PROJECTING INFLECTED VERBS*

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1. Introduction

This article addresses the relation between syntactic representations (at S-structure and D-structure) and morphological representations in "PF". The investigation focusses on properties of inflected verbs.
Inflected verbs constitute a potential probe into the nature of this relation, since their formation from verb stems and inflectional affixes is generally taken as the paradigm case of a process precluding a direct and order preserving mapping between S-structure and morphological structure. So far a satisfactory theory of the constraints on this mapping has been lacking. Our goal is to elucidate their nature. An alternative view of this mapping will be developed under which it does preserve order. We will show that when applied to inflected verbs this view leads to a principled account of the variation in their properties across languages.
The formation of inflected verbs is one of the processes argued to instantiate head-to-head movement, namely movement of V to INFL. Our analysis of this process will directly bear on current conceptions of the relation between syntactic structure and X'-principles, as in the following assumptions from Chomsky (1986).

(1) a. There is head-to-head movement in the syntax as a subcase of Move Alpha
    b. X'-principles apply at D-structure; not at S-structure

We will show that the correct generalizations about the behaviour of inflected verbs can only be expressed in a theory in which (2) and (3) hold.

(2) Inflected verbs are constituents at S-structure
(3) The effect of the merger between verb and inflection is determined by principles of X'-theory

If these are correct (1a) and (1b) cannot be simultaneously true.
The notion of 'level of representation' will play an important role in our considerations. We will understand it essentially as it has been developed in Chomsky (1955), henceforth LSLT. Our use of S-structure and D-structure representations will be standard (see e.g. Chomsky (1981)). As to PF representations, we will assume that on the highest level within PF a sentence is represented as a string of morphemes in their surface order, including a representation of the hierarchical structure that is phonologically motivated. Thus, a sentence such as John drinks a beer is represented as in (4a), and John drank a beer as in (4b).

(4) a. [(John) [[(drink)(s)] [(a) (beer)]]]
    b. [(John) [(drank) [(a) (beer)]]]

The basic elements of this level are segmentally represented morphemes. In order to distinguish it from level M in LSLT (which does not reflect surface order), we will refer to this level as M* (see Reuland (to appear b) for more discussion).
Our results will be directly relevant for a debate on the relation between D-structure and S-structure which has been going on for about a decade (see Koster (1978), Chomsky (1981), and Koster (1987)): Are they independent or is the one derivative of the other? Chomsky (1981) argues in favour of the

position that D- and S-structure are independent levels. Chomsky (1986) moves still farther in that direction. The debate centers on the question of whether movement rules can be reduced to binding principles. X'-principles are equally relevant for this issue. If D-structure and S-structure are independent levels of representation, it is redundant for X'-principles to independently characterize both. So, assuming that these principles apply at D-structure, Chomsky pursues the possibility that they apply only there. S-structure, under this conception, only obeys X'-principles derivatively, that is to the extent in which they happen to be preserved under movement.

The results of the present article point in the other direction. (2) and (3) will be established on the basis of a number of typological facts which can only be explained under the assumption that inflected verb forms as a whole are input to the module determining the nature of projections, viz. the X' module and that they are constituents at S-structure. Note that (2) and (3) could be jointly satisfied by a theory in which inflected verbs are inserted as D-structure constituents and preserved by the mapping to S-structure. This would make D- and S-structure more similar than assumed in approaches following Chomsky (1981). However, we will see that this is not sufficient. Sometimes S-structures must contain null-elements corresponding to a subpart of the inflected verb. So, paradoxically, it appears that an effect of movement, namely the presence of a null category, will have to be retained, although movement is claimed not to have taken place. This will motivate a more thorough analysis of the relations between levels and a reassessment of the conditions under which empty categories arise. Together, this leads to a theory in which inflected verbs are present at S-structure, X'-principles apply at S-structure and (by non-redundancy) not at D-structure, and D-structure is more different from S-structure than is usually assumed. A discussion of what such D-structures might look like would lead us too far afield. A number of considerations bearing on the status of D-structure under such a conception are presented in Reuland (to appear b). In the present article we will confine ourselves to the S-structure properties of inflected verbs.

2. Correlates of the SOV-SVO contrast in Germanic

Whatever the principles involved in the formation of inflected verbs in Germanic languages, the effects of that process differ across languages. A characteristic property of Dutch, Frisian and German is that they easily allow nominative marked subjects in VP-internal position. This is illustrated in (5). (5a) shows a Dutch Nominative-Dative inversion construction (discussed in Den Besten (1981))[2] and (5b) an existential sentence.

(5) a. Ik denk dat hem deze zaken niet bekend waren
I think that him these matters not known were

b. Ik verbaasde me dat er veel mensen oude boeken lazen
I wondered (myself) that there many men old books read

In both constructions the thematic subject is VP-internal, since it does not obey the traditional Subject Condition and for instance allows wat_voor-split (Den Besten (1981)).[3] Existential constructions with the expletive er 'there' freely occur with virtually all intransitive verbs (both unergative and unaccusative, see Reuland (1985)). The same holds true for Frisian. As (5b) shows they are even possible with transitive verbs. Constructions of this sort are most easily illustrated on the basis of Dutch and Frisian, since these languages, unlike German, have an overt expletive in subject position.
In addition to allowing VP-internal subjects all three languages allow a considerable amount of scrambling. That is, subcategorized material of the verb, including direct objects, can occur to the left of sentence adverbs. This is illustrated by the examples in (6).

(6) a. Ik zag dat Jan gisteren Marie dat boek gaf
I saw that John yesterday Mary that book gave
b. Ik zag dat Jan Marie dat boek gisteren gaf
I saw that John Mary that book yesterday gave

In German the word order[4] is even less restricted in that objects may move to the left of the subject. The basic facts about scrambling are well-known and have been extensively discussed in the literature (Lenerz (1977), Thiersch (1978), Haider (1984a,b), Scherpenisse (1986), Bennis and Hoekstra (1984), Den Besten and Webelhuth (1987), etc.). We will not repeat these discussions, but limit ourselves to some illustrative examples where this is useful. Notwithstanding some restrictions which will not concern us here, the general pattern in Dutch, Frisian and German is that scrambling in these languages is relatively free.

This pattern contrasts with what one finds in a language like English. Here there is none of this freedom. The equivalent of (5a), given in (7) is completely ungrammatical.

(7) *I think that him were not known these matters

Although there are existential constructions with a postverbal NP in English, unlike in Dutch, the set of verbs allowing this construction is highly limited, as illustrated by the contrast between there ensued a riot on Mass. Ave. and *there telephoned a man (see Milsark (1974) for discussion).
Mainland Scandinavian languages side with English, rather than with Dutch in this respect. The equivalent of (7) is excluded in Swedish and the other mainland Scandinavian languages as well. Although there are strategies to form existential and/or impersonal constructions, the freedom observed in Dutch, Frisian and German is lacking. One of the main strategies is one in which whatever agreement between subject and verb there is (in fact just with participles), goes with the expletive, rather than with the postverbal NP (see Koch and Taraldsen (1987) for an extensive discussion of participial agreement).
Icelandic offers a somewhat more complicated picture. The equivalent of (7) is grammatical. However, although Icelandic shows VP-internal NPs marked nominative, these behave as non-subjects, as is argued in Zaenen, Maling and Thráinsson (1985). On the basis of a wide range of properties they show that it is rather the non-nominative external argument that is the subject.[5] Also with respect to existential sentences Icelandic appears to exhibit a less straightforward pattern in that it allows existential sentences with transitive verbs. However, in all cases the subject remains structurally external to the VP, as argued in Thráinsson (1986a). So, the prohibition against VP-internal subjects appears to be upheld in Icelandic as in the other languages of the Scandinavian group.
Even at this fairly crude level it is legitimate to conclude that there is a two-way division of the Germanic languages along the lines described. For present purposes this is sufficient. It shows that some property must be isolated that differentiates between Dutch, Frisian and German on the one hand, and English, Icelandic, Norwegian and Swedish on the other.
This division correlates with another syntactic property. The languages freely allowing VP-internal subjects are precisely those with an SOV base order; those of the other group are all SVO. These facts can be summarized in the following descriptive generalization.

(A)	SOV languages	SVO languages
1.	weak restrictions on VP-internal Subjects	strong restrictions on VP-internal subjects

2. weak restrictions on scrambling	strong restrictions on scrambling

The VP-internal subjects concerned agree with the finite verb and have nominative Case. So, (A1) indicates a connection between the SOV character and the relative ease for INFL to entertain a local relation with VP-internal positions. The null hypothesis is that this is the standard government relation; i.e. in SOV languages INFL governs VP-internal positions. This hypothesis will be investigated.
A full assessment of the status of (A2) would require developing a theory of scrambling. Doing so, would require a separate article. Nevertheless, some pertinent conclusions can be drawn on the basis of the superficial generalizations which can be justified here.
The observable effect of scrambling is that sentence adverbs may mingle with subcategorized material of the verb. The canonical domain of subcategorized material is the projection of V. Sentence adverbs modify the proposition as a whole; hence, one would expect them to occur in the governing domain of its head, I^0. In the SVO languages it is easily seen that sentence adverbs, especially sentential operators like negation, actually do entertain a local relation with I^0, witness the fact that in English not cliticizes onto the auxiliary, and that in the Scandinavian languages its position is also fixed between Aux and VP (for Icelandic this is easily observable, for the mainland Scandinavian languages, this requires some discussion, see section 4.). This suggests the following generalization.

(B) NEG must be governed by I^0

Consider next the effect of scrambling in SOV languages. As illustrated in (6b), scrambling in Dutch, German and Frisian moves an argument to the left, over adverbials, including sentence adverbs. Adopting the standard view that scrambling is an instance of adjunction, its target is either IP or VP (under the theory in Chomsky (1986) adjunction is only to maximal projections). As such, the direction of movement is not specified. In the case of PPs this gives the correct result, as they may move either to the left, or to the right (so-called PP-over-V). Rightward movement of NPs is completely excluded, however. This pattern is illustrated in (8).

(8) a. dat Jan het boek gisteren voor Marie meegebracht heeft
that Jan the book yesterday for Marie brought has
b. dat Jan voor Marie het boek gisteren meegebracht heeft
that Jan for Marie the book yesterday brought has
c. dat Jan het boek gisteren meegebracht heeft voor Marie
that Jan the book yesterday brought has for Marie
d. *dat Jan gisteren voor Marie gebracht heeft het boek
that Jan yesterday for Marie brought has the book

These facts, which are well-known, indicate that some minimal statement is needed to distinguish scrambling of NPs from scrambling of PPs. An assumption with the required effect is that scrambling is sensitive to government:

(C) An argument may not scramble out of the domain of its governor

In SOV languages verbs govern to the left, and hence the verb occupies the rightmost position in its projection. Scrambling an NP to the right, adjoining it either to IP or VP, moves it to a position whether it is not governed by the verb. This is ruled out by (B). (B) does not restrict scrambling of PPs, since the governor of the argument is the preposition, which is moved along. The upshot of (B) is that in SOV-languages NPs may left-adjoin to VP. Consider next how this interacts with the position of negation in the SOV languages.

Its favoured position is close to the finite verb. This is illustrated in (9).

(9) a. ??dat Jan gisteren niet het boek gelezen heeft
that Jan yesterday not the book read has
b. dat Jan gisteren het boek niet gelezen heeft
that John yesterday the book not read has

Together with (B) and (C), (9) suggests that I^0 must be able to govern a position well within the governing domain of the verb, viz. that of niet, or, alternatively, that V^0 must be able to govern a position well beyond a position governed by I^0. (A2) indicates that there is a connection between the SOV character of a language and these possibilities. Both (A1) and (A2) independently show that in SOV languages the domains of INFL and V may overlap, whereas in the SVO languages they are strictly separated.
The issue is important in the light of the theoretical developments in the last few years, leading to a theory in which phrase structure properties are projected from lexical properties of heads, instead of being stipulated in terms of separate phrase structure rules (Chomsky (1981), Stowell (1981)). In both language types the inflectional morpheme is realized on the verb. The differences in the domains assigned to INFL and V cannot be stated in terms of different phrase structure rules. The differences are not reflected either in the composition of the verb forms. Their general structure is identical. What is needed is a parameter stated in terms of inherent properties of both INFL and V that forces the assignment of a domain to INFL in SVO languages that differs from its domain in SOV languages.

The significance of the correlation is shown by the fact that it is also observed in so called Nominal Infinitives (corresponding to the English Gerunds).
This construction is characterized as follows. It has a verbal stem as its head, carrying an inflectional affix. This affix induces nominal properties on the construction as a whole. In general, such constructions consist of a verbal projection that is contained in a projection with at least certain nominal characteristics. Since the facts are less well-known than those mentioned above we will give some more illustration, see (10) and (11).

(10) a. dat vervelende stiekem stenen bij de buurman in de tuin
that annoying secretly stones with the neighbor in the garden
gooien van die kinderen moet maar eens afgelopen zijn
throw(ing) of those children should come to an end
b. het constante elkaars artikelen kopieren van linguisten
the constant each other's articles copy(ing) of linguists
kost de universiteit fortuinen
costs the university fortunes

(11) Tom's maliciously hunting that poor little mouse is disgusting

The nature of the contrast between the two language groups is as follows:
In the SVO languages there is a sharp distinction between a nominal and a verbal version of this construction. If it contains a syntactic verbal projection at all, this projection comprises at least the whole VP. In the SOV languages the transition between nominal and verbal character is variable. The possibilities available in Dutch can be seen in (10). One and the same construction can have both adjectival and adverbial modifiers, provided that the latter occur within the domain of the former. The agent is expressed by a van-phrase to the right of the head, which is only allowed in canonical nominal expressions. The direct object occurs to the left of the head, i.e. in the canonical position of the direct object in a VP. In addition its Case requirement is satisfied without the help of a preposition. It is possible,

though, for the direct object to occur to the right of the head. In that case a preposition is required. Yet, this does not preclude the possibility of having other elements, including adverbs, to the left of the head. In short, the construction can be characterized as containing a verbal projection embedded in a nominal projection (witness not only the possibility of adjectival modification, but also the presence of a determiner), where the size of the verbal part is variable. The same type of variation obtains in both Frisian and German.[6] There is a clear consensus that most of the combinations found in Dutch are either hard or impossible to get in English. This is illustrated in (12).

(12) a. The malicious hunting of (the) poor little mice (by Tom)
b.*The malicious hunting (the) poor little mice (by Tom)
c.*The maliciously hunting of (the) poor little mice (by Tom)
d.*The maliciously hunting (the) poor little mice (by Tom)

The corresponding Dutch sentences are all grammatical (in the case of (12b) and (12d) without the article on the direct object). If the specifier position of the construction contains an argument there is a bit more freedom. This is illustrated in (13).

(13) a. Tom's malicious hunting of (the) mice
b.*Tom's maliciously hunting of (the) mice
c. Tom's maliciously hunting (the) mice
d.*Tom's malicious hunting (the) mice

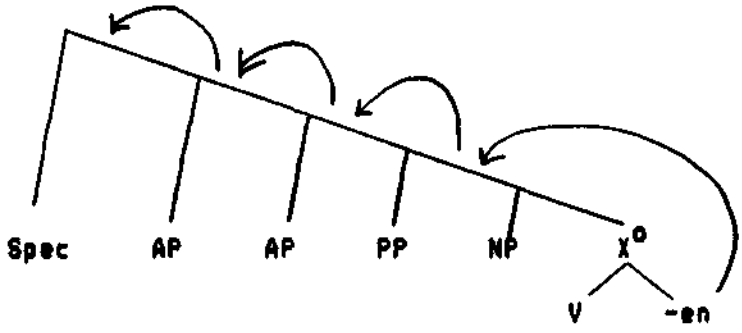
The English facts are captured by the following descriptive generalization: If the projection of the head starts out nominal, the whole construction is nominal; if the projection starts out verbal, at least the whole VP is verbal. (14) shows some examples from Swedish, where the division is even sharper.

(14) a. det där olyckliga jagandet av musen
that unfortunate hunting of mice
b.*det där olyckligt jagandet av musen
that unfortunately hunting of mice
(15) a. Vi betraktade Tom olyckligt jagande musen
we watched Tom unfortunately hunting mice
b.*Vi betraktade Tom olyckliga jagande musen
unfortunately

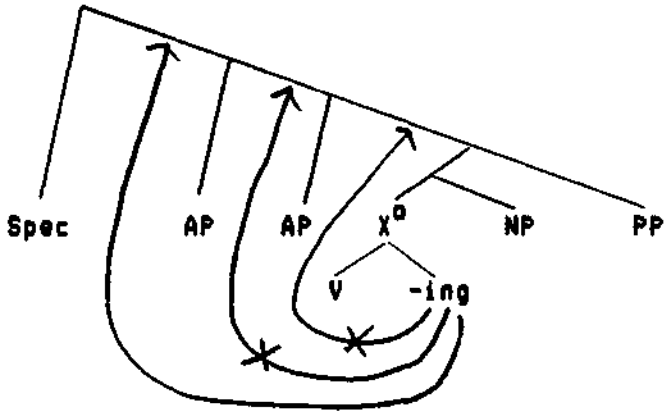
If there is a nominal specifier such as det där in (14) the whole construction is nominal: the modifier must have adjectival inflection, and the object requires av. In an environment where the verbal variant occurs, the modifier must be adverbial, and the object appears without av. The facts in the other mainland Scandinavian languages are similar.[7] From the perspective of the morphology the facts have the appearance of a "morphological bracketing paradox" in the syntax: although the inflection is morphologically realized on the verb, it behaves as if attached higher up, to a V' or VP. What is to be explained is the fact that in the SOV languages the inflection may be construed with all choices of V-projections (maximal and non-maximal), whereas in the SVO languages construal is only possible with the maximal and the minimal

V-projection. This is illustrated in (16).

(16) a.



b.



None of the proposals for affix attachment developed so far can discriminate between the SVO and the SOV cases, because they all operate symmetrically. Consider, for instance, how an approach based on a Pesetsky type of affix movement in the syntax (see Pesetsky (1985)), would derive from (16a) a structure in which the leftmost AP is adjectival, the other AP adverbial, and the direct object realized in a van-phrase. -en would raise and be attached to the projection line between the APs. As a consequence the part of the projection above its point of attachment would be 'nominal' (assuming -en to have a nominalizing effect), and the part below that point verbal, licensing the higher AP as an adjective, and the lower one as an adverb. The direct object NP can remain in situ and be licensed by the verb, but, as one will have to assume anyway, it can also undergo movement to the right. Of course, if it attaches to a point below that of -en it cannot be licensed, since V does not assign Case to the right. However, if it attaches high enough, it will be licensed since the nominal part of the projection triggers van-insertion. Consider now (16b). Just like in (16a), the position between the APs should be a possible target of attachment for -ing, licensing one adjectival and one adverbial modifier. Like in Dutch, the NP could remain in situ and be licensed by the verb, or be right-adjoined higher up by move alpha. If it moves up high enough, of-insertion will be triggered, and the object will be licensed. Without ad-hoc adjustments any proposal along these lines capable of generating all of the Dutch possibilities overgenerates for English. Notice that a requirement that the raising be string-vacuous would not only rule out the intermediate attachments, but also the attachment between Spec and the first AP, where it is needed in order to generate the grammatical cases of (13).[8]. The formulation in terms of affix raising is not essential for the argument. If the affix is taken to be base generated high up in a position between Spec and AP, it will have to be lowered, raising the question why Dutch allows intermediate points of attachment and English does not. The alternative assumption that the inflectional affix and the verb are merged by V-to-INFL movement makes no difference. That is, in terms of the present problem all

movement approaches, including the one in Barriers, are equivalent, and can only be saved by specific stipulations. Classifying the -ing in (12a) and (13a) as derivational and hence opaque with respect to syntactic processes, and that in (13c) as inflectional and hence transparent, along the lines set out in Borer (1984), does not resolve the asymmetry either, since -en would come out as sometimes opaque and sometimes transparent, just like -ing; but unlike -ing, it would also sometimes come out as "partly" transparent. This is the same asymmetry in a different guise.
What is needed is a theory of projections and their relation to morphology that allows us to derive the observed asymmetries from an independently needed parameter. Such a theory will be outlined below.
The asymmetries will be derived from the following fact:

(D) SOV languages are head-final both in V-projections and in INFL projections; in SVO languages, the position of V and INFL in their respective projections differs.

In SVO languages the VP is head-initial (the head governs to the right with respect to arguments). The I-projection is not. It is head-medial if one considers the position with respect to both subject and VP. With respect to the subject alone I^0 governs to the left. So, the contrast SVO/SOV is paralelled by a contrast SIO/SOI. The essential part of the asymmetry is formulated in (E).

(E) V and I have uniform government directions in SOV languages but different government directions in SVO languages

This difference will play a key role in our explanation of the facts.

3. A Theory of Projection

From the freedom in the SOV languages it can be deduced that universal grammar itself does not impose any specific division of the V-I domain. The general facts are compatible with no more than that UG requires the V-projection to be contained in an INFL projection. This much will be assumed to be true.[10] This entails that for a specific language the range of possible divisions of the V-I domain must be recoverable at S-structure. Whatever the nature of the process of inflected verb formation, lack of uniformity of government does not prevent the process itself from applying. It is only the effect of this process that is influenced by (E).
Any explanation will have to meet at least two requirements. First, it must allow the parameter i.fixed division versus ii.variable division of the V-I domain to be determined. Second, only for a language of the second type, it must have the freedom of expression needed to represent the various possibilities. We will show that a few simple and general mechanisms are sufficient for this task, provided one adopts (2) and (3). (2) and (3) are instances of a general principle which we feel is initially plausible. Its intuitive content is given in (F), and it is stated more formally in (G).

(F) PRESERVATION PRINCIPLE (informal): At any level, the representation of a sentence will reflect its observable properties in so far as these properties are representable at that level.

(G) PRESERVATION PRINCIPLE: Let $L_1,\ldots,L_n$ be the set of levels of grammatical description, and let them be ordered according to epistemological priority in some domain (L_1 will for instance contain representations in terms of phones, and at the other end one will find levels such as D-structure, or LF). Let s_i be the representation of some sentence s at L_i and s_{i+1} the representation of s at L_{i+1}.

> Then as many of the properties of s_i are preserved at s_{i+1} as the principles of L_{i+1} permit.
> More precisely formulated, the last sentence reads:
> Let $F_{i,i+1}$ (F for short) be a mapping of the set of primitives of L_i to that of L_{i+1} (not necessarily a function). Let s_i be the string $a_1,\ldots,a_n$, and s_F be $F(a_1),\ldots,F(a_n)$. Then s_{i+1} is as close to s_F as the principles of L_{i+1} permit.

Principle (6) is a generalization of the projection principle to relations between other levels. It implies that a property like constituenthood will be preserved at a more abstract level if it is represented at a more concrete level, unless a principle inherent in the abstract level precludes preservation.[11]

Preservation of constituenthood of inflected verbs is precisely what (2) expresses. (3) introduces the principles involved in determining whether preservation is permitted.
In order for (6) to acquire strong empirical content it is necessary to make explicit what it means for s_F and s_{i+1} to be close. For S-structure and M° a proposal will be formulated.
Our account will proceed along the following lines. Inflected verbs are wordlevel constituents at M°. Hence, unless some principle intervenes, they will be word type constituents at S-structure. That is, with respect to the process of projection in the X'-module of the grammar,[12] they have the status of an X^0, and form the foot of a categorial projection.[13] Inflected verbs will be generally characterized as two-headed. The verb stem and the inflectional affix each have the lexical content enabling them to qualify as members of a syntactic category, namely V and INFL respectively, along the lines discussed in Reuland (to appear a). We propose that if an X^0 is two-headed in this sense, both heads project and determine the categorial status of the projection, unless the principle in (H) forbids this.

(H) If a and b are potential heads forming one X^0 constituent, they can simultaneously project just in case they can form a consistent projection line; i.e. a projection line that can be assigned a consistent position with respect to the elements governed by a-b

The consistency requirement has strong empirical consequences, because the ordering conditions on the terminal string are stated in terms of its phrase structure. Its effect can be illustrated as follows. Consider first a string of the form (17a) with the analyses (17b) - (17f), using a monostring representation for the phrase marker, in the sense of Lasnik & Kupin (1977).

(17) a. n a [v-i]
b. n a V^0
c. n a I^0
d. n V'
e. n I'
f. I"

n and a are lexical items (for sake of concreteness we will assume they are nouns). v-i (an inflected verb) is a merged constituent. That is, syntactically it counts as one terminal element. Since the clause has two arguments, the verb stem must be transitive. n and a are both thematic arguments of the lexical stem v, and hence of the terminal element v-i. Representations such as (17) only minimally differ from standard tree structures. In contradistinction to other approaches based on covalency (cf. Huybregts (1985) and Haegeman and Van Riemsdijk (1986)), all structures within

the present theory are representable as single trees. The only increase in expressive power concerns the labelling of the nodes: a node may bear more than one label. As a consequence of the restricted nature of this extension of the theory, standard notions of government, whether they are based on maximality of projections or on minimality, carry over directly (see the Appendix for an example).
In accordance with current theory we assume that order in phrase structure is not stipulated by the rules but effected by possibly language specific ordering principles (Chomsky (1981), Stowell (1981)). So, one starts out with unordered objects, and defines an ordering on them on the basis of government properties of the heads involved. Therefore, with the elements of (17), we have (18), without order imposed.

(18) a. { n { m [v-i]}}={ n {[v-i] m }} etc.
b. { n { m V^0}}
c. { n { m I^0}}
d. { n V' }
e. { n I' }
f. I"

The following statements will derive an SOV/I order: i. if @ is a V^0 it is to the right of all of its arguments; ii. if @ is an I^0 it is to the right of all of its arguments (it is irrelevant for our present purposes whether these statements are primitive or derived from conditions on the assignment of Case or theta-roles). Consider now the statements needed to derive an SV/IO order as illustrated in (19).

(19) a. n [v-i] m
b. n V^0 m
c. n I^0 m
d. n V'
e. n I'
f. I"

What one would wish to express is that a verb is to the left of its arguments, and INFL to the right of its arguments (or 'to the right of its nominal argument', and 'to the left of its verbal argument' if also the VP counts as an argument). However, statements i'. and ii'. corresponding to i. and ii. above, do not have the required effect: i'. if @ is a V^0 it is to the left of all of its arguments; ii'. if @ is an I^0 it is to the right of all of its arguments. v-i as a whole is the only possible value for @ in these ordering statements. So, v-i should be to the left of all of its arguments by i'. and to the right of its arguments by ii'. These requirements are inconsistent. Weakening such statements to statements just about government direction (e.g. by having @ only govern to the left and only govern to the right) leads to a similar result. In fact, no pair of statements about @ can have the required effect: there is no @ in (18a) to which these properties can be consistently ascribed. The result obtained is a consequence of the fact that predicates of the type 'is an X' apply to some independently given object, and any property that goes along with being an X will also apply to that object. Nothing prevents two predicates 'is an X' and 'is a Y' to apply to the same object, provided the properties that go along with being an X and being a Y are all compatible. For instance, there is nothing wrong with having one @ that can assign two Cases, Nominative and Objective. However, different order requirements necessarily lead to inconsistency. The crucial phrase here is 'its arguments', where 'its' refers to v-i. If the requirement that both n and m are arguments of v-i is dropped, the inconsistency disappears. But dropping this requirement is tantamount to splitting up the v-i complex. And this is in a nutshell what we claim happens in the SVO languages. For sake of concreteness we will give an example with a (partial) phrase marker for a

finite SOV sentence before continuing with the discussion of SVO structures. In (20) a string of morphemes is given, with word boundaries indicated. The relevant part of its phrase marker is given in (21).

(20) (dat) (er) (ieaand) (boek-en) (lees-t)

(21) a. dat er ieaand boeken leest
b. dat er ieaand boeken V^0
c. dat er ieaand boeken I^0
d. dat er ieaand V'
e. dat er ieaand I'
f. dat er V"
g. dat er I'
h. dat I"

Given that leest qualifies both as a V and an INFL boeken is governed by a verb and may thus receive Case in that capacity, ieaand is governed by INFL and receives Case from the latter. er is outside the domain of V and dominated by an I-projection (it is assumed that I' allows recursion), and hence qualifies as an external argument satisfying the extended projection principle. Notice, we may assume projection to be free. For instance, the presence of (21d) and (21f) is independently forced by the fact that otherwise ieaand will be external to the V-projection, and the clause would have two external arguments. If (21h) would read dat V", the V" would fail to be licensed, since there would be no category in the structure it can be predicated of (assuming that VPs are licensed by predication of some sort).
The fact that subject and direct object can cooccur inside the VP, either of them governed by both I^0 and V^0, raises the question of how they can be distinguished with respect to Case assignment. The question as such is rather independent of our main argument, and the issues involved in the selection of a specific mechanism will not affect the outcome. Hence, we will not go into this matter here. For sake of completeness we will address this question in the Appendix.
The theory developed so far directly expresses the variability of the division between the domains of V and INFL, and the reason why it exists. Since the V-projection and the I-projection have the same foot there is a shared trajectory in their projections. Within the domain of nodes in that trajectory, both I and V can act as licensers.
In order to see what happens in SV/IO languages, consider again the abstract structure of (19), repeated here.

(22) n v-i a

As we saw, it is impossible for v and i to project simultaneously. Given the fact that either of them is in principle projectable, there are two logical possibilities left. Either v-i projects as I, or it projects as V. The two options are given in (23).

(23) a. n $[_{V^0}$ v-i] a
b. n $[_{I^0}$ v-i] a

(23a) contains a verb with two arguments, (23b) an INFL with two arguments. Consider now the completions of the phrase markers of (23) in (24) and (25).

(24) a. n V^0 a
b. n V'
c. V"

(25) a. n I^0 m
b. n I'
c. I"

Neither (24) nor (25) are well-formed with respect to the ordering statements for SVO languages given earlier. If both n and m are arguments of V, V is not to the left of all of its arguments, if n is not an argument of V, it cannot be licensed. Similar remarks apply to I in (25).[14]
So, whatever the S-structure corresponding to (22), it cannot be identical to a direct projection of the S-structure images of the elements of that string ($(22)_F$) (cf. (6)). In order for the ordering facts to be stateable, the I-projection (especially its foot), must be separated from the V-projection. Yet, the S-structure of (22) as such must remain "close" to its structure at M". We will now make the following empirical assumption. Given some sentence s, with representations s_i, s_F, and s_{i+1}, as defined in (6), s_{i+1} and s_F may at most differ in that the former contains null elements where the latter does not. Of course, any such null element must be specifically licensed. For the present case this leads to the condition in (26).

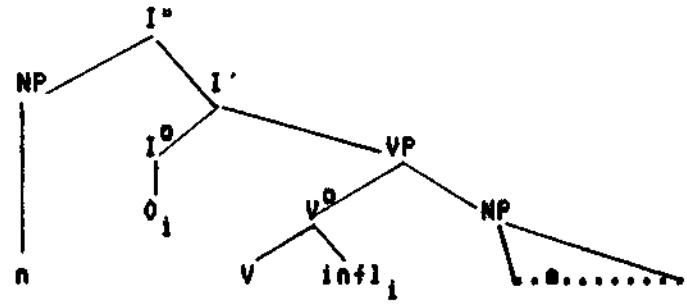
(26) If a string of morphemes in M" is mapped to S-structure, null morphemes can be inserted anywhere in order to make a well formed structure possible (subject to general licensing conditions)

This is equivalent to having a principle "Insert Alpha" (alpha being a phonologically null element of an arbitrary category) as a generalization of "Move Alpha". Since in the cases under consideration the reason that Insert Alpha must apply is that a certain projection must have a head, insertion will take place in the canonical head position. Insert Alpha allows mapping (22) to either (27a) or (27b).

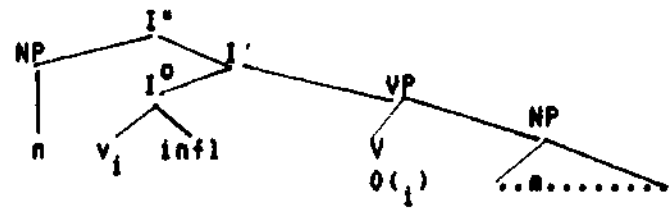
(27) a. n $[_I$o e] $[_V$o v-i] m
b. n $[_I$o v-i] $[_V$o e] m

For (27a) and (27b) the relevant ordering conditions can be stated: i. If @ is a V it is to the left of its arguments (v-i is a V, and only m is its argument); ii. If @ is an I, it is to the right of its arguments (m is an I, and it is to the right of n).
(27a) projects up (28a), and (27b) to (28b).

(28) a.



b.



In accordance with Reuland (1983b) and Baker (1985) the indices of the heads

count as indices of the X^0 constituent containing them (the government transparency principle). So, the index of the verb stem in I^0 c-commands the null verb, and licenses it. The structure of (28b) is virtually identical to the type of structure assumed in the head-to-head movement analysis of Baker (1985) and Chomsky (1986). One may assume that there is a chain between Inflection and Verb. The null V must be licensed and is subject to the ECP, in accordance with the theory of Barriers. The differences reside in the processes involved. Within the Barriers approach the null verb and the fact that it can be licensed by I^0 result from movement. In the present approach, the null verb is inserted by an independent process. The antecedent it requires is provided by the material in I^0 (by free indexing).
Structures like (28a) cannot be accommodated just on the basis of head-to-head movement. Moving I^0 onto V^0 would involve downgrading; thus, the 'antecedent' cannot govern the I^0, violating ECP. So, the existence of structures like (28a) will imply that licensing need not be based on chains formation.
In the next section it will be shown that structures like (28a) are in fact realized. The type of licensing condition needed will also cover (28b). The empirical advantage of the present approach is that it predicts this option and accounts for the licensing of the null heads under both options.

4. Variation among SVO Languages: A Licensing Asymmetry

There is an interesting split within the class of Germanic SVO languages. Its existence can only be explained if both options that are predicted to exist on the basis of (23), namely (27) and (28), are indeed realized, and finite verb forms may have the syntactic status of V in some and of INFL in other languages.
It is well-known that there are differences in word order between the "mainland" Scandinavian languages (such as Swedish, Norwegian and Danish) on the one hand and the "insular" Scandinavian language Icelandic on the other (also English fits into this and patterns with the mainland languages). Faroers, the second "insular" Scandinavian language, has both the Icelandic and the "mainland" Scandinavian word order (Platzack (1984). Historically, the mainland word order is an innovation, since Old Swedish and Old Danish pattern with Icelandic (see Platzack (1987a, 1988)).
The variation involves both root and subordinate clauses. Our present investigation concerns on the relation between verb and inflection in their canonical positions, and has little to say about V-second phenomena. As a consequence, we will primarily address word order in subordinate clauses, in fact focussing on the unmarked cases.[13]
In the mainland Scandinavian languages, sentence adverbials precede the finite verb and other verb forms in subordinate clauses. In Icelandic subordinate clauses, sentence adverbs are situated to the right of the finite verb but to the left of any nonfinite verb forms. For an outline of the Swedish facts see for instance Platzack (1986), or Holmberg (1986). An outline of the Icelandic facts is given by Thráinsson (1986a,b) (and the references cited there). The relevant patterns are illustrated in (29) and (30).

(29) a. i. Jag vet att han inte kommer (Swedish)
I know that he not comes
ii. *Jag vet att han kommer inte
I know that he comes not
b. i. ... at han ikke købte bogen (Danish)
... that he not bought the book
ii. *... at han købte ikke bogen
... that he boughtn not the book
c. i. ... at Jon aldri kjøper boker (Norwegian)
... that John never buys books
ii. *... at Jon kjøper aldri boker
... that John buys never books

(30) a. i. Hann vissi að ég var oft á Íslandi (Icelandic)
he knew that I was often in Iceland
ii. *Hann vissi að ég oft var á Íslandi
he knew that I often was in Iceland
iii. Hann vissi að ég mun oft koma til Reykjavíkur
he knew that I will often come to Reykjavik
b. ... at Gudz ord kan ey vara j honom (Old Swedish)
... that God's word can not be in him

Another difference between Icelandic and for instance Swedish resides in the possibility to scramble VP constituents.
In Icelandic a direct or indirect object can scramble over a sentence adverbial, just in case the clause contains only a finite verb.[16] Scrambling over a (nonfinite) verb form is prohibited.
In Swedish, on the other hand, complements cannot be scrambled over sentence adverbs.
The Icelandic facts are illustrated in (31) and (32), their Swedish counterparts in (33) and (34).

(31) a. Hann vissi að Skuli mun oft segja Sveini sögu (Icelandic)
he knew that Skuli will often tell Sveini story
b. *Hann vissi að Skuli mun Sveini oft segja sögu
he knew that Skuli will Sveini often tell story
c. *Hann vissi að Skuli mun segja Sveini oft sögu
he knew that Skuli will tell Sveini often story

(32) Hann vissi að Skuli sagdi Sveini oft sögu (Icelandic)
he knew that Skuli told Sveini often story

(33) a. Jag vet att han aldrig ska stoppa smöret i fickan (Swedish)
I know that he never will put the butter in the pocket
b. *Jag vet att han smöret aldrig ska stoppa i fickan
I know that he the butter never will put in the pocket
c. *Jag vet att han ska stoppa smöret aldrig i fickan
I know that he will put the butter never in the pocket

(34) a. Jag vet att han aldrig stoppar smöret i fickan (Swedish)
I know that he never puts the butter in the pocket
b. *Jag vet att han smöret aldrig stoppar i fickan
I know that he the butter never puts in the pocket
c. *Jag vet att han stoppar smöret aldrig i fickan
I know that he puts the butter never in the pocket

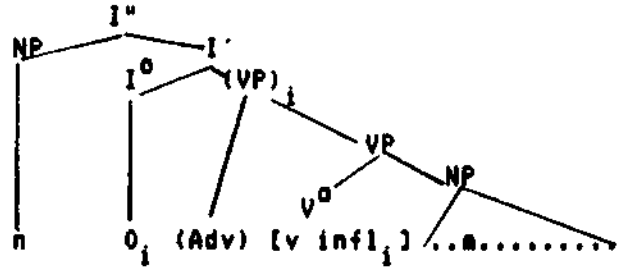
So, summarizing again, in Swedish subordinate clauses the sentence adverb is to the left, and the complements remain to the right of the verb (and the adverbials). In Icelandic this generalization applies when the clause contains a non-finite verb, not when it contains just a finite verb.
The facts raise two related questions, namely what is the syntactic position occupied by the finite verb, and what is the position occupied by the adverb. The null hypothesis is that the privilege of occurrence of adverbials follows from the same principles in the two language types. Accounting for such positional differences by phrase structure rules assigning different base positions to adverbials is essentially stipulative, and probably even impossible under a theory that requires ordering statements to be derived. Our proposal will come very close to saying that the type of structure which

Thráinsson (1986a) claims to hold for Icelandic, in fact holds for Scandinavian languages in general. We will claim that Mainland and Insular languages have the same canonical V and canonical INFL positions. Also sentence adverbials are assigned the same position throughout, namely between the V and the INFL positions. This identical base structure captures the similarities and it provides the basis for an explanation of the asymmetries that exist. If the base structures are identical one cannot adopt a V-to-INFL rule, since that would obliterate the very distinctions that have to be accounted for. Instead we will adopt the following parameter involving the syntactic status of lexical items:

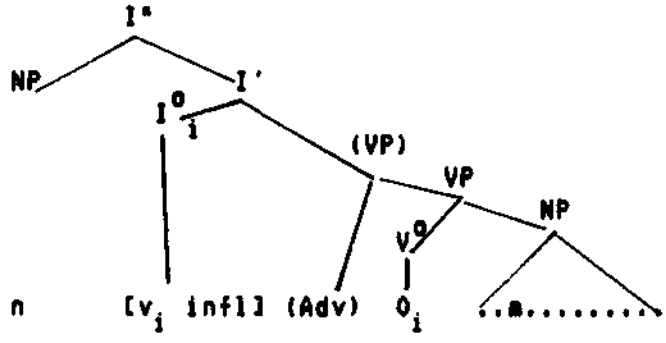
(I) In Swedish, finite and non-finite verbs are syntactically Vs, occupying the head position of the VP; in Icelandic, non-finite verbs are also Vs occurring in the head position of VP, but finite verbs are syntactically members of the category INFL, occupying the head position of IP.

Together with the principle allowing insertion of null heads and the conditions under which these are licensed, this parameter enables us to account for the differences in scrambling possibilities and for the difference in the position of adverbs relative to the finite verb. Given this parameter Icelandic realizes the option (28b), repeated as (35b) (with the position of an optional adverb added). The finite verb form identifies the null verb from the INFL position (by free coindexing, one may assume). Since it governs the empty verb a chain is formed. This has the effect that the V-projection and the c-command domain of INFL (=I') become non-distinct. That is, the finite verb in I^0 and the null V will not be separated by a barrier, and a scrambled NP (a pseudo-operator) in between will be in the domain of verbal material as required. So, in accordance with our earlier discussion scrambling is facilitated (see also Thráinsson (1986a), Platzack (1987a), and Kosmeijer (1987)).
Swedish realizes the option (28a), repeated as (35a) (also with the position of an optional adverb added).

(35) a.



b.



In (28a/35a) the licensing relation does not obtain directly between I^0 and the inflectional material on the verb, since this material does not c-command I^0. As a consequence, chain formation between I^0 and V^0 is impossible. Rather, the lexical features of the inflectional material will project up along with that

of the other material of the verb, and will be represented at the VP-node (even if it does not project with a separate category label). We make the standard assumption that the identification requirement on null elements is a matter of lexical features: an element must have lexical features in order to play a syntactic role. For identification the local presence of a carrier of the necessary content is sufficient. The VP governs and so identifies the null I^0. Thus, the ECP will be satisfied. However, between VP and I^0 no chain can be formed, given their different bar levels. So, the status of the VP will not be affected. No merger between the V and I domains will ensue. Specifically, moving an NP to a position to the left of the finite verb means moving it out of the verbal domain, and violating the licensing condition on pseudo-operators. As a consequence, scrambling is ruled out. So, the explanation of the contrast between Swedish and Icelandic with respect to scrambling follows from the structural asymmetry between (28a) and (28b).
As to the principle governing the position of the adverbs, their position follows if one assumes that adverbs modify categories with the syntactic feature [+V] (see Koopmijer (1987)). Projections of INFL lack that feature (Reuland ((1986)). In Swedish, an adverb to the left of the finite verb, can be construed as a sister of a verbal projection (still being to the right of the null INFL position, as indicated in (35a)), and hence be licensed as a modifier of that projection. In Icelandic, however, the finite verb is taken to be an I^0. Given the right-branching character of that projection, any position within IP to the left of I^0 can only be construed as having an I-projection for a sister. So, being required to modify projections with the feature [+V], adverbs cannot be licensed there. Hence, their canonical position is to the right of the verb, where they can be construed with a V-projection, as illustrated in (35b). Because non-finite verb forms are Vs, the adverb may occur to the left of these, also in Icelandic.
We conclude that the parameter that finite verbs project up as V in Swedish and the languages patterning like it, and as INFL in Icelandic, together with the theoretical considerations given, provides a perspicuous picture of the basic word order difference among Scandinavian languages and offers explanations that are unavailable to an approach based on V-to-INFL movement.[17]
We will see now how this picture carries over to English. In Barriers it is claimed that finite verbs in English result from V to INFL movement. Within the present terms this would amount to claiming that in English the finite verb 'is an' INFL like in Icelandic. However, English, clearly is not like Icelandic in the relevant respects. Rather, we take English to be like Swedish in that the finite verb always projects as V. However, unlike Swedish, English developed a set of lexical items that canonically realize INFL, namely the auxiliaries, including an element do that serves as an allomorph of the finite null-inflection (see Reuland (1986b). The relation between do and the null inflection is comparable to that between a lexical pronoun and small pro in languages with pro-drop. One finds do in a position where the null INFL cannot be identified, that is when INFL has moved to Comp, and when it is a target for cliticization of not. Since generally cliticization to null elements appears to be impossible, this requires no special stipulation.[18,19]

We have shown that the present approach provides a principled explanation for the variation in word order within a class of languages. The variation has been shown to reduce to the asymmetry between a licensing relation that allows chain formation (I^0 and V^0) and one that does not since it involves elements of different bar levels (I^0 and VP). Hence these phenomena support our theoretical position. We have not provided an explanation of what determines the choice of the language learner for projecting (22) to (23a) or (23b). Yet, what is found is not free variation among speakers, but a consistent parameter setting within a language. The available evidence suggests that the parameter setting is related to the pro-drop parameter. The languages in which the inflected verb itself has no properties of INFL (mainland Scandinavian, English) are all strictly non-pro-drop. The idea that there is a connection of that sort is

supported by the conclusions reached in Platzack (1987a, 1988). Platzack investigates a number of structural differences between Scandinavian languages, and also arrives at a basic distinction between Insular and Mainland Scandinavian languages. He relates the differences he observed to the presence or absence of agreement on the verbal inflection. Icelandic, Old Swedish and Old Danish have both person and number agreement in the verbal inflection. In the "mainland" Scandinavian languages both types of agreement have been lost. Platzack (1988) explains the dual status of Faroers by saying that this language is in an intermediate stage with respect to losing agreement features. The verbal inflection in Faroers has already lost its person agreement, but number agreement is still there. This immediately suggests that the strength of the agreement bears on the categorial status of the inflected verb. In Icelandic, Old Swedish and Old Danish agreement is strong and hence the finite verb of the category INFL, whereas in the modern "mainland" Scandinavian languages and English the finite verb is of the category V, given the weak agreement (see also Koopmeijer (1987)). Faroers is "in between", and hence both options are available, yielding both the Icelandic and the mainland Scandinavian word orders.[20]

5. Variation in Nominal Infinitives

From this excursion into language parameters, we return to nominal infinitives. They provide another instance of a null element that is necessitated by the impossibility of a joint projection, and which shows itself by inducing a specific licensing requirement.
Our initial discussion of nominal infinitives did not provide a detailed analysis of their structure. For one thing, the nature of the relation between the nominal and the inflectional character of the affix was left open.
The crucial fact is that the nominal character of 'Nominal Infinitives' is dependent on the presence of a determiner in Dutch. This can be shown by the contrasts in (36) and (37).

(36) a. dat afschuwelijke dieren pesten (van Karel) is een schandaal
that terrible animals harassing (of Karel) is a scandal
b. dat afschuwelijke pesten van dieren is een schandaal
of animals

(37) a. dieren pesten (*van Karel) is een schandaal
animals harassing (*of Karel) is a scandal
b. *?pesten van dieren is een schandaal
c. afschuwelijk dieren pesten in een schandaal
terribly animals harassing is a scandal

If there is no determiner, the presence of a post-head direct object with van leads to a significant decrease in acceptability. An agent cannot be expressed at all by a van-phrase. If an agent is expressed, it must be done with a door-phrase (as in dieren pesten door/*van Karel moet voorkomen worden 'animals harassing by Karel must be precluded'. The modifier in (37c) cannot have an adjectival, wide-scope interpretation, but only a narrow scope adverbial interpretation. So the sentence only expresses that terrible forms of harrassment should stop. This contrast shows that for this construction type the properties of having the external grammar of an NP (such as being an argument, or requiring a Case position), and of having the internal grammar of an NP, are not parallel. However, this is nothing special, since in general these properties are not parallel. Comp and INFL quite generally share with nouns the property of being capable to head an argument (see Reuland (1986a) for discussion of the relation between category assignment and external grammar), but their projections do not have the internal organization of Noun projections. The fact that an internal nominal structure correlates with the presence of a determiner shows that such a structure must meet an independent licensing requirement. This turns a potential problem for our analysis into a

virtue.
The basis of the analysis is that the verbal stem and the inflectional affix project up simultaneously in the SOV languages. However, insofar as the affix has nominal properties that are associated with the category N this is problematic, since N and V/INFL cannot merge under the present theory: N is to the left of its complements (or medial in its projection, if Spec is taken into account), V/I are to the right of their complements. Hence, in the cases under consideration a null nominal head must be inserted in the mapping from M° to S-structure. This is just like in SVO languages the V and I projections must be separated by inserting a null INFL or V. This null element must be licensed. We will propose that this null nominal head is identical to the variable in set expressions, essentially adopting the analysis of the internal structure of NPs developed in Higginbotham (1983). So, the structure of the NP the man is as given in (38).

(38) [the$_x$ man (x)]

In ordinary NPs such a variable can be licensed in two ways, either by the presence of a determiner, or by the phi-features of the head noun. There is no reason to assume that the verb/inflection complex in nominal infinitives intrinsically carries phi-features. So, under the null-hypothesis, the determiner is the only possible licenser in nominal infinitives, hence obligatory. The S-structure of an expression like (39) is then as given in (40).

(39) dat constante stiekem stenen gooien

(40) a. dat constante stiekem stenen gooien x
b. dat constante stiekem stenen gogien N
c. dat constante stiekem stenen I^0 x
d. dat constante stiekem stenen V^0 x
e. dat constante stiekem V' x
f. dat constante stiekem I' x
g. dat constante I" x
h. dat constante N'
i. dat N'
j. NP

The counterpart of the licensing structure of (38) is given in (41).

(41) [dat$_x$ ... I° (x)]

So, the correlation between the presence of a determiner and the nominal character of the construction is explained. I° in (41) plays a role similar to that of the noun in (38), namely that of the predicate of a set expression. The domain of I marks off that part of the construction that can be licensed as such.
Summarizing, the properties of nominal infinitives in a language, and the amount of variation they allow result from two interacting factors:
1) The possible cut off points for the set predicate that is derived from the projection of a verbal stem;
2) The conditions under which the null nominal head can be licensed.
For each of these factors the present analysis provides a straightforward account.[21]
Notice, that the contrast between the two types of nominal infinitives is not only outside the range of a head-to-head movement approach on an explanatory level, but also on a descriptive level. There is no independently given position to which the affix, or the verb stem could move. Even under that approach such a position would have to be created by some insertion process.

Hence, the part of our approach that depends on the existence of null heads that do not originate from movement, is independently justified.
We conclude that the theory must contain a general mechanism inserting null elements along the lines developed. Of course, this is nothing new, given the generally accepted option of having base inserted null elements like small *pro* and big PRO. So, no process is invoked that was not already present in the theory as it existed.
The theory about the relation between M" and S-structure based on (G) (H) and (26) leads to a conceptual simplification of the relation between levels of description, and to correct predictions about language variation.[22]

7. Appendix: A Note on Case Marking

In S-structures where V and I have merged, subject and object are not guaranteed to be in the domain of a different Case assigner; yet, in structures with both a subject and a direct object the subject has to get the nominative. Hence the standard rules for assigning nominative and objective Case given in (i) no longer appear to give the correct result.

(i) a. NP has nominative Case iff governed by INFL/Tense
    b. NP has objective Case iff governed by V_{-erg}?

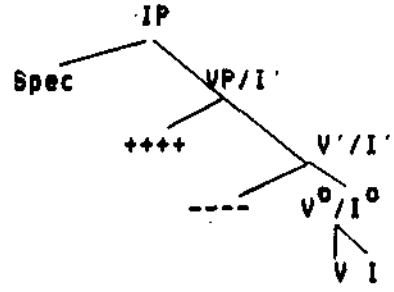
In Zaenen, Maling & Thrainsson (1985) alternative conditions on Case assignment are presented. These authors link Case assignment to certain formal properties of a theta-hierarchy on the one hand and the presence of formal licensers on the other. So, even when an object and a subject are both governed by I, the role of the subject will be higher on the theta-hierarchy; hence it will get nominative first. The claims in the main body of the present article are compatible with that proposal, hence for present purposes it could be adopted. Yet we think an alternative approach is worth developing. The reason is that the theta-related approach can only be upheld at the cost of violating Burzio's generalization. We will illustrate the relevant facts on the basis of Dutch, but similar effects are observable in Frisian (less clearly in German due to the absence of expletives). The point is that in Dutch, as observed earlier, the formation of sentences with er/'there' as an expletive subject is highly unrestricted. Such sentences are not only possible with zijn 'be' or ergative verbs, but also with agentive and transitive verbs. So, one finds sentences with both a VP-internal subject and an object. This is illustrated in (ii).

(ii) a. (ik denk) dat er iemand in de tuin is
        (I think) that there someone in the garden is
     b. (ik denk) dat er iemand aankomt
        (I think) that there someone arrives
     c. (Ik denk) dat er iemand telefoneert
        (I think) that there someone telephones
     d. (ik denk) dat er iemand boeken gepakt heeft
        (I think) that there someone books taken has

As noted earlier, in all of these cases the subject occurs VP-internally (see Den Besten (1982)'s argument on wat_voor-split; see also Reuland (1985)). For sake of concreteness we represent the general structure assumed for Dutch in

(iii).

(iii)



In all of the cases of (ii) er is in Spec. In the ergative cases (iia) and (iib) the subject is in the position of ----. It is governed by verb and inflection. It gets its theta-role directly under strict sisterhood from the verb, and nominative Case under government by Inflection. The [Spec, IP] position (=[NP, S]) must be is non-thematic (otherwise, it could not contain an expletive). It is dethematized under Burzio's generalization, because the verbal material governs an NP but does not assign objective Case to any NP.
In the unergative case (iic), the subject is taken to be in the position of ++++. We will propose it is actually in [Spec, VP]. Assuming a strict condition of sisterhood, a subject in ++++ cannot receive its theta-role directly from the verb. And conversely, an agentive theta-role can only be assigned to an argument that is in a sense external. So, the V' inherits the agent role, and it is the V' that assigns it to the subject. Again, the [Spec, IP] must be non-thematic, and it is nonthematic by Burzio's generalization: the verb governs ++++ (they are dominated by the same maximal projections), and does not assign objective Case to any NP. Since ++++ is also governed by Inflection, it will receive nominative Case as required (and exhibit agreement).
The crucial case is (iid). We observe that the subject is in the position of ++++, and the direct object in ----. Agreement goes with the subject and so the nominative Case must be guaranteed to go there. But both positions are governed by V^0 and I^0 indiscriminately (no maximal projection intervenes). Hence, given the rules in (i) correct Case assignment cannot be guaranteed.
Quite apart from this problem, some assumption must be wrong, however. Notice, that also in (iid) the structural subject position must be non-thematic, since it is occupied by an expletive. But by Burzio's generalization it cannot be, since under (i) the verb would assign objective Case (to either SU or DO). That is, given the assumption that the verb assigns objective Case, the construction cannot exist in the first place. Since it does, the Case assigned by the verb cannot be objective. As the DO has Case, we are led to the hypothesis that it must be possible for the verb to assign some other, non-structural Case to the DO.
There are independent considerations supporting this claim. As is well-known the subject in er-constructions is subject to an indefiniteness requirement (see e.g. Safir (1982) and various articles in Reuland & Ter Meulen (1987)). In transitive er-constructions the DO must be indefinite too. This restriction does not follow from any of the considerations proposed so far for the restriction on the subject.
Belletti (1988) has claimed that indefiniteness requirements are associated with the presence of partitive Case. It is sufficient to account for the facts she describes to be derived, if instead of the notion of a 'partitive Case', the notion of a non-structurally assigned Case is invoked.[23] There is other evidence supporting that claim. The DO in er-sentences only allows a non-specific interpretation. In Reuland (1988) it is shown that non-specific DOs cannot move the way specific DOs do. In the line of Kayne (1981) this could suggest that the trace they leave is not Case marked, that is, they do not bear structural case.
For present purposes the hypothesis that V^0 may assign a non-structural Case is

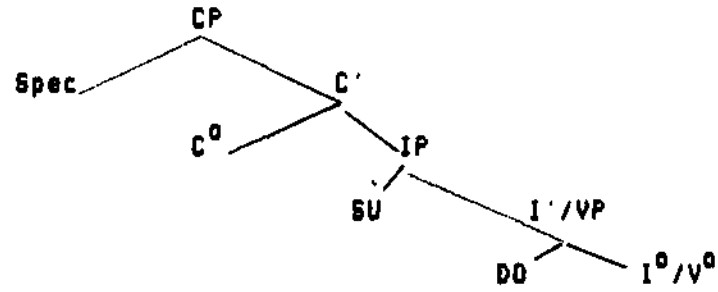
sufficient. We read Burzio's generalization as connecting structural Case for the object with a structural theta-role for the subject, explicitly linking the latter notion to theta-role assignment by the VP. So, A<--->T means that the VP assigns the compositional theta-role of the verb structurally to the VP-external argument position, iff V^0 assigns its Case structurally to the DO. This leaves open the possibility for the compositional/agentive theta-role of the verb to be assigned to the sister of V', as is necessary anyway to account for the theta-role of *iemand* in (iid). The presence of a non-specific indefinite DO has now been reconciled with the non-thematic character of the [NP,IP] since it bears non-structural Case.

The remainder of the account is now fairly trivial. Going back to (iii) one first observes that the SU has to be in ++++ for theta-reasons, since it must get the agent role compositionally from V'. Therefore the DO must be in ----. This fixes the positions. By Burzio's generalization, the Case assigned by V^0 cannot be structural. Hence, it will be assigned under adjacency, that is, only to ----. If the subject in *er*-sentences could be specific, one might simply assume that I^0 assigns nominative to the subject under government. As matters stand, this is not sufficient, since the SU too is non-specific and hence will require non-structural Case. However, non-structural assignment of nominative Case can be accounted for on the assumption that the SU is in [Spec,VP], perhaps one should simply say 'in a Spec-position'. According to current theory the subject is coindexed with V^0/I^0 by Spec-head agreement (they are one node, and hence equally accessible). In fact, there is a real agreement relation between SU and I^0. Thus, it this agreement which transmits nominative case and licenses the SU.

So, the crucial factor determining Case assignment when SU and DO are in the same domain is that this configuration makes it impossible for the DO to receive objective Case on the basis of (i).

When SU and DO are in different domains as in standard transitive sentences, no special problems arise. The structure can be given as (iv).

(iv)



The SU will receive its theta-role compositionally from the VP, since the DO receives objective Case structurally. The SU is not governed by I^0, since a maximal projection (VP) intervenes. Instead it receives nominative Case from Comp, as has been argued by Den Besten in his classical (1977). Assuming Comp carries Tense features, any of the proposals that IP is not a barrier for government, is sufficient (notice that minimality will not prevent C from governing the SU, since the V/I complex is hidden under the VP).

The present view entails that both I^0 and C^0 are potential assigners of nominative Case. To derive the correct results it is sufficient to assume that I^0 and C^0 form a chain, which results in C^0 carrying Tense features. The chain has one Case to assign. It will be assigned by the head (=C^0) in case it governs an argument, otherwise by the foot (=I^0).

Summarizing, any case with a VP-external argument position is standard, with the subject receiving nominative Case from Comp. Any case with a VP-internal subject and no DO is also standard, with the subject receiving Case from I^0. When the sentence contains a direct object and a VP-internal subject, a minimal assumption is needed in order to account for the combination at all, namely that the DO receives non-structural Case. This assumption is sufficient to guarantee that the subject and the direct object actually get the Case they

must get.

8. References

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9. Footnotes

* We are grateful to Jan Koster for his helpful comments.

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1. That is, can the representation of a sentence at one level be read off its representation at the other?

2. See also Koster (1978)

3. As in wat denk je dat hem(DAT) [t voor zaken](NOM) bekend waren 'what kind of matters do you think were known to him'.

4. In fact, in German the word order is superficially so free that it triggered a whole configurationality debate (Haider (1984a,b), see also Scherpenisse (1986).

5. As for instance in (i).

(i) E tel konunginum hafa verid gefnar ambattir
I believe the-king (D) have been given (f.pl) slaves
I believe the king to have been given slaves

Here the dative king is claimed to be the subject, rather than the nominative slaves.

6. For instance as in (i) and (ii).

(i) a. dat oanhâldend(e) jeijen op mûzen (Frisian)
b. dat oanhâldend(e) mûzen jeijen
that constant(ly) hunting mice
(ii) a. das fortwährend(e) mit Gabeln Muscheln essen (German)
b. das fortwährend(e) mit Gabeln essen von Muscheln
that constant with forks mussels eat(ing)

7. In Icelandic the construction appears not to exist.

8. The difference between (13) and (12) follows from the fact that a full VP will have to assign a theta-role. (12c) does not contain an argument to receive it, but (13c) does

9. This issue is independent of various questions recently raised concerning the status of the subject, such as whether the position it occupies is [Spec, IP], whether it is base generated in its S-Structure position, or moved there, etc., since all approaches agree that it is governed in a position to the left of I^0.

10. In fact, given the theory of categories developed in Reuland (1986a) this requires no special stipulation.

11. Jan Koster (p.c.) observes that (6) is weaker than the projection principle, since the latter preserves structure, whereas (6) does not. There is a way in which nevertheless the projection principle may be derived from the preservation principle. It could be suggested that the notion of epistemological priority be relativized to domains, for instance formal (sound) structure and conceptual (meaning) structure. That is, concepts can be taken to be mental entities that must be accessed by the language faculty, and hence levels may differ as to whether they reflect that structure directly or indirectly. So, a level that only indirectly reflects formal structure, and

hence is low on the scale with respect to such structure, may well directly reflect conceptual structure and hence be high on the scale in that domain. The projection principle then holds true for those (intermediate) levels at which sufficiently many properties of both domains can be stated.

12. The basic intuition behind this is perhaps not very different from one of the claims in Di Sciullo & Williams (1987), namely that the word acts as a gate by which lexical properties are made available in the syntax.

13. It is assumed that inflectional affixes may give rise to doubly headed projections, whereas derivational affixes cannot. The contrast between inflection and derivation consists in that inflectional affixes have lexical content and are amenable to compositional interpretation. Given the theory of syntactic categories in Reuland (1986a), having lexical content is a necessary requirement for category membership. Derivational affixes do not have the necessary content, and hence do not stand in the 'is a' relation to any syntactic predicate. With respect to the syntax they are syncategorematic. One may follow Di Sciullo & Williams (1987) in assuming that they are licensed by composition. It is their syncategorematicity which makes it impossible for the stem they are construed with to project. For instance, in Dutch there is a contrast between the affix -en involved in the formation of nominal infinitives and the affix-ing involved in the formation of action nominals. So, we have dat boeken lezen 'that books read_inf', but *de boeken lezing 'the books reading' but de lezing van die boeken 'the reading of those books'. Hence, the Dutch V(V-ing) forms do not contain a syntactically visible V-projection, since -ing is not syntactically analyzable. Notice, that this contrast does not follow from the type of mechanism proposed by Di Sciullo & Williams. In both constructions the stem lez- would be the V-head of the whole word and in both cases the affix is right-peripheral. So, also if one adopts their coanalysis approach, one will need a property distinguishing -en from -ing in order to prevent a coanalyzed structure with a syntactic verb being incorrectly assigned to *de boeken lezing.

14. (24) and 25) also violate the requirements of the theory of categorial structure developed in Reuland (1986a), which we will be assuming. For reasons given there, if V-I projects up as a V, the structure will require an occurrence of INFL to head the ensuing predication. If V-I projects as an INFL, the structure will have to contain a predicate. This will be discussed in some more detail in Reuland (to appear b).

15. It should be realized that the full range of facts is quite complex. An understanding of that complexity, however, requires a picture of the basic differences that is as simple as possible. An additional problem is that often differences in the structures assumed in the discussions of the specific languages are hard to evaluate. Comparing for instance the structures which Thráinsson (1986b) assigns to Icelandic with the structures for Swedish given in Platzack (1986), it seems almost impossible to isolate a simple parameter accounting for the difference in the canonical position of the finite verb in the two languages. In what follows we will show that a simple parameter can in fact be formulated.

16. This option is subject to conditions. Nonspecific indefinite objects cannot undergo scrambling. If a sentence contains both an indirect object and a direct object, it is only the indirect object which can scramble with the sentence adverbial. Non-specificity also constrains movement of direct (and indirect) objects in Dutch. It is explained in Reuland (1988), and need not be discussed here. For the other restriction we have no explanation available.

17. There may be some complications to this picture if V-second phenomena are brought into it, but these do not necessitate essential changes (see the next

note).

18. In fact, this prohibition itself probably follows from the condition on identification in that the position of the null head becomes inaccessible.

19. The best approach to V-2 in Swedish probably goes along the following lines. V-2 is triggered by the fact that the lexical inflectional material should have scope over the predication of the sentence. Note, this is a requirement associated with certain lexical material realized as INFL, not with the category INFL as such. If this lexical material is realized within an INFL category, it moves from that position (with pied piping of any other material contained in that category). If it is realized within a word with the categorial status of V, it can move from that position, also taking any other material along. So, in Swedish, this material will move to Comp from the V-position, and in Icelandic from the INFL position (in cases where such movement can be argued). Since Comp is a head-position c-commanding INFL, the inflectional material in the finite verb can now license the INFL directly, without mediation of the VP. This may be responsible for the fact that Swedish main clauses allow a certain amount of scrambling, since there is some scrambling of weak pronouns, but not of full NPs (see Holmberg (1986)). At this point we have nothing to say about the reasons for this distinction.
In English movement of the finite material from the V-position must be blocked, with movement of inflectional material from the INFL position the only option, triggering do-support. For a discussion of conditions that may be involved, see Pollock (1987).

20. So far, we have not endeavoured to extend this aproach to Romance languages. Observe, however, that even French (in which the finite verb does appear in the INFL position (see Emonds (1977), Pollock (1987)) allows a certain amount of expletive drop (Pollock (1983)). Further discussion of Romance languages will have to wait for another occasion.

21. To account for the occurrence of van-phrases as postposed direct objects one may proceed as follows. The NP is moved rightward by move alpha, leaving a trace from which it inherits its theta-role. Unlike what happens in a purely verbal/inflectional structure (where an NP cannot receive Case, and hence is not licensed in post-head position), rightward movement is followed by van-insertion triggered by the N' containing I". A slightly different alternative is, that the NP is first moved leftward, outside the immediate domain of V, into that of I, and then postposed. The latter process reduces the number of barriers to be crossed in one step. At this point, we will leave open the question which of these options is to be preferred. If the construction contains both an indirect and a direct object, the direct object cannot be postposed without the indirect object, as noted in Van Haaften et al. (1985). They explain this on the basis of Kayne's small clause analysis of such constructions; we will follow this proposal.

22. For a detailed discussion of the conceptual issues involved the reader is referred to Reuland (to appear b).

23. There are independent problems with the specific notion of partitive Case as Belletti develops it, since depending on the language 'partitive' may show up as accusative, nominative, dative, genitive, and even partitive. In Finnish, which has a morphological partitive, one would even have to say that not all morphological partitives are functional partitives, while some morphological accusative/nominatives are functionally partitives. All these problems are obviated if it is not the Case itself, but the mode of Case assignment which is involved with the indefiniteness requirement.