Chapter 11
Parameters of Phrase Structure and Verb-Second Phenomena

In the spirit of Borer (1983), I explore in this paper the range of grammatical domains that may be affected by parametric variation. Borer suggests that “all parametric variation can be reduced to the properties of the inflectional system” but notes that although this is attractive, word order variation provides a quite spectacular counterexample. Certainly, beyond the choice of lexical items, the most noticeable difference from language to language is the arrangement of these lexical items. Here I explore the possibility that parameters of word order, though not due only to properties of lexical items, may at least be restricted to certain domains.

There should be no question whether there is a need to restrict parameters. Just as in a system of rules, linguists sought to restrict the power of these rules, in a system of parameters, the power of parameters must also be limited. Without such a goal, familiar problems of acquisition and impossible language types will surface. The more ways in which languages may vary, the greater the burden on the child, and the wider the variation expected in natural languages of the world. There is also a more practical methodological reason to restrict parameters. If the range of possible analyses for a given set of data is limited for the child, it will also be limited for the linguist.

In Standard Theory, language-specific word order was represented in the system of phrase structure rules. These rules represented many different

This paper is basically a reworking of the account of verb-second phenomena given in Travis 1984 and benefits from discussions over the years with various members of the Germanic linguistics community such as Harald Clausen, Molly Desing, Jean duPlasis, Bernd Hofner, Tony Kroch, Maire Noonan, Christi Platek, Eric Reusland, Ken Safir, Beatrice Santorini, Sten Vikner, and Fred Weerman. I will probably regret not paying more heed to their comments. I would also like to acknowledge FCAR grant BEOQ360 and SSHRC grant 410-87-1071, which support continuing research on this topic.
relations, however, and I will argue that only certain of these relations may be parameterized, the others being uniform across languages or belonging to the lexicon. For example, rules of the type given in (1) encode both precedence and dominance relations.

(1) \( V \rightarrow V \) (NP) (PP) (CP)

This rule states not only that a \( V \) will dominate a \( V \) and an optional NP, PP, and CP but also that the \( V \) precedes the NP, both of these precede the PP, and these three all precede the CP. More recently, these relations have been teased apart. First, principles such as X-bar theory restricted the dominance relations of phrase structure rules. Then word order parameters such as headedness, the direction of \( \theta \)-role assignment, and the direction of Case assignment (see Koopman 1983; Travis 1984) accounted for the precedence relations of phrase structure. The principles of X-bar theory deal only with dominance relations, whereas precedence relations are determined by parameters. I will claim that this is not accidental and that, in fact, parameters may affect only precedence relations and that dominance relations are universal, varying only through complementation as indicated in the lexicon.\(^1\)

For several theoretical reasons one might suspect that dominance relations should not be allowed to vary from language to language. This intuition comes from the fact that many of the notions of syntactic theory are defined on dominance relations. These notions range from the definition of subject as [NP, S] and object as [NP, VP], to the definition of c-command, which itself underlies the definitions of government and of binding. If dominance relations could vary from language to language, we might expect wild variations in the hierarchical position of subject or the effects of binding. Movement regularities further argue for a restriction on the variation of dominance relations. Chomsky (1986) restricts structure-preserving movement of maximal projections to specifier positions, and movement of heads is movement to other head positions (see also Travis 1984; Baker 1988). As we will see, such notions of movement often cannot be upheld in a system that allows parameterization of certain dominance relations. Barring any evidence of variation in this direction, I will make the strongest claim by assuming that dominance relations are constant.

The use of universal constituency as an argument for a particular analysis is not new to the literature. One clear case in point concerns Verb-Subject-Object (VSO) languages. Though it has been proposed that such languages have flat structures at some level of representation (see, for example, Chung 1983), this raises problems in other parts of the grammar such as the binding theory. If subject and object were both sister to \( V \), we would not expect binding asymmetries since the subject and object NPs would c-command each other. Many linguists (see, for example, Emonds 1980, Sproat 1985), assuming that VPs are universal, have argued that VSO word order cannot arise through base generation of a flat structure. Rather, an S–VP order is generated, the surface word order being the result of \( V \)-movement. This line of argumentation may be extended by assuming that IP dominates NP and \( I \) and that \( I \) dominates INFL and the VP universally, further restricting the possibilities of VSO languages. Now (2a) is a possible structure for VSO languages, whereas (2b) is not.

(2) a.

\[
\begin{array}{c}
\text{SPEC} \\
C' \\
C \\
\text{IP} \\
\text{NP} \\
\text{VP} \\
\text{V} \\
\text{NP}
\end{array}
\]

As (2a) indicates, head movement of the \( V \) into INFL and of INFL into COMP will account for the surface VSO word order.

In this paper I will be particularly concerned with the problem of word order parameters in several Germanic languages. There has been a general consensus among Germanic linguists (see, for example, Tomlin 1984) that German and similar languages do not have an INFL node that is separate from COMP. Such an account depends on the possibility that parameters may affect the dominance relations in a phrase marker. As a representative of this viewpoint I will use Platzack 1983 which gives a detailed explication of how these parameters could be used to account for a wide variety of word order facts in Germanic languages. Since the account depends on the so-called COMP-INFL parameter that alters the position and function of the COMP and INFL nodes, I will refer to this analysis as the COMP/INFL account.

Since the COMP/INFL account is not available in the system I have sketched above, I will propose a different account for the same word order...
facts that assumes one phrase structure tree in which only precedence relations vary. This second account (developed from Travis 1984) relies on the assumption that under the Empty Category Principle (ECP), empty heads must be identified. I will refer to this analysis as the ECP account.

First I will show that the ECP account explains the same range of facts as the COMP-INFL account, arguing that the former is at least as adequate as the latter. Next I will show that when the two accounts make different predictions concerning additional facts, it is the ECP account that makes the correct predictions.

The parameters that I propose will involve (i) the headedness of the VP, (ii) the exact nature of COMP (for instance, whether or not it contains the appropriate features), and (iii) whether a language has adjunction to IP. I will argue that these are all parameters that are needed independently in the description of other languages and that they are well within the limits of parametric possibilities. Since these parameters are needed independently and can account for the data, I argue that not only are the mechanisms introduced in the COMP/INFL account unnecessary, they introduce an unwanted complication into the grammar, providing both linguists and language learners with two possible grammars for the same range of data.

1 The COMP/INFL Account (Platzack 1983)

In his article, Platzack (1983) gives three possibilities for the position of COMP and INFL, thereby dividing the Germanic language family into three subtypes.²

(3) a. English

```
S' COMP
  S
  NP INFL VP
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b. German/Swedish

```
S' COMP
  S
  X*INFL
  CONFL NP VP
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c. Icelandic

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S' X*INFL
  S
  COMP NP INFL VP
```

Note that COMP has three different functions. In English it is the daughter of S; in German and Swedish it is part of the conflated category CONFL, which is the daughter of S; and in Icelandic both it and a separate category INFL are daughters of S. Though German/Swedish and Icelandic do not have a COMP that is a daughter of S, they do have an X* category in this position.

Platzack’s proposal neatly accounts for a variety of facts concerning word order in Germanic languages. These are listed in (4) and will be discussed in more detail in the following sections.

(4) a. German/Swedish and Icelandic have verb-second (V2) effects.
  b. There are no V2 effects in English.
  c. There is a complementary distribution of lexical complementizers and V2 effects in German/Swedish but not in Icelandic.
  d. There is V-movement in clauses with lexical complementizers in Icelandic.

1.1 V2 Effects (German/Swedish and Icelandic)

One of the more remarkable characteristics of Germanic languages is that the inflected verb in root clauses must always appear as the second constituent of the sentence. In the German examples in (3), for instance, the inflected verb haben appears in the second position independently of whether the first position is occupied by the subject as in (5a) or an adverb as in (5b). Similarly in the Icelandic examples: the subject is first in (5c) and an adverb is first in (5d), but in both cases the inflected verb haflit appears in second position. As (5e) and (5f) show, any deviation from this order results in an ungrammatical string.

(5) a. Die Kinder haben das Brot heute gegessen. (G)
    the children have the bread today eaten
    ‘The children have eaten the bread today.’
  b. Heute haben die Kinder das Brot gegessen. (G)
  c. Helgi haflit trúlega keyp ðókin. (I)
    Helgi had probably bought the book
    ‘Helgi had probably bought the book.’
  d. trúlega haflit Helgi keypðókin. (I)
  e. *Heute die Kinder haben das Brot gegessen. (G)
  f. *Trúlega Helgi haflit keypðókin. (I)

In Platzack’s account, the fact that only one constituent may precede the inflected verb is captured by the phrase structure allowed for German/Swedish and Icelandic.
In German and Swedish the inflected verb appears in the CONFL node dominated by S, having moved there from the V-position. One constituent and only one constituent, then, may move to the X\textsubscript{comp} position that precedes CONFL and is dominated by S'. Whether this constituent is the subject or a nonsubject, its sentence-initial position will be due to movement to the X\textsubscript{comp} position dominated by S. In Icelandic the inflected verb first moves to INFL and then to COMP, where, as in German and Swedish, it may be preceded by one and only one constituent that has moved to the X\textsubscript{comp} position dominated by S'.

1.2 No V2 Effects (English)
In English the pattern just described for the Germanic languages does not hold. Though the inflected verb is in second position when the subject is sentence-initial, if an adverb precedes the subject, the inflected verb will be in third position, as in (7a). In fact, the V2 word order results in an ungrammatical string, as in (7b).

(7) a. Today the children have eaten the bread.
    b. *Today have the children eaten the bread.
Again, the reason for these facts is clear from the phrase structure that Platzack proposes for English. Two elements precede INFL, the position in which the inflected verb is found, and it is this configuration that makes it possible for the finite verb to appear in third position. The subject is base-generated in a position before the inflected verb, and the adverb will have moved to the COMP position dominated by S'.

1.3 Lexical Complementizers and V2 (German/Swedish)
Another property of many V2 languages is that V2 effects do not appear when the clause has a lexical complementizer. Although the inflected verb appears in second position in the root clause in (9a), it appears sentence-finally when it is in an embedded sentence (9b) with the lexical complementizer da\textsubscript{f}\textsubscript{f}. In (9c), where hubes appears in the embedded clause but where there is no lexical complementizer, the inflected verb is again in second position.

(9) a. Die Kinder haben das Brot gegessen. (G)
    the children have the bread eaten
    'The children have eaten the bread.'
    b. Ich weiß, daß die Kinder das Brot gegessen haben. (G)
    I know that
    'I know that the children have eaten the bread.'
    c. Ich weiß, die Kinder haben das Brot gegessen. (G)

This complementary distribution is accounted for by the fact that, in German and Swedish, COMP and INFL are a conflated category. When COMP is already filled by a lexical complementizer, the verb has no place to move to and remains in the sentence-final position.
1.4 V-Movement in Embedded Clauses (Icelandic)

Unlike German and Swedish, Icelandic does have V-movement when a lexical complementizer is present. Assuming that negative-particles and certain adverbs are generated in a position just before the VP, the examples in (11) illustrate that although both Swedish and Icelandic have V2 in root clauses, Swedish verbs remain in base-generated position in embedded clauses whereas Icelandic inflected verbs still move to a position in front of the adverb.

(11) a. Hann kemur ekki hingað. (I)
   he come(FUT) NEG here
   'He will not come here.'

b. Jan kommer inte hit. (S)
   Jan come(FUT) NEG here
   'Jan will not come here.'

c. Eg veit að hann kemur ekki hingað. (I)
   I know that he come(FUT) NEG here
   'I know that he will not come here.'

d. Jag vet att han inte kommer hit. (S)
   I know that he NEG come(FUT) here
   'I know that he will not come here.'

In Platzack’s model, this difference arises because Icelandic has separate COMP and INFL nodes and Swedish has a conflated category. The presence of a lexical complementizer in embedded clauses prevents movement to COMP, but the inflected verb still may move to the INFL node.

2 The ECP Account (Travis 1984)

Although the COMP/INFL proposal accounts for an array of facts concerning the word order differences in Germanic languages, it must resort to variations in the phrase structure tree that affect dominance relations. This solution is not possible, however, in a system that constrains parametric variation to precedence relations. The ECP account claims that the following tree is constant for all of the three subgroups of the Germanic family, consistent with the thesis put forth here.
(15) CP
  SPEC C' [why]
    C IP
    NP I' VP

The only variation will be found in the ordering of elements within the VP. As we will see, English, Icelandic, and Yiddish VPs are head-initial, whereas German and Swedish VPs are head-final. Differences in the position of the inflected verb will be accounted for through head-to-head movement.

In section 2.1 I will show that all the possible verb positions can be described in terms of the tree in (13). In section 2.2 I will present an account that explains what forces V-movement. Finally, in section 2.3 I will propose parameters that will account for word order variations within the Germanic language family.

2.1 Verb Positions

2.1.1 English As the examples in (14) illustrate, certain verbs in English may appear in three different positions.4

(14) a. The children should have eaten the bread.
    b. The children have eaten the bread.
    c. Why have the children eaten the bread?

In (14a) the verb have is in its base-generated V-position (the head of VP); in (14b) it appears in the INFL-position (the head of IP); and in (14c), it appears in the COMP-position (the head of CP). Taking the tree for English, it is easy to see how these three positions can be accounted for through head movement.

At the heart of my proposal for Germanic word order is the assumption that V2 languages account for verb positioning in the same way. Either the verb appears in the base-generated V-position, or it moves to INFL, or it moves through INFL to COMP. The generalizations to be made concerning the placement of the verb in English are the following:

(i) The auxiliary verb appears as the head of VP when INFL is already filled.
(ii) The auxiliary verb appears as the head of IP when INFL is not already filled.
(iii) The auxiliary verb appears as the head of CP when the SPEC of CP is filled by movement or by an abstract Q morpheme.

In the following sections I discuss head movement in the other two language types characterized in the COMP/INFL account.

2.1.2 German/Swedish The following examples illustrate the three positions in which a verb may appear in German and Swedish.6

(16) German
  Head of VP
  a. Ich weiß, daß die Kinder [VP das Brot gegessen haben].
    Head of IP
b. [Die Kinder haben, [VP das Brot gegessen]].
   Head of CP

c. [Heute, haben, [VP die Kinder, [VP das Brot, [VP gegessen]]]].

(17) Swedish

   a. Jag vet att Jan inte [VP komme hit].
      Head of IP

   b. [Jan komme inte [VP hit]].
      Head of CP

   c. [Sannolikt komme [VP Jan, [VP inte [[VP hit]]].
probable

The generalizations to be made about this language type are the following:

(i) The inflected verb appears as the head of VP when INFL is already filled or when there is a lexical COMP.

(ii) The inflected verb appears as the head of IP when the sentence is subject-initial and there is no lexical COMP.

(iii) The inflected verb appears as the head of CP when the SPEC of CP is filled either by movement or by an abstract Q morpheme (the assumption being that nonsubjects have moved to SPEC of CP).

2.1.3 Icelandic In the Icelandic type of Germanic languages, the verb will only appear in the V-position if INFL is otherwise filled. When INFL is not filled, the verb will move to INFL, and if SPEC of CP is filled, the verb will move to COMP.

(18) Icelandic

   a. [Hann má ekki [VP koma hingað]].
      he may not come here

   Head of CP

   b. [Hann komur, ekki [VP hit, [VP hingað]].
      he come not here

   Head of IP

   c. [Trílegg komur [VP hann, [VP ekki [VP hit, [VP hingað]].
      probably come he not here

The generalizations to be made about this language type are the following:

(i) The verb appears as the head of VP only when INFL is otherwise filled.

(ii) The verb appears as the head of IP when the sentence is subject-initial.

(iii) The verb appears as the head of CP when the SPEC of CP is filled either by movement or by an abstract Q morpheme (the assumption being that nonsubjects are in the SPEC of CP).

Though V-movement may explain why verbs may appear in the positions in which they appear, it is not yet clear either why they must appear in these positions or what produces the differences between the language types. The first question will be discussed in section 2.2 and the second in section 2.3.

2.2 Theory of V-Movement

2.2.1 Identification The use that I make of the ECP is actually a development of Platzack's suggestion that empty heads must be properly governed in order to explain why wh-movement does not trigger subject-aux inversion in English embedded clauses. Platzack assumes that an empty COMP in English may either be filled with [+wh] by the matrix V (as in (19d)) or be filled through movement of the verb (as in (19a)). V-movement will be blocked in (19c) since the COMP is filled by the [+wh] feature.

19 a. What [COMP will] the children eat?
    c. *I wonder what [COMP will] the children eat.
    d. I wonder what [COMP [+wh]] the children will eat.

Since I assume a modified view of the ECP with specific consequences for its application to empty heads, I will discuss both the ECP and the behavior of heads below.

In a slight variation on the current view of the ECP, I assume that empty categories, including heads, must be identified.

(20) Empty Category Principle

Empty categories must be identified.

(21) Identification

An empty category is identified if and only if

a. the gap is properly governed, and

b. the features of the gap are recoverable.

(22) Proper government

A properly governs B if and only if A governs B and

a. B is a complement or the head of a complement of A, or

b. A is an antecedent for B.
The definition of proper government that I assume is similar to the one proposed by Stowell (1981) in that the relevant relation is not simply one of structure but also one of function. In other words, the empty category not only must be governed by a head but also must be in a certain relation with that head. I take this relation to be the complement relation, which includes θ-marking of a lexical head (see Stowell 1981) and licensing by a functional head (see Abeys 1986).

The intuition behind this version of the ECP is as follows. An empty category requires a twopart identification: its position must be identified, and its content must identified. Its position is identified through proper government, and its contents are identified through some manner of feature retrieval.

The problem of feature retrieval raises questions of its own. This idea of recoverability is an extension of suggestions made by Kayne (1981) and Bouchard (1983). The obvious way by which features may be recovered is through binding. When a maximal projection moves, it leaves a coindexed trace, creating a chain through which the necessary features are retrieved. As we will see, however, feature retrieval for heads is not achieved through chains, thereby explaining some very basic differences between the behavior of heads and that of maximal projections.

2.2.2 Behavior of Heads It has already been noted in the literature that heads behave in some respects very differently from maximal projections. This difference is particularly evident in the transformational component. In Travis 1984 I pointed out that head movement appears to be more restricted than movement of maximal projections and I proposed the Head Movement Constraint to describe this apparent locality condition on the movement of heads.

(23) Head Movement Constraint

An Xθ may only move into the Yθ that properly governs it.

Though this constraint may describe the facts, an explanation is still needed (see Koopman 1983 and Baker 1988 for different accounts). I propose that heads, unlike maximal projections, do not leave coindexed traces under movement. Closubscribing has become part of two components of the grammar: movement and reference. When an element moves, it is assumed that it leaves behind a coindexed trace (as in (24a)). It is also assumed that two elements that corefer are coindexed (as in (24b)).

(24) a. Mary, was seen τ.  
    b. Mary, is proud of herself.

One might wonder whether one type of coreferencing might be reduced to the other. Since it is not clear how coreference could be reduced to movement, the only possibility is that coindexing of movement be reduced to that of coreference. Since the two NPs (24a) might be said to corefer, this is not an unlikely assumption. I would conclude, therefore, that since heads cannot refer (only maximal projections may be referential), they cannot bear indices even when left empty through movement.

If head movement does not leave coindexed traces, however, some other means must be found for features to be transmitted from the moved element back to the empty category. Such a means in fact exists. Independently we need a mechanism whereby a head may transmit features to a head that it properly governs (see Fabb 1984). This mechanism can be used for affix-hopping structures as well as for Case assignment.

(25) Head feature transmission

They should have been watching him.

\[
\begin{array}{c}
\text{NP} \\
\text{V} \\
\text{VP} \\
\text{V} \\
\text{VP} \\
\end{array}
\]

The same mechanism may be used to recover the features of an empty head. In fact, since (by assumption) head movement does not leave a coindexed trace, features must be recovered through feature transmission. Because of this, the restriction on head movement can in fact be reduced to a restriction on head feature transmission. In the structure shown in (25) features are always transmitted from a head A to a head B whose maximal projection is a sister to A. The assumption is that the features are assigned to the maximal projection and then percolate to the head of this maximal projection.
(26) Restriction on head feature transmission

Head features may only be transmitted from a head to its sister.

If features may be transmitted only under such conditions, the Head Movement Constraint will follow. In the tree in (27) we want to allow the head Z to move to position Y, while disallowing movement to position X.

(27) a. $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

b. $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

Since any features in position Y may be transmitted to position Z by head feature transmission, if Z has moved to Y, the features are recoverable for the identification of the contents of Z. However, if Z moves to position X, the relevant features may not be transmitted back to Y since the maximal projection of Z is not a sister to X. The empty category left in position Z would then violate the ECP, since its contents would not be identified. The contents of Z may appear in X, however, if movement has occurred through the intermediate position of Y. In this case, for Y to be identified, the features of X would have to be transmitted to Y. Since these features would include those of Z, now the features of Z could be transmitted from Y to the empty category in Z.

Another peculiarity of heads is that they may be base-generated empty in positions that are not identified. My assumption here is that the functor nodes (in the sense of Abney 1986) may be generated phonetically empty (though they might carry features). As such, they are subject to the ECP. If an empty head is base-generated in a position where it is not identified, it must be filled by head movement to avoid a violation of the ECP. It is this assumption that will force head movement under certain conditions.

(28) illustrates such a case for English.

(28) $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\text{Y} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

Movement of why to the SPEC of COMP indicates that a CP has been generated and that an empty head is present—namely, COMP. Since the empty head is not identified (it is not properly governed), the structure will be ruled out as it stands. However, through head movement, have may move through the empty INFL position into the empty COMP, giving the following S-Structure representation.

(29) $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

Since the only empty categories are INFL and V, INFL is identified since IP is the complement of COMP and this COMP has the appropriate features to be transmitted to the head of IP. Once these features are transmitted to INFL, V is similarly identified. VP is the complement of INFL and INFL has the appropriate features to transmit to V.

The next step is to see how the base generation of empty heads and head movement may be used to explain the problems of V2 languages and what parameters account for the variations noted in the COMP/INFL proposal.

2.3 V2 and the Identification of Heads

In this section I will review the facts accounted for by the COMP/INFL proposal and discuss the parameters necessary to account for the same facts within the ECP proposal. One parameter that both proposals share is the headness parameter.

Parameter 1

VPs are head-initial/final.

English, Swedish, Icelandic: head-initial

German: head-final

2.3.1 V2 (German/Swedish and Icelandic)

Within the ECP account, it is assumed that root clauses are generated differently depending on whether the constituent that precedes the inflected verb is a subject or a nonsubject. In instances where the subject is sentence-initial, it is assumed that only in IP has been generated. The D-Structure representation would then be as follows. I will illustrate using German examples, but Swedish and Icelandic would be treated similarly, the main difference being that VPs are head-initial in these two languages.

(30) $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\text{Y} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

Since INFL is empty and is not identified (it is not properly governed), V must be forced to move out of its base-generated V-position into INFL via head movement. This results in the following S-Structure representation.

(31) $\begin{array}{c}
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\text{Y} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{X} \\
\text{YP} \\
\text{Z} \\
\text{XP} \\
\end{array}$

The empty category in V will be identified since it is properly governed by being the head of the complement of INFL, and it will retrieve its features from the INFL node, which properly governs it.
When a nonsubject is sentence-initial, it appears in SPEC of CP, creating the following structure after maximal projection movement.

(32) [TP heute, [C e [S die Kinder [v e [VP das Brot t-gessen haben]]]]]

Since neither the empty category in COMP nor the one in INFL is identified, head movement of haben is forced through INFL to COMP, creating the following representation at S-Structure.

(33) [TP heute, [C haben [S die Kinder [v e [VP das Brot t-gessen e]]]]]

The empty categories in INFL and V are identified in the same way as those in the English example in (29).

2.3.2 No V2 (English) The second parameter deals with whether or not a language allows adjunction to IP. This parameter is needed independently to account for varieties of movement in languages of the world. For example, this parameter may be used to account for the following distinction in Spanish (Torrego 1984).

(34) a. ¿Qué quieren esos dos?
   what want those two
   "What did those two want?"

b. *¿Qué esos dos quieren?

c. ¿Por qué Juan quiere salir antes que los demás?
   why Juan want leave before the others?
   "Why does Juan want to leave before the others?"

In Spanish [+wh] arguments must move to SPEC of CP position; [+wh] nonarguments may either move to the SPEC of CP position or adjoin to IP.

The assumption, then, is that whereas English does allow adjunction of nonarguments to IP, German/Swedish and Icelandic do not. Thus, in the following string today has been adjointed to the IP, an option not open to German.

(35) [TP Today [S, the children have eaten the bread]].

Since today does not appear in the SPEC of CP position, there is no empty COMP that must be filled by V-movement in order to avoid a violation of the ECP. This accounts for the lack of V2 effects in English.

Parameter 2
Adjunction to IP for fronting rules
German/Swedish, Icelandic: no
English: yes

It is important to note that such adjunction can be used only for certain elements in certain languages. As we have seen, Spanish allows this for [+wh] nonarguments but not for [+wh] arguments. In English this is possible for [−wh] nonarguments; however, [+wh] must move to SPEC of CP, accounting for the V2 effects in these structures.

(36) a. On Tuesday Mary will go to the store.
   b. When will Mary go to the store?

2.3.3 Complementary Distribution of V-Movement and COMP (German/Swedish) In terms of the ECP account, the question here is why the verb in languages such as German and Swedish remains in its base-generated position whenever a complementizer appears. The relevant S-Structure representation would be as follows.

(37) ich weiß [TP, daβ [S die Kinder [v e [VP das Brot t-gessen haben]]]]

It would appear that (37) contains an empty category in INFL that is not properly governed.

If INFL is allowed to remain empty, it must be identified. The gap will be identified by virtue of being the head of the complement of a lexical complementizer. In order to identify the contents of the gap, however, we must assume that complementizers in certain languages carry features that are sufficient to identify the contents of the empty head.

A further point must be made. If an empty category is identified (in other words, if its gap and features are identified), then it may no longer be a landing site for movement. One might think of this in terms of a feature complex. If the feature complex of a node is complete (as it must be in order to be identified), the node is "filled." This prevents movement from occurring in (37). This also can be used to explain the lack of movement in English embedded questions. In (190) the empty category is identified by being the head of the complement of V. The feature [+wh] also is recoverable from the verb. 10

Parameter 3
COMP can identify contents of INFL
German/Swedish: yes
English, Icelandic: no

2.3.4 V-Movement in Embedded Clauses (Icelandic) No further parameter is needed to explain the presence of V-movement in Icelandic. Since Icelandic does not have complementizers that are able to identify the contents of an empty INFL, V-movement will always take place to fill this position.
2.4 Additional Facts

2.4.1 Subj ect/Nonsub ject Asymmetry in Iceland ic/Yid di sh Though Plat n zack does not mention this, the COMP/INFL account can explain certain subject/nonsubject asymmetries that occur in languages of the Icelandic type. Yiddish is similar to Icelandic in all of the ways discussed above. Its VPs are head-initial, it does not allow adjunction to IP, and its COMP cannot identify features of an embedded INFL.

(38a) a. Di kinder muss onheym on zeyr heymmarbet.
   b. Di kinder heym on zeyr heymmarbet.
   c. Zeyr heymmarbet heyn on kinder on.
   d. *Haynt di kinder heym on zeyr heymmarbet.
   e. Ich gloyb as di kinder heym on zeyr heymmarbet.

I believe that V-movement is most remarkable in verbs with separable prefixes. (38a) illustrates the infinitival form of the verb onheym. There is no V-movement since the INFL is filled with mum. In (38b) V-movement has occurred into the empty INFL-position, and the verb heym is separated from its prefix on. In (38c) the object zeyr heymmarbet has moved to the SPEC of CP position, and the verb has moved through INFL into the COMP-position. (38d) shows that there is no IP adjunction in Yiddish, and (38e) shows that V-movement occurs even in embedded clauses.

The need for allowing a base-generated subject-first clause is clearest in embedded questions. In [+wh] clausal complements, V-movement must occur but the element preceding the inflected verb must be the subject.14

(39a) a. Ich veys nit far vos di kinder heym on zeyr heymmarbet
   b. I know why the children start their homework
   today.
   c. *I don’t know why the children start their homework today.

2.4.2 Subj ect/Nonsub ject Asymmetry in German/Swedish The COMP/INFL and ECP account differ on how subject-first root clauses in German/Swedish are treated. In the COMP/INFL account, whether the clause is subject-first or non-subject-first, the sentence-initial element is always in the X’s position and the inflected verb in second position is in COMP. In the ECP account, however, only nonsubjects are accounted for through movement to SPEC of CP with subsequent V-movement to the head of CP. Subject-first sentences have the option of undergoing non maximal projection movement. The subject may remain in its base-generated position. If this is the case, the V moves, but only into INFL. Since there is no movement into SPEC of CP, there is no need for the CP projection, and only an IP is generated. The different bracketings are given in (40) and (41).

(40) COMP/INFL account

a. [Di Kinder, i haben, t [VP das Brot heute gegessen t]].
   b. [Heute, i haben, die Kinder, t [VP das Brot t gegessen t]].

(41) ECP account

a. [Di Kinder, i haben, t [VP das Brot heute gegessen t]].
   b. [Heute, i haben, die Kinder, e [VP das Brot t gegessen t]].

In fact, the ECP account makes German look similar to Icelandic/Yiddish and would suggest that there should be similar subject/nonsubject asymmetries in these languages. Certainly, if there were such asymmetries, the COMP/INFL proposal would not be able to account for them. In fact, I claim that there are such asymmetries in German, arguing that, theoretical issues aside, there are empirical reasons for preferring the ECP account over the COMP/INFL account. This asymmetry is shown in (42).

(42a) a. Das Kind hat das Brot gegessen.
   b. Es hat das Brot gegessen.
   c. Das Brot haben die Kinder gegessen.

When the sentence-initial subject is replaced by the neuter pronoun es, the resulting string is grammatical. However, when the sentence-initial object is replaced by the same neuter pronoun, the resulting string is ungrammatical. Whatever accounts for this (perhaps only pronouns that can bear foci stress may be moved to SPEC of CP), there must be some way to distinguish between sentence-initial subjects and sentence-initial nonsubjects. This structural distinction is available only to the ECP account.
2.5 Residual Problems

Certain questions arise in this account, two of which I will address here.

2.5.1 English Merger In English, only auxiliary verbs and modals can appear in INFL, as the following data show.

(43) a. The children must (n't/not) go.
   b. The children have (n't/not) gone.
   c. The children go (*n't/ 'not).

What happens when the clause contains only a main verb, as in (43c)? It would appear that INFL was empty; but since the structure is grammatical, the string does not appear to violate the ECP. What I am assuming is that English allows adjacent INFL and V to undergo morphological merger of the type described by Prank'a (1983). Evidence that this occurs comes from the fact that if adjacency is disturbed in any way, the empty INFL must be filled through ə0-support, as the following example shows.12

(44) a. the child [ə0- INFL + pres] [v go]
   b. the child [ə0- INFL + pres] not [v go]
   c. the child [ə0- INFL + pres] does not [v go] (cannot undergo merger)

2.5.2 Sentential Adverbs Although the COMP/INFL account explains the following distinction. it is not clear how the ECP account would predict it.

(45) a. John probably will come late.
   b. *Johann wahrscheinlich wird spät kommen.

Johann probably will late come

English allows sentential adverbs to appear between the subject and the inflected verb; German does not. If, as the ECP account suggests, both strings are simply Subject-ADV-INFL-VP, there should be no difference between the two. In the COMP/INFL account, however, since (45b) would have the structure X′′′-ADV-S, (45b) could be ruled out in the same way as (46).

(46) *Why did probably John come late?

However, a closer look at the facts across the language groups shows that a distinction has to be sought independently for movement to a topic position (X′′′ in the COMP/INFL account, SPEC of CP in the ECP account). In Yiddish and Icelandic embedded clauses, where there is a consensus that the subject is in its base-generated position, the same distinction holds.

(47) *Ich sehr es er effish vor esn.
   I know what he probably will eat
   'I know what he probably will eat.'

The fact that the English translation is grammatical and the Yiddish equivalent is not cannot be explained through topologicalization of the subject since in this structure we know that the subject is not in the topic position. Whatever the explanation, then, it is independent of V2 phenomena.13

3 Conclusion

I have used two arguments to support the ECP account of word order variation in Germanic languages. The first argument is theoretical. I have proposed that parameters of phrase structure be restricted to precedence relations such as headiness and direction of Case assignment and 0-role assignment. Given this, dominance relations would remain constant and structural notions that are built on dominance relations would remain fairly constant cross-linguistically. If such a restriction holds, accounts of Germanic word order that assume that languages like German and Swedish have no separate INFL nodes could not be maintained. Since the ECP proposal is able to account for the facts of Germanic word order without resorting to such a conflation of categories, it is the preferred solution.

The second argument is empirical. A COMP/INFL type account does not distinguish sentence-initial subjects from sentence-initial nonsubjects since both are moved to topic position. In the ECP account, sentence-initial subjects are in base-generated position, whereas sentence-initial nonsubjects are in the SPEC of CP. Since facts concerning German pronouns argue that some distinction must be made in these cases, the ECP account finds further support.

Finally, there is the question of learnability. If the COMP/INFL account is the "correct" one, an acquisition issue is raised. I have argued that all of the parameters and mechanisms proposed in the ECP account are needed independently of the problems of Germanic word order. Headiness of VPs distinguishes Japanese from French. The possibility of adjunction to IPs distinguishes [+wh] arguments from [+wh] nonarguments in Spanish. Proper government of empty heads distinguishes root questions from embedded questions in English. If all of these distinctions are available in the grammar, the introduction of the conflation of COMP
and INFL is redundant. Such proliferation of possible accounts makes the linguist's task more difficult, but, more importantly, it presents an acquisition problem. How would the child know which analysis to choose? Although it is not provable, the common assumption is that for any given set of data there is only one possible account. Therefore, given the theoretical and empirical arguments above, the ECP proposal is the most likely.

Notes

1. For example, the English verb *look* subcategorizes for a PP, whereas the French verb *regarder* selects an NP. It may also be (following a proposal in Rochette 1988) that verbs that select nonpropositional complements may determine whether the proposition is a CP, an IP, or a VP.

2. Platzack (1986) proposes a revised version of word order variation within Germanic languages. Though this newer view avoids some of the problems addressed here, other problems remain and still others are raised. I will, however, be referring to the 1983 article, which more accurately represents the type of account against which I am arguing.

3. I am assuming that the auxiliaries *have* and *be* are base-generated in V-position.

4. The passage of how can be seen clearly in (14a) and (14b) through placement of the negative clitic *n't*.

(i) The children shouldn't *have* eaten the bread.
(ii) The children *haven't* eaten the bread.

5. In English, only auxiliaries and modals may appear in INFL for independent reasons (see Lightfoot 1979 for a historical account). In section 3.3 I will discuss the problem of main verbs in more detail.

6. Though head movement in these examples has left coindexed traces, I will argue later that the empty element left behind by head movement does not bear a subscript.

7. For more details on head feature transmission and an explanation of how this might be used to account for adjacency conditions in syntax, see Lamontagne and Travis 1986.

8. One could also say that movement may occur directly to X if Y is empty. In other words, it would be difficult to distinguish movement through Y and movement directly to X with an empty Y since no coindexed traces are left.

9. Since parameters should account for a cluster of properties, to call each of these language differences a parameter is not quite accurate. It is assumed that the "parameters" described in this chapter will eventually be subsumed under larger, more explanatory parameters.

10. It was this observation that prompted Platzack to propose that the empty COMP would violate the ECP unless it was filled either by V-movement (as in root questions) or by the [a-wh] feature from the verb.

References


Chapter 12
On the Nature of Lexical Government
Norbert Hornstein and David Lightfoot

1 Introduction

Chomsky (1981) has argued that nonpronominal empty categories at Logical Form (LF) should be properly governed and that proper government should be defined disjunctively (1). Thus, an empty category must be either lexically governed (1a) or antecedent-governed (1b).

(1) a properly governs b if and only if a governs b and
    either
    a. a is a lexical category (that is, an X0 in the X-bar system, but not
       INFL0)
    or
    b. a is a phrasal category X locally coindexed with b.

Lasnik and Saito (1984) (henceforth L&S) explore the range of proper government, investigating several devices that are needed in order for (1) to have appropriate effects. They reformulate the Empty Category Principle (ECP) as an LF filter (2), whereby a trace is illicit at LF if it fails to have the feature [+y]. [+y] may be assigned in the syntax or at LF under conditions of proper government, as in (1).

(2) *[...t...t
    t=y]

If one asks where the balance between lexical and antecedent government lies, one finds that [+y] features are assigned under antecedent government.

Thanks to Jean-Roger Vergnaud for helpful discussion. This paper was written in 1986 and has been revised only to the extent of updating references. Consequently, it does not deal with the extensive body of work developing the barriers framework of Chomsky 1986. For discussion of that framework, see Lightfoot and Weinberg 1988, which was written after this paper.