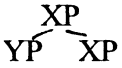


Other non-head constituents are permitted in adjunction structures (8), whereby only a head may be adjoined to a head, only a phrase to phrase:

(8) a.



b.



Other possibilities are excluded, including (9), which plays an important role in the account of the V2-effect:

(9) Adjunction to X' is excluded.

The most important constraint on movement derives from the assumption that move-α leaves a trace, and that α and its trace must form a well-formed chain. In particular, a moved category must c-command its trace, and may not be "too distant" from its trace. X'-theory must be respected by the "output" configuration, and so constrains moved categories and their landing sites. A phrase may either substitute into an XP-position (a specifier), as in *wh-* and NP-movement constructions; or adjoin to another phrase. A head may move only to another head position, by substitution or adjunction.

3.2 The standard description

Under what I shall call the symmetric analysis of V2, V-movement to C, an instance of head movement, is implicated in all clause-types in which the finite verb has fronted (see Den Besten 1983, Holmberg 1987, Schwartz & Vikner 1989, Vikner & Schwartz 1991). The initial phrasal constituent, which may be a subject (10a), a non-subject constituent such as the adverbial in (10b), or a *wh*-phrase (10c), is assumed to occupy the specifier position of CP. V1-orders (10d) either involve unfilled SPEC,CP, or as is more commonly assumed, an abstract (phonologically null) phrase - a "question operator" or "conditional operator" - in SPEC,CP.

(10) a. *Sie <u>schreibt</u> heute ein Gedicht*
she writes today a poem
b. *Heute <u>schreibt</u> sie ein Gedicht*
c. *Was <u>schreibt</u> sie heute?*
what writes she today
d. *<u>Schreibt</u> sie heute ein Gedicht?*
e. *..., daß sie heute ein Gedicht <u>schreibt</u>*

Where V-fronting has not occurred (10e), the finite verb stands in a head position inside IP (I in most versions). So there are exactly two positions in which a finite verb may surface - a clause-initial position (C), and a clause-final position (I). The standard symmetric analysis

contrasts with the "asymmetric" analysis (Travis 1984, Zwart 1993) on the description of subject-initial declaratives (10a), which is discussed in §§6-7 below.

The strength of the V-to-C hypothesis is perceived to lie in its potential to account for two main properties of V2: the fact that the finite verb is always the first or second constituent in the clause, but (with certain qualifications) never the third; and the fact that fronted finite verbs are in complementary distribution with lexical complementizers. I discuss these in turn.

3.3 V1, V2, but never V3

That the finite verb in V2 may come second, after an initial phrasal constituent, but never third, following two phrases, is accounted for fairly easily under the V-to-C hypothesis. If the finite verb is in C, then there is only one position available inside the clause for a phrasal constituent to the left of the verb - SPEC,CP. This result depends on the unavailability of (i) adjunction to C' (cf. 9) and (ii) adjunction to CP.

With regard to (ii), provision needs to be made for left-dislocation structures (LD). In German, a V3 order may arise where an LD-phrase is initial, followed by a pro-form (bearing identical case) preceding the verb:

(11) *Den Bürgermeister, den mag wahrscheinlich keiner*
the mayor (ACC) pron-ACC likes probably noone
"As for The mayor, probably noone likes him."

The dislocated phrase is outside the domain of the "second effect" (maybe adjoined to CP); the verb is "second" with respect to the pro-form.

(12) * *den Bürgermeister, den wahrscheinlich mag keiner*

LD is restricted to certain referential phrases, such as the definite expression in (11). A negative quantifier, for example, cannot be dislocated (13). LD can thus be distinguished from topicalization to SPEC,CP (14), which is free of such restrictions (Haider 1990):

(13) * *Niemanden, den mögen wir*
noone-ACC pron-ACC like we

(14) a. *Den Bürgermeister mögen wir nicht*
the mayor like we not
"The mayor, we don't like"
b. *Niemanden mögen wir*
"We like noone"

From (9), it follows that the SPEC,XP must be adjacent to the intermediate projection X'. SPEC,XP generally precedes X', so if the head X precedes its complement, SPEC,XP will be string-adjacent to X. Evidence for the need to assume (9) comes from a variety of sources. In cases where a language permits an overt complementizer to cooccur with an overt *wh*-phrase or relative pronoun in SPEC,CP (Dutch, Swedish), no further element may ever intervene between the two. In direct *wh*-questions in English, the fronted finite auxiliary is obligatorily adjacent to the *wh*-phrase in SPEC,CP. Like verbs in V2, the auxiliary is assumed to move to C:

(15) *Which car (*probably) did John buy?*

With respect to (9), the "second effect" in V2 robust: virtually all cases of "V3" are best analysed with the second constituent in SPEC,CP (X - SPEC - C° rather than SPEC - X - C°) [2]. Adverbs may not intervene:

(16) * *Hans wahrscheinlich hat mich gesehen*
H. probably has me seen

Apparent cases of SPEC - X - HEAD, such as English (17a), must therefore be analysed so that the finite auxiliary does not occupy the head of the phrase in whose SPEC the subject stands (Kayne 1989, 1993):

(17) a. *John probably has not seen Mary*
b. * *Jean probablement n'a vu Marie*

French does not permit adverbs to intervene between subject and finite verb (17b), which supports the assumption that the French finite verb raises to the head of the category (AGR_S - see below) whose SPEC hosts the subject.

3.4 Complementary distribution of complementizers and fronted verbs

Wherever a lexical complementizer appears (declarative daß, interrogative ob, conditional-temporal wenn), verb-fronting is not attested, either to a medial position following the first phrase, or to an initial position following or preceding the complementizer:

(18) a. *daß sie ihn oft sieht*
that she him often sees
"that she often sees him"
b. * *daß sie sieht ihn oft*
c. * *daß sieht sie ihn oft*
d. * *sieht daß sie ihn oft*

A frequently cited argument for the V-to-C hypothesis is that it permits an account for the complementary distribution of overt complementizers and fronted V. This follows if the only position which verb-fronting can target is the C-position. The presence of an overt complementizer in C effectively blocks movement of the verb there.

In declaratives, overt complementizers alternate with V2-order; in interrogatives and conditionals, the alternation is with V1-order:

(19) a. *Wenn er kommt, (dann gehe ich.)*
if he comes then go I
b. *Kommt er, (dann gehe ich.)*

(20) a. ... *ob sie klug ist*
if she clever is
b. *Ist sie klug?*

The strict alternation between V1 and ob is neatly illustrated in comparison clauses introduced by als (Den Besten 1983):

(21) a. ... *als ob er betrunken wäre.*
as if he drunk were
b. ... *als wäre er betrunken.*

Similar paradigms can be created for all V2-languages. Even in English, where V-to-C is confined to finite auxiliaries in restricted contexts, complementary distribution of complementizer and fronted verbs can be observed in conditionals:

(22) a. *If she had read this book, ...*
b. *Had she read this book, ...*

4. Triggers and the role of economy

In conjunction with X'-theoretic constraints and a concrete hypothesis about clause structure, the analysis of V2 as V-movement to C is able to capture word order facts, providing a descriptive basis for an explanatory account of verb-placement asymmetries in V2-languages.

However, in the derivational model, movement is in principle free to apply (within general constraints indicated in §3.1). How to block overgeneration is a fundamental issue for a derivational model as complex as (6). Even restricting attention to the derivation of S-Structures from D-Structures, move-α allows for massive overgeneration. If the V-to-C hypothesis is to be of any use in explaining the finite clause word order asymmetry, an account is needed of why V-raising takes place when it does, and why it does not in other cases.

An account is also needed for what Zwart (1993) calls the "reverse side" of the V2-phenomenon. The constraint on what can precede the finite verb in V2-sentences - i.e. at most one phrasal constituent - follows as discussed above. Under usual assumptions, the constituents that turn up in SPEC,CP are not base-generated but moved there; and in general, some constituent not only may, but must occupy SPEC,CP at S-Structure.

So the derivational analysis of V2 must provide answers to (23):

(23) a. Why does the finite verb have to move to C in some contexts?
b. Why can't the finite verb move in other contexts?
c. What enforces the movement of some constituent into SPEC,CP in V2-clauses?

The questions (23a/c) are essentially about the triggering of movement; (23b) addresses the blocking of movement. Taken together, they concern the general issue of preventing overgeneration.

4.1 Complementizers and root clause status

Most attempts to answer (23a) involve reference to the complementary distribution of fronted verbs and complementizers, by seeking to tie V-fronting in V2-languages to the absence of a lexical complementizer in C.

However, while an overt complementizer never cooccurs with a fronted verb, the generalization does not quite go through in the other direction. A phonologically empty C does not automatically trigger V-fronting - in indirect interrogatives, the verb cannot front even though C contains no overt material (the *wh*-phrase is in SPEC,CP):

(24) a. *Er fragte, wer ihn gesehen hatte.*
he asked who him seen had
b. * *Er fragte, wer hatte ihn gesehen.*

The solution often favoured is to postulate a lexical complementizer with syntactic feature content, but no PF-content. Supporting evidence comes from the fact that the postulated abstract element sometimes finds overt expression, as in Dutch (of) and Swedish (som):

(25) a. *Ik weet niet, wie of het gedaan heeft* Dutch
I know not who C° it done has
b. *Jag vet inte vem som har gjort det* Swedish
I know not who C° has done it

This allows the trigger for V-fronting to be related to empty C-positions, with the abstract *wh*-complementizer counting as filling C.

Although the absence of a lexical complementizer seems at first sight to correlate with the root status of the clause, it is generally agreed that the analysis of V2 should not be tied to the root / non-root distinction. The correlation is not exact in either direction. Clauses with V-final order (and overt complementizers) can be independently uttered, thus appearing to count as root clauses. They receive "indirect" interpretations, as an exclamation, echo question, or similar:

(26) a. *Daß du mir das nicht wieder tust!*
that you me that not again do
"Don't you dare do that again!"
b. *Ob ich ihn gesehen habe?*
whether I him seen have

The most reasonable conclusion is that a root clause may contain a lexical complementizer, and that this is responsible both for "indirect" interpretation, and for blocking V-fronting. Complement clauses lacking a lexical complementizer in German have the V2 order: [3]

(27) a. *Er hat gemeint* [*Hans habe dort einen Löwen gesehen*]
he has thought H. has there a lion seen
b. *Er hat gemeint* [*dort habe Hans einen Löwen gesehen*]

Where a constituent is extracted out of a V2-complement, V-1 order is obligatory: V2-order leads to strong ungrammaticality:

(28) a. *Was hat er gemeint* [t *habe* [*Hans dort* t *gesehen*]] ?
what has he thought has H. there seen
b. * *Was hat er gemeint* [*sie habe* [*dort* t *gesehen*]] ?
c. * *Was hat er gemeint* [*dort habe* [*sie* t *gesehen*]] ?

This provides further evidence for assuming that the fronted verb is in C. Supposing that the extracted phrase must leave an intermediate trace in SPEC,CP, the ungrammaticality of (28) results from the fact that the preverbal phrase must be in SPEC,CP, blocking that position for the intermediate trace of the extracted phrase. This derives the V1-order in (27c).

4.2 Empty C as trigger

Various attempts have been made to derive the idea that a finite verb must move to C prior to S-Structure if no lexical complementizer is inserted at D-Structure, though none has become established. Most proposals share the idea that some principle forces the C-position to be "lexicalized" at S-structure. One influential approach (Koopman 1984, Platzack 1986) relates verb movement to Case Theory. Assuming that Nominative Case for subjects is

licensed from the C-position in V2-languages, the "lexicalization requirement" is interpreted as a requirement on Case-assigning categories; V-fronting saves (29) from a Case Filter violation by the subject. [4]

(29) * [C ø] *sie heute ein Gedicht schreibt*

Whatever the theoretical account, V2 has to be derived with the aid of some parametrized property, given that C remains unfilled in main clauses in other languages like English and French. There must be a "V2 parameter". [5]

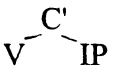
The answers to the questions (23) that emerge are that V2 and V1 orders are the result of some principle forcing movement of the finite verb into an empty C-position (23a); and the impossibility of V-fronting in other cases (23b) is due to the presence of lexical material in C° (through insertion at D-structure), which "blocks" the movement of the verb to C. In this way, the complementary distribution of complementizers and fronted verbs is directly integrated into the V-to-C analysis. On (23c), see §5.5 and §6. below.

4.3 Complementary distribution again

However, this way of integrating the complementarity of complementizers and fronted verbs turns out on closer inspection to be dubious. To ensure that the presence of a complementizer in C is sufficient to block movement of the verb to C, it must be assumed that verb-fronting is head-movement by substitution: only then will the position targeted by V-fronting be occupied by the complementizer.

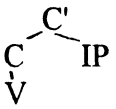
This assumption is questionable. Treating V-fronting as head movement by substitution gives an output - V directly dominated by the intermediate projection of C - that contravenes X'-theory (assuming that the fronted category is an Infl-head to which V is adjoined does not alter the argument):

(30)



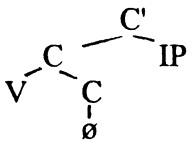
To avoid this type of violation, basic assumptions outlined in §3.1 must be modified. Rizzi & Roberts (1989) suggest that V-to-C creates a new type of "substitution" structure (31):

(31)



In the system outlined in Chomsky (1993), head movement by substitution is only permitted where the landing site heads a projection of the same category of the moved head. [6] V-to-C involves a landing site of a different category, so adjunction is the only possibility:

(32)



C dominates an element with no phonological content (but maybe syntactic feature content). The verb adjoins to this element.

It might be objected that treating V-fronting as adjunction loses the insight which a substitution analysis gives into the striking paradigms showing the complementary distribution of complementizers and fronted verbs. But to make the argument go through,

the substitution analysis needs an additional stipulation to the effect that V-fronting can only be head-movement by substitution. Otherwise, a string in which V-fronting cooccurs with an overt complementizer will have a licit derivation in which V adjoins to C. [7]

4.4 Movement as Last Resort

In his "Minimalist Program" (1993), Chomsky proposes a conceptually simple and intuitively appealing solution to the problem of overgeneration. The idea is that movement is only possible if necessary, that derivations are constrained globally by a fundamental principle of economy. In a given derivation, movement operations are not "optional", free to apply or not (within general limits), but are fully determined, or caused.

As in earlier approaches, there is assumed to be a set of "triggers", defined with respect to well-formedness conditions on the output representations, which necessitate applications of move-α in a derivation. If a necessary movement fails to take place, an ill-formed representation results. In such a case, move-α can be thought of as a "last resort" measure. If a movement that is not required for the well-formedness of a representation takes place in its derivation, the derivation will count as "uneconomic", even if the output were well-formed. The general principle (33) suffices to exclude such a derivation:

(33) Economy of Derivation (Last Resort)
"No unnecessary movement"

To illustrate the notion of Last Resort, consider how in the model of Chomsky (1981), the need for a representation to satisfy the Case Filter at the level of S-Structure acts as a trigger for movement of a NP in a Case-less position (John in (34a)) into a position where it can be assigned a Case-Feature (34b):

(34) a. e *was told John that it was raining*
b. *John was told* t *that* ...
c. * *It was told John that* ...

The NP cannot remain in its base position, as the ungrammaticality of (34c) shows.

The Last Resort nature of Case-driven NP-movement is shown by comparing (34) with (35). Even though the subject position of the verb seem is a legitimate target for NP-movement (as in Subject Raising examples), and even though English permits preposition-stranding under NP-movement (John was talked to), movement of the NP John to the subject position in (35b) results in an ungrammatical structure:

(35) a. e *seemed to John that it was raining*
b. * *John seemed (to)* t *that* ...
c. *It seemed to John that* ...

The NP can satisfy the Case Filter by remaining in its base position (35c); movement is thus unnecessary, and Last Resort ensures that the derivation leading to (35b) is ungrammatical.

In this model, the fundamental task in analysing a phenomenon like V2 is to identify the trigger for movement. Overgeneration - in the form of derivations which involve unmotivated movement - will be excluded by Last Resort.

The substitution-based account of the blocking of V2 in the presence of complementizers is made redundant by the adoption of (33). Given that a "trigger" for V-fronting must be independently assumed for V2-sentences, to ensure that movement takes place, (33) provides both a necessary and a sufficient account for the blocking of V-to-C where the trigger is not present. The complementary distribution of complementizers and

fronted verbs becomes a side effect of the distribution of the trigger: present in sentences where C is covert, and absent where there is a lexical complementizer. No particular problem arises with embedded interrogatives, where a covert C fails to trigger V-fronting. The trigger is simply absent in such cases.

It is important to realize the extent of the explanatory potential of this principle: even with respect to verb movement alone, a host of other cases of potential overgeneration are captured. Consider for instance the ungrammatical result of raising a participle to C in German:

(36) a. * *er* [$_C$ *getrunken*] *das Bier* t *hat*
he drunk the beer has
b. * *er* [$_C$ *getrunken hat*] *das Bier* t t

Example (36a), where the participle crosses the finite auxiliary on its way to C, might be excluded independently of Last Resort, by appealing to a locality principle for X°-movement, the Head Movement Constraint (HMC), which excludes one head from moving across another. (36b), where the participle has followed the auxiliary to C, cannot be so excluded. Indeed there are languages, such as Croatian, in which such movement patterns are attested: [8]

(37) *Pio je pivo*
drunk has beer-ACC
"He drank the beer"

Although (36b) is permitted by locality conditions on move-α, its ungrammaticality can be explained as a violation of Last Resort - there is no trigger for the movement of the participle (on the trigger for participle raising to C in Croatian, see Wilder & Cavar 1994b).

A further reason for wanting to reject the substitution-based interpretation of the "blocking" effect of overt complementizers will become clear in the analysis to be developed below. It will be claimed that the finite verb does in fact move to C in embedded clauses, in the derivation of LF from SS. Under this account, it cannot be that the presence of a lexical complementizer blocks the C-position as a landing site for verb movement.

A more revealing interpretation of the relation of lexical C to finite verbs is as that of an expletive to a contentful element (cf. Law 1991 for discussion). A lexical complementizer like daß can be seen as an expletive element that occupies a position otherwise occupied by a contentful element (a verb), much as the expletive form there occupies the position otherwise taken by a nominative subject:

(38) a. *there seem to be some dogs in the garden*
b. *some dogs seem to be* t *in the garden*

Just as the expletive there is always associated with a local nominative subject, so the finite complementizer is always associated with a local finite verb.

Chomsky (1993) suggests that the relation between there and NP be interpreted derivationally: the nominative NP in (38a) moves and adjoins to the expletive after S-Structure, to yield the LF (39):

(39) [*some dogs* [*there*]] *seem to be* t *in the garden*

An analogous treatment of the complementizer-finite verb relation in terms of LF-raising of the finite verb will be outlined below. The complementarity of finite verbs and

complementizers in C generalizes to the case (38) of English sentences with and without there: if the expletive appears in the target position, the associate is prevented from moving there in overt syntax.

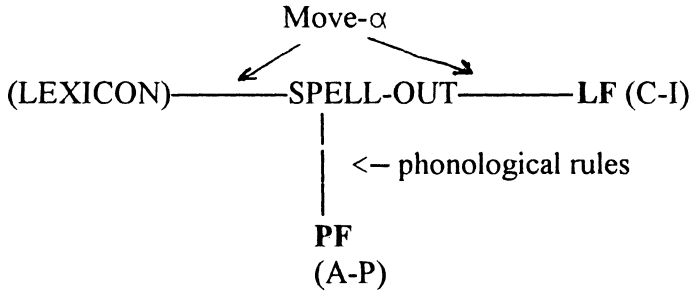
In the next section, I introduce key concepts of Chomsky's Minimalist Program, as a prelude to further development of the economy-based analysis of the V2 asymmetry.

5. V2 in the Minimalist Program

5.1 The Minimalist model

The D- and S-structure levels of earlier models (cf. (6) above), are eliminated from the revised T-model (40). The remaining levels LF and PF are the minimally necessary interfaces with non-linguistic performance systems - articulatory-perceptual (A-P) and conceptual-intentional (C-I) systems:

(40)



S-structure reduces to an intermediate stage (SPELL-OUT) at which the phonological derivation branches from the derivation to LF. D-structure is completely dissolved, so LF and PF are directly related to the lexicon by the derivational system. The representation of a sentence is simply the pair {L,P}.

In models with a D-Structure level interfacing with the lexicon, the mapping of lexical items onto positions in phrase markers is performed by a "lexical insertion" operation; tree construction is independent of lexical insertion, positions for "insertion" pre-defined. This approach is replaced with one in which the introduction of lexical items into derivations is interspersed with other operations involved in building syntactic trees.

Lexical insertion itself is reinterpreted as one such structure-building operation, which I call "Project-α". This operation projects a simple X'-tree from an item taken from the lexicon, the category of the lexical item determining node-labels in the tree. It may create a structure of any bar-level, the choice in a given case depending on subsequent operations to be performed on that tree:

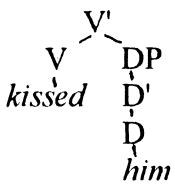
(41) a. V
kissed

b. DP
D'
D
she

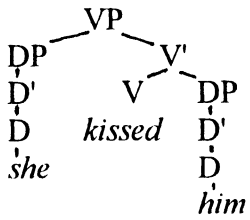
c. DP
D'
D
him

Subtrees are brought together by a binary tree-joining mechanism, "Generalized Transformation" (GT), which adds a branching node at the join. GT operates on the output of Project-α, and on its own outputs. To perform the union of a head with its complement, GT needs an X°-tree and a phrasal tree - e.g. (41a) and (41b), giving (42). Union of a specifier with an intermediate projection requires an X'-tree and a phrasal tree - (42) and (41c), giving (43). [9] As with Project-α, the output of GT must be licensed by X'-theory. The labelling of the node created is automatic in these cases:

(42)



(43)

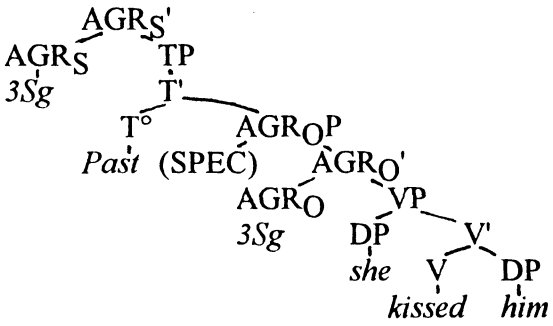


To build a sentence out of (43), further operations of Project-α yield simplex trees containing functional elements, each being united by GT with the nascent clausal structure as its complement. The clause structure Chomsky adopts is (44), incorporating the "split Infl" hypothesis:

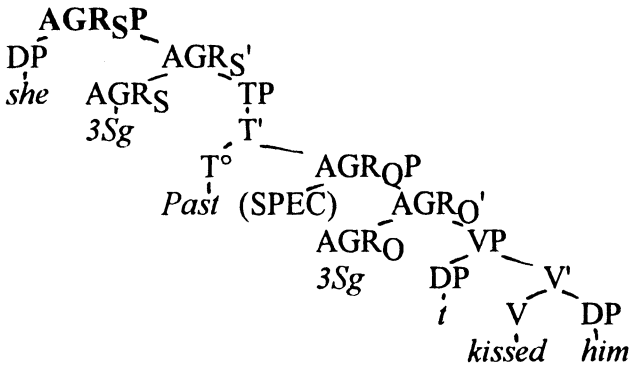
(44) $[_{CP} .. C [_{AGRsP} .. AGR_S [_{TP} .. T [_{AGRoP} .. AGR_O [_{VP} .. V ..]]]]]$

GT and Project-α interact with move-α, the third structure building mechanism. Move-α takes a subtree of an existing tree, and treats the two as trees to be joined (in the same manner as GT). Thus, a new branching node is created, dominating the moved subtree and the tree from which it was taken. (45) illustrates the movement operation that raises a subject from SPEC,VP to SPEC,AGR_S, which maps AGR_S' onto AGR_SP: [10]

(45) a.



b.



Projection from the lexicon and tree-extension cease at the Spell-Out point which inputs to PF; but move-α continues to apply after Spell-Out to derive LF-representations.

5.2 Economy of representation and morphosyntactic triggers

Economy principles play a fundamental role not just in constraining overgeneration (Last Resort), but also in explaining why movement is triggered. Movement in a derivation is necessary to ensure that the resulting interface representations meet the Full Interpretation requirement, understood as a representational economy principle:

(46) Principle of Full Interpretation (FI)
Interface representations may not contain superfluous symbols.

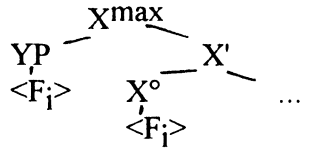
FI presupposes a set of legitimate objects in PF- and LF-representations. For PF, these are phonological symbols that are capable of phonetic interpretation; for LF, syntactic entities that are capable of semantic interpretation - i.e. chains (categories, together with their traces of movement, if any). The arrangement of these objects in the LF and PF of an sentence results from derivational manipulation of items projected from the Lexicon. FI states that interface representations must be fully interpretable: symbols that are superfluous in this sense are symbols that are not interpretable by the external performance systems.

Morphosyntactic features are entities entering syntactic derivations from the lexicon which are not externally interpretable. It is the need for such features to be eliminated during the derivation that triggers movement operations. Elimination presupposes "checking" of feature correspondence, and checking depends on movement. Movement in the derivation is in this way made necessary by requirements of representational economy.

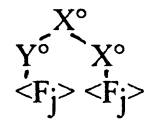
Triggers depend on morpho-syntactic features (m-features) as properties of lexical items. Case-features, Φ-features, Tense-features, and "operator-features" such as WH appear pair-wise in a structure: the Accusative feature borne by a verb and the Nominative feature of Tense (T°) will each match a Case-feature in a DP, Tense-features in the verb will match those in T°, etc. Chomsky proposes that morphosyntactic correspondence requirements (Case, Agreement, etc.) exhaust the set of triggers for movement. [11]

M-features may only be eliminated once matching pairs have been checked. The local configurations in which feature-checking is possible are the SPEC-head configuration for checking between a phrase and a head (47a), and head-adjunction for head-head checking (47b):

(47) a.



b.



Generally, one member of a checking pair needs to move to enable checking: a phrase or a head must be raised into the checking domain of a functional category. A functional head may contain a "phrasal feature" (N-features in (48)) checked by a phrase in its SPEC, and "head-features" (V-features) checked by lower heads that adjoin to it:

(48)

DP	AGR_S/AGR_O	T	V
<N->	<N-Φ>	<V-Tns>	<V-Tns>
<N-Case>	<V-Φ>	<N-Case>	<V-Φ>
<N-Case>			

The Φ-features of AGR_S match those of the finite verb and those of the DP with which the verb agrees. Thus AGR includes two sets of Φ-features, "N-Φ" and "V-Φ", each needing to be "checked" with a different element. [12]

In (45b), the subject has moved to a higher specifier, permitting checking of N-features in Infl (NOM in T and N-Φ in AGR_S). [13] This is the Spell-Out tree that feeds the phonological component. Before LF, all features must have been checked to permit deletion. So following Spell-Out, the verb must raise as far as AGR_S, to permit checking of all "V-features"; and the object must raise to SPEC,AGR_O to check N-features.

5.3 Economy of derivation: Procrastinate

The well-known contrast in the position of finite main verbs in English and French results from the fact that the English verb stands in V° at Spell-Out, while in French it has raised to AGR_S: [14]

(49) a. *John often kisses Mary*
b. * *John kisses often Mary*

(50) a. *Jean embrasse souvent Marie*
b. * *Jean souvent embrasse Marie*

In both languages, the subject raises to a functional specifier position before Spell-Out, while object raising is deferred to the covert syntax. Given that all features must be "checked" in a well-formed LF, overt raising of finite verbs in French is mirrored by covert raising of finite verbs in English.

The word order variation reflected in PF-representations is explained by the factors that determine whether a given movement operation applies before or after Spell-Out. Chomsky's account rests on the assumptions (51):

(51) a. Certain m-features are "invisible" in PF-representations.
b. Movement after Spell-Out is preferred.

FI constrains PF as well as LF, so we might expect all movement to apply prior to Spell-Out, to ensure all features are eliminated by PF. Chomsky proposes that some m-features have a special property enabling them to be present in PF without causing a violation of FI. Such features are weak ("PF-invisible"), contrasting with m-features that have the property of being strong ("PF-visible"), requiring to be eliminated prior to PF. Only strong features force move-α to apply prior to Spell-Out.

The V-features in Infl-heads in English are weak: the verb does not have to raise and check these features prior to Spell-Out (49a). In French, a V-feature in AGR is strong, forcing the finite verb to raise prior to Spell-Out (50).

The fact that English verbs may not raise before Spell-Out (49b) follows from (51b). Applying Last Resort to the preference for movement "late" in the derivation yields a specific derivational economy principle:

(52) PROCRASTINATE
A given application of move-α must occur after Spell-Out, unless earlier movement is necessary to ensure fulfillment of FI at PF.

Movement in the overt syntax is a "last resort" option, used only to avoid a violation of FI at PF. Overt V-raising in the derivation of French (50a) is permitted, since delaying it leads to an FI-violation in PF (50b). Overt raising of a finite verb in English (49b) violates Procrastinate.

A highly restrictive theory of parameters emerges. Depending on the degree of uniformity of clause structure and of the distribution of features in functional heads, LF-representations will vary little if at all across languages. Word order variation may then reduce to differences concerning the way move-α feeds Spell-Out, as determined by the interaction between strong m-features and Procrastinate. Parametrization then consists solely in the "weak" and "strong" options for m-features. This hypothesis may be further restricted, if only functional elements are parametrized (cf. Borer 1984, Chomsky 1991,

Ouhalla 1991). In that case, the marked value for m-features will be "strong", and all major category items will bear weak m-features. [15]

5.4 Economy of derivation: Greed and altruism

The effect of the fundamental derivational economy principle (Last Resort) is to block gratuitous operations; only operations needed to satisfy interface principles can apply. The paradigm originally used to substantiate Last Resort (cf. (35) above), actually motivates a stronger principle:

(53) a. * *Seemed to John that it was raining*
b. * *John seemed (to)* t *that ...*
c. *It seemed to John that ...*

The ungrammaticality of (53a) is due to the strong Nominative Case feature in Infl that is unchecked. Movement of the DP John into the subject position would be one possibility for rescuing the sentence, and in this sense, would not be a "gratuitous movement". But movement is blocked, and pleonastic insertion is forced, to enable NOM to be checked. The reason why the movement option is not available is that the DP itself can satisfy its own Case requirement in situ. [16] (54) ensures that movement of α must be "self-serving":

(54) GREED
Move-α must result in satisfaction of requirements of α.

Given Greed, there can be no purely "altruistic" movement: if α does not need to move to position X to check features of its own, then movement of α to X is illegitimate, even if this operation would satisfy requirements of another item ß, in accord with the weaker formulation of Last Resort.

As pointed out in Wilder & Cavar (1994b), "altruism" *per se* is not excluded in this system. "Greedy" movement may (and generally does) have "altruistic" side-effects: the movement of α to position X leads to the checking of m-features of some ß ≠ α. The raising of a verb α to an Infl-position X enables m-features of both α (Greed) and a functional element ß (Altruism) to be checked. Moreover, if strong features that enforces overt movement are located in the higher functional heads (ß), and not in the element α that moves, then overt movement is generally "early altruism": α raises before Spell-Out to permit checking of ß's strong feature, in order to save the derivation from FI-violation at PF, even though α itself would only need to raise by LF.

A characteristic of early altruistic movement is that a constituent-type has different distributions within a language. That a nominative DP in English may appear lower than SPEC,IP (55a) is a result of the fact that the features it bears and checks in SPEC,IP are weak - so movement of the subject raises to SPEC,IP in overt syntax (55b) is early altruistic movement:

(55) a. *There seems to be a man in the garden*
b. *A man seems to be* t *in the garden*

Similarly for *wh*-movement: the fact that *wh*-phrases can remain in situ (in multiple questions) indicates that the features that they check against C, when in SPEC,CP, are weak, so that overt *wh*-movement represents early altruism, to enable checking of a strong feature in C. [17]

5.5 The trigger for V2

So far little has been said about the feature content of the functional head C in this system; this forms the basis of the following analysis of V2, which builds on the proposal made in Wilder & Cavar (1994b).

V2 involves two processes: V-raising and XP-raising, both to the checking domain of C. In each V2-clause, there is one trigger for V-fronting and another for XP-raising (cf. (23) above). Also, there are at least two XP-fronting processes involved. The initial phrasal constituent in *wh*-questions with V2 must be a *wh*-phrase (bear the feature WH). In declarative V2, the initial phrase may be of any category, but must not be a *wh*-phrase.

In line with many previous approaches, I suppose that the complementizer in C in direct *wh*-questions contains an m-feature WH. The WH-feature is a "phrasal" feature, and is strong, forcing pre-Spell-Out movement of a *wh*-phrase to SPEC,CP.

In declarative V2-clauses, C will not contain the WH-feature. Instead, I suppose that a different complementizer with a phrasal feature "TOP" heads the clause. TOP is an m-feature, which may be checked by any phrase with "topic properties". [18] Crucially, however, TOP is incompatible with the WH-feature. A German V2-clause whose initial constituent is a *wh*-phrase cannot be interpreted as a declarative topicalization. The incompatibiity is clearer in English, where subject-auxiliary inversion occurs with *wh*-fronting in direct questions, but not with preposed topics. A main clause like (56c) is not interpretable as a non-interrogative topicalization - it is simply ungrammatical:

(56) a. *Who did she see?*
b. *John, she saw.*
c. * *Who, she saw.*

Further properties of topicalization are discussed in §6. below.

In embedded clauses, the declarative complementizer appears not to bear any phrasal feature, in contrast with the main clause declarative C. The complementizer heading interrogative CP-complements will bear a strong WH-feature. As in direct questions, this complementizer is not usually associated with a phonological form. The major difference concerns whether the finite verb raises to C before Spell-Out or not.

The concept of early altruistic movement provides the key to understanding language-internal word order variation, including the finite verb-placement asymmetries in V2-languages. Movement of the verb to C must be triggered by a strong m-feature that the verb itself has to check. The fact that a finite verb may remain inside IP (embedded clauses) indicates that, whatever its identity, the feature the verb checks in C in main clauses is weak on the verb itself. V-raising to C in V2 clauses must be early altruism. Moreover, in embedded clauses, the verb that remains in IP at Spell-Out must check its weak feature by LF. So the corresponding feature in C is weak, and the verb raises to adjoin to C after Spell-Out. This conclusion is more or less forced, if Greed is adopted, and a single lexical specification for finite verbs is assumed (cf. §2.(4b) above).

The simplest hypothesis on the identity of the trigger for V-raising to C, is that C hosts a V-feature which it shares with a finite verb. The need to check and eliminate this feature will force adjunction of the finite verb to C. If the feature is strong, V-raising will occur before Spell-Out. If it is weak, Procrastinate will delay V-raising to the covert syntax.

In Wilder & Cavar (1994b), it is proposed that the trigger for V2, and more generally for all cases of raising of finite verbs to C, is a finiteness feature (F) residing in finite clause complementizers. Finiteness can be viewed as a property shared by finite complementizers and some head in a finite IP, which is reflected in the selectional relation that obtains between finite complementizers and finite verbs, and which explains why a finite complementizer does not govern an infinitive complement.

I assume that the second F-feature that matches F in C is a property of finite verbs. In principle, F might be located in some Infl-head containing a strong V-feature. Then, V-to-C would be a side-effect of I-to-C. But where V-features in Infl-heads are weak, as seems to be the case in Swedish (cf. Wilder & Cavar 1994b), F must be a property of the verb itself. [19]

This approach identifies different complementizers not only for embedded clauses, where they have different phonological shapes, but also for different main clause types. As we have seen, it is necessary to distinguish main clause C-types at least with respect to the phrasal feature they contain. It is also possible for the value of F in main clause C to vary language-internally. This is what is responsible for the basic difference between V2 languages and English: declarative main clauses involving a strong TOP-feature. In German, the relevant complementizer has strong F, triggering overt V-fronting (57), while in English it has weak F, so inversion does not occur (56b):

(57) *Dieses Buch hat er gelesen.*
this book has he read.

English has another main clause C with strong WH and strong F, which causes auxiliary-fronting in English direct questions (56a). [20]

This analysis places the "lexicalization requirement" on finite C in V2-clauses in a different perspective. Main clause complementizers are not radically empty in root clauses, as supposed in previous analyses (cf. §3 above.). Instead, C always has feature content, and fronted verbs adjoin to, rather than substitute into, the C-position, as discussed in §4. The trigger for overt V-fronting is dissociated from the phrasal feature of the complementizer that determines "clause-type": the relation is indirect, mediated by lexical idiosyncrasy. Whether F in C is strong or weak is a (more or less arbitrary) property of lexical entries.

Two generalizations are not explained in this account: the tendency for overt V-to-C (strong F) to be restricted to main clauses, and the fact that complementizers with independent phonological form usually block overt V-raising (have weak F). Neither of these is exceptionless. Embedded V2 is found in German; and it may be that VSO order in embedded clauses of VSO languages involves overt V-to-C. Also, some languages appear to possess complementizers with phonological content which can attract finite verbs, i.e. "affixal" complementizers such as the *wh*-complementizers in Croatian (Wilder & Cavar 1994a) and Berber (Ouhalla 1992). This type of variation can be accommodated. Another combination which this system makes possible would be a language in which only subordinate complementizers have strong F, yielding "reverse V2". This seems not be attested at all (H. Haider, p.c.). It may prove necessary to incorporate the notion of "subordinate complementizer" in some way to account for this type of restriction on possible variation. I leave the issue open here.

The "V2-parameter" thus reduces to the value of F and phrasal features in complementizers. Languages in which main clause complementizers have strong F and strong phrasal features are V2-languages. Languages in which only a subset of main clause complementizers have strong F, such as English, will be "restricted V2 languages".

There is a close relation between this treatment of V2 and Chomsky's proposal concerning cross-linguistic variation (English vs. French) in finite V-raising to Infl. There, variation follows from different values of a V-feature in an Infl-head for which there is only one exponent in each language. In the case of V2, we distinguish a number of different exponents of a functional category (C) in a single language, which makes language-internal variation possible. In this sense, the V2 asymmetry is driven by a "language-internal parameter", and we have a unification of the accounts of cross-linguistic and language-internal word order variation. [21]

6. Subject-initial declaratives

With respect to the account of phrasal movement in V2-sentences, a problem arises. Zwart (1993) argues that not just two but (at least) three processes are involved - in addition to the distinction between WH-V2 and declarative V2, subject-initial declaratives (SU-V2) need to be separated from declaratives with fronted non-subjects (TOP-V2). The main argument for distinguishing SU-V2 from the rest (X-V2) comes from theory-internal considerations.

6.1 Economy and SU-V2

It should be possible to form declarative sentences with a "neutral" reading, in which no constituent is topicalized. In a language without generalized V2, like English, this would be the characterization of ordinary subject-initial main clause declaratives. The subject occupies its canonical position (SPEC,IP), and C contains neither a strong F-feature nor a phrasal feature, so no phrase precedes the subject, and the finite verb (or auxiliary) does not raise to C.

Sentences with similar interpretational properties in V2 languages are SU-V2 clauses. Zwart bases his argument on (58):

(58) Subjects in SU-V2 do not (necessarily) have topic properties.

The symmetric analysis claims the finite verb is in C in SU-V2, so the subject must occupy SPEC,CP. If a phrase with a TOP-feature must have "topic properties", and the subject does not have these properties, then movement of the subject to SPEC,CP is not triggered by TOP. It should raise no further than SPEC,IP, where it checks Case and Agreement (irrespective of whether C hosts a TOP-feature). Movement of the subject to SPEC,CP, which the data force us to assume, is unmotivated, and should be a violation of Last Resort (Greed). It is unclear why the unmarked order for root declaratives is not VSO.

The alternative is to suppose the subject in SU-V2 is not in SPEC,CP but in SPEC,IP. Since the finite verb follows the subject in SU-V2, F in C must be weak. This is the situation found in English for unmarked declaratives:

(59) [$_{CP}$ C *she kissed him*]

Now, the question is why the finite verb does not remain in its final position - why neutral subject-initial main clause declaratives do not show embedded S O V order:

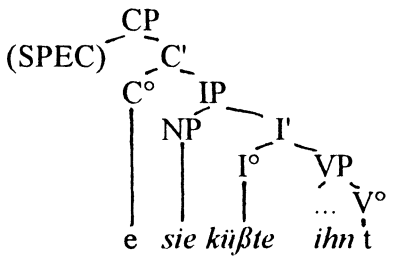
(60) * [$_{CP}$ C *sie ihn küßte*]

The S V O order forces the conclusion that the finite verb occupies an intermediate head position in SU-V2. This is the claim made by Zwart, following an earlier proposal by Travis (1984).

6.2 The asymmetric analysis of V2

In the "asymmetric analysis", a third position where finite verbs can surface is identified. While the finite verb is in C in X-V2 sentences, as in the standard approach, in SU-V2 it occupies an Infl-position (61). This analysis is clearly incompatible with the view that Infl in German is at the end of the clause, following VP. At least one Infl-head must precede VP to act as a landing site for the finite verb in SU-V2. [22]

(61)



One of the original arguments for the uniform V-to-C analysis of V2 lay in the account it made available for the strict second position effect (cf. §3.3). Second position effects are just as strong for SU-V2 as in X-V2: but this does not necessarily count against the asymmetric approach, as the explanation depends on the verb occupying the head of the projection whose specifier the first phrasal constituent occupies, independent of whether C, or some Infl head is involved. If the subject is in SPEC,AGR$_S$ and the verb in AGR$_S$, the strict requirement for adjacency between subject and verb in SU-V2 can be still explained by appeal to X'-theory. SU-V2 sentences will be like French subject initial declaratives in this regard. [23]

The fact that SU-V2 complements form "islands" for extraction that are just as strong as X-V2 (cf. (28), §4.1 above) has been used as an argument against the asymmetric analysis (Schwartz & Vikner 1989):

(62) * *Was hat er gemeint* [t [C [*sie habe* [*dort* t *gesehen*]]]] ?
what has he thought she has there seen

For the asymmetric analysis, (62) shows that where the verb has only raised to I, the SPEC,CP position in (61) is not available for intermediate trace of extraction. If each stage of a successive-cyclic movement operation is locally motivated by a strong TOP or WH-feature, which then brings the trigger for V-to-C with it, the impossibility of (62) can be attributed to an unchecked strong F in C.

I consider next some of Zwart's (1993) empirical arguments for the need to distinguish initial subjects from other initial constituents in declarative V2, which concern the asymmetric behaviour of pronouns and properties of agreement morphology. [24]

6.3 Pronouns

Various authors have pointed out that SU-V2 and TOP-V2 clauses behave differently with respect to whether an unstressed pronoun may occur in preverbal position. Dutch permits reduced forms of personal pronouns to appear in first position when the pronoun is a subject (62a-b), but not when it is an object (63c-d):

(63) a. *Ik zie'm* "I see him"
b. *'k zie hem* "I see him"
c. *Hem zie ik* "Him, I see"
d. * *'m zie ik*

The contrast can be illustrated for German using the neuter pronoun es ("it", NOM/ACC), which seems to be inherently unstressed. Es preceding the verb may only be interpreted as Nominative - both examples (64) must be interpreted as subject-initial (Travis 1984). The intended interpretation - "It (the horse) has eaten the grass" - is successful for (64a) but impossible for (64b), which does not mean "the horse has eaten it (the grass)", but can only be interpreted with es as subject ("something has eaten the horse"):

(64) a. *Es hat das Gras gegessen.*
it has the grass eaten
b. (*)*Es hat das Pferd gegessen.*
it has the horse eaten

With other personal pronouns, the asymmetry reveals itself in whether a pronoun can be prosodically weak or not. The accusative pronoun ihn ("him") may appear in initial position, but only if it is stressed, indicated by upper case (65). In postverbal position it can be, and usually is, unstressed. This behaviour contrasts with that of nominative er ("he") which may be unstressed in preverbal position (66):

(65) *IHN (*ihn) habe ich gesehen*
"Him, I have seen"

(66) *ER / er hat mich gesehen.*
"He has seen me"

If a pronoun is contained in a larger topicalized constituent such as a fronted verbal projection, it does not have to bear stress:

(67) a. [*es geLESen*] *habe ich nicht*
it read have I not
b. [*ihn geSEHen*] *habe ich nicht*
him seen have I not

In this case, however, an accent falls on the verb. This suggests a generalization that a topicalized constituent must contain a prosodic stress peak, which must be realized on a pronoun, if this is the sole constituent of the topic.

Obligatory stressing in initial position is not specific to non-nominative pronouns, as becomes clear by considering examples where the subject of an embedded clause (a V2-complement) has undergone "long" topicalization to the initial position of a main clause. The examples (68) are cases of TOP-V2 - the local subject follows the fronted verb, which is in C. The same effect emerges. Nominative es cannot undergo long topicalization:

(68) a. * *Es, glaube ich, hat das Gras gegessen.*
it believe I has the grass eaten
b. *Das Pferd, glaube ich, hat das Gras gegessen.*
"The horse, I believe has eaten the grass"

Long-moved masculine nominative er must be stressed:

(69) *ER (*er), glaube ich, hat mich gesehen*
"HE, I believe has seen me"

Zwart's claim (cf. also Travis 1984) is that if obligatory stressing can be identified as property of topicalized pronouns, the fact that preverbal subjects do not have to be stressed can be used as evidence that a preverbal subject has not necessarily moved to SPEC,CP.

This asymmetry is also found in English. Unlike German es, it can be stressed (70), although acceptability contrasts with unstressed it, which is perfect in subject position. Topicalization of non-subject it is marginally possible, but only with prosodic stress, and concomitant focus reading:

(70) a. *It hurt her.* b. ?? *IT hurt her.*

(71) a. * *it, she liked.* b. ?? *IT, she liked.*

Like German ihn, him can be stressed, and must be, if it constitutes a topic itself, but not, if it is contained in a larger topic-phrase:

(72) a. * *him, she liked*
b. *HIM, she liked.*
c. ... *but* [*SEEN him*], *I haven't.*

Nominative he is can be stressed or unstressed, in subject position, but nominative pronouns can be "long-topicalized" only if stressed:

(73) a. *He hurt her.* b. *HE hurt her.*

(74) a. * *he, she claimed* t *would never hurt her.*
b. *HE, she claimed* t *would never hurt her.*

These paradigms show that there is a cross-linguistic generalization to be captured independently of the V2 question. There is no issue of whether the English subject in subject-initial declaratives is a topic; so pronouns must be stressed in initial position only if this position is SPEC,CP. The parallel with English lends weight to the claim that the position of the initial subject in German is also the canonical IP-internal one.

Further evidence concerns the distribution of expletive pronouns. An expletive like English there cannot long-topicalize from either nominative or accusative subject positions:

(75) a. * *there, he said* [t *would be someone at the door*]
b. * *there, he believed* [t *to be someone at the door*]

Like there, expletive pronouns in V2-languages, such as German es (found in impersonal passives and sentences witbh VP-internal subjects) cannot undergo long topicalization. Es freely appears in the subject position of SU-V2-clauses, however: [25]

(76) a. *Es wurde gestern getanzt.*
it was yesterday danced
"There was dancing yesterday"
b. * *Es, glaube ich, wurde gestern getanzt*

Since Chomsky (1981), expletive there is commonly viewed as a place-holder for the obligatory subject-position. In the Minimalist model, it is inserted to allow checking of a strong N-feature in Infl. The asymmetric V2-analysis allow this treatment to be extended to es in (76). Assuming that expletives cannot be topics, (75) and (76b) fall out naturally. Under the symmetric theory, the possibility for es to appear in topic position in (76a) but not in (76b) requires a different account.

6.4 Rizzi's proposal

In the symmetric theory, SU-V2 differs from X-V2 in that the phrase in SPEC,CP has an independently necessary agreement relation with the verb in C in SU-V2, but not in X-V2 (including where X is a subject from a lower clause). Rizzi (1991) suggests that this fact can

be used to explain the pronoun asymmetry in the symmetric V2-theory. He proposes that SPEC,CP counts as an A-position exactly when it agrees with its head, so the properties of the phrase may vary according to whether the position is an A- or A'-position. In particular, unstressed pronominal subjects and expletives can be licensed (only) in an A-position. [26]

This proposal does not sit easily with the treatment of Agreement in terms of independently projecting heads. Under the "split-Infl" approach, an "A-specifier" can be thought of as "A" by virtue of intrinsic features of the head of the projection: essentially, the N-Φ features of AGR. [27] To suggest that the N-Φ feature of an AGR-head can cause the specifier of another head to which it adjoins to "become" an A-position for a phrase with which it agrees, may turn out to be too liberal an extension. Consider a situation in which AGR_O raises with the verb to C. Depending on the analysis, this may be the case in V2: the finite verb raises successive-cyclically, carrying all intervening heads with it. Then the N-Φ features of AGR_O may allow the CP-specifier position to become an A-position with respect to a topicalized object, so that the intended benefit of the proposal is lost.

Nor, as Zwart points out, does Rizzi's approach to pronoun asymmetries in terms of the A-/A'-distinction solve the main conceptual problem with the symmetric theory. It is an "after-the-event" account; no explanation is offered for the "reverse side" of V2 - why SPEC,CP has to be filled in the first place.

6.5 More on TOP

Under the symmetric theory, English and German subject-initial main clauses fundamentally differ in that the initial subject in German must raise to SPEC,CP. A way of implementing the difference in the Minimalist model would be to assume that a strong phrasal feature (TOP) always coexists with strong F in main clause declarative C in German. Then SU-V2 involves topicalization of the subject, unlike English subject-initial declaratives. To account for the "unmarked" properties of SU-V2, it might be claimed that subjects are default topics, where no other constituent fulfills this role (this was proposed in Wilder & Cavar 1994b). The difference is purely formal: a preverbal subject in SU-V2 must bear a TOP-feature, while the subject in otherwise equivalent declaratives in English doesn't have to. This solution means that the differences dividing local subjects from objects and long-moved subjects cannot be related to the presence of a TOP-feature, and an alternatve account is needed for expletive es.

The advantage of the asymmetric analysis lies in the account it permits for pronoun asymmetries. Assuming a correlation between "topic properties" (including obligatory stressing for pronouns) and TOP, the asymmetry can be related to structural position (SPEC,IP or SPEC,CP) via the presence or absence of a TOP-feature in a principled way.

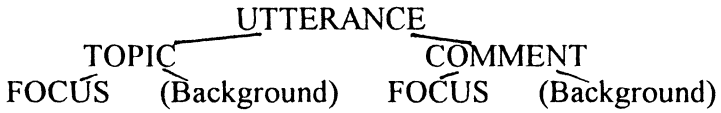
As it stands, the pronoun argument is based on descriptive generalizations; to be convincing, a theory is needed that relates "topic properties", including the obligatory prosodic peak, with the TOP-feature that forms the basis of the syntactic account of topicalization constructions. [28]

A theory of topicalization must refer to the notion of "well-formed information structure" in semantic interpretation. A topicalization construction imposes a bipartite structure on an utterance, dividing it into a "topic", which has a special relation to the discourse in which the utterance is embedded, and "comment". The topic corresponds to the phrase bearing TOP that surfaces in SPEC,CP, the comment to the remainder (the C'-constituent). It seems that both topic and comment must contain a focussed subpart to be well-formed from an information-structure viewpoint.

Suppose that focus is represented by a feature FOCUS associated with a syntactic node. This feature will be relevant both for phonological rules, which must assign a prosodic peak to a terminal element dominated by FOCUS, and for semantic interpretation.

Subconstituents not dominated by FOCUS (if any) will form a "background" with respect to the focussed constituent. The following hierarchical structure results:

(77)



The requirement for the comment to contain a focussed constituent may be what underlies an observation of Haider (1989), that topicalization of verbal projections may not empty C' (the COMMENT) of everything except a finite auxiliary:

(78) a. * [*Ein Außenseiter gewonnen*] [$_{C'}$ *hat* _]
an outsider won has

b. * [*Getanzt*] [$_{C'}$ *wurde* _]
danced was

c. [*Ein Außenseiter gewonnen*] [$_{C'}$ *hat hier noch NIE* _]
an outsider won has here yet never
"An outsider has never won here before"

d. [*Getanzt*] [$_{C'}$ *wurde hier noch NIE* _]
danced was here yet never
"There was never any dancing here before"

Being "semantically" empty, the auxiliaries in (78a,b) may be incompatible with the semantic requirements of focussing. In (78c,d), the appearance of additional material in C' that is capable of being focussed saves the examples (see also note 34).

If we suppose that a phrase bearing a TOP-feature must create a TOPIC in this sense, then the obligatory stressing facts follow. The fact that certain elements (reduced pronominals, expletives, and perhaps also *wh*-phrases - cf. §5.5)) cannot bear a TOP feature may be due ultimately to their interpretative incompatibility with the semantics of FOCUS.

Under the asymmetric theory, a subject-initial main clause (or embedded) declarative has no TOP-feature in C, and no constituent of the clause needs to form a TOPIC. In particular, the initial subject does not have to contain a FOCUS, so that no prosodic stress is required.

6.6 Agreement Morphology

Zwart adduces further evidence from an asymmetry of a rather different nature that turns up in the distribution of agreement morphemes.

Some West Germanic dialects show alternating morphological agreement on finite verbs, which seems to depend on the position of the finite verb with respect to the subject. If the subject precedes the verb (SU-V2 and V-final clauses) one form is chosen, if it follows the verb (X-V2) the other is chosen. The alternation is found in 2nd person singular forms in standard Dutch (examples from Zwart 1993):

(79) a. ..., *dat jij naar huis gaat*
that you to home go-2SG
"that you are going home"

b. *Jij gaat naar huis* (SU-V2)

c. *Vandaag ga jij naar huis* (TOP-V2)
today go-2SG you ...

d. *Waneer ga jij naar huis?* (WH-V2)
when go-2SG you ...

The alternation correlates with the position of the fronted finite verb under the asymmetric analysis: if the verb is in C, it takes the form ga, and gaat elsewhere. This structural correlation is not available to the uniform theory. [29]

Zwart proposes to relate this alternation to the phenomenon of C-agreement (complementizers inflected with morphemes marking person-number agreement with the finite verb and subject found in various West Germanic dialects - cf. Bayer 1984 on Bavarian, Haegeman 1990 on West Flemish). Zwart proposes that the special form of finite verbs in X-V2 in Dutch is an instance of the same phenomenon as C-agreement morphemes. These morphemes are generally homophonous with the agreement morphemes appearing on finite verbs, but in a few dialects, some differences can be detected. Standard Dutch does not have inflecting complementizers, but in dialects where verbal and complemetizer agreement morphemes have different forms, the claim is borne out directly. Fronted verbs carry C-agreement in X-V2 and V-agreement in SU-V2.

The way in which this paradigm can be used to support the asymmetric V2-theory depends on the interpretation of the distibution of the different morphemes. One possibility is that C can be inherently specified for Φ-features, which are checked against the Φ-features of V after it has raised to C (overtly in X-V2, at LF elsewhere) - cf. Law (1991). Alternatively, C-agreement morphemes are PF-forms associated with an independent agreement head (Shlonsky 1994). This is approximately the view Zwart takes (see below).

Whichever solution is adopted, if C is projected in SU-V2 clauses, special provisions are needed to account for the fact that C-agreement is not found in SU-V2.

7. Accounting for the Asymmetry

The conceptual advantage of the asymmetric analysis lies in the resolution of the problem of the "reverse" side of V2. The question of why the subject in SU-V2 must raise to SPEC,CP does not arise: the subject in SU-V2 is in SPEC,AGR_S, where it must move to check Φ-features, just as in X-V2.

However, a new problem arises concerning V-raising: three positions for the finite verb need to be accounted for, instead of two. Although V2 in X-V2 can still be handled in terms of strong F in C, the V2 / V-final asymmetry cannot be due solely to parametrization of the F-feature in C. A trigger for V-fronting to AGR_S in SU-V2 needs to be identified, and the account for subordinate V-final order in terms of weak V-features in Infl-heads and C may need to be revised.

The simple F-based account can be retained if it is assumed that in SU-V2 (only), F is projected in the same head as the Φ-features of AGR_S. Then, no additional triggers need to be identified: V2 signals strong F, V-final weak F (by Procrastinate). The main task for this strategy is to derive the restriction of cooccurring (strong) F and AGR_S-features in the same head to SU-V2 only - with F being a feature of C, separate from AGR_S, elsewhere. I attempt this below.

A second approach, followed by Zwart (1993), is to seek an additional trigger for V-raising to AGR_S in SU-V2 clauses which is absent (or "neutralized") in V-final clauses.

7.1 Zwart's Proposal

Zwart makes the assumption that finite verbs raise to C in any case at LF (this is necessary, given Greed - cf. §5.5). He does not identify the feature involved, and furthermore, proposes an independent trigger for overt V-to-C in X-V2. So we may take Zwart's LF-trigger to be F, weak in all cases.

In embedded clauses, the finite verb must check features in Infl heads, including AGR_S, and in C at LF. The questions that arise therefore concern triggering and blocking of overt movement:

(80) a. What is the trigger for V-movement to C in X-V2?
b. What is the trigger for V-movement to AGR_S in SU-V2?

(81) Why is there no trigger for V-movement...
a. ... to C in SU-V2?
b. ... to C in V-final clauses?
c. ... to AGR_S in V-final clauses?

How (81) is approached depends on the answers given to (80).

What ultimately causes a finite V to raise to AGR_S (80b/81c) is the need to check V-Φ-features, but the position of the verb in embedded clauses indicates that V-Φ in AGR_S is weak: if V-Φ in AGR_S were "strong", then finite verbs would be expected to raise to AGR_S in embedded clauses as well as main clauses. This difficulty could be avoided by positing different lexical specifications of AGR_S - one specific to V-final clauses (V-Φ weak), the other to V2-clauses (V-Φ strong). But such ad hoc multiplication of lexical specifications would be no improvement on the uniform V-to-C theory.

Zwart explores a different idea - that what drives V2 is the presence of a strong "phrasal" feature in a functional head (in AGR_S for SU-V2, in C for X-V2). To implement this, Zwart proposes an extension to the class of triggers: in addition to feature-matching with the relevant phrase, a necessary condition for the successful "checking" of the strong feature is that the functional head be associated with "lexical" material. In some cases, V-movement is the only means of providing a functional head with such lexical support.

Assuming that the N-feature in AGR_S is strong accounts for the appearance of the subject in SPEC,AGR_S - preverbal position in SU-V2, immediate post-C position in X-V2 and V-final clauses. V-raising in SU-V2 is necessitated by a "lexicalization" requirement on the strong N-feature in AGR_S:

(82) AGR_S must be lexically supported.

C has a strong phrasal feature in X-V2 clauses (TOP, WH, etc.). Zwart proposes that these features also need lexical support to permit checking, which triggers V-to-C in X-V2:

(83) C containing a strong operator feature must be lexically supported.

The account presupposes that a lexicalization requirement may be met by an inherent property of the head which bears the strong feature. Subordinate complementizers and finite verbs have the the property in question, root complementizers do not. The exact status of this property is unclear; I refer to it as [+L].

Since (82) and (83) are prerequisites for checking of strong m-features, they must be fulfilled before Spell-Out. But they make movement necessary only if [+L] is not already present in the head in question. This derives the lack of V-to-C in embedded clauses (81b). Where a head lacking [+L] also has no strong phrasal feature, the lexicalization requirement is inoperative. This derives the lack of V-to-C in SU-V2 (81a). [30]

Strong features associated with root complementizers are not supported by an inherent [+L]-feature, so that (83) must be achieved through movement. Raising of the finite verb is the only option. This accounts for X-V2 (80a).

AGR_S also lacks [+L]. There are two ways for it to satisfy (82):

(84) a. Adjunction of AGR_S to C, if it has [+L]
b. Adjunction of the finite verb (always [+L]) to AGR_S

These options are ordered by economy: the option involving the shortest movement path is preferred. Assuming the distance between AGR_S and C to be shorter than that between the finite verb in final position and AGR_S, then option (05a.) will be preferred wherever it is available. [31]

In clauses in which C has [+L], AGR_S can satisfy (82) by raising to C. In embedded clauses, C is inherently specified for [+L], so AGR_S raises to C. This accounts for the neutralization of AGR_S as a trigger for V-fronting in V-final clauses (81c).

In X-V2 clauses, there is an independent trigger for V-raising to C, so C receives [+L] from the verb. Since the verb must move to C anyway, raising to C is the only option for AGR_S (maybe the finite verb picks up AGR_S en route to C). If C does not have [+L], the cheaper movement option is not available. This only arises is SU-V2, where (82) triggers the more costly option of raising of V to AGR_S. This accounts for (80b).

The trigger for V-raising to AGR_S arises by default from the unavailability of AGR_S-to-C. Independent evidence for this proposal comes from the distribution of C-agreement morphemes (see §6.6). Zwart proposes that these morphemes are morphological reflexes of AGR_S in C, so the distribution of C-agreement follows from the proposal about movement of AGR_S to C. The morphemes appear on a lexical head in C, so in the one clause-type where C is not "lexicalized" - SU-V2 - they are absent.

7.2 Problems with [+L]

In seeking a trigger for V-raising to AGR_S in SU-V2, Zwart is led to propose an extension of the notion of "trigger", so that not only "strong" m-features, but also "lexicalization" requirements such as (82/83) can force movement before Spell-Out. However, V-fronting still counts as "early altruism" (cf. §5.4 above); the set of "LF-triggers" is not extended, and can be restricted to m-features as before.

As triggers for move-α, m-features strongly select the element that can "satisfy" them - only the paired element (e.g. a verb with a weak M) can satisfy the trigger (strong or weak M in a functional head). A [+L]-requirement is not selective in this sense, as it can be satisfied by any [+L]-element, so that it becomes possible for a trigger for V-movement to be present without always triggering movement of the verb. V-raising is forced only if "cheaper" solutions are unavailable. Nevertheless, movement in response to a [+L]-requirement can only be "early altruism": Greed ensures that it will have to reflect LF-movement triggered by m-features, excluding such "wild" movements as extraction of a preposition for satisfaction of the [+L]-requirement of AGR_S:

(85) * *Hans mit*[+L]-AGR_S [[PP t *mir*] *einen Kaffee trinkt*]
H. with me a coffee drinks

So the extended trigger set remains highly restricted. In this respect, Zwart's proposal has the desired qualities.

The "lexicalization requirement" on which it is based raises doubts, however, as to its source and scope. Does it apply to all functional heads with strong phrasal features, or only to some? Is the notion "lexical" to be understood as something more than a primitive property (a feature [+L])? Is there a correlate?

Not every head with a strong XP-feature has to be phonologically overt. Two null heads with a strong XP-feature that fail to trigger overt movement are C in English topicalizations and in embedded *wh*-interrogatives in languages like English and German:

(86) a. *John* C *she likes* C = null, TOP+, weak F
b. *(ich weiß) wen* C *sie mag* C = null, WH+, weak F
c. *(I know) who* C *she likes* C = null, WH+, weak F

A zero embedded *wh*-complementizer in German and Dutch has to be inherently [+L], to act as host for AGR_S and so prevent V-fronting. So [+L] does not correlate with "overtness". No other correlate is apparent either. It must therefore be a primitive - a property indirectly relevant to PF, like a strong m-feature, but with the different "unselective" characteristics outlined.

Concerning the scope of the [+L]-requirement, there are two options. If it holds of every head with a strong m-feature, then any such head lacking inherent [+L] either triggers movement or has to move itself. In the English topic construction (86a), C must be inherently specified as [+L]. Alternatively, if [+L]-requirements are specific to certain heads, perhaps C in (86a) is exempted. But inherent [+L] is still needed for the empty C in embedded questions in German (86b), so that it can support AGR_S and block V-fronting. Either way, we end up resorting to lexical stipulation to derive the trigger for V2. In German, embedded C with strong WH (86b) is [+L], but main clause C with strong WH is [-L]. German AGR_S with strong N-Φ is [-L]. English C with strong TOP (86a) is either [+L] or [-L], depending on other decisions.

This problem is noted by Zwart, but left open. As it stands, the analysis is not clearly superior to the symmetric V-to-C solution it replaces. Even granted the necessity for an asymmetric solution, it may be just as plausible to derive V2 in SU-V2 by stipulating that V-features in AGR_S are strong in main clauses and weak in embedded clauses.

7.3 Avoiding Redundancy

The [+L]-requirement is problematic in two respects: it involves an extension of the set of triggers; and as no reasonable correlate for [+L] is forthcoming, the cost in terms of lexical stipulation seems unwarranted. A third objection to the introduction of the L-feature concerns its redundancy with respect to V-features.

Lexical entries for finite C are cross-classified by phrasal features (WH, TOP, or none), and the main/subordinate distinction (there is no TOP-subordinate). Given that Zwart must assume an LF-trigger for V-fronting to C, every entry is specified for weak F. Additionally, specification [+L] / [-L] is needed for the account of overt V-fronting. The feature specification of complementizers looks like (87) in Zwart's account (an m-feature marked "+" is strong): [32]

(87) a. Root:

i	declarative	English:	<F>	[-L]	
		German:	<F>	[-L]	(= SU-V2)
ii	topicalization	English:	<F, TOP+>	[+L]	
		German:	<F, TOP+>	[-L]	
iii	interrogative	English:	<F, WH+>	[-L]	
		German:	<F, WH+>	[-L]	

b. Subordinating:

i	declarative	English:	<F>	[+L]	*that*
		German:	<F>	[+L]	*daß*
ii	interrogative	English:	<F, WH+>	[+L]	*__/whether*
		German:	<F, WH+>	[+L]	*__/ob*

If overt V-movement is related directly to the value of F in C, as in §5.5, the information encoded in (87) can be reduced to a minimum. Given that F is required in any case, the distribution of fronted verbs can be related directly to parametrization of F. [-L] is interpreted as "strong F"; "weak F" replaces [-L], and takes on the function of blocking overt V-fronting in subordinate clauses. Ignoring subject-initial declaratives, we have (88):

(88)

a. Root:				
ii	topicalization	English:	<F, TOP+>	
		German:	<F+, TOP+>	
iii	interrogative	English:	<F+, WH+>	
		German:	<F+, WH+>	
b. Subordinating:				
i	declarative	English:	<F>	*that*
		German:	<F>	*daß*
ii	interrogative	English:	<F, WH+>	*__/whether*
		German:	<F, WH+>	*__/ob*

In the following, I sketch an alternative solution to the SU-V2 question based on (88), that makes no use of the L-feature or an extended notion of trigger.

7.4 F in AGR_S

The simplest way of handling V-fronting in SU-V2 is to assume the same trigger as in X-V2: strong F. To make this compatible with the assumption that the subject only checks Case and Φ-features in SU-V2, we need to assume something like (89):

(89) The node containing AGR_S contains strong F in SU-V2.

The finite verb must adjoin to AGR_S to enable checking of F before PF; and the strong N-features in AGR_S ensure that the subject is in its specifier before PF, giving the desired Spell-Out word order. Since the only trigger for V-fronting is strong F, other V-features are uniformly weak. There is no other trigger for V-fronting to consider. In clauses with V-final order, F in C is weak, and delayed V-fronting is simply a side-effect of Procrastinate.

How does (89) come about? F is a feature of every C in (88). It makes no sense to assume that F is also present in AGR_S in cases other than SU-V2. So if F is in AGR_S only in SU-V2, then the feature content of AGR_S must vary; generally it contains only Φ-features. Lexical stipulation is inadequate: the possibility for variation and the distribution of variants need explanation.

The C-position in SU-V2 has no phrasal feature, no phonological content, and maybe no semantic content either, meaning that F is the sole content of this complementizer (cf. 87a-i). But if F is in AGR_S, there is no need to assume F is in C as well: so C is a category label dominating nothing - a radically empty head. In fact, there is no reason to assume the presence of a C-projection at all. It will play no role in the internal syntactic derivation of the clause. A C-projection might be necessary for the clause to participate in "external" relations. Selectional requirements may dictate that the complement of a "bridge" verb (α in (90a)) be a CP. The parallelism requirement on conjuncts might require α to be CP in (90b.):

(90) a. *Peter hat gesagt,* [$_{\alpha}$ *es sei schön dort*]
P. has said it is nice there

b. [$_{CP}$ *In den Wald ging der Jäger*] *und* [$_{\alpha}$ *(er) fing einen Hasen*]
in the wood went the hunter and (he) caught a hare

Even this type of consideration does not force the assumption of a radically empty C-projection.

The issue rests on concrete assumptions on the nature of syntactic category labels and their relation to content, in particular, syntactic feature content. In the standard view, major category labels (N,A,V,P) are shorthand for combinations of binary lexical features (±N,±V) which cross-classify and define them. Supposing that these features are not involved in the definition of functional category labels, the defining feature of the category C may be F (the common denominator of (88)). [33] So, given (89), the AGR_S-projection of SU-V2 clauses will simultaneously count as a C-projection. There is no need to assume an additional empty projection above AGR_SP: moreover, if clausal conjuncts, complements, etc. must be CPs, then SU-V2 must not contain such a projection, since this is not a projection of an F-feature.

Instead, SU-V2 clauses can be seen as projections of a "mixed" category AGR_S/C:

(91) $[_{CP/AGRsP}$ NP C/AGR_S [...]]

X-V2 clauses differ in having independent C and AGR_S projections. So this analysis is both symmetric and asymmetric. If the fronted verb is "in C" in SU-V2, a unified account of the V2-trigger is possible (I suspect that this point is the main source of resistance to the asymmetric V2 analysis in the literature); pronoun asymmetries motivate the claim that the subject is in SPEC,AGR_S. (91) meets both demands.

7.5 "Mixed Projections": Previous Proposals

The notion of "mixed" projections has many antecedents in the literature. The idea that INFL and COMP are not independently projecting categories in V2 languages has been explored in several variants: e.g. the "CONFL-hypothesis" of Platzack (1986). The present proposal differs in attributing a mixed C/INFL-projection only to SU-V2-sentences - INFL-projections being otherwise independent of the C-projection.

Conceptually closer is the "Matching Projections" hypothesis of Haider (1989). Haider proposes two constraints on syntactic derivations and representations:

(92) a. No empty heads. b. No string-vacuous derivations.

(92a) is violated by the analysis (93a) of subject-initial declaratives in English. The type of derivation banned by (92b) is the *wh*-movement analysis of subject-questions (93b):

(93) a. * $[_{CP}$ e $[_{IP}$ *John will* $[_{VP}$ *come*]]]
b. * $[_{CP}$ *who* e $[_{IP}$ t *will* $[_{VP}$ *come*]]]

Mixed (matching) projections arise through the need to avoid situations where (92) may be violated. Where a projection containing an empty head would otherwise arise, it must be superimposed on the projection it dominates, in order to avoid violation of (92a). So in (93a), the C-projection must conflate with the Infl-projection (headed by <u>will</u>) to yield a well-formed representation (94a):

(94) a. $[_{CP/IP}$ *John* $[_{C/I}$ *will*] $[_{VP}$ *come*]]
b. $[_{CP/IP}$ *Who* $[_{C/I}$ *will*] $[_{VP}$ *come*]] ?

In subject questions, where C is also an "empty head", movement of the subject *wh*-phrase to SPEC,CP would be a string-vacuous movement. The only way to avoid violation of (92b) is for the C-projection to be superimposed on the I-projection, as in (94b).

In non-subject-questions, fronting of the *wh*-phrase is not string-vacuous, and may take place: and in order to avoid a violation of (93b.), raising of Infl to C (or insertion of do) becomes necessary:

(95) $[_{CP}$ *Who will* $[_{IP}$ *John* t $[_{VP}$ *visit* t]] ?

In this way, both the Vacuous Movement Hypothesis of Chomsky (1986), and the absence of do-support in English subject questions, are derived by (92). [34]

In the present proposal, I adopt neither of the conditions (92). Both empty heads (such as C in English topicalizations, which Haider analyses as adjunction to IP) and "string-vacuous" movement are allowed. What I do adopt is the basic idea that projections conflate where independent projections would be unnecessary.

Heycock & Kroch (1994) apply a similar idea to the analysis of SU-V2 in V2-languages. They suggest that raising of a verb to C and its subject to SPEC,CP yields redundant structural representation of "licensing relations"; Case, Agreement and Predication relations between the subject and the verb in the C-projection are doubled in the I-projection by their respective traces:

(96) $[_{CP}$ NP $[_{C}$ V+INFL] $[_{IP}$ t_{NP} $[_{VP}$ ...] t_{INFL}]]

Assuming deletion of redundant traces to be possible, and that deletion of a head leads to deletion of its phrasal projection, an "economy" principle ("each licensing relation is instantiated only once") ensures that the "empty" I-projection must delete, yielding (97):

(97) $[_{CP}$ NP $[_{C}$ V+INFL] $[_{VP}$ ...]]

Since INFL is present on the verb in C, the C-projection can be thought of as "doubling" as an I-projection with respect to licensing relations. Where a non-subject occupies SPEC,CP, C and I participate in different licensing relations, and so the trace in I may not delete.

Like others before it, this proposal offers no insight into Zwart's original problem of why the subject must raise to SPEC,CP to create the "double structure" (96) in the first place. So I shall not pursue the idea that conflated projections result from deletion in the derivation.

7.6 Economy and Project-α

Instead, I suggest that mixed projections are "base-generated" - that they arise at the point in the derivation where items from the lexicon are mapped to phrase-structures by Project-α (see §5.1).

As a derivational operation, "Project-α" is governed by economy. Only so many head positions can be created in a structure as there are items from the lexicon to be accommodated. The clause structure (44) (§5.1 above) is not rigid; extra X°-positions may needed to house "optional" functional heads such as negation or auxiliaries in periphrastic constructions. However, Last Resort forbids projection of an "extra" position if there is no item to be inserted.

Representations like (91) violate a fundamental assumption about the relation between categories and nodes in trees, namely, that each category is associated with an independent node. In the Minimalist model this translates as a restriction on projection: project-α operates on one lexical item at a time. If we loosen this assumption to allow a

single operation of project-α to access a set of more than one lexical item and project a tree from that set, then mixed projections like that in (91) will be possible. The projection of mixed categories will be automatic, to ensure licensing with respect to X'-theory. [35]

Under this perspective, it is not necessary to resort to multiple lexical stipulations for AGR_S to derive (89). Rather, a single lexical entry can be maintained (strong N-Φ, weak V-Φ). The entry for unmarked declarative C contains only strong F (this will form the missing entry in (88)).

The new assumption is:

(98) Project-α can apply to any number of lexical items at once.

The factor that forces project-α to apply to C and AGR_S simultaneously in SU-V2 is economy. Since it involves less derivational steps (applications of Project-α), joint projection of several items under one node is "cheaper" than individual projection of each item under a new node. Applying the logic of Last Resort, we get (99):

(99) Economy of Projection
Minimise applications of Project-α
i. Joint projection wherever possible.
ii. Projection of a single item under one node is a more costly option to be used only where necessary.

Given (98) and (99), the issue arises of what conditions make joint projection impossible and independent projection necessary.

If two lexical items with phonological form are inserted under a single node, there will be a linearization problem: words cannot be simultaneously uttered. So it can be assumed that joint projection of overt elements is precluded. [36] Functional heads such as AGR_S and main clause C lack PF-forms, and so escape this constraint.

The factor that forces projection of AGR_S before C in X-V2 is X'-theory: a head position only licenses a single specifier position. With respect to feature-checking, specifiers are crucial:

(100) A head has only one phrasal checking position.

If AGRS containing N-Φ and C containing TOP or WH project simultaneously, then one of the phrases is unable to check, since the other occupies its position. In X-V2, the presence of phrasal features in both heads forces the more costly option of independent projection.

If it not further constrained, this system has rather drastic consequences. Consider the options for analysing a simple sentence like (101):

(101) *He came.*

Joint projection of the categories of this sentence under a single X'-projection would be consistent with the terminal string (this is the structure (101) would have under Haider's proposal):

(102) $[_{XP}$ *he* $[_{X'}$ $[_{X^\circ}$ *came*]

The category X would be a conflation of all functional heads (C,AGR,T) with the lexical category V. The subject and the verb stand in a checking configuration, so all features can be checked in one X'- projection.

Potentially, problems arise if (102) is permitted: to name one, if adverbs such as completely are left-adjoined to VP (see Pollock 1989), then it is unclear why (103) should be ungrammatical:

(103) * *Completely John failed.*

To avoid this type of problem, I propose a further constraint on projection:

(104) Major category items must project independently.

This ensures that a verb may not check its m-features "in situ" by conflating its projection with functional heads; there must be at least one functional projection encasing the VP and the verb must raise out of VP to check its features. Subjects and objects, arguments of the verb which must be projected in VP to be assigned Ø-roles, must also raise to check m-features. So the analysis (102) is excluded. [37]

Overt complementizers lacking phrasal features (that/daß) do not project together with AGR_S in subordinate clauses - the subject occupying SPEC,AGR_S (to the left of AGR_S) at Spell-Out follows the complementizer in word order. So I propose to strengthen the condition on projection of overt items to (105): [38]

(105) Items with phonological content must project independently.

In other words, only empty heads may conflate.

The options that remain are rather restricted. In SU-V2, C and AGR_S are both functional items, neither having phonological content, so (104/105) are met. C has no phrasal feature, so joint projection creates no problem with respect to (100). Since independent projection of AGR_S before C is not necessary, the cheaper option of projecting both items at once is forced. So the fact that the subject appears before the finite verb in Spell-Out in SU-V2 reflects the pressure of economy principles on derivational operations of projection as well as movement.

In X-V2, where both C and AGR_S have a phrasal feature, C and AGR_S must project independently, as the two heads need to license different phrases. Given that if C projects independently, it projects above AGR_S, the subject follows C in X-V2, while the *wh*-phrase or topic precedes C. The finite verb precedes the subject in Spell-Out since strong F is a feature of C. [39]

In fact, (100) only requires independent projections for C and AGR_S in X-V2 when the phrase that checks the phrasal feature of C is not the subject that checks the N-features of AGR_S. Where the phrase that checks TOP or WH is the main clause subject, then C and AGR_S may conflate. The prediction is that these cases should display characteristics of SU-V2 and not of X-V2, for example with respect to the agreement morphology facts mentioned in §6.6. As far as I am aware, this is borne out; in Dutch, a stressed (2nd person) pronoun subject, compatible with a TOP-analysis, cannot induce the "C-agreement" inflection on the finite verb.

This view of subject-initial topicalizations and questions is roughly equivalent to the Vacuous Movement Hypothesis of Chomsky (1986), according to which subject-phrases that only need to raise to the immediately preceding SPEC,CP do not do so in overt syntax. However, Chomsky assumed that *wh*-phrases must raise at LF. In the present

proposal, such phrases do not need to move anywhere at LF, since they already occupy the position in overt syntax in which they satisfy all triggers.

This conclusion has consequences for the status of the A/A' distinction: in the standard view, SPEC,IP cannot be an A'-position; and *wh*-phrases need to occupy an A'-position at LF. In the present model, *wh*-phrases must occupy a position in the checking domain of a *wh*-feature. Where C and AGRS conflate, this position happens to be the specifier of a head also containing N-Φ features (i.e. an A-position). In other words, the set of A-positions is not disjoint from the set of A'-positions.

I have motivated the proposal (98/99) as a way of handling the SU-V2 problem. It remains to be seen whether it supports a wider range of data. Mixed projections in root clauses are expected to arise in non-V2 languages, as well. [40] The prediction for English sentences like (101) is that although V and maybe T must project independently, AGR_S and C may, and therefore must conflate. Neither head has phonological content, and only one phrasal feature needs to be checked:

(106) $[_{C/AGRsP}$ *he* $C/AGR_S\ [_{TP}\ [_{VP}$ *came*]

So my proposal converges with Haider's on the analysis of examples with auxiliaries (94a).

The asymmetry between subject-questions and non-subject questions with respect to do-support (cf. the discussion of (94b) vs. (95)) also invites analysis in terms of conflation. The cases where inversion is required correspond with the cases in which C must project independently of AGR_S. However, it is expected that the trigger for AUX-to-C (strong F) associated with the *wh*-complementizer should be present also where C and AGR_S conflate in subject-questions, whereas subject-questions pattern with declaratives with respect to do-support. In both, do appears only under negation and emphatic denial of negation:

(107) a. *Who didn't come*?
b. *Who DID come*?

So do-support in questions cannot purely be a response to the presence of strong F. Instead, the asymmetry is reminiscent of the asymmetry in the distribution of C-agreement morphemes, which as discussed in §6.6., do not appear on verbs in SU-V2 (cf. also note 29). The issue also depends on the analysis of do-support itself, which would take us too far afield here.

Notes

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1. The assumptions in (4) are not shared by other frameworks: (4b) in particular is not assumed in HPSG-treatments of V2, or in categorial grammar.

2. There are nevertheless cases in German which seem to violate (9): parentheticals and discourse particles like aber ("but", "however") may intervene between specifier and verb to induce V3-order. I have nothing to offer on these cases:

i) *Niemand, wie es scheint, hat mich gesehen*
noone as it seems has me seen

ii) *Ich aber werde nicht da sein.*
I however will not there be

3. Bare V2 clauses function as complements only in German. Other V2-languages, e.g. Swedish, permit the V2-pattern directly following an overt complementizer in complement clauses - see Holmberg (1987). I ignore these cases here. The fact that the pronoun er must be disjoint in reference from the name Hans in (27) may be taken as evidence for the claim that the German construction involve genuine embedding, and not parataxis. See Schwart & Vikner (1989), Vikner & Schwartz (1991) for further arguments. Reis (1994) has recently cast doubt on this claim.

4. For other proposals, see Holmberg (1987) and the papers in Haider & Prinzhorn (1986).

5. In Rizzi & Roberts (1989) and Wilder (1989), it is suggested that root complementizers of V2-languages are affixes that need to attach to a finite verb. (29) thus represents a violation of the principle barring unbound affixes. The weakness of this idea lies in the need to assume the existence of an affix with no PF-reflex other than the movement it is intended to explain. However, by identifying the trigger for V2 as an inherent morphological property of the root complementizer, the proposal has the advantage of being compatible with the lexical parametrization hypothesis. The proposal is revived in §5.5 under a somewhat different interpretation, lacking the drawback noted, in the context of Chomsky's (1993) proposals about the triggering of movement.

6. This case arises where a VP dominates another VP and the head of the lower VP raises to the head of the higher VP, as in the multiple VP-analysis of double complement structures of Larson (1988).

7. Adjunction of heads to other heads containing lexical material is often proposed to describe processes of incorporation. While many cases involve a target containing affixal material, others patently do not - for example, Verb Cluster formation in Dutch and German. There is no independent motivation for stipulating a ban on the head-adjunction of a verb to an overt non-affixal complementizer.

8. Croatian is a pro-drop language. For arguments that (37) involves raising of both finite auxiliary and participle to C, see Wilder & Cavar (1994a, 1994b). Several authors have argued that the HMC should be loosened to permit cases of "long" verb-movement analogous to (36a) - see Rivero (1991) and references cited there. This would mean that the explanatory scope of Last Resort is even broader.

9. The model incorporates the VP-internal subject hypothesis, whereby subjects are introduced into the derivation inside the VP.

10. Movement by substitution in the structure-building stage - the overt syntax prior to Spell-Out - is assumed to underly an "extension" requirement: i.e. the new node created by move-α must be the root node of the output. Movement by adjunction (e.g. raising of V to AGR_S) will create a new node labelled with the category of the category adjoined to. Adjunction is not subject to the "extension requirement"; and head-adjunction is necessarily not "tree-extending", as the adjunction site, a head, cannot be the root of a complex tree.

11. Since both the verb-Infl relation and "Case-assignment" are handled in terms of checking theory, inflected verb forms, determiners, etc. must be formed in the lexicon and project into syntax already bearing m-features. This contrasts with earlier approaches in which inflected verbs are created in the syntax by adjunction of a verb-stem to inflectional affixes in an Infl-node; or in which DPs only receive Case-features by "assignment" in the course of the derivation.

12 . If Φ-feature correspondence between subject and finite verb were not mediated by a functional head, then checking would be possible inside VP (where verb and subject DP are already in the required configuration) without movement.

13 . Case-checking is assumed to take place in Agreement projections, following raising of the verb to AGR_O, and T to AGR_S.

14 . See also Pollock (1989). The adverb marks the boundary of VP.

15 . Cf. Wilder & Cavar (1994b) for discussion. The model outlined has considerable explanatory potential with regard to the acquisition problem. Variation follows from parametrized morphological properties of a restricted class of lexical items (whose idiosyncratic properties must be "learned" in any case), which are "visible" in, and hence deducible from, PF-representations. It remains to be seen whether such a restrictive theory of triggers and parametrization can be maintained in the face of a wider range of data. See also discussion of Zwart (1993) in §7. below.

16 . The fact that the DP John appears in a PP, where it presumably checks "objective" Case, should not in principle prevent it from checking the NOM-feature in Infl as well. Where a phonological form is not specific to a particular Case, it is reasonable to suppose that the associated abstract Case-feature is underspecified. So the Case-feature of John is compatible with, and so can check, either a NOM or an ACC-feature. Under a minimalist conception of the lexicon, it makes sense not to assume two forms John, one bearing NOM, one bearing ACC.

17 . Nominatives in there-constructions and "in situ" *wh*-phrases are assumed to raise at LF. On how feature-checking proceeds in these cases, cf. Wilder & Cavar (1994b).

18 . See also Zwart (1993). There is no overt morpheme that signals a topic phrase in German or other V2 languages, but the existence of special "topic"-markers in languages like Japanese may be claimed to support the existence of the abstract underlying feature.

19 . If C had a strong F-feature matched by F in some abstract Infl-head, and this head contained no strong V-feature, then the overt movement (I-to-C) would have no overt reflex in PF-representations. It would not be deducible from word-order alternations or any other property of PFs, and so the parameter setting would be unlearnable.

20 . For analysis of do-support and the failure of finite main verbs to raise to C in English, see Wilder & Cavar (1994b). It may be necessary to distinguish a further C to account for inversion in English declaratives with preposed negative quantifiers, only-phrases, etc.

21 . Kayne (1993) has developed a theory in which a universal order for all X'-projections - Specifier-head-complement - is imposed by UG. If true, this suggests that there can be no variation in the order of a head and its complement (or specifier), and the assumption that the OV-order in German VP is "base-generated" - cf. §2 - has to be given up. This raises the prospect that all aspects of word order variation are due to differences in the way move-α feeds PF-representations.

22 . The symmetric analysis is strictly neutral with regard to the ordering of Infl and VP. Note that the asymmetric analysis does not claim that SU-V2 clauses are IPs lacking a C-projection. Zwart (1991,1993) is careful to state that SU-V2 clauses are CPs; as such they do not differ categorially from X-V2 clauses, but only in that their C-projection is "not activated".

23 . The asymmetric analysis may have consequences for the account of V-third effects in SU-V2 of the format X-SU-V (Damir Cavar, p.c.). SU-V2 does not differ from other V2 clause-types in this respect: X may only be a left-dislocated phrase. However, there is one additional adjunction site available, AGR_SP, which is sometimes assumed to be available for adjunction in embedded clauses, in German at least, yielding "scrambling" orders like (i):

i ...*daß* [*dieses Buch* [*ich nie* t *lesen würde*]]
that this book I never read would

Movement and adjunction of a phrase to CP in X-V2, is completely out (ii), and parallel SU-V2 examples are equally as bad:

ii * *dieses Buch nie würde ich* t *lesen*
iii * *dieses Buch ich würde nie* t *lesen*

Excluding this last example might be a problem for the asymmetric theory, as a preverbal IP-adjunction site is available. Under the version of the asymmetric analysis developed in §7, the AGRS-projection in SU-V2 is simultaneously the C-projection, so this problem may be avoided. However, "scrambling" is a phenomenon that raises quite different questions for the Minimalist model, so I shall leave this issue open here.

24. Zwart (1991) develops a further argument on the basis of properties of "conjunction reduction" in Dutch and German, which I do not go into here.

25. In fact, expletive es only appears in initial position in SU-V2 sentences. It is usually assumed to be replaced in other contexts by a null expletive. The question of why the overt expletive es does not appear in SPEC,IP except in SU-V2 sentences needs an independent account. Given that the data single out SU-V2 as being special, the asymmetric approach to V2 provides basis for an account in terms of the different position of the finite verb. An alternative strategy might be to view es in SU-V2 as an expletive topic, which would make these data compatible with a "generalized topic" analysis of declarative V2.

26. Rizzi's proposal is to define A-positions as all and only θ-marked positions and all and only specifier positions that agree with (some element) in the head ("...a Spec is A when construed (coindexed) with an Agr specification in its head", further sharpened to "construed with agreement in phi-features".) A similar idea to Rizzi's is to be found in Holmberg (1987).

27. In Chomsky (1993), A-positions are reinterpreted as specifiers of "L-related heads", including AGR_S and AGR_O, but not C.

28. The following comments are based on helpful discussion with Gerhard Jäger, from whom I have borrowed (77). See also Jäger (in prep.).

29. English has an analogous asymmetry that turns up with the 1SG form of be with suffixed negation. The form aren't is available only in inversion constructions (AUX in C) (i); without inversion, only the form am is possible, which cannot take suffixed 'nt. See Kayne (1989) for discussion:

i Why aren't I allowed to do that?
ii I'm not allowed to ...
iii I am not allowed to ...
iv * I aren't allowed to ...
v * I am'nt ...

30. Zwart's proposal is thus an implementation of the earlier idea that "lexical" C blocks V-fronting in which the blocking effect is derived not via the substitution assumption but via economy principles, as I argued above (§4.3) that it should be.

31. The "shortest path" condition is another subcase of Last Resort. Zwart claims that the finite verb in clause-final position is separated from AGR_S by at least two heads - AGR_O and T, which he assumes precede their complements in Dutch and German.

32. Root complementizers are "PF-null": the choice between null and overt (whether/ob) realization in embedded interrogatives usually depends on whether the *wh*-phrase in SPEC is overt or covert.

Extension to relative clauses may require additional features; see Rizzi (1990:Ch 2) for relevant discussion. The choice of L-specification for the English topic-C depends on the scope of the [+L]-requirement, as discussed.

33. If F is binary, then +F defines finite C and -F non-finite C, which heads infinitive CPs. Not wanting finite verbs, which also bear F, to be defined as complementizers, I suppose that substantive features override "functional" or "inflectional" features in determining category labels.

34. Haider applies the idea that if one projection must be superimposed on another, but no well-formed match is found, then the string is ungrammatical. He uses this to account for the ungrammatical V-projection topicalizations (i) discussed in §6.5.

i * *getanzt wurde*
danced was

Together, V-to-C and VP-fronting are string-vacuous with respect to subordinate clause order:

ii *...weil getanzt wurde*
since danced was "since there was dancing"

In (ii), according to Haider, the verb getanzt must form a complex head-constituent with wurde in VP, while in (i), it must be contained in a phrase (VP) in SPEC,CP excluding the finite verb in C. So no match is found and (i) is impossible.

iii (*weil..*) $[_{VP}\ [_{V}$ *getanzt wurde* $]]$ / $[_{CP}\ [_{VP}$ *getanzt* $]\ [_{C'}$ *wurde* _ $]]$

Adding more material to the right of the finite verb renders topicalization and V-to-C non-string-vacuous, so matching is unnecessary, and the example becomes grammatical:

iv *Getanzt wurde hier noch nie.*
danced was here yet never

Counterevidence to Haider's proposal is found in grammatical V2-clauses with passives of the format "V + AUX + extraposed clause" (v), which are string-vacuous with respect to subordinate clause order (vi):

v *Untersucht wird, ob die Daten stimmen.*
investigated is whether the data are-correct

vi *... weil untersucht wird, ob die Daten stimmen.*

If the participle and the auxiliary must form a V-constituent in (vi), there is no matching projection CP/VP for (v); but (v) is well-formed. In §6.5, the contrast (i/iv) is attributed to the requirement that C' (the comment in topicalizations) must contain a focus, given that auxiliaries have no focussable content. Where the topic is not a V-projection, the comment minimally contains a contentful main verb, which can be "comment-focussed" if need be:

vii *Mich friert*
me-ACC freezes "I am freezing"

35. A mixed projection does not violate the principle that a phrase has a unique head: C and AGR_S do not represent two configurationally independent heads of a single phrase. Nor do they represent head-adjunction structures, in which only the head X of the complex $[_X\ Y\ X\ ]$ projects. Rather, the categories C and I jointly label a single node, and this (joint) category label is projected to the non-head projections of the phrase.

36. Two or more words can be inserted under a single node if they form an adjunction structure, since this defines a linearization. This may be the case for compounds; but such cases are irrelevant if the adjunction structure is already formed in the lexicon.

37. (100) already ensures that AGR_S and AGR_O, which license different phrases in transitive sentences, cannot conflate with each other. I leave the question open of whether T can conflate with an AGR-head.

38. Given that major category elements generally have phonological content, it may be possible to reduce (104) and (105) to a single condition. It is unclear to me how they might be explained.

39. Note that the order of projection of individually projected functional elements requires an independent explanation, just as in a model that does not incorporate (98). Given a sequence of projection, only heads that are adjacent in the projection sequence can conflate.

40. The facts discussed in Ouhalla (1992) may be relevant here.

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