GERMAN SYNTAX.

Case, Configuration and Transformation.

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ABSTRACT.

The primary aim of this work is to provide an analysis of certain central areas of German syntax in the general terms of the Government-Binding theory, as outlined by Chomsky (1982a). With respect to the broader goals of linguistic theory, a language such as German differs sufficiently from English for it to be reasonable to expect something of significance to be said about parametric variation between languages.

The central thesis is that German is only partially characterizable in terms of a hierarchical constituent structure, and that morphological Case plays an equal role in assigning structure to the sentence. The implication is that German is a "semi-configurational" language, that it lies somewhere in the middle of a continuum of "configurationality", at whose extremes we should expect to find English, as an example of a configurational language, and Japanese, as an example of a non-configurational language.

The analysis requires a re-interpretation of the Case-assignment rules of the Government-Binding theory, under which the process of Case-assignment is held to be partially responsible for the establishment of structural relationships between constituents at a derived level, and from which certain desirable consequences for the theoretical framework itself are derivable. It is then shown how such an approach has explanatory force in a number of empirical domains, in particular, in accounting for the behaviour of the rule of EXTRAPOSITION, and in accounting for the distribution of clitic

and WH-pronouns.

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Declaration.

This work is my own, and of my own design and authorship.

K. Phillips.

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INTRODUCTION.

0.1. Theoretical Background.

Developments in transformational grammar have been characterized by a shift in emphasis away from the formulation of construction-specific rules and towards a rich theory of independent but interacting principles which are more likely to have universal validity. The operations of the transformational component have been reduced to a single movement operation, "MOVE ALPHA", whilst the introduction of the notion "trace" has obviated the need to specify the structural description of a transformational rule, such that the abstraction from surface structure to deep structure, formerly expressed by the structural description and structural change of one such rule is recoverable from an abstract derived form, "S-structure", which contains the "projection" from deep to surface structure in the form of the position of "ALPHA" and a co-indexed trace which together constitute a "chain".

We may note the following two points about the type of grammar which has evolved: Firstly, that the trace mechanism has to be stipulated in the form of the Projection Principle; secondly, that "MOVE ALPHA" is not sufficient to capture all of the former operations of transformational rules. Specific examples of this latter point with which we shall be concerned are minor movement rules, which freely create positions which are not present at D-structure, and the process of CLITICIZATION, which appears to

involve the generation of an object pronoun in a position which is dissociated from that of a corresponding full NP complement. In the first case, "MOVE ALPHA" is insufficient since a landing-site must be specified; in the second case, the transformational relationship between the two positions cannot be captured in terms of movement.

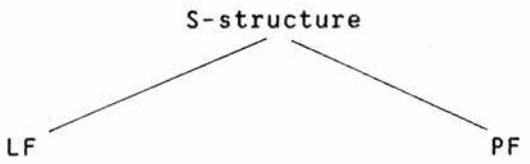
In this analysis of German sentence structure, we shall argue that the notions "trace" and "MOVE ALPHA", as they figure in former "Raising" transformations, are directly recoverable from independent properties of language, once the grammar is formulated correctly, and that they therefore no longer require to be stipulated; that the existence of transformational operations such as minor movements, that cannot be captured by "MOVE ALPHA", is provided for in terms of the proposed grammar, and that this grammar provides a mechanism for capturing processes such as CLITICIZATION. We shall attempt to show how the abstraction to deep structure formerly expressed by these transformational rules finds a concrete realization at S-structure in the form of morphological Case and constituent structure.

0.2. The Government-Binding Theory.

The analysis adopts, in its essentials, the theoretical framework of the Government-Binding theory (outlined in detail in Chomsky:1982a), though specific modifications will be proposed in the course of the work. The Government-Binding theory is a particular version of an approach to Universal Grammar which has come to be known as the Extended Standard Theory. Under this approach, three

levels of representation are distinguished, S-structure, Logical Form and Phonetic Form, which are related in the following way:

(1)



The Extended Standard Theory of Universal Grammar therefore makes the fundamental claim that the association between representations of meaning and representations of form is mediated by abstract S-structures.

The grammar specifies a rule-system which has the following sub-components:

(2) a) Lexicon.

b) Syntax

(i) Categorial Component.

(ii) Transformational Component.

c) PF-component.

d) LF-component.

The lexicon is a list of lexical items and their associated semantic, syntactic and phonological properties. These items are inserted into the underlying syntactic structure as this is generated by the categorial component. The rules of this latter component are "rewrite rules" of the form (3), and will include the rule (4) whose output is the immediate internal structure of the sentence.

(3) $\underline{A}$ -----> $\underline{B}$ $\underline{C}$

(4) S -----> NP VP INFL

These phrase-structure rules are constrained by some version of X-bar theory which states that all such rules are of the form (5).

(5) $\underline{X}^{n}$ -----> ... $\underline{X}^{n-1}$ ...

$\underline{X}$ is one of the lexical categories which are defined in terms of binary features over the primitives, "noun" (N) and "verb" (V), i.e. either V (= [+V,-N]), N (= [+N,-V]), P (= [-V,-N]) or A (= [+V,+N]). Some maximal value is specified for $\underline{n}$.

X-bar theory ensures that every phrase has a head (is endocentric) and that each lexical category projects through the X'-system so that all non-head terms are maximal projections. The head of the sentence, S, is INFL, the inflectional element. It contains auxiliary verbs and carries the feature [+/-TENSE], thereby determining whether the sentence of which it is the head is tensed or infinitival. VP (= V') is, therefore, a maximal projection.

Structures generated by the categorial component also define grammatical functions (GF): The "subject" is that NP which is immediately dominated by S, represented as [NP,S]. An "object" is an NP which is immediately dominated by VP, represented as [NP,VP].

The lexicon and the categorial component together constitute the "base" which generates D-structures, i.e. abstract, underlying syntactic structures. The transformational component maps D-structures to S-structures via an optional application of the rule MOVE ALPHA, a rule which, it is assumed, may also apply in the LF and PF components which map S-structure to representations of "logical" and phonetic form, respectively.

A well-formed derivation from D-structure to LF meets the following condition:

(6) The Projection Principle.
Representations at each level of representation are projectèd from the lexicon.

Thus, movement under MOVE ALPHA results in the creation of a "chain", constituted by the moved category and the "trace" of the moved category in its D-structure position. An S-structure such as (8) may thus be derived from the D-structure form (7).

(7) [[e] INFL [NP]]
S NP VP

(8) [NP INFL [[e]]]
S i VP NP i

The Government-Binding theory states that the properties of each level of representation, and thus the outputs of each component of the rule-system, are determined by a set of independent, but interacting principles:

(9) a) Government theory.

b) Theta theory.

c) Case theory.

d) Binding theory.

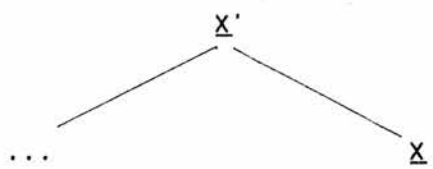
e) Control theory.

f) Bounding theory.

The theory of government defines the relationship between a head and its complements in the configuration (10) as follows:

A governs B if A is a lexical category and A c-commands B, and there is no maximal projection intervening, where A c-commands B if the first branching node dominating A also dominates B.

(10)



INFL governs the subject NP if it is [+TENSE], but because VP is a maximal projection, it can never govern an element contained within VP. Similarly, a verb cannot govern an element contained in a sentential complement, since this again would constitute government across a maximal projection, where the maximal projection of INFL is S', introduced by the following rule:

(11) S' -----> COMP S

Theta-theory is concerned with the assignment of thematic roles -- thematic relations such as "patient", "agent" etc., which enter into

semantic description -- to arguments, i.e. to elements which function grammatically as "subject", "object" etc.. Under the Theta-Criterion (12), each such argument is assigned to a position in the thematic structure of a verb or predicate. As a lexical property of heads, the way in which thematic roles are assigned in a particular construction is retained at all levels of representation by virtue of the Projection Principle.

(12) The Theta-Criterion.

Each argument bears one and only one thematic role, and each thematic role is assigned to one and only one argument.

The Theta-Criterion imposes a strict constraint on representations at D-structure and S-structure. It determines that at D-structure all and only those argument positions which are thematically relevant are filled, and it determines that movement under MOVE ALPHA can only be to a non-argument position or to an argument position which is not thematically relevant. At S-structure, each argument either occupies a thematically relevant position or heads a chain whose tail occupies a thematically relevant position.

Thus, movement of the WH-pronoun to COMP in (13) is to a non-argument position, whilst movement of the underlying object NP in (14) is to an argument position which is not thematically relevant, passive morphology serving to "absorb" the thematic role which is associated with the subject position in the corresponding active sentence (15).

(13) Who did you see t ?
i i

(14) John was beaten t .
i i

(15) Mary beat John.

The string (16) is ungrammatical because it involves a violation of the Theta-Criterion, the thematically relevant subject position being empty at D-structure and the moved NP being associated with two thematic roles at S-structure.

(16) *John beat t .
i i

Case theory deals with assignments of Case at S-structure to arguments which occupy specific configurational positions. Case is assigned as follows:

a) NP is assigned Nominative Case if governed by [+TENSE].

b) NP is assigned Objective Case if governed by [-N].

In conjunction with the Case-filter (17), the first clause in the Case-assignment rules ensures that infinitives can have no overt subject; the second, that an underlying object of a passive verb must appear in subject position at S-structure, given that passive participles have the categorial specification [+V], being neutral between verbs and adjectives.

(17) *NP, if NP has phonetic content and no Case.

NP-MOVEMENT in (14) above is therefore forced by Case theory; whilst an empty category, PRO, which does not result from movement, must appear as the subject of an infinitival clause, cf. (18).

(18) John tried [$_{S'}$ PRO to read the book].

The Binding theory distinguishes three different types of NP which function as arguments: anaphors, pronominals and referring expressions. Anaphors are either overt (reflexive and reciprocal pronouns) or have no phonetic realization (the empty category which is the trace of an NP which has been moved to an argument position, and which is not Case-marked). Pronominals are those overt pronouns which have independent reference, and referring expressions are names and Case-marked empty categories, i.e. WH-traces which appear as a result of the movement of a WH-pronoun to COMP. Case theory and the following Binding Conditions together determine the distribution of these elements:

(19) A. An anaphor is bound in its governing category.

B. A pronominal is free in its governing category.

C. A referring expression is free.

An element is bound if it is co-indexed with a c-commanding argument, and free otherwise. "Governing category" is defined as the minimal S or NP containing the governor of the element in question. It is clear that a WH-trace is never bound by an argument, since its antecedent stands in COMP, a non-argument position. The examples (20-22) illustrate the application of the Binding Conditions to the

remaining NP-types.

(20) a. [John likes Mary].
S i j

b. *[John likes Mary].
S i i

(21) a. John thinks that [Mary likes him].
S i j

b. *John likes him .
i i

(22) a. John thinks that [Mary likes herself].
S i i

b. *John thinks that [Mary likes himself].
S

c. John was beaten t .
i i

d. *John seems [Mary to like t].
i S i

(20a/b) exemplify Condition C.: It is impossible for a referring expression to be coreferential with another referring expression. Condition B. is met in (21a) where the pronominal, him, is free in its governing category, but may or may not be interpreted as being coreferential with John which is external to the embedded S. The condition is not satisfied in (21b). The sentences in (22) illustrate the applications of Condition A.: As (22a/b) show, a reflexive pronoun must be bound in its governing category. (22c/d) show that the same condition holds over traces which result from NP-MOVEMENT.

The theories of government and Case single out the position, subject of an infinitive clause, as one in which no overt NP may appear: This position is not governed and an NP occupying it is not Case-marked. The base-generated empty category which occupies this position, PRO, is assigned an antecedent under Control theory, i.e. is co-indexed with the matrix subject in (23) and with the matrix object in (24).

(23) John promised [$_{S'}$ PRO to go].

(24) John forced Mary [$_{S'}$ PRO to go].

PRO, therefore, is at once pronominal and anaphoric: As an empty category, it is pronominal insofar as its antecedent bears an independent thematic role; it is anaphoric because it has no independent reference. PRO must be ungoverned, i.e. have no governing category, since it is required to meet both of the Binding Conditions A. and B.

The Bounding theory imposes the Subjacency Condition (25) on the movement rule, thereby limiting the distance over which an element may be moved.

(25) No rule may involve $\underline{X}$, $\underline{Y}$ in:
$\ldots \underline{X} \ldots [_{\alpha} \ldots [_{\alpha} \ldots \underline{Y} \ldots] \ldots] \ldots \underline{X} \ldots$

where α is NP or S (S').

In other words, an element cannot be moved across two cyclic nodes in one step. The sentences (26) and (27) involve violations of the Subjacency Condition.

(26) *John seems [that it is certain [t to like cakes]].
i S' S i

(27) *Who did John believe [the claim [that he saw t]]?
i NP S' i

0.3. Organization.

The work is organized as follows:

Chapter One builds to a large extent on the work of Lenerz (1977) and Thiersch (1978) in determining the basic structure of the simple sentence. It is shown that German lacks a rule of NP-MOVEMENT and that morphological Case plays a role in determining the internal structure of the sentence. Parallel to Burzio's (1981) analysis of Italian, the idea is also defended that certain intransitive verbs are, in fact, "ergative", i.e. lack an underlying subject.

Chapter Two extends the analysis to the complex sentence, whose internal structure is again shown to be partially determined in terms of morphological Case. The phenomena which led Evers (1975) to postulate the existence of a "V-Raising" ("Restructuring") rule are shown to be a natural consequence of the proposed analysis; whilst the "ergative" nature of certain embedded passive and intransitive structures is shown to be responsible for the otherwise anomalous

distribution of nominal elements and reflexive pronouns in some types of construction.

Chapter Three describes the complex behaviour of the rule of EXTRAPOSITION as it applies to sentential complements and demonstrates that the transformational grammar established in the first chapter is crucial to an explanation of this behaviour.

Chapter Four is concerned with the distribution of unstressed pronouns. It establishes the existence of both a CLITICIZATION rule and a CLITIC-CLIMBING rule and shows how such rules are provided for within the adopted analysis of S-structure. The account again makes crucial use of the role assigned to morphological Case.

Chapter Five considers the very severe restrictions which hold over WH-MOVEMENT in German. It is maintained that these restrictions are to be explained in terms of the independent process of CLITIC-CLIMBING, and that WH-pronouns are therefore to be incorporated into the general theory of pronouns developed in Chapter Four.

Chapter Six finally deals with S'-PIED-PIPING, an alternative WH-MOVEMENT strategy of which German avails itself in order that some of the restrictions which are the concern of Chapter Five may be escaped.

CHAPTER ONE.

THE SIMPLE SENTENCE.

1.0. Introduction.

We begin by reviewing some observations which have been made about the more fundamental aspects of German sentence structure, addressing first and foremost the question of underlying word-order. The first section will present arguments to the effect that German is, underlyingly, a verb-final language, that the tensed, subordinate clause is the basic sentence form and that matrix clauses are derived via extraction processes. Sections 1.2. and 1.3. will then be concerned with the underlying order of arguments within the basic sentence, and will demonstrate that German exhibits "ergativity" of the sort shown by Burzio (1981) to be manifest in Italian.

Consideration of word-order and relations between sentences in section 1.4. will lead us to the central thesis that German is only partially characterizable in terms of a phrase-structure configuration, and that morphological Case plays a central role in the determination of sentence structure. We will argue for a re-interpretation of the Case-assignment rules of the Government-Binding theory and present a grammar on this basis in section 1.5. from which certain desirable theoretical consequences will be shown to follow.

The remaining sections will deal with the permutation rule which is responsible for marked word-order and with the relationship between grammatical functions and thematic roles before we turn to more complex constructions in Chapter Two.

1.1. Determining The Basic Sentence.

A preliminary glance at German reveals the existence of two major types of tensed, declarative clause:

(1) Der Mann hat das Buch gelesen.
the man has the book read
The man has read the book.

(2) , dass der Mann das Buch gelesen hat.
The man has read the book.

The first type is typically a matrix clause; the second, a subordinate clause, as the presence of the complementizer, dass ("that")[1], indicates. These two types are distinguished by the position of the inflected verb, and it will be argued here that the type exemplified by (2) is the more basic with respect to this distinction.

Let us note first of all that alongside (1) there also exists the form (3).

(3) Es hat der Mann das Buch gelesen.

it has the man the book read

The man has read the book.

We observe that the linear position preceding the tensed verb in this type of clause may be occupied by the element es. This element has certain properties:

i) It may be replaced by any constituent which would otherwise follow the inflected verb in the same clause-type, or the complementizer in the second type, as both (1) and (4) show. Es is therefore not an obligatory constituent of the construction-type exemplified by (3). (1), (3) and (4) alternate freely.

(4) Das Buch hat der Mann gelesen.

The man has read the book.

ii) It co-occurs with all other elements of the clause when it stands in first position, but not if it stands to the right of the inflected verb. Its occurrence is thus restricted to the initial position in this clause-type, if it occurs at all.

(5) a. *Hat es der Mann das Buch gelesen.

b. *Der Mann hat es das Buch gelesen.

c. *Das Buch hat der Mann es gelesen.

iii) It does not co-occur with elements of the second clause-type.

(6) a. *, dass es der Mann das Buch gelesen hat.

b. *, dass der Mann es das Buch gelesen hat.

c. *, dass der Mann das Buch es gelesen hat.

It would seem reasonable to conclude from these three points that the position occupied by es in (3) is external to the unit which we wish to define as the basic sentence: We can generalize across (1), (3) and (4), i.e. capture the fact that they alternate freely, by deriving each from a common source of the following form:[2]

(7) hat der Mann das Buch gelesen.

(1), (3) and (4) are then derived either through the addition of es, or through the extraction to the left of an element of the sentence.

Further, the existence of (2) as an alternative to (1), (3) and (4), and the ungrammaticality of the sentences in (6), can be captured by positing a relationship between (2) and (7). Given this relationship, the fact that (1), (3) and (4) are derived forms then implies that (7) itself is a derived form of (2), and, indeed, many arguments have been presented in the literature which suggest that the sentence-final position of the inflected verb is the more basic.

(7), and thereby (1), (3) and (4), would then be derived from (2) by movement of the inflected verb as an alternative to the insertion of a subordinating conjunction. Among these arguments are the following:[3]

i) Given a verb-final order, the verbal head and its complements form a continuous constituent, in accordance with tests for constituency by substitution.

(8) a. , dass der Mann [das Buch las].

b. Es [las] der Mann [das Buch].
The man read the book.

ii) It is only the inflected verb which appears sentence-initially. All other verbal elements occur only in the sentence-final position (cf. the position of the participles and infinitives in (9)). A leftward movement rule is, therefore, simpler, than would be a rightward movement rule, in that it applies to a single type of verbal element.

(9) a. Der Mann hat das Buch gelesen.

b. *Der Mann hat gelesen das Buch.

c. Der Mann versuchte das Buch zu lesen.
the man tried the book to read
The man tried to read the book.

d. *Der Mann versuchte zu lesen das Buch.

iii) German has a set of verbs which are morphologically composed of the verb-stem and a separable particle. When the verb is inflected for tense in a clause of the first type, the particle remains in the sentence-final position. A rightward movement rule would, consequently, have to apply not only to verbal elements, but also to particles.

(10) a. , dass der Mann das Rauchen aufgibt.
the man the smoking gives-up
The man is giving up smoking.

b. Der Mann gibt das Rauchen auf.

c. *Der Mann aufgibt das Rauchen.

iv) Certain inflected verbs can only appear in sentence-final position.

(11) a. , dass er seit langem bauspart.
he for long saves-with-a-building-society
He has been saving with a building society
for a long time.

b. *Er bauspart seit langem.

v) A rightward movement rule would have to be able to distinguish

between matrix and subordinate clauses, for the clause-type determines the type of element to which it would have to apply: In matrix clauses, particles, participles and non-inflected verbs would be subject to the rule, while in subordinate clauses all verbal elements and particles would have to move. A leftward movement rule, on the other hand, applies simply to the inflected verb in a clause not introduced by a subordinating conjunction.

vi) Independent infinitival and participial verb-phrases always have verb-final order. Thus, given the possibility of verb-final order in clauses, we do not wish to say that all such cases are derived.

(12) a. [Den Film zu sehen] waere schoen.
the film to see would-be nice
To see the film would be nice.

b. [Den Wagen gestohlen] hat er nicht.
the car stolen has he not
He did not steal the car.

vii) Tenseless imperatives exhibit verb-final word-order.

(13) Bitte das Fenster zumachen!
please the window close
Please close the window!

These are augmented by yet a further argument upon consideration of the rightward boundary of the basic sentence. The leftward boundary has been determined to be the tensed verb in the first (derived) clause-type (1) (cf. (7)), the complementizer in the second (basic) type (2). It is apparent from sentences such as the following that the rightward boundary immediately follows the verbal elements (or separable particles) in both clause-types:[4]

(14) a. Es hat der Mann schon vor einigen Tagen
it has the man already ago a-few days
das Buch gelesen.
the book read
The man read the book a few days ago.

b. Es hat der Mann das Buch gelesen, schon vor einigen Tagen.

(15) a. , dass der Mann seinen Freund auf dem Berggipfel
the man his friend on the summit
gesehen hat.
seen has
The man saw his friend on the summit.

b. , dass der Mann seinen Freund gesehen hat, auf dem Berggipfel.

(16) a. Es hat der Mann das Buch gelesen.
The man has read the book.

b. *Es hat der Mann gelesen, das Buch.

(17) a. , dass der Mann das Buch gelesen hat.

b. *, dass der Mann gelesen hat, das Buch.

(18) a. Er gibt das Rauchen auf.
He is giving up smoking.

b. *Er gibt auf, das Rauchen.

(19) a. , dass er das Rauchen aufgibt.

b. *, dass er aufgibt, das Rauchen.

We can capture the relationship between the members of each of the grammmatical pairs above by positing an optional rightward extraction rule which moves elements over the verbals and particles. This impies that the first member in each pair is basic, an implication which is substantiated by the pairs (16-19). Furthermore, if German is a verb-final language, as it must be by this argument, then the ungrammaticality of the second member of each of these pairs is automatically explained, for a verbal head in such a language will only govern, and assign Case to, its complements to the left. The rightward extraction rule can only apply to adjuncts.[5]

We conclude that the subordinate clause-type is basic, and in what follows, all reference to "the sentence" is to this type, unless

otherwise stated. The rightward and leftward extraction rules will be discussed in detail in Chapters Three and Five, respectively, while the remainder of this chapter deals with aspects of the internal structure of the simple sentence.

1.2. Word-order.

Turning now to the internal structure of the sentence as this was defined in the previous section, we note that types of NP constituent can be distinguished by the morphological Case-marking borne by the definite or indefinite article, which is inflected in accordance with the following paradigm:[6]

	DEFINITE			
	SINGULAR			PLURAL
	MASC.	FEM.	NEUT.	
NOMINATIVE	der	die	das	die
ACCUSATIVE	den	die	das	die
DATIVE	dem	der	dem	den
GENITIVE	des	der	des	der

INDEFINITE

SINGULAR

	MASC.	FEM.	NEUT.
NOMINATIVE	ein	eine	ein
ACCUSATIVE	einen	eine	ein
DATIVE	einem	einer	einem
GENITIVE	eines	einer	eines

Lenerz (1977) has shown that the distribution of these NP-types is subject to certain restrictions on linear order.[7] Thus, consider the following (in which "'" precedes the syllable bearing primary sentence stress):

(1) a. , dass ich dem Kass'ierer das Geld gab.
I the cashier the money gave
DAT ACC
I gave the money to the cashier.

b. , dass ich das Geld dem Kass'ierer gab.

c. , dass ich dem Kassierer das 'Geld gab.

d. *, dass ich das 'Geld dem Kassierer gab.

(2) a. , dass ich einem Schueler das Buch schenkte.
I a pupil the book gave
DAT ACC
I gave the book to a pupil.

b. , dass ich dem Schueler ein Buch schenkte.

I gave a book to the pupil.

c. , dass ich einem Schueler ein Buch schenkte.

d. , dass ich dem Schueler das Buch schenkte.

e. *, dass ich ein Buch einem Schueler schenkte.

f. *, dass ich ein Buch dem Schueler schenkte.

g. , dass ich das Buch einem Schueler schenkte.

h. , dass ich das Buch dem Schueler schenkte.

We see that there are no restrictions with respect to stress or definiteness when the NP are ordered DAT-ACC (as in (1a), (1c) and (2a-d)); but that the reverse order is only possible when the stress falls on the NP which bears Dative Case (cf. (1b/d)), or when the NP bearing Accusative Case is definite (cf. (2e-h)). On the basis of the two factors, primary sentence stress and definiteness, therefore, the unmarked, relative order of NP bearing Accusative and Dative Case can be determined to be: DAT-ACC.[8]

Similarly, the following examples suggest that the unmarked, relative order of Nominative and Dative NP is: NOM-DAT; that the unmarked, relative order of Nominative and Accusative NP is: NOM-ACC.

(3) a. , dass die 'Eltern dem Kind ein Buch gegeben haben.

the parents the child a book given have

NOM DAT ACC

The parents have given a book to the child.

b. , dass dem Kind die 'Eltern ein Buch gegeben haben.

c. , dass die Eltern dem 'Kind ein Buch gegeben haben.

d. *, dass dem 'Kind die Eltern ein Buch gegeben haben.

(4) a. , dass ein Mann dem Kranken half.

a man the sick-man helped

NOM DAT

A man helped the sick man.

b. , dass der Mann einem Kranken half.

The man helped a sick man.

c. , dass ein Mann einem Kranken half.

d. , dass der Mann dem Kranken half.

e. *, dass einem Kranken ein Mann half.

f. *, dass einem Kranken der Mann half.

g. , dass dem Kranken ein Mann half.

h. , dass dem Kranken der Mann half.

(5) a. , dass das 'Maedchen den Jungen besuchte.

the girl the boy visited

NOM ACC

The girl visited the boy.

b. , dass den Jungen das 'Maedchen besuchte.

c. , dass das Maedchen den 'Jungen besuchte.

d. *, dass den 'Jungen das Maedchen besuchte.

(6) a. , dass ein Mann das Buch las.

a man the book read

NOM ACC

A man read the book.

b. , dass der Mann ein Buch las.

The man read a book.

c. , dass ein Mann ein Buch las.

d. , dass der Mann das Buch las.

e. *, dass ein Buch ein Mann las.

f. *, dass ein Buch der Mann las.

g. , dass das Buch ein Mann las.

h. , dass das Buch der Mann las.

Again, restrictions hold over the marked order which do not apply to the unmarked order.

The relevance of primary sentence stress and definiteness to word-order, and thus their validity as factors determining unmarked word-order, is particularly apparent in cases where the Case morphology gives rise to potential ambiguity. Lenerz (1977,103) notes that (7) may have either of the two readings given, so long as the stress falls on the second NP. However, (8), with stress on the first NP, is unambiguous -- only the unmarked order is possible.

(7) , dass meine Schwester eine 'Freundin besucht hat.

my sister a friend visited has

NOM/ACC NOM/ACC

My sister has visited a friend.

A friend has visited my sister.

(8) , dass meine 'Schwester eine Freundin besucht hat.

My sister has visited a friend.

In the same way, the indefiniteness of the first NP in (9) is responsible for the lack of ambiguity in a sentence in which the Case-marking is ambiguous.

(9) , dass eine Freundin meine Schwester besucht hat.

A friend has visited my sister.

The same factors also permit the determination of the unmarked, relative order of most other constituents of the sentence, i.e. of various types of adverbials, both relative to each other and to NP complements (see Lenerz:1977). Here, we consider just one more pattern, namely, the distribution of prepositional phrases which are complements of the verb. The following point to the unmarked orders: ACC-PP; NOM-PP.

(10) a. , dass ich das 'Paket an meinen Bruder schickte.

I the parcel to my brother sent

I sent the parcel to my brother.

b. , dass ich an meinen Bruder das 'Paket schickte.

c. , dass ich das Paket an meinen 'Bruder schickte.

d. *, dass ich an meinen 'Bruder das Paket schickte.

(11) a. , dass er eine Tasse in die Schublade stellte.

he a cup in the drawer put

He put a cup in the drawer.

b. , dass er die Tasse in eine Schublade stellte.

He put the cup in a drawer.

c. , dass er eine Tasse in eine Schublade stellte.

d. , dass er die Tasse in die Schublade stellte.

e. *, dass er in eine Schublade eine Tasse stellte.

f. *, dass er in eine Schublade die Tasse stellte.

g. , dass er in die Schublade eine Tasse stellte.

h. , dass er in die Schublade die Tasse stellte.

(12) a. , dass der 'Mann auf den Zug wartet.
the man for the train waits
The man is waiting for the train.

b. , dass auf den Zug der 'Mann wartet.

c. , dass der Mann auf den 'Zug wartet.

d. *, dass auf den 'Zug der Mann wartet.

(13) a. , dass eine Frau nach der Loesung sucht.
a woman for the answer seeks
A woman is looking for the answer.

b. , dass die Frau nach einer Loesung sucht.
The woman is looking for an answer.

c. , dass eine Frau nach einer Loesung sucht.

d. , dass die Frau nach der Loesung sucht.

e. *, dass nach einer Loesung eine Frau sucht.

f. *, dass nach einer Loesung die Frau sucht.

g. , dass nach der Loesung eine Frau sucht.

h. , dass nach der Loesung die Frau sucht.

The orders DAT-ACC and ACC-PP together imply the order DAT-PP. We now have the following picture of the internal linear structure of the simple sentence:

(14) [NOM (DAT) (ACC) (PP) V]
S

Since this is the unmarked order, it is also the order which will be generated at the underlying level of D-structure (see sections 1.4. and 1.5.).The marked orders will be derived by rule (see section 1.6.). In this way, the generalization is expressed that for any two neighbouring arguments there is a marked and an unmarked order.

Finally, let us note that the stress and definiteness factors which serve to restrict word-order also provide us with a further argument in support of the conclusion of the last section, namely, that the position preceding the tensed verb in matrix clauses is

external to the basic sentence. There are two points: a) The occurrence of an argument in this position is not subject to the stress and definiteness restrictions. Thus, (15) is ambiguous, in contrast to (8) above.

(15) Eine 'Freundin hat meine Schwester besucht.

b) In certain cases, the permutation of two arguments is not possible even when there is no violation of the stress and definiteness restrictions (the reasons for this will be discussed below in section 1.8.). Cf. (16). But this has no bearing on the occurrence of NP in the external position, as (17) shows.

(16) a. , dass mein Bruder die Oper mag.
my brother the opera likes
My brother likes the opera.

b. *, dass die Oper mein Bruder mag.

(17) a. Mein Bruder mag die Oper.

b. Die Oper mag mein Bruder.

1.3. Linear Ergativity.

As an unmarked, basic word-order was established for the active sentence in the previous section, so can an unmarked word-order be determined for the passive sentence (Lenerz:1977,116/Thiersch:1978,70).

(1) a. , dass dem 'Schueler das Buch geschenkt wurde.
the pupil the book given was
DAT NOM
The book was given to the pupil.

b. , dass das Buch dem 'Schueler geschenkt wurde.

c. , dass dem Schueler das 'Buch geschenkt wurde.

d. *, dass das 'Buch dem Schueler geschenkt wurde.

(2) a. , dass einem Schueler das Buch geschenkt wurde.
The book was given to a pupil.

b. , dass dem Schueler ein Buch geschenkt wurde.
A book was given to the pupil.

c. , dass einem Schueler ein Buch geschenkt wurde.

d. , dass dem Schueler das Buch geschenkt wurde.

e. *, dass ein Buch einem Schueler geschenkt wurde.

f. *, dass ein Buch dem Schueler geschenkt wurde.

g. , dass das Buch einem Schueler geschenkt wurde.

h. , dass das Buch dem Schueler geschenkt wurde.

In the unmarked case, the Dative NP precedes the NP which bears Nominative Case in the passive sentence.

Another type of construction manifests the same word-order patterns as passive sentences -- a particular variety of intransitive structures, exemplified by (3-6) (see Lenerz:1977,115/ Thiersch:1978,166).

(3) a. , dass den 'Leuten der Versuch gelungen ist.

the people the attempt succeeded is

DAT NOM

The people succeeded in their attempt.

b. , dass der Versuch den 'Leuten gelungen ist.

c. , dass den Leuten der Ver'such gelungen ist.

d. *, dass der Ver'such den Leuten gelungen ist.

(4) a. , dass einem Baron der Coup gelungen ist.

A baron's coup succeeded.

b. , dass dem Baron ein Coup gelungen ist.

The baron's coup succeeded.

c. , dass einem Baron ein Coup gelungen ist.

d. , dass dem Baron der Coup gelungen ist.

e. *, dass ein Coup einem Baron gelungen ist.

f. *, dass ein Coup dem Baron gelungen ist.

g. , dass der Coup einem Baron gelungen ist.

h. , dass der Coup dem Baron gelungen ist.

(5) a. , dass der 'Frau der Film gefiel.

the woman the film pleased

DAT NOM

The film pleased the woman.

b. , dass der Film der 'Frau gefiel.

c. , dass der Frau der 'Film gefiel.

d. *, dass der 'Film der Frau gefiel.

(6) a. , dass einer Frau der Film gefiel.

The film pleased a woman.

b. , dass der Frau ein Film gefiel.

A film pleased the woman.

c. , dass einer Frau ein Film gefiel.

d. , dass der Frau der Film gefiel.

e. *, dass ein Film einer Frau gefiel.

f. *, dass ein Film der Frau gefiel.

g. , dass der Film einer Frau gefiel.

h. , dass der Film der Frau gefiel.

The unmarked order is again DAT-NOM. Thus, two sentence types can be distinguished on the basis of the relative order of Nominative and Dative NP:

i) Active transitives: NOM - (DAT) - ACC - V

ii) Passives/Intransitives: (DAT) - NOM - V

The linear position occupied by the Nominative NP in active transitive constructions is lacking in passives and certain types of intransitive, despite the fact that the NP following the Dative NP

bears Nominative Case. The relevance of Nominative Case with respect to the word-order distinction between the two sentence-types is revealed by the fact that a Nominative NP functions grammatically in the same way (namely, as "grammatical subject") in both types: Regardless of its linear position, a Nominative NP enters into the process of subject-verb agreement.

(7) a. , dass Karl das Kind liebt.
K. the child loves
Karl loves the child.

b. , dass die Leute das Kind lieben.
the people the child love
The people love the child.

(8) a. , dass das Kind geliebt wird.
The child is loved.

b. , dass die Kinder geliebt werden.
The children are loved.

(9) a. , dass der Frau der Film gefiel.
The film pleased the woman.

b. , dass der Frau die Filme gefielen.
The films pleased the woman.

A Nominative NP also functions as "subject", again, regardless of its linear position, in constructions which obligatorily require subject-control (cf. Hoehle:1978,71). Thus, the understood subject in the adverbial clause in (10) cannot be interpreted as being coreferential with the Accusative NP in the matrix clause, as the form of the reflexive pronoun reveals. In a passive sentence, however, it must be coreferential with the Nominative NP which occupies the corresponding linear position of Accusative NP in active sentences (cf. (11)).

(10) a. , dass der Mann mich schlug, ohne einen Laut
the man me hit without a sound
von sich zu geben.
from himself to give
The man hit me without making a sound.

b. *, dass der Mann mich schlug, ohne einen Laut
the man me hit without a sound
von mir zu geben.
from myself to give
The man hit me without me making a sound.

(11) , dass dem Kind der Mann vorgestellt wurde, ohne
the child the man introduced was without
einen Laut von sich zu geben.
a sound from himself to give
The man was introduced to the child without (him)
making a sound.

There is then no linearly defined subject position. Rather, the subject in passive and certain intransitive constructions appears to be occupying a position which corresponds to that of the Accusative NP in active transitives.

Some concrete evidence for this lack of a linearly defined subject has been brought to light by den Besten (1981): Dutch and German have a rule of question-formation which corresponds roughly to the English "what sort of ...?", as exemplified in (12).

(12) Was fuer Romane hat der Mann geschrieben?
what for novels has the man written
What sort of/which novels has the man written?

The precise details of the rule are not relevant to the present discussion -- suffice it to note that the question-phrase, was fuer NP, is preposed from its underlying position, and that the sentence is of the matrix clause type (see section 1.1.), the subject and the tensed verb having been inverted. (12) is thus related to the basic (base-generated) string (13).

(13) , dass der Mann Romane geschrieben hat.

The point here is that it is possible for the question-phrase to be split by the question-formation rule, but, as the examples show, only when the questioned NP is marked with Accusative Case (is a direct object).

(14) a. Was hat der Mann fuer Romane geschrieben?
(=(12)).

b. Was hast du in Italien fuer Museen besucht?
what have you in Italy for museums visited
=Was fuer Museen hast du in Italien besucht?
What sort of/which museums did you visit in Italy?

(15) a. *Was haben dir fuer Leute geholfen?
what have you for people helped
=Was fuer Leute haben dir geholfen?
What sort of/which people helped you?

b. *Was hat fuer ein Mann Romane geschrieben?
=Was fuer ein Mann hat Romane geschrieben?
What sort of/which man has written novels?

This WAS-FUER-SPLITTING operation can consequently be used as a test to determine the structural position of the Nominative NP in passive and intransitive constructions, i.e. if WAS-FUER-SPLITTING can apply to these NP, then they must be occupying the position of Accusative NP (i.e. be direct objects) at some level. It will thereby also be demonstrated whether a linearly defined subject is present or not. The results of this test correlate with the word-order patterns (see den Besten:1981,103).

(16) a. Was wurde dem Schueler fuer ein Buch geschenkt?

what was the pupil for a book given

=Was fuer ein Buch wurde dem Schueler geschenkt?

What sort of/which book was given to the pupil?

b. Was werden in Italien fuer Romane geschrieben?

=Was fuer Romane werden in Italien geschrieben?

What sort of/which novels are written in Italy?

(17) a. Was hat den Leuten fuer ein Film gefallen?

=Was fuer ein Film hat den Leuten gefallen?

What sort of/which film pleased the people?

b. Was sind denn fuer Leute gekommen?

what are then for people come

=Was fuer Leute sind denn gekommen?

What sort of/which people have come, then?

c. Was sind denn fuer Sachen passiert?

what are then for things happened

=Was fuer Sachen sind denn passiert?

What sort of/which things happened, then?

There is, then, every indication that German is linearly "ergative".[9] The NP which bear Nominative Case in passive and certain intransitive constructions show the same linear distribution as NP which bear Accusative in active transitive constructions, but are in complementary linear distribution with NP which bear Nominative Case

in active transitives. The same pattern is revealed as is expressed by Case in languages which have an ergative Case-system.

Yet further evidence for linear ergativity in German will be encountered below (sections 2.5. and 2.6.). Here, we turn to consider some of the implications which this has for the grammar of German.

1.4. Configuration and Transformation.

We have seen that certain constructions in German lack the initial, linear position occupied by the Nominative NP in active transitives. The NP which bears Nominative Case in such constructions occupies a position which corresponds to that of the Accusative NP in transitives. This linear ergativity reflects a regular relationship which can be seen to hold between active and passive sentence-types, namely, the intuition that, for example, Junge in both of the sentences in (1) is the "patient" of the activity expressed by the verb.

(1) a. , dass das Maedchen den Jungen schlaegt.

the girl the boy beats

NOM ACC

The girl beats the boy.

b. , dass der Junge (von dem Maedchen) geschlagen wird.

the boy by the girl beaten is

NOM

The boy is beaten (by the girl).

There are other manifestations of the active-passive relationship: Selectional restrictions between verb and object in the active hold in the passive, as (15) and (16) serve to show.

(2) a. ?, dass Johann die Ehrlichkeit schlug.

J. the honesty hit

?Johann hit honesty.

b. ?, dass die Ehrlichkeit geschlagen wurde.

?Honesty was hit.

(3) a. ?, dass die Polizei das Gebaeude verhaftete.

the police the building arrested

?The police arrested the building.

b. ?, dass das Gebaeude verhaftet wurde.

?The building was arrested.

Also, idiomatic expressions containing a direct object whose distribution is restricted to co-occurrence with one specific verb are not destroyed in the passive. Cf. the following (taken from Hoehle:1978,7):

(4) a. , dass Karl ihm den Garaus machte.

K. him ? did

Karl killed him.

b. , dass ihm der Garaus gemacht wurde.

He was killed.

(5) a. , dass er daraus kein Hehl machte.

he of-it no ? made

He made no secret of it.

b. , dass daraus kein Hehl gemacht wurde.

No secret was made of it.

(6) a. , dass er diesem Unfug Vorschub leistete.

he this nonsense ? afforded

He encouraged this nonsense.

b. , dass diesem Unfug Vorschub geleistet wurde.

This nonsense was encouraged.

This traditionally recognized relationship can be captured in terms of a transformational derivation, i.e. in accordance with the word-order patterns, Junge will in both sentences be generated in the linear position corresponding to that of the Accusative NP in active transitives.

Let us return to non-ergative structures of the sort discussed in section 1.2. It was determined there that NP constituents appear in the following order underlyingly:

(7) NOM - DAT - ACC - PP - V

A subject-predicate structure, as this is normally assumed of SVO languages such as English, can be determined in the linear string. The substitution-class which forms the predicate is a linearly cohesive constituent which is preceded by the NP which functions as grammatical subject, i.e. the configurational structure expressed by the rule (8) can be determined.

(8) S -----> NP VP

In ergative constructions, which exhibit the unmarked word-order (9), the same subject-predicate structure can be determined, even though it is not visible in the linear string.

(9) DAT - NOM - V

The NP which bears Nominative Case occupies the linear position corresponding to that of the Accusative NP in non-ergative constructions and has properties of Accusative NP insofar as it can undergo WAS-FUER-SPLITTING (see previous section). It is, therefore, to be assigned to a position within the VP of rule (8). Yet the same NP functions as grammatical subject, and thus has a property which Accusative NP lack. Structurally, the Nominative NP in ergative

constructions is therefore also to be assigned to the position of the Nominative NP in non-ergative constructions, a VP-external position, although this cannot be achieved by rules of the form (8), which can only make reference to the linear position of constituents.

A subject-predicate structure is thus presupposed, in both ergative and non-ergative constructions, by an analysis which singles out the subject NP as a constituent which has no fixed linear position. The predicate (VP constituent) is a linearly cohesive constituent even in ergative structures, where, by arguments relating to word-order and WAS-FUER-SPLITTING, the NP bearing Nominative Case occupies the linear position of an Accusative NP (the direct object position). The subject (VP-external NP constituent) is determinable linearly in non-ergative constructions; in ergative constructions, however, only by virtue of its Nominative Case-marking. Nominative Case assigns an NP which occupies the corresponding linear position of Accusative NP in ergative constructions to a non-linear position which corresponds to the linear position of the subject NP in non-ergative constructions. In other words, the linear structure defined by (8) for non-ergatives appears as a two-dimensional construct of the form (10) in ergatives, by virtue of the role played by Nominative Case.

(10)



We consider now the extent to which both the configuration (hierarchical structure of constituents) expressed by the rule (8) and Case characterize the internal structure of the German sentence.

Firstly, in non-ergatives which retain unmarked word-order, a configuration is evidenced by the restrictions which hold over anaphoric dependencies. The asymmetrical c-command relationship between subject and object can be shown to exist in that, for example, an NP occupying the S-initial position may bind another NP within the sentence, whereas the reverse is never possible:

(11) , dass Karl sich im Spiegel sah.
i i

K. himself in-the mirror saw

NOM ACC

Karl saw himself in the mirror.

(12) *, dass sich Karl im Spiegel sah.
i i

NOM ACC

Himself saw Karl in the mirror.

More generally, German lacks those characteristics which are typically exhibited by the more obviously non-configurational languages. Constituents of the sentence, for example, are not "flat" (non-hierarchical). Thus, the discontinuous NP in the Warlpiri sentence (13) (taken from Hale:1983,6) has no direct counterpart in German -- as in English, it must be rendered by a continuous, internally structured constituent (cf. (14)).

(13) Wawirri kapi-rna panti-rni yalumpu.

kangaroo AUX spear that

I will spear that kangaroo.

(14) , dass ich das Kaenguruh aufspiessen werde.

I the kangaroo spear will

These characteristics of configurationality break down, however, in ergatives and in constructions which manifest marked word-order. A linear configuration cannot be determined in a sentence such as the following, which has OSV order:

(15) , dass das Auto ein Maedchen faehrt.

the car a girl drives

ACC NOM

A girl drives the car.

The grammatical functions here are determinable only in terms of Case. Similarly, the contrast between (12) and (16) results solely from the way in which Case is assigned.

(16) , dass sich Karl im Spiegel sah.

i i

ACC NOM

Karl saw himself in the mirror.

The second characteristic of configurationality is, therefore, also lacking in structures which manifest marked word-order, i.e. it was claimed that (12) contained a case of improper binding on the

grounds that the binding of anaphors was to be constrained configurationally by c-command. (16) shows that these dependencies are rather determined by Case, for it would otherwise be ungrammatical. In other words, if (12) is ungrammatical because sich is configurationally defined as a subject, then (17) should be grammatical.

(17) *, dass Karl sich im Spiegel sah.
i i
ACC NOM

German and English differ crucially in this respect. Grammatical relations in the latter language are only defined configurationally. Anaphoric dependencies are thus also configurationally constrained in terms of c-command, such that (18) is ungrammatical no matter how Case is assigned.

(18) *Himself saw John in the mirror.

The examples (11/12/15-17) are, however, not in themselves sufficient to prove that grammatical relations in German are not defined configurationally. It might be suggested, for example, that the subject NP in (15/16) are moved to the right from the configurationally defined, S-initial subject position by some stylistic rule, so that the NP are still defined structurally as subjects in the syntactic component of the grammar (cf. Thiersch:1978). For grammatical relations not to be defined configurationally at this level, it must be shown a) that the linear order of the NP in (6/7) is also present at this level, and b) that,

given at least that degree of configurational structure which can be identified from the unmarked word-order patterns, the Nominative NP in (15/16) are not immediately dominated by S, domination by S constituting the definition of "subject" in a standard X-bar configuration (cf. Chomsky:1965). We will argue below that, for the structures in question, both a) and b) obtain (sections 1.8. and 2.5.).

At this point, we might consider an interesting, though perhaps somewhat speculative, correlation between SOV word-order and the non-configurational definition of grammatical functions. The following English sentence and its German translation are illustrative of this possible correlation:

(19) *Karl$_i$ seems [$_S$ the girl to like t$_i$].

(20) , dass Karl das Maedchen zu lieben scheint.

The first of these is always ungrammatical. It contains a violation of the Opacity Condition, the condition which rules out the association of an element outside the domain of a subject with an element inside that domain. In (19), the NP, Karl, has been moved from its D-structure position as object of the verb, like, to a position outside the domain of the embedded subject, the girl. The sentence will always be ungrammatical since the embedded subject is, by virtue of its configurational position, always defined as a subject.

The same is not true of (20). There is no configurational position which defines the embedded subject, and, in contrast to (19), either order of the two NP may be grammatical or ungrammatical. The only relevant factor here is Case-assignment, as (21) and (22) serve to show.

(21) a. , dass Karl das Maedchen zu lieben scheint.
NOM ACC

b. *, dass Karl das Maedchen zu lieben scheint.
ACC NOM

(22) a. , dass das Maedchen Karl zu lieben scheint.
NOM ACC

b. *, dass das Maedchen Karl zu lieben scheint.
ACC NOM

The SOV word-order of German makes it impossible to reconstruct the linearly opaque environment which is present in (19) (though, as will be seen below, the Opacity Condition is still responsible, in another respect, for the ungrammaticality of (21b) and (22b)). There is, then, a possible correlation between SOV word-order and the non-configurational determination of grammatical functions.[10]

These observations suggest that German is "semi-configurational" -- a configurational structure is only apparent in non-ergative structures which have unmarked word-order, marked constructions

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having a determinable structure only in terms of Case. Both types of structure must be simultaneously available in the grammar if the generalization is to be captured in terms of a derivational transformation that for any two adjacent NP there is a marked and an unmarked order. The input to the transformational rule has structure defined configurationally; the output, in terms of Case.

Both an underlying configurational structure and a morphological representation of grammatical functions are discernible in ergative constructions: an NP which occupies the linear (configurational) direct object position may be defined by Nominative Case to be functioning as subject. In order to account for the fact that the Nominative NP in "ergative" constructions at once enters into agreement with the verb and has the characteristics of objects with respect to word-order and the WAS-FUER-SPLITTING test, this constituent must be simultaneously assigned to the direct object position in the configuration and defined to be subject by virtue of its Nominative Case-marking. Indeed, this is a prerequisite for a transformational approach to processes such as the PASSIVE: A transformational approach to the PASSIVE requires that a single element be simultaneously assigned two grammatical functions, i.e. two representational levels must be distinguished. Ergative structures in German therefore provide direct evidence for the existence of transformational processes such as the PASSIVE. It can be proven, as we have already seen, that the subject of a passive or intransitive verb is indeed assigned two GF simultaneously. The interpretation of the passive subject as the "logical" object is provided for syntactically in terms of the underlying configuration.

The rule of NP-MOVEMENT in English is thus just one expression of a general process which we might call "the assumption of a grammatical function" (cf. Chomsky:1982a). The same process in German simply takes the form of non-configurational Case-assignment, i.e. an underlying object is assigned Nominative Case and thereby "raised" to subject (cf. Thiersch:1978).

1.5. Structure-assignment and Transformational Grammar.

We are now in a position to consider the formal nature of the structure of the sentence in German. As has been seen, the sentence must contain the configurational representation, and it must at the same time contain a flat string in which Case replaces the configuration as the representation of GF. The sentence is, in other words, simultaneously assigned two distinct internal structures by the grammar, firstly, by the rules in (1), and secondly, by the rules which assign Case to NP (2).[11]

(1) S -----> NP VP INFL

VP -----> ... V

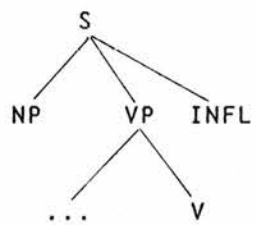
(2) a. [+TENSE] assigns Nominative Case to NP.

b. A verb assigns Accusative and/or Dative Case, or neither, to NP, in accordance with its lexical properties.

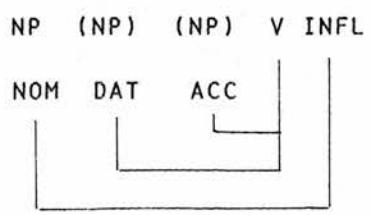
The rules in (1) generate a linear, hierarchical constituent structure of the form (3), while the rules in (2) define a structure

in terms of the process of Case-assignment, as in (4). We take the process of Case-assignment to define a structural relationship between elements of the sentence, in the same way as containment within a constituent, or c-command (see below) in the hierarchy (3).

(3)



(4)



With respect to the way in which NP arguments enter into construction with the heads, INFL and V, i.e. with respect to the dependency relations between NP and their governors, the two sets of rules assign equivalent structures: In this regard, the first line in (1) is equivalent to (2a), the second line in (1) equivalent to (2b). Both (1) and (2), in other words, assign a subject-predicate dependency structure to the sentence, in terms of a common notion of government, where government is defined derivatively by c-command in the configurational structure and by Case-assignment in the structure assigned in (2):

A governs B if

a) A c-commands B, and no major category intervenes.

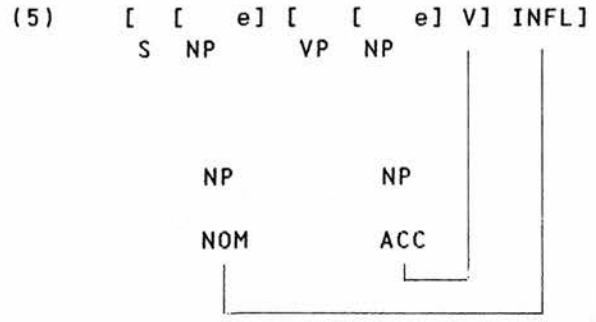
b) A assigns Case to B.

The two structural representations are mutually exclusive with regard to the structural relationships between constituents defined in each -- the rules (1) and (2) assign two distinct structures to the sentence. However, the structure of the sentence defined by the Case-assignment rules presupposes the existence of constituents, of Case-assigners and assignees, in the syntax. Case-assignment is a process which can only operate on given elements. Linear NP positions must have already been generated by the rules in (1), and lexical insertion have taken place, before the rules in (2) can apply to re-define structure. There is, then, an intrinsic ordering of the two sets of rules. And, indeed, we expect the configuration to be the underlying structure, for it is the structure which characterizes active sentences with unmarked word-order, sentences which we take to be basic. It is only sentences with marked word-order whose structure is determined exclusively in terms of Case.

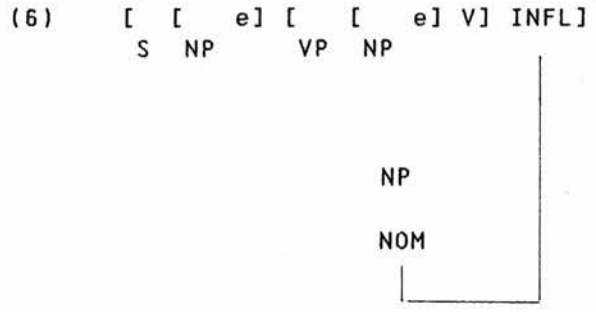
The two sets of rules together are therefore to be equated with a transformational rule: The Case-assignment rules apply to the output of the phrase-structure and lexical insertion rules to define a derived structure in terms of Case-assignment. Because the two structural representations are mutually exclusive, it follows that the German sentence is a two-dimensional construct, a derived form ("S-structure"), created through the transference of NP from the structure assigned by the rules in (1) into the structure assigned by

the rules in (2). A non-linear projection of the linear positions defined at the underlying level is created upon the application of Case-assignment. Thus, nonergative structures have the form (5) at S-structure, while ergatives have the form (6).[12]

(5)



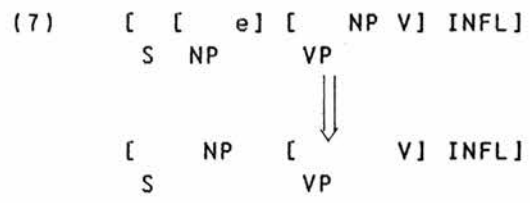
(6)



D-structure is mapped to S-structure via the application of the Case-assignment rules. In the same way as MOVE ALPHA is an expression of the degree of abstraction to D-structure, formerly expressed by the Structural Description and Structural Change of transformational rules (cf. the diagram (7)), so the distinct structures assigned to the sentence by the structure-assignment rules are mapped, one onto the other, to realize a derivational projection. The phrase-structure rules are equivalent to the Structural Description; the Case-assignment rules to the Structural Change, of a standard transformational rule. The components into which S-structure is factored are, then, concretely manifested as the

configuration and the superimposed Case-assignment structure.

(7)



Note that the notion of a non-linear projection, i.e. the idea that elements actually move out of one representation of GF and into the other, is no more or less abstract than are the notions, "MOVE ALPHA" and "trace", in current formulations of transformational grammar, though there are various conceivable ways in which the mapping of the Case-assignment structure onto the distinct configurational structure might be conceptualized. Direct evidence for the existence of some form of non-linear transformational derivation will be presented in Chapter Three.

We refer to the non-linear projections of the linear NP positions as "tracks". At S-structure, each NP is at once assigned two GF, one defined in terms of Case, the other in terms of the configuration or the track which it occupies. Thus, the subject NP in the non-ergative structure is defined as subject by Nominative Case, and again as a subject by the track which it occupies (= [NP,S]). Both in terms of the configuration and Case-assignment, it is governed by INFL. We will refer to the position of NP in S-structure in terms of chains, chains being constituted by the two GF assigned to a single NP. Hence, the subject NP in a non-ergative structure heads a chain constituted by a subject as defined by Nominative Case and a subject as defined in terms of the configuration. Since the two GF are

equivalent, this NP heads a single-link chain. However, because S-structure is two-dimensional, this chain is constituted by two elements, for the non-linear trace of the NP occupies this latter's track.

The derived subject NP in the ergative structure is defined as subject by Nominative Case, and as object by the track which it occupies (= [NP,VP]). It is governed by INFL in terms of Case-assignment, but by the verb in terms of its track. It itself constitutes a double-link chain, but, again, because S-structure is two-dimensional, the second member of the chain has an overt representation in the form of the non-linear trace left by NON-LINEAR MOVEMENT.

We see that in ergatives, no LINEAR MOVEMENT of the sort found in English is necessary. The process of GF-ASSUMPTION (= NP-MOVEMENT) in a configurational language involves the assignment of two linear positions to a single element, each GF being exclusively and uniquely defined in the linear dimension, as in (8).

(8) [[John] was [beaten [e]]]
S NP VP NP

The nature of GF-ASSUMPTION in German is such that a D-structure NP position, i.e. a GF, may be adopted by an NP via the application of the Case-assignment rules, this GF being redefined by Case -- [NP,S] = Nominative Case. Thus, the [NP,S] track in an ergative structure is occupied by an empty category only in the configurational representation. In effect, a GF may be linearly

displaced. In fact, it has simply been redefined in the non-linear projection. The empty, underlying subject, consequently, does not present the problem in a two-dimensional analysis which it would in a one-dimensional one, for it is "absorbed", i.e. occupied, in the non-linear projection at S-structure by the underlying object. Any one-dimensional analysis of the PASSIVE in German, on the other hand, would have to contend with the fact that the underlying subject in these constructions "surfaces" as an unbound empty category (cf. the discussion of Japanese in Chomsky:1982a,131).

Whilst the simultaneous assignment of structure to the sentence in terms of both Case-assignment and a configuration is equivalent to a transformational rule, there is an important difference between this grammar and a standard transformational grammar: The transformation invoked is not construction-specific. No independent transformational rule is invoked, and all underlying structures are submitted to transformation in the sense that the Case-assignment rules always apply. There is no independent transformational component required to process specific constructions. The grammar simply contains two structural descriptions, and any structural change is a result of differences between the two descriptions, a result of a defective correspondence between the grammatical functions defined in the configuration and those defined by Case.

Essentially, we have been forced, through consideration of the German sentence, to re-interpret the Case-assignment rules of the Government-Binding theory as defining structural relationships between constituents of the sentence and thereby as defining a

structural change over the structure generated by the PS-rules. This has certain advantageous theoretical consequences: Firstly, the transformational nature of the grammar, i.e. the existence of two derivational levels, follows without stipulation, given the intrinsic ordering of the structure-assignment rules and the fact that the configurational and Case-assignment structures are mutually exclusive representations of GF.

Secondly, the fact that S-structure is forced to retain the configuration as one of its components provides for one of the aspects of the Projection Principle (Chomsky:1982a/b), for the basic tenet of Trace theory, that derivational history should not be destroyed. The D-structure representation is preserved at S-structure and provides for the surface interpretation of structures in which there has been an occurrence of GF-ASSUMPTION (RAISING). A grammar which applies a transformational rule to D-structure, on the other hand, must stipulate that the output of the transformational rule retains the input, that the linear movement of an NP to subject position in English, for example, involves the retention of a trace of the NP in the latter's original position (cf. (8) above).

Thirdly, the fact that Case defines GF at the derived level explains why NP must have Case. If Case is to explain the obligatory application of NP-MOVEMENT in "RAISING" structures in English, then, until this fact is recognized, it is necessary to stipulate that phonetically realized NP must have Case. Thus, a Case-filter (Chomsky:1980) must be invoked to rule out the presence of an underlying object NP in object position at S-structure in

constructions in which the verb does not assign Case.

The Case-filter is thus an ad hoc answer to the question: Why must NP have Case? However, once it is recognized that the sentence is defined in terms of Case-assignment in one dimension, then this question is no longer pertinent. Rather, the question must be: Why does Language provide two means by which GF are defined? The Case-filter is then irrelevant, for given that S-structure is a composite of these two means, then all NP which function as arguments will have been assigned Case. If the underlying object of a passive verb is not assigned Nominative Case and thereby raised to subject, then it is assigned no position in the structure specified by the Case-assignment rules.

In addition, the Case-assignment rules themselves are simplified, for if Case defines GF, then the question of preventing random Case-assignment reduces to principles of semantic interpretation: Consider the fact that thematic roles (i.e. the semantic functions, "agent", "patient", etc., fulfilled by arguments in respect of a verb or predicate) are not indiscriminately associated with GF -- fairly obviously, the sentence (9) can never "mean" (10).

(9) ?The book read John.

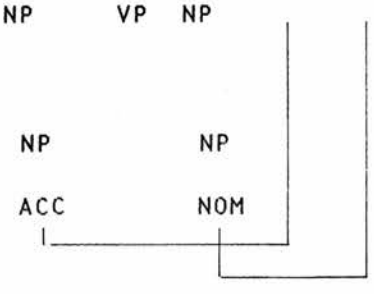
(10) John read the book.

Pending further discussion in section 1.8., let us adopt an informal approximation to the Theta-theory of Chomsky (1982a/b), to

the effect that in a given construction, each GF is associated with a specific thematic role, or none at all, in accordance with the lexical properties of the verb, and a bi-unique relationship obtains betweeen arguments and such roles. The first half of the theory will rule out the interpretation (10) of (9), if NP in the latter are in their D-structure positions, for lexical properties of read will associate the book in (9) with the same semantic function as is borne by John in (10). The second half (the Theta-Criterion) will rule out an analysis of (9) which derives this from (10) via substitution of the two NP for each other, since each NP will have been assigned to two different, thematically relevant GF in the course of the derivation.

In the structure (11), both NP head chains, each of which is associated with two thematic roles. The Nominative NP, for example, has the thematic role associated with the GF, subject, and the thematic role associated with the configurationally defined GF assigned to the track which it occupies, the object, in violation of the Theta-Criterion. Accordingly, Case-assignment is free -- there is no need to specify to which NP a particular Case is assigned.[13]

(11) [[e] [[e] V] INFL]
S NP VP NP



Suppose now that we try to incorporate these simplifications into the grammar of English. This would require the adoption of the idea that, in English too, GF are defined by Case at the derived level. We know, however, that Case-assignment is not free in English, that Case is assigned to configurationally defined positions. This is the reason why "RAISING" structures in this language involve NP-MOVEMENT. The two languages differ, however, in one very obvious respect: English is not a morphologically Case-marked language. A most natural conclusion, then, is that the relevant distinguishing parameter is the "strength" of the morphology. Case defines GF at a derived level in both languages, but morphology is too weak in English for it to be a sufficient determiner of structure on its own. A particular Case is therefore never separated from the corresponding configurational position, and English is one-dimensional.[14]

1.6. The RIGHTWARD-SHIFT Rule.

In this section, we consider further how the two structures assigned by the structure-assignment rules are related, and in particular, how both marked and unmarked surface word-orders are derived.

The structure-assignment rules must be supplemented by some specification of the relative order of VP-internal arguments (see section 1.7. for discussion). The unmarked surface order will then result simply from the non-linear projection in S-structure of linear NP positions in accordance with this specification. A non-linear

projection is created upon the application of the Case-assignment rules, and Case is assigned in a way which does not violate the Theta-Criterion. No additional rules are invoked, though in certain cases, Case-assignment has the effect of linearly redefining a GF.

The marked order cannot be the result of random Case-assignment, for reasons discussed in the previous section: Because Case defines GF in the non-linear projection, random Case-assignment leads to violations of the Theta-Criterion. Marked word-order must, therefore, be the result of a movement rule which leads to deviance from the stipulated unmarked order. Furthermore, sentences which exhibit marked word-order have a determinable structure only in terms of morphological Case-markings -- the underlying configuration is not visible.[15] Marked word-order therefore appears in the Case-assignment structure only; it is not the result of LINEAR MOVEMENT within the configuration.

There is, then, an alternative non-linear rule which is responsible for marked word-order. Recall that for any two adjacent NP, there is a marked and an unmarked order, as given in (1).

(1)	Unmarked order.	Marked order.
a.	DAT - ACC	ACC - DAT
b.	NOM - DAT	DAT - NOM
c.	NOM - ACC	ACC - NOM

As Thiersch (1978) has shown, the generalization that the marked order is simply the reverse of the unmarked order can be captured by

the rule (2).

(2) X'' Y'' ø

1 2 3 ------> ø 2 1

where X'' is the less definite and the more heavily stressed.[16]

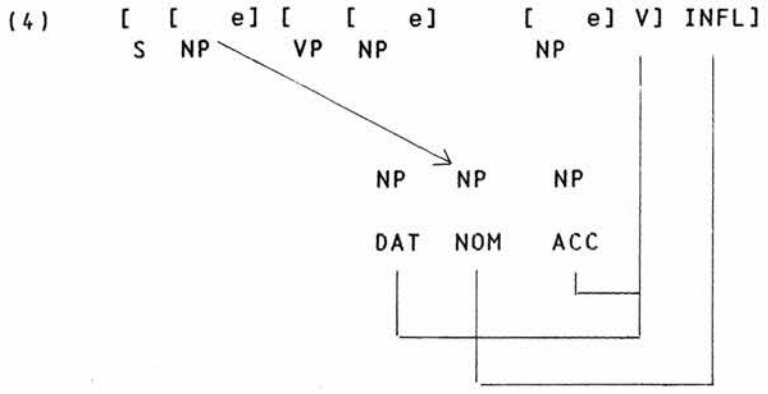
Whilst Thiersch claims that this is a stylistic rule, i.e. one which applies in the phonological component, we will present evidence below to show that it is syntactic (see section 1.8.). We interpret the rule as follows: Rather than it being a derivational process in itself, it is a stipulation of the deviance from the unmarked order which is permitted in the non-linear projection. It determines the degree to which word-order can vary between the D-structure configurational representation and the Case-assignment structure.

The application of the rule in each of the cases (1a-c) is illustrated in (3-5), respectively.

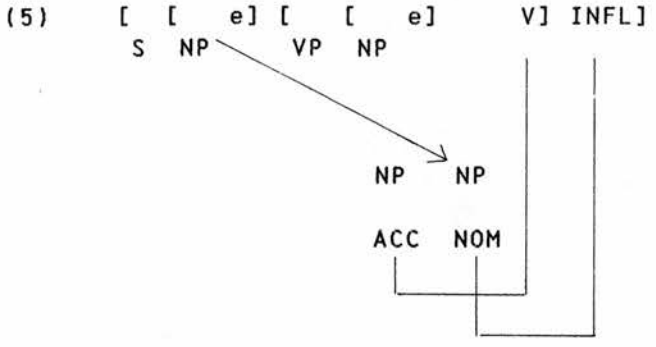
(3) [[e] [[e] [e] V] INFL]
S NP VP NP NP

NP NP NP
NOM ACC DAT

(4)

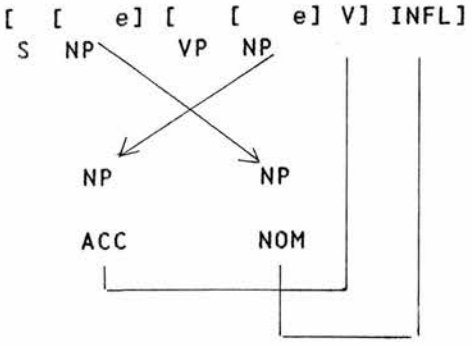


(5)



The linear positions defined at D-structure are preserved as tracks. However, since GF are no longer configurationally defined after the application of the Case-assignment rules, in principle any NP could occupy any linear position at the derived level. We might, for example, imagine some sort of "scrambling" rule which would effectively permit random word-order. But note that, in German, any such scrambling rule must specify a landing-site, and a landing-site which is not one of the NP positions defined at D-structure, i.e. on one of the tracks: The S-structure (6) is impossible in a language in which thematic roles are associated with linear positions, for an NP which moves from one position (one track) to another will receive two thematic roles in violation of the Theta-Criterion.

(6)



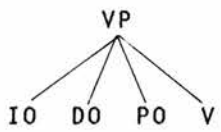
The rule (2), which we will henceforth refer to as RIGHTWARD-SHIFT, thus determines the nature of "scrambling" in German. It is a filter on the non-linear projection, permitting only either the preservation of the unmarked word-order or the "hopping" of one maximal category over an adjacent one to the right in the non-linear projection.

Minor movement (hopping) rules present a problem for restrictive theories of transformational grammar since such rules, more or less freely, create positions in the linear string which are not present underlyingly. It argues for the correctness of our interpretation of the Case-assignment rules, and of the two-dimensional analysis, that such restricted scrambling processes fall out as natural possibilities, as ones whose existence is to be expected a priori since no linear positions are defined in the Case-assignment structure. The transformational rule (2) finds a concrete realization in the non-linear factorization of S-structure, the structural description being the phrase-structure rules (and the stipulation of unmarked word-order); the structural change, a possible linear constituent-order in the Case-assignment structure.

1.7. Impersonal Constructions and Underlying Case.

In the course of section 1.2., four types of NP constituent were distinguished on the basis of the morphological Case-markings which they bear. It has been argued that Case-markings define grammatical functions directly in the Case-assignment structure (NOM = "subject"; ACC = "direct object"; DAT = "indirect object"). "Subject" (SU) and "direct object" (DO) have also been defined derivatively at D-structure in terms of the X-bar configuration. The subject is that NP immediately dominated by S, the direct object that NP immediately dominated by VP (cf. Chomsky:1965). A problem arises, however, with respect to a configurational definition of "indirect object" (IO) and "prepositional object" (PO), for they meet the same definition as that given for "direct object". They are sub-strings of VP, i.e. are configurationally determined as [X,VP], as is the direct object (see the diagram (1)). Yet we need to distinguish formally these grammatical functions, since each bears a unique thematic relationship to the verbal head, as is primarily evidenced by the fact that they are not mutually exclusive.

(1)



It will be argued here that this distinction is achieved in the syntax via the D-structure assignment of Dative Case and prepositions, under the assumption that prepositions are assigned like any Case-marking -- the functional relationship between the NP

object contained in the prepositional phrase and the verb in (1) is mediated by the preposition, in much the same way as SU and DO are mediated by Case at S-structure. In other words, the preposition defines PO.[17]

Evidence for the underlying presence of Dative Case and prepositions is provided in passive sentences, such as the following:

(2) , dass den Kindern (von dem Vater) geholfen wurde.
the children by the father helped was
DAT
The children were helped (by the father).

(3) , dass auf die Gaeste gewartet wird.
for the guests waited is
The guests are waited for.

These are examples of "impersonal" passives, so called because they lack an overt manifestation of the GF, SU, i.e. there is no NP bearing Nominative Case. That they are indeed passive is revealed by the systematic relationship into which they enter with the active sentences (4/5), and by the optional presence of the agentive von phrase with the Dative passive (2).[18] IO and PO function thematically in the same way in both active and passive constructions. But they do not function grammatically as derived subjects in the passive -- they do not enter into subject-verb agreement (cf. (6/7)), and, as will be seen below (see section 2.2.), cannot function as subjects of infinitive clauses.

(4) , dass der Vater den Kindern geholfen hat.

The father helped the children.

(5) , dass die Leute auf die Gaeste warten.

The people wait for the guests.

(6) *, dass den Kindern geholfen wurden.

(7) *, dass auf die Gaeste gewartet werden.

It seems that there is no process of GF-ASSUMPTION in operation in these passives. We have maintained the idea that this process is induced by Case-assignment, that the verb in the passive withholds Case at S-structure, and that an underlying object in such constructions must receive Nominative Case from INFL. It might be argued, then, that Dative Case is already present at D-structure, so that there is no reason for GF-ASSUMPTION to be invoked in the course of the derivation of an impersonal passive. And the same would hold of PO: If the preposition is present at D-structure, the NP which it governs will never require to assume a GF.

This would imply that these underlying Case-markings are "retained" at S-structure, as appears to be the case in the passive constructions, i.e. we should expect a Dative or prepositonal object to be "inherently" assigned to an argument position at S-structure, by virtue of its having been assigned a Case-marking at D-structure.[19] However, this expectation is dispelled upon consideration of examples such as the following:

(8) *, dass der Vater geholfen hat, den Kindern.

= (4).

(9) *, dass geholfen wurde, den Kindern.

= (2).

(10) *, dass die Leute warten, auf die Gaeste.

= (5).

(11) *, dass gewartet wird, auf die Gaeste.

= (3).

IO and PO have here been extracted to the right across the verb. The resultant ungrammaticality reveals a parallelism between these complements and SU and DO: The latter can similarly not be extracted in this way (see section 1.1.), a fact which was explained above in terms of the head-final nature of German, i.e. V and INFL can neither govern nor assign Case to their right. The implication is that Dative and prepositional objects are governed by the verb even at S-structure, whereas we should expect that these complements would be able to undergo extraction precisely because they retain their underlying Case-marking (P-marking) and are, therefore, inherently governed. Yet, it has been presupposed that the verb withholds Case at S-structure in passives, so that it would be impossible for Dative and prepositional objects to be governed by the verb in the Case-assignment structure.

It can, in fact, be shown that the NP in impersonal passives are governed by INFL at S-structure: Recall that these NP cannot function as subjects of infinitive clauses -- as will be shown in section 2.2., impersonal passives do not occur where INFL is specified to be [-TENSE]. This would tend to suggest that the NP in question require to be governed (assigned Case) by INFL, that GF-ASSUMPTION is indeed taking place, despite the presence of Dative Case or a P-marking.

This apparent paradox finds a quite natural solution in the two-dimensional analysis of S-structure, for to say that Dative Case and prepositions are assigned at D-structure in our terms is to say that the phrase-structure rules which generate the underlying configurational structure are supplemented by a set of Case-assignment rules which are distinct from those which induce the non-linear projection in S-structure. This underlying process of Case-assignment will be a factor of S-structure, given our analysis of S-structure as a composite of the two structures assigned by the two sets of structure-assignment rules. Thus, an NP has Dative Case or a P-marking in impersonal passives by virtue of the fact that the assignment of Case within the underlying configurational structure proceeds at S-structure, and it is, at the same time, governed by INFL in the Case-assignment structure. Because Case-assignment is a process, and because German is two-dimensional, even underlyingly Case-marked NP must be assigned to an argument position in the non-linear projection at S-structure. Thus, if passive morphology absorbs a Dative Case-marking, or a prepositional marking, at S-structure, as it otherwise absorbs Accusative Case, these NP must undergo GF-ASSUMPTION to be governed and assigned Case by INFL.

Let us consider now how underlying Case might be assigned within the configurational structure. Recall that the structure-assignment rules must be supplemented by some stipulation of the relative, unmarked order of NP, this being the order from which the marked order is derived by rule (see section 1.6.). In order to be able to assign an unmarked order to NP within VP, each NP must first be uniquely identifiable, and the identification of NP reduces to the problem of having definitions for the grammatical functions. The assignment of D-structure Case to specific linear positions would therefore automatically constitute a stipulation of unmarked word-order.

Suppose, then, that the VP-expansion rule is reformulated as follows:

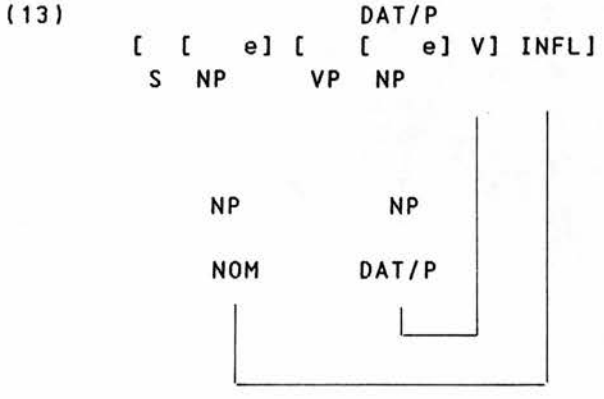
(12) VP -----> (DAT) (___) (P) V

The rule admits from one to three linear, VP-internal NP positions, and allocates specific Case-markings to the initial and final positions if and when these positions are realized. Each GF is thus formally defined at D-structure as required, either configurationally ([NP,VP] = DO) or in terms of Case, i.e. NP occupy specific linear positions within VP, and are thus ordered linearly, in accordance with their thematic functions as defined by the GF assigned under the rule (12).

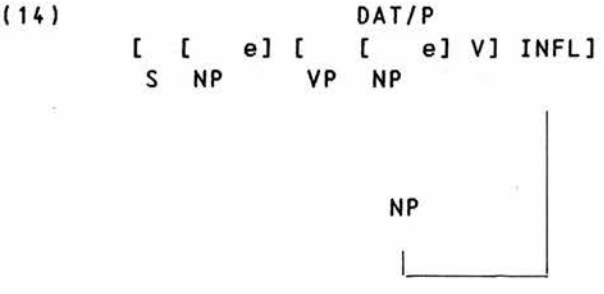
In the exemplary active structure (13), the NP in question heads a two-member, single-link chain: It occupies a track which is assigned

Case in the configurational representation and it is also assigned the same Case in the non-linear projection. In the passive structure (14), the NP heads a double-link chain: It occupies a track which is assigned Dative Case or a P-marking in the configurational representation and it is also governed by INFL in the non-linear projection. It happens that the NP bears the Case-marking of its non-linear trace, and therefore has no characteristics of a subject NP.

(13)



(14)



1.8. Thematic Roles and the Lexicon.

We turn now to evidence that RIGHTWARD-SHIFT is indeed a syntactic rule, and not a stylistic one, as Thiersch (1978) claims.[20] Lenerz (1977) notes the contrast between the sentences (1/2) (discussed above in section 1.2.) and the sentences (3-6).

(1) , dass diesen Baum ein 'Foerster gefaellt hat.
this tree a forester felled has
ACC NOM
A forester has felled this tree.

(2) , dass meinen Bruder ein 'Freund besucht hat.
my brother a friend visited has
ACC NOM
A friend has visited my brother.

(3) *, dass dieses Auto unser 'Chef besitzt.
this car our boss owns
ACC NOM
Our boss owns this car.

(4) *, dass das Medikament der 'Kranke braucht.
the medicine the sick-man needs
ACC NOM
The sick man needs the medicine.

(5) *, dass diese Oper mein 'Bruder mag.

this opera my brother likes

ACC NOM

My brother likes this opera.

(6) *, dass das Buch der 'Junge bekam.

the book the boy received

ACC NOM

The boy received the book.

With a certain class of verbs, it impossible for the Nominative NP to be subjected to RIGHTWARD-SHIFT. Such constructions enter into a systematic relationship with constructions of the following sort:

(7) , dass unserem Chef dieses Auto gehoert.

our boss this car belongs

DAT NOM

This car belongs to our boss.

(8) , dass dem Kranken das Medikament noetig ist.

the sick-man the medicine necessary is

DAT NOM

The medicine is necessary for the sick man.

(9) , dass meinem Bruder diese Oper gefaellt.

my brother this opera pleases

DAT NOM

This opera pleases my brother.

(10) , dass dem Jungen das Buch gegeben wurde.

the boy the book given was

DAT NOM

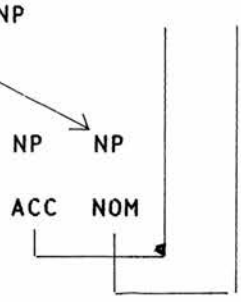
The book was given to the boy.

The Nominative NP in (3-6) function thematically in the same way as the Dative NP in (7-10) respectively.

It appears, then, that RIGHTWARD-SHIFT is subject to some syntactic constraint, and we conclude that the rule is not to be relegated to the PF component. Consider again the nature of the RIGHTWARD-SHIFT rule. It is a filter on the non-linear projection, and permits NP to be removed linearly from their underlying positions (tracks). The derived linear position of a shifted NP is not thematically relevant. In fact, for a shifted NP to be associated with a thematic role, it must be assigned by its Case-marking to a thematically relevant GF, or it must head a chain in the two-dimensional S-structure which assigns it to a thematically relevant GF.[21] Thus, in a structure such as (11), Nominative Case assigns the shifted NP to the thematically relevant subject position, whilst in (12/13) (cf. the structure (14), which involve the raising of the underlying object to subject as defined by Nominative Case, the shifted NP heads a chain which assigns it to the thematically relevant direct object position, the (configurationally defined) linear position of this NP being [NP,VP], and this position being in this instance, though not in (11), available.

(11) [[e] [[e] V] INFL]

S NP VP NP



(12) , dass auf den Tisch der Kuchen gelegt wurde.

on the table the cake laid was

NOM

The cake was laid on the table.

(13) , dass zur Party mein Freund kommt.

to-the party my fiend comes

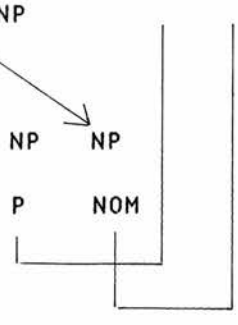
NOM

My friend is coming to the party.

(14) P

[[e] [[e] [e] V] INFL]

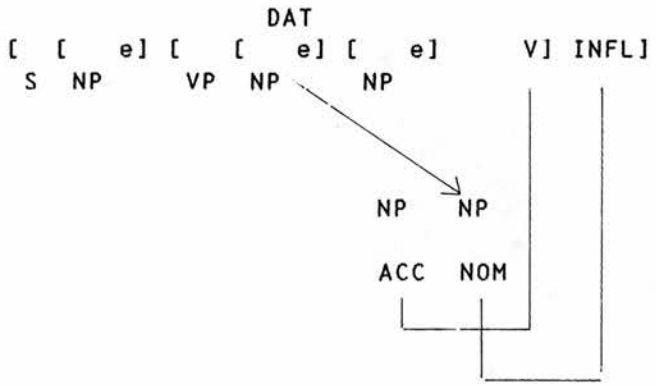
S NP VP NP NP



On the basis of the above-noted relationship between the Nominative NP in (3-6) and the Dative NP in (7-10), let us make the claim now that the former are in fact raised from the indirect object position, from the position which is assigned Dative Case by the VP-expansion rule, as discussed in the previous section. Now the

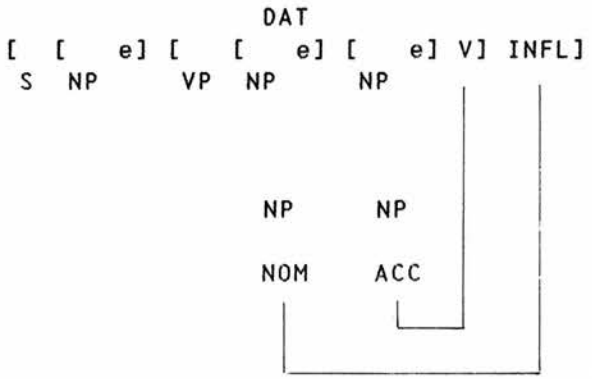
ungrammatical cases (3-6) will have the derived structure (15). The shifted NP here heads a chain which can only assign it to the direct object position ([NP,VP]), a position already occupied by the NP bearing Accusative Case. Thus, given that underlying Dative Case is assigned only to a specified linear position, an NP raised from this position cannot be shifted, or a Theta-Criterion violation ensues.

(15)



There is, then, a class of verbs whose lexical properties are such that they have two underlying objects, but no underlying subject. They induce the S-structure (16) in which the linear positions of the underlying objects are preserved.

(16)



If this analysis is correct, then the VP-expansion rule (17) requires some qualification as regards the morphological realization

of assigned Case. Let us say that, where a verb is lexically specified to be a DAT/P-assigner, the rule assigns Dative Case and/or a preposition to the NP occupying the appropriate position(s). Where a verb is not so specified, Case will not be assigned, though an NP will still occupy the position appropriate to its thematic function. Thus, the derived subject of a verb such as moegen does not receive Dative Case, since moegen is not lexically specified to be a Dative Case-assigner, yet it still occupies the position defined by the VP-expansion rule to be the indirect object position.

(17) VP -----> (DAT) (___) (P) V

Given the analysis, then, verbs such as faellen and besitzen differ in their thematic structure. The latter lacks an underlying subject. This corresponds with our intuitions about the nature of the surface subject in such constructions. The subject is not "agentive" in (3-6) as it is in (1) and (2), but rather functions in the same way as the Dative NP in examples such as (7-10), which are synonymous with (3-6) respectively.

The verbs in (3-6) and (7-10) all have the same underlying structure: They are ergative, and have two underlying objects. The only difference is that the verbs in (3-6) assign Accusative Case, whereas those in (7-10) assign Dative Case, at S-structure.

Recall in this light our previous observation that passives and certain intransitives (such as those in (7-10)) exhibit linear ergativity. It was argued that ergativity provided for the surface

interpretation of the derived subject of a passive verb as the logical object. By the word-order arguments, the same interpretation should apply to the subjects of the intransitives in question, for these NP too will be base-generated in the direct object position. With respect to passives, this idea is uncontroversial in the transformational tradition; with respect to intransitives, however, the idea is more readily associated with the theoretical frameworks of Relational and Case Grammar (cf. for example, Fillmore:1968). In fact, we have evidence for the correctness of Perlmutter's (1978) "Unaccusative Hypothesis", for the hypothesis that certain types of intransitive verb have no "semantic", i.e. agentive, subject (cf. Burzio:1981/1983, for similar conclusions in Italian).

The "unaccusative" ("ergative") nature of these intransitives has a correlate in the fact that there can never be a passive form of the same (Perlmutter:1978/Burzio:1983). Passive morphology, i.e. the passive auxiliary verb, functions lexically to "absorb" the thematic role otherwise fulfilled by the underlying subject NP (Chomsky:1982a). Since the intransitives in question have the inherent lexical property that they do not assign such a theta-role, passive morphology loses its function and is ruled out on these grounds. Cf. the following:

(18) *, dass die Leute gefallen wurden.
The people were pleased.

(19) *, dass der Versuch gelungen wurde.
*The attempt was succeeded.

(20) *, dass die Leute gekommen wurden.

*The people were come.

All of this would suggest that there is a one-to-one correspondence between thematic roles and underlying grammatical functions -- it is apparent that a particular thematic role is specified by a particular syntactic position. We take D-structure, therefore, to be a direct representation of thematic structure, a representation whose well-formedness will be directly determined by the semantics of the verb. We must be careful to note, however, that the one-to-one correspondence between thematic roles and GF can only hold of the D-structure representation, for otherwise, all "RAISING" processes will involve a violation of the Theta-Criterion. The GF defined in the Case-assignment structure do not determine thematic functions, though these GF may be thematically relevant, by virtue of the fact that Case serves to re-define GF which appear in the configurational representation. Two aspects of well-formedness are thus factored out: The well-formedness of D-structure is directly determined by the semantics of the verb; while syntactic processes are constrained by the Theta-Criterion.

This permits a considerable reduction in the amount of lexical information required in the grammar, as compared with current transformational approaches. The Government-Binding Theory, for example, requires the association between a particular grammatical function and a particular thematic role in a specific construction to be specified in the lexicon. Each subcategorized position is assigned a position in the thematic structure of the verb (cf.

Chomsky:1982a,34). This is no longer necessary if there is a one-to-one correspondence between thematic role and underlying grammatical function, as syntactic evidence from German suggests, for there is then no idiosyncracy in the mapping between D-structure and Logical Form. Each GF at D-structure is regularly associated with one specific thematic function.

Accordingly, it is no longer necessary to assume a theory of strict subcategorization of the "Aspects" type (except possibly as a representation of thematic structure), for it is no longer necessary to specify the internal syntactic structure of VP. The lexicon need only contain information about thematic structure (i.e. about the semantics of the verb), and provide some specification of the Case-assignment properties of a verb, Case-assignment properties being partially idiosyncratic: The verbs <u>besitzen</u> and <u>gehoeren</u>, for example, have identical thematic structures, yet the first assigns Accusative Case, the second Dative Case. "RAISING TO SUBJECT" is consequently a lexically induced phenomenon in ergative structures, and is to be distinguished from PASSIVE, which is a regular, morpho-syntactic process.[22]

If a one-to-one correspondence between underlying GF and thematic roles can be maintained, then the syntax supplies formal definitions of thematic roles, as underlying subject ([NP,S]), underlying direct object ([NP,VP]), etc.

Notes to Chapter One.

1. There are exceptions: The first clause-type is permitted as a complement to certain verbs, cf. (i); the second may appear as a direct question, cf. (ii).

(i) Ich glaube, [es hat der Mann das Buch gelesen].
I think the man has read the book.

(ii) Ob der Mann das Buch gelesen hat?
Has the man read the book?

2. That the position occupied by es is external to the basic sentence is similarly maintained by (among others) Griesbach:1978, Kirkwood:1968, Koster:1978a. The same generalization is not captured if it is assumed that the subject NP is generated in this position and subsequently inverted with the tensed verb, cf. Huber/Kummer:1974.

3. Cf. Bach:1962, Edmondson:1982, Esau:1973, Koster:1975, Manaster-Ramer:1978, Reis:1974, Streadbeck:1968, Thiersch:1978, Voyles:1978, Weber:1977. Argument iv) is due to Hoehle:1978.

4. Cf. Bierwisch:1966,51.

5. We shall see below that certain types of sentential complement may also be extracted to the right. However, these optionally leave a copy in the pre-verbal position.

6. There will be no discussion of Genitive Case, whose primary function in modern German is as a possessive marker.

7. Cf. also Bierwisch:1966,100.

8. It should be noted that primary sentence stress is to be clearly distinguished from contrastive stress. Where the latter is involved, two NP receive primary stress simultaneously and either order of these NP is then possible:

(i) , dass ich das 'Geld dem 'Kassierer gab, (und
die 'Quittung dem 'Chef).
I gave the money to the cashier (and the receipt
to the boss).

Cf. Lenerz:1977,44.

9. The term "ergative" is borrowed from Burzio:1981/1983. There is a trace of ergativity in the Case-system of German, i.e. Accusative Case may still be assigned to what would in English be the subject of an intransitive verb. Thus, the following alternate:

(i) , dass (es) mich friert.
it me freezes
ACC

(ii) , dass ich friere.
I freeze
NOM
I am freezing.

10. A possibility also entertained by Stowell:1981,92.

11. The inflectional element, INFL, follows the VP in German, as will have become apparent from the position of the auxiliary verbs in examples given above. At some point in the grammar, an AFFIX-HOPPING rule must apply to assign the correct morphology to the V-INFL string. The details of this do not concern us here.

12. The vertical represents the non-linear projection. S-structure is "two-dimensional" in the sense that syntactic structure is defined over two dimensions rather than one.

13. Nor is there any need for a linear Case-assignment mechanism of the sort proposed by Thiersch:1978. See also van Riemsdijk:1982 for discussion of non-configurational Case-assignment.

14. There would appear to be a parallel here between the strength of Case-markings in semi-configurational languages and the strength of verbal inflections in the pro-drop languages. Cf. the discussion in Chomsky:1982a/b.

15. Contrast the output of the rule responsible for marked word-order in German with that of the linear rule of NP-MOVEMENT in English. The latter retains all the characteristics of a configuration.

16. It is somewhat strange that such factors should condition the application of a syntactic rule. They are probably the reflection of some other principles of the LF component.

17. That both Case and prepositions function as mediators, i.e. encoders, of grammatical functions is recognized in traditional, "handbook" grammars. Cf., for instance, Helbig/Buscha:1974.

18. There appears to be some restriction on the co-occurrence of a prepositional object and an agentive von phrase.

19. The distinction between "inherent" and "structural" Case is also drawn by Chomsky (1980/1982a), though for different reasons.

20. Further evidence for the syntactic nature of the rule will be presented in Chapter Two.

21. Note that there is no sense in which a thematic role could be "inherited" from trace under RIGHTWARD-SHIFT, for this rule is not a "Raising" rule and does not serve to link two argument positions as NP-MOVEMENT does in English. The tail of the chain headed by a shifted NP is not realized by any trace, but is the derived linear position of the shifted NP with respect to the underlying configuration.

22. Note that for each verb which lacks an underlying subject, i.e. which requires no "agent", the number of Cases which it assigns is always one less than the number of underlying complements which it requires ("Burzio's (1981) Generalization"). The reason for this relationship between these distinct properties of verbs becomes apparent if it is held that Case defines GF at a derived level: Given that every tensed sentence requires a derived grammatical subject, Nominative Case must be assigned to an underlying object of any verb which has no underlying subject; thus, such a verb must withhold a GF which would otherwise be supplied by its assigning Accusative or Dative Case. Conversely, every tensed sentence has a derived grammatical subject, as defined by Nominative Case, by virtue of the fact that an object GF is missing in the Case-assignment structure in such cases. In contrast, the reason for the correlation between Case-absorption and thematic role-absorption, for example, in passives, is not apparent if Case is not held to define GF (as in the Government-Binding theory). Rather, the correlation remains an arbitrary theoretical construct, invoked to force "Raising".

CHAPTER TWO.

THE COMPLEX SENTENCE.

2.0. Introduction.

Our analysis of the nature of S-structure in German will now be extended to more complex constructions. Much of the initial discussion will be a review of standard arguments regarding the underlying bi-sentential nature of the complex sentence, distinguishing the traditional "control", "subject-to-subject raising" and "subject-to-object raising" types of construction. It has been felt necessary to repeat these arguments regarding constituent structure in view of the fact that derived structure has been determined to be partially "flat". The discussion will also provide a grounding for subsequent chapters.

We shall see that the two-dimensional analysis has explanatory force in a number of empirical domains, and that the re-interpretation of the Case-assignment rules argued for in the previous chapter has several desirable theoretical consequences. Only towards the end of this chapter will direct evidence for the "semi-configurational" nature of the complex sentence be presented, where we shall see that certain phenomena which have led others to postulate the existence of a "Restructuring" ("V-Raising" or "Clause-Integration") rule are accounted for automatically by the analysis adopted here.

Further evidence for the syntactic, as opposed to stylistic, nature of the RIGHTWARD-SHIFT rule is presented in section 2.5., while an extension of the "ergativity hypothesis" will be shown to provide for an account of apparent anomalies in the binding of overt anaphors in section 2.6..

2.1. Sentential Complementation.

The complex sentence is a result of the recursion which is introduced into the grammar by the lexical properties of certain heads which may permit or require a sentence to fulfil the function of one of their complements. We shall be concerned here solely with verbal heads, and the following four major types of sentential complement:[1]

i) The tensed subordinate clause.

ii) The marked infinitive clause (with controlled subject).

iii) The marked infinitive clause (with "raised" subject).

iv) The bare infinitive clause.

These are exemplified in (1-4) respectively. The last two types, in contrast to the first two, have a very restricted distribution and occur only as complements to the verbs of perception and the causative verb, lassen, in the case of the third type, and to verbs such as versprechen ("promise"), drohen ("threaten") and scheinen ("seem"), in the case of the fourth.[2]

(1) , dass Karl sagte, [dass er das Buch gelesen haette].

K. said that he the book read had

Karl said that he had read the book.

(2) , dass die Dame ihren Freund [das Bild zu malen] zwang.

the lady her friend the picture to paint forced

The lady forced her friend to paint the picture.

(3) , dass dem Jungen [der Mann gross zu sein] schien.

the boy the man tall to be seemed

The man seemed to the boy to be tall.

(4) , dass der Karl [den Mann das Auto fahren] sah

the K. the man the car drive saw

Karl saw the man driving the car.

Sentential complements interact with the rightward extraction rule (EXTRAPOSITION) in a way which slightly complicates their syntax. Thus, the first type of complement is obligatorily extraposed (cf. (1/5)), the second optionally (cf. (2/6)), whilst the third and fourth types may never undergo the rule (cf. (7/8)).

(5) *, dass Karl [dass er das Buch gelesen haette] sagte.

Karl said that he had read the book.

(6) , dass die Dame ihren Freund zwang, [das Bild zu malen].

The lady forced her friend to paint the picture.

(7) *, dass dem Jungen schien, [der Mann gross zu sein].

The man seemed to the boy to be tall.

(8) *, dass der Karl sah, [den Mann das Auto fahren].

Karl saw the man driving the car.

Assuming for the moment that all types are indeed of the same categorial status, this pattern would suggest that the pre-verbal position of these complements is basic, and the extraposed position derived. This correlates with conclusions drawn above (cf. section 1.1.), and also with the fact that a copy of the extraposed clause may appear in the pre-verbal position (cf. (9)), i.e. base-generation of a complement clause in the extraposed position would require either that the matrix verb govern both to its left and to its right, or that some mechanism be invoked to create a thematic link between the copy and the clause.

(9) , dass Karl es$_{i}$ sagte, [dass er das Buch gelesen haette]$_{i}$.

The details of EXTRAPOSITION, and evidence for its status as a movement rule, will be discussed below (see Chapter Three). Here, we deal with the justification of the proposed bisentential analysis of the complex sentence, and with specific properties of each of the above complement-types.

It must be shown first that the bracketed constituents in (1-4) are indeed complements, and not adjuncts, despite their susceptibility to EXTRAPOSITION. For all types except the third,

this is apparent from the paradigmatic relationships into which they, or their copies, enter -- they function thematically in the same way as NP and PP complements.

(10) a. , dass Karl es$_i$ sagte, [dass ...]$_i$.

Karl said that ...

b. , dass Karl [$_{NP}$ eine ganze Menge] sagte.

Karl said a great deal.

(11) a. , dass die Dame ihren Freund [das Bild zu malen] zwang.

The lady forced her friend to paint the picture.

b. , dass die Dame ihren Freund [$_{PP}$ zum Malen] zwang.

The lady forced her friend into painting.

(12) a. , dass der Karl [den Mann das Auto fahren] sah.

Karl saw the man driving the car.

b. , dass der Karl [$_{NP}$ den Mann] sah.

Karl saw the man.

Secondly, evidence must be provided for the assumed sentential status of each of the complement-types. Such evidence also constitutes a test for constituency in the cases of types iii) and iv), for which EXTRAPOSITION is not available. It takes several forms:

To begin with, the sentential status of the first type is apparent from the discussion of the simple sentence above, where it was demonstrated that this type of clause is to be considered as the basic sentence. It is often the case that a paradigmatic relationship holds between tensed and infinitival clauses, although this depends upon idiosyncratic lexical properties of the matrix verb (cf. (13-17)). Infinitival clauses, therefore, have the same distribution as tensed clauses syntactically; and it is simpler to view the two as alternative manifestations of one and the same complement categorially, differing solely with respect to the feature [+/-TENSE] in INFL, rather than to posit a categorial disjunction between them.

(13) a. , dass er mir versprach, [dass er gehen wuerde].

he me promised that he go would

He promised me that he would go.

b. , dass er mir versprach, [zu gehen].

He promised me to go.

(14) a. , dass er es erlaubt, [dass ich gehe] .
i i

he it allows that I go

He allows that I go.

b. , dass er es mir erlaubt, [zu gehen] .
i i

He allows me to go.

(15) a. , dass er es sah, [wie Ute hereinkam] .
i i

he it saw how U. came-in

He saw Ute come in.

b. , dass er [Ute hereinkommen] sah.

= a.

(16) a. , dass ich es fuehlte, [dass er neben mir stand] .
i i

I it felt that he next-to me stood

I felt him standing next to me.

b. , dass ich [ihn neben mir stehen] fuehlte.

= a.

(17) a. , dass es mir scheint, [dass das Buch neu ist] .
i i

it me seems that the book new is

It seems to me that the book is new.

b. , dass mir [das Buch neu zu sein] scheint.

The book seems to me to be new.

We note that EXTRAPOSITION prevents us from assigning VP status to marked infinitives on the basis of their surface forms -- VP can never be extracted to the right, as (18) shows, since extraction from the matrix VP violates the A-over-A Condition.

(18) a. , dass Paul [das Buch gelesen] hat.
VP

Paul has read the book.

b. *, dass Paul hat, [das Buch gelesen].
VP

Most importantly, however, the sentential status of infinitives permits us to capture the intuition that these have subjects in exactly the same way as their tensed counterparts do, given that every sentence has a subject. Thus, we know from the linear order of the nominal elements in the following tensed clauses that the respective verbs have an underlying (thematic) subject when the V-INFL complex has active morphology:

(19) , dass Karl der Frau den Mann vorstellte.
K. the woman the man introduced
Karl introduced the man to the woman.

(20) , dass die Leute ihr das Kind entnahmen.
the people her the child took-away
The people took the child away from her.

The null hypothesis is that this lexical property of these verbs remains constant even in non-tensed clauses, a hypothesis which finds support in the fact that the morphological distinction between active and passive occurs in marked infinitives (21/22), i.e. passive morphology is possible precisely because there is a subject thematic role to be absorbed.

(21) , dass er versuchte, [der Frau vorgestellt zu werden].
he tried the woman introduced to be
He tried to be introduced to the woman.

(22) , dass das Kind erwartete, [ihr entnommen zu werden].

the child expected her taken-away to be

The child expected to be taken away from her.

This brings us to specific properties of each of the infinitival clause-types.

2.2. Control Structures.

It has been claimed that the bracketed constituent in each of the following is sentential:

(1) , dass der Mann [das Buch zu lesen] versuchte.

NOM ACC

The man tried to read the book.

(2) , dass er den Mann [das Buch zu lesen] zwang.

ACC

He forced the man to read the book.

(3) , dass er dem Mann [das Buch zu lesen] erlaubt.

DAT

He allowed the man to read the book.

This implies that the Nominative NP in (1), and the NP glossed as Accusative and Dative in (2/3), are not constituents of the complement clause, although they may intuitively be equated with the

subject of the latter. Evidence for this is provided first and foremost by the fact that it is only the bracketed constituent which is paradigmatically related to tensed clauses, and which undergoes EXTRAPOSITION (see the previous section). It is also clear from the following simple sentences that the NP in question are thematic arguments of the matrix verb:

(4) , dass der Mann alles versuchte.
The man tried everything.

(5) , dass er den Mann zum Lesen zwang.
He forced the man into reading.

(6) , dass er dem Mann alles erlaubt.
He allows the man everything.

The syntactic process, PASSIVE, can be used to prove the same point: Active and passive forms of the simple sentence are synonymous in so far as the active object is thematic (logical) object in both cases (cf. (7)). We should expect the same to hold of the complement clauses in (1-3) if the matrix subject/object were indeed embedded subject. However, the passive transformation (GF-ASSUMPTION) then serves to completely reverse the thematic relationships between the verbs and the nominal arguments -- the thematic object of the embedded verb is effectively substituted for the thematic subject/object of the matrix verb (8-10).

(7) a. , dass der Mann das Buch liest.

The man reads the book.

b. , dass das Buch (von dem Mann) gelesen wird.

The book is read by the man.

(8) , dass das Buch gelesen zu werden versuchte.

The book tried to be read.

(9) , dass er das Buch gelesen zu werden zwang.

He forced the book to be read.

(10) , dass er dem Buch gelesen zu werden erlaubt.

He allows the book to be read.

Finally, that (8-10) are all semantically "odd" reveals that selectional restrictions hold between the NP in question and the matrix verb.

It follows from these and previous arguments that the complement clauses in these constructions have phonetically unrealized subjects. So as to generalize across tensed and non-tensed clauses, to maintain the S-expansion rule (11), and to ensure consistency in the lexical properties (thematic structure) of verbal heads, we posit the existence of an abstract, pronominal NP, PRO, in this position.[3]

(11) S -----> NP VP INFL

The presence of PRO has further ramifications: It permits a unified account of anaphoric dependencies. Thus, it is clear from (12-14) that the reciprocal anaphor einander requires a plural antecedent, that this antecedent must be in the same clause, and that it must be a subject.

(12) a. , dass die Leute miteinander reden.
i i

the people with-each-other speak

The people speak with each other.

b. *, dass der Junge miteinander redet.
i i

*The boy speaks with each other.

(13) *, dass sie sagten, dass Paul miteinander redet.
i i

*They said that Paul speaks with each other.

(14) *, dass Paul den Leuten einander zeigte.
i i

*Paul showed each other to the people.

That the indicated coreference in (15) and (16) appears to violate these rules can be explained in the same way if infinitives have subjects, i.e. we can in both cases say that the coreference is only indirect, that it arises through the anaphor's coreference with the subject of the embedded clause, as in (17/18).

(15) , dass er Leuten verbat, dass sie miteinander redeten.
i i

He forbade people to speak with each other.

(16) , dass er Leuten verbat, miteinander zu reden.
i i

= (15).

(17) , dass er Leuten verbat, dass sie miteinander redeten.
i i

(18) , dass er Leuten verbat, PRO miteinander zu reden.
i i

PRO has all the features (person, number and gender) common to pronouns. These are assigned under the theory of control which specifies an antecedent for PRO in the matrix clause, i.e. an NP in the matrix clause will be coreferential, and share its features, with PRO. This specification appears to be largely determined by properties of the matrix verb -- those verbs listed in (19), for example, typically trigger "subject-control" of PRO; those in (20), "direct-object-control"; those in (21), "indirect-object-control".

(19)

aufgeben	aufhoeren	beabsichtigen
give-up	stop	intend
drohen	erwarten	fortfahren
threaten	expect	continue
hoffen	suchen	vergessen
hope	seek	forget
vermoegen	versprechen	wuenschen
be-able	promise	wish

(20)

abhalten	beauftragen	bereden
prevent	appoint	persuade
bitten	ermutigen	hindern
ask	encourage	hinder
ueberreden	veranlassen	zwingen
persuade	make	force

(21)

anbieten	befehlen	empfehlen
offer	order	recommend
erlauben	ermoeglichen	raten
allow	make-possible	advise
verbieten	vorschlagen	vorwerfen
forbid	suggest	reproach
zumuten	zutrauen	
demand	believe-capable	

Let us now look at the formal nature of control structures. At D-structure, the infinitive clause has the following internal structure, differing minimally from that of tensed clauses:

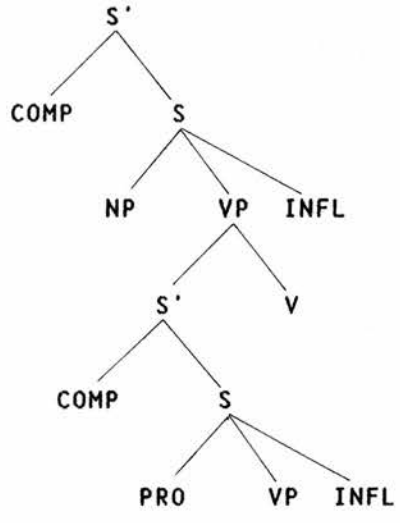
(22) [PRO [... V] [[-TENSE]]].
S VP INFL

To complete the generalization across the two clause-types, we also assume that both are introduced by a complementizer, and in accordance with standard practice, extend (22) to (23).[4] In the subordinate clause, COMP is optionally expanded as one of the subordinating conjunctions.

(23) [COMP [PRO [... V] INFL]].
S' S VP

This structure is embedded as the complement of a verbal head:

(24)



We have assumed the existence of the unrealized NP, PRO, which fulfils the subject theta-role in this structure. It is apparent that Nominative Case is only assigned in tensed clauses. Given, then, that INFL does not assign Nominative Case when it is specified negatively with respect to the feature [+/-TENSE], the existence of an unrealized subject is actually forced by the structure-assignment rules in (25).

(25) a. S -----> NP VP INFL

VP -----> ... V

b. A verb assigns Accusative and/or Dative Case, or neither, to NP, in accordance with its lexical properties.

In control structures, the Case-assignment rules fail to define a subject. In the Case-assignment structure, infinitive complements of this type are in fact assigned VP status, though the two-dimensional S-structure construct nevertheless has an underlying subject position. The element fulfilling the subject theta-role is assigned no GF by the Case-assignment rules, i.e. it is external to VP in the Case-assignment structure. This element is, therefore, the unrealized subject.

The element which has the GF, subject, in these structures can have no overt realization, for no overt GF is defined in the non-linear projection, i.e. there is no argument position defined in the Case-assignment structure whose occupation by an underlying, overt subject NP would not lead to a Theta-Criterion violation. Thus, the element which functions as subject of the embedded clause in a control structure must be the covert element which we call PRO. This means that we can now dispense fully with the Case-filter. We have already seen that the Case-filter is redundant in one area of its empirical coverage, once it is recognized that Case defines GF: This filter is no longer required to ensure that NP have Case (see section 1.5.). It is now also redundant in its primary function of ruling out the presence of phonetically realized NP in the subject

position of infinitives of the type being considered here. PRO is in fact the unrealized argument. By definition, it can never occupy an overtly defined argument position, it can never be Case-marked, and can never be governed at S-structure.

The intrinsic functional properties of PRO are such that it must have precisely these distributional properties, for, by the principles of the Binding theory, PRO cannot be governed. As we have seen, PRO has no independent reference -- the theory of control determines it be anaphoric. Yet its antecedent has an independent thematic role as an argument of the matrix clause, and in this respect, PRO is pronominal -- it distinguishes itself from anaphoric empty categories, whose antecedents have no independent thematic role. Consequently, PRO is subject to both of the Binding Conditions in (26), conflicting requirements which are met only if PRO in fact has no governing category, i.e. is ungoverned.[5]

(26) a. An anaphor is bound in its governing category.

b. A pronominal is free in its governing category.

In the exemplary S-structure (27), PRO has a GF only with respect to the underlying configuration. It heads a chain, since it is the unrealized subject, but the tail of this chain, like PRO itself, is at once pronominal and anaphoric: It is bound within S by an argument, the unrealized subject; and it is also free in S, since its antecedent, PRO, has no defined GF. The tail has an overt realization in the form of the empty category which is governed by the infinitive-marker, <u>zu</u> in INFL, in the underlying configurational

representation.[6]

(27) [[e] [[e] V] INFL]
S NP VP NP

PRO NP

ACC

A structure containing an underlying object PRO will only be well-formed if it is ergative. We have seen, for example, that PASSIVE (GF-ASSUMPTION) may apply in the embedded clause in a control structure (section 2.1.). In this case, the D-structure (28) is generated.

(28) [COMP [[e] [PRO V] INFL]].
S' S NP VP

PRO is governed by the verb in the configuration, but there is no object GF to be had in the Case-assignment structure, since V will not be a Case-assigner if INFL contains passive morphology. Nor does INFL assign Nominative Case if it is specified [-TENSE], though the configuration defines a subject position. At S-structure, then, the element fulfilling the object theta-role must be the unrealized subject, PRO, heading the chain defined in the non-linear projection:

(29) [[e] [[e] V] INFL]
S NP VP NP

PRO

However, it is impossible for an impersonal passive sentence to be embedded in a control structure, as (30) and (31) show (cf. Hawkins:1981,2).

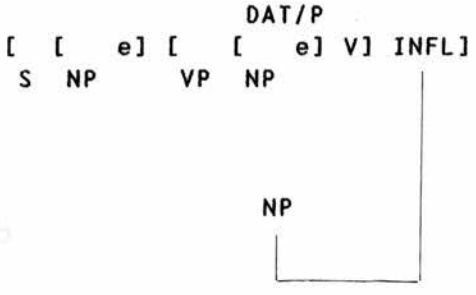
(30) *, dass Karl hoffte, [geholfen zu werden].
K. hoped helped to be
Karl hoped to be helped.

(31) *, dass Karl hoffte, [(auf) gewartet zu werden].
Karl hoped to be waited (for).

Recall that impersonal constructions of this sort are derived through the application of PASSIVE to a structure which contains an NP which is underlyingly Case-marked by virtue of the linear position it occupies (see section 1.7. above). The Case-assignment property of a verb is absorbed by passive morphology at the point at which the Case-assignment rules apply, so that the NP in question must undergo GF-ASSUMPTION, to be governed by INFL. Thus, the simple sentence (32) has the structure (33).

(32) , dass der Frau geholfen wurde.
The woman was helped.

(33)



Now, there are two possible derivations for the sentences (30) and (31): If PRO is inserted at D-structure as the object of the embedded verb, then it will be assigned Case at D-structure. But if it is assigned Case, it cannot remain covert -- by definition, the unrealized element cannot bear a Case-marking. If a lexical NP is inserted, it is assigned to no argument position in the Case-assignment structure, for neither the verb nor INFL are Case-assigners.

The lack of embedded impersonal passives in control structures thus finds a natural explanation in the two-dimensional analysis.

This completes our discussion of control structures. We turn now to examine in detail the third type of sentential complement.

2.3. Raising Structures.

A distinction has been maintained, so far without argument, between control structures and other marked infinitive clauses of the following sort:

(1) , dass [das Wetter schoen zu sein] verspricht.
the weather nice to be promises
The weather promises to be nice.

(2) , dass dem Lehrer [das Buch neu zu sein] scheint.

the teacher the book new to be seems

The book seems to the teacher to be new.

The distinction has a correlate in the fact that the latter type may never be extraposed (section 2.1.), but the basis for it lies with arguments that show that these complements have overt subjects.

The first such argument comes from the tensed:untensed alternation available in these complements:

(3) , dass es$_i$ dem Lehrer scheint, [dass das Buch neu ist]$_i$.

It seems to the teacher that the book is new.

We know from the tensed clause that the NP which are claiming to be the embedded subject (i.e. <u>das Buch</u>) fulfils a thematic role required by the embedded verb. The following reveal that the same NP does not additionally function as a thematic argument of the matrix verb, i.e. these are not control structures:

(4) *, dass das Buch scheint, [neu zu sein].

The book seems to be new.

(5) *, dass das Wetter verspricht, [schoen zu werden].

The weather promises to be nice.

(6) *, dass Karl pflegt, [zu rauchen].

K. is-in-the-habit-of to smoke

Karl is in the habit of smoking.

(7) *, dass das Haus droht, [einzustuerzen].

the house threatens to-fall-in

The threatens to collapse.

A second argument is provided by the application of PASSIVE (GF-ASSUMPTION) in the complement. In contrast to its application to overt elements in control structures, the thematic structure is preserved, and active and passive sentences are to this extent synonymous (cf. (8/9)). Thus, the Nominative NP must be the subject of the embedded clause.

(8) a. , dass Karl das Maedchen zu lieben scheint.

K. the girl to love seems

Karl seems to love the girl.

b. , dass das Maedchen geliebt zu werden scheint.

The girl seems to be loved.

(9) a. , dass Paul seine Frau zu schlagen droht.

P. his wife to beat threatens

Paul threatens to beat his wife.

b. , dass seine Frau geschlagen zu werden droht.

His wife threatens to be beaten.

Note also that there is no passive form of the matrix verb, as is to be expected, given that this verb has no underlying (thematic) subject (contrast (10) and (11)).

(10) a. , dass (es$_i$) gesagt wurde, [dass ...]$_i$.

It was said that ...

b. , dass Karl gezwungen wurde, [... zu ...].

Karl was forced to ...

(11) a. *, dass (es$_i$) geschienen wurde, [dass ...]$_i$.

*It was seemed that ...

b. *, dass Karl ... zu ... gepflegt wurde.

Karl was accustomed to ...

Thirdly, selectional restrictions hold between the Nominative NP and the embedded verb, not between it and the matrix verb:

(12) a. , dass Karl das Buch zu lesen scheint.

K. the book to read seems

Karl seems to be reading the book.

b. ?, dass die Waschmaschine das Buch zu lesen scheint.

the washing-machine the book to read seems

?The washing-machine seems to be reading the book.

c. , dass die Waschmaschine kaputt zu sein scheint.

the washing-machine broken to be seems

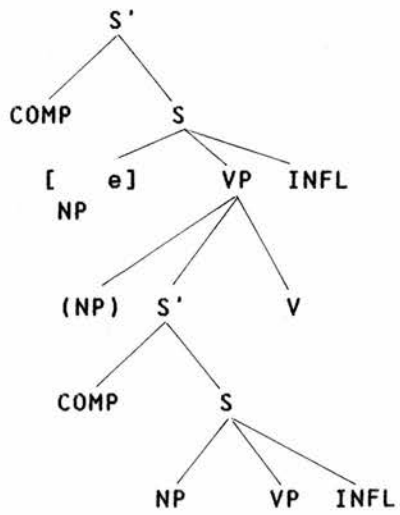
The washing-machine seems to be broken.

We conclude that the infinitive complements in these constructions have the following D-structure:

(13) [COMP [NP [... V] [[-TENSE]]]].
S' S VP INFL

We may also assume that they function as direct objects, for they occupy a linear position following a matrix indirect object (cf. (2)). Thus, they give rise to complex sentences of the form (14).

(14)



The matrix clause is, in fact, ergative, and the subject of the embedded clause must assume the matrix GF, subject, (it must be "raised") in the Case-assignment structure, the INFL in the complement not being a Case-assigner. However, as in other ergative structures that have been discussed, no NP-MOVEMENT of the English

sort (e.g. (15)) takes place. Thiersch (1978) demonstrates this with the word-order patterns (16/17), which reveal that the relative underlying positions of a matrix indirect object and the embedded subject must be preserved.

(15) John$_i$ seems [t$_i$ to like Mary].

(16) a. , dass dem 'Jungen [der Mann gross zu sein] scheint.
the boy the man tall to be seems
DAT NOM
The man seems to the boy to be tall.

b. *, dass der Mann dem 'Jungen gross zu sein scheint.

c. , dass dem Jungen der 'Mann gross zu sein scheint.

d. *, dass der 'Mann dem Jungen gross zu sein scheint.

(17) a. , dass einem Jungen der Mann gross zu sein scheint.
The man seems to a boy to be tall.

b. , dass dem Jungen ein Mann gross zu sein scheint.
A man seems to the boy to be tall.

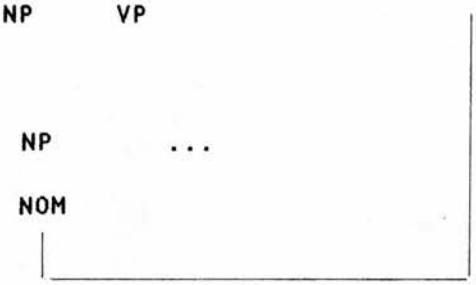
c. *, dass ein Mann dem Jungen gross zu sein scheint.

d. *, dass ein Mann einem Jungen gross zu sein scheint.

e. *, dass der Mann einem Jungen gross zu sein scheint.

We have here, then, a further instance of non-configurational Case-assignment, and another construction which at S-structure requires a two-dimensional analysis:

(18) [[e] [[[[e] [... V] INFL]] V] INFL]
S NP VP S' S NP VP

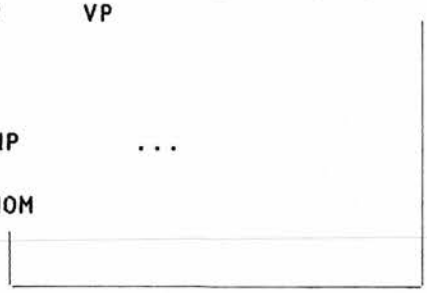


The matrix INFL, which is [+TENSE], assigns Nominative Case to the embedded subject and thus assigns this NP to the matrix subject position in the Case-assignment structure. The subject NP heads a chain whose tail has an overt realization in the form of the non-linear trace in the embedded subject position. This chain is not well-formed, since the tail is not bound in its governing category, the embedded S, as the Binding Conditions require. The subject NP at once occupies the embedded [NP,S] track and is defined to be matrix subject by its Nominative Case-marking.

To overcome this same problem in English (cf. (15)), Chomsky (1980) has suggested that an idiosyncratic property of "raising" verbs permits S'-DELETION to take place between D-structure and S-structure, so that the embedded subject is then governed by the matrix verb at S-structure. Adopting this solution, (18) becomes (19). The anaphor is now bound in its governing category, the matrix

S, by the derived matrix subject.[7]

(19) [[e] [[[e] [... V] INFL] V] INFL]
S NP VP S NP VP



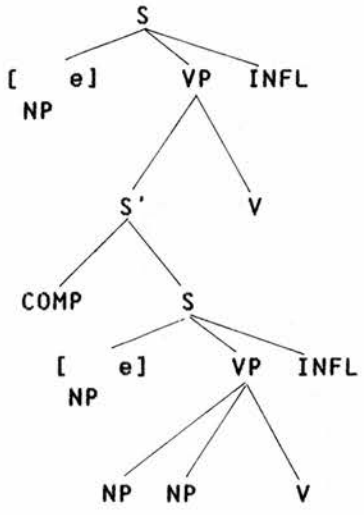
As in control structures, it is possible for the complement clause iself to be ergative. (20) and (21) exemplify such cases, where the word-order reveals that the derived subject is the underlying direct object of the embedded verb.

(20) , dass der Frau die Geschichte zu gefallen scheint.
the woman the story to please seems
DAT NOM
The story seems to please the woman.

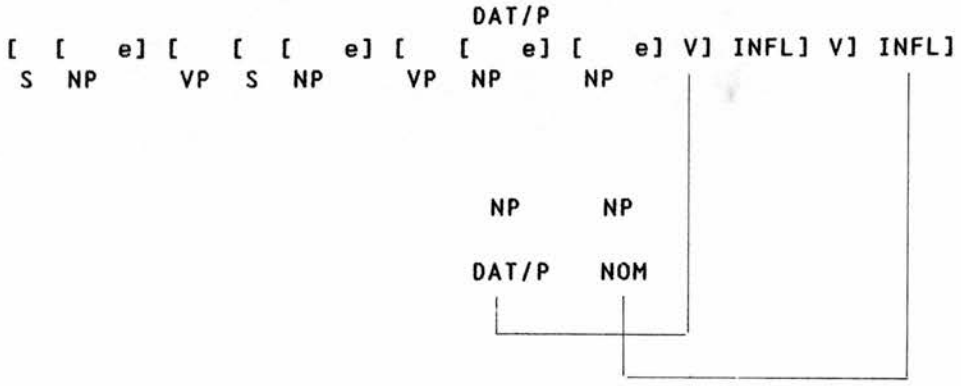
(21) , dass der Bank das Geld gestohlen zu werden scheint.
the bank the money stolen to be seems
DAT NOM
The money seems to be (being) stolen from the bank.

These have the D-structure (22) and the S-structure (23).

(22)



(23)



The embedded verb here is not a Case-assigner, so the underlying direct object receives Nominative Case from the matrix INFL and assumes the GF of matrix subject. At first sight, there appears to be a violation of the Binding Conditions: The derived subject NP is governed by the embedded verb with respect to the configuration, yet is defined to have a GF which lies outside the embedded S. However, upon closer consideration, we see that the definition of GF by Case in this structure is ambiguous. Neither the matrix subject, nor the embedded subject is thematically relevant (they are both empty in the D-structure representation), so that either could be defined by the Nominative Case-marking.

The simplest and most natural assumption, given the role which Case plays in German, is that Nominative Case in (23) in fact re-defines both of the underlying subject GF simultaneously. This would constitute the non-linear equivalent of successive linear NP-MOVEMENT: In a strictly configurational language, more than one GF can be assumed through the successive occupation of linear NP positions, as, for example, in (24); in a semi-configurational language such as German, the same is made available by virtue of the ambiguity of Case in the complex sentence. Thus, as the trace, t, in (24) is bound by both t' and the surface subject NP, so the non-linear trace in (23) is bound by both the embedded subject and the matrix subject, and there is consequently no violation of the Binding Conditions.

(24) John$_i$ is believed [t'$_i$ to be expected [t$_i$ to win]].

Ambiguity with respect to the definition of GF by Case at S-structure is similarly present in "raising" structures which contain an impersonal passive. It was noted in the previous section that impersonal passives cannot be embedded in control structures, since there is no argument position available in the Case-assignment structure for the underlyingly Case-marked NP. Such a position is, however, available in "raising" structures. Examples such as (25) and (26) have the S-structure (27).

(25) , dass dem Kind geholfen zu werden scheint.

the child helped to be seems

DAT

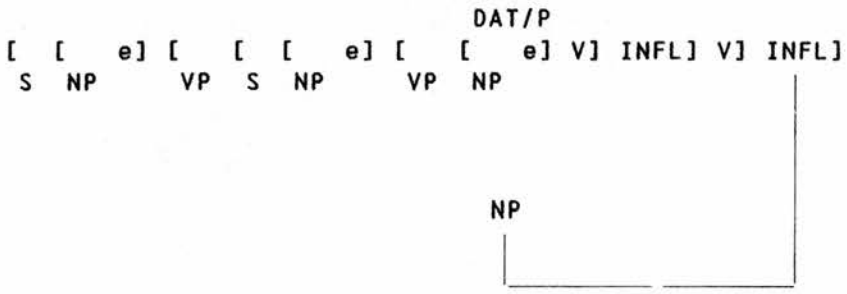
The child seems to be (being) helped.

(26) , dass auf die Frau gewartet zu werden scheint.

on the woman waited to be seems

The woman seems to be (being) waited for.

(27)



The NP which appears in the non-linear projection in (27) is underlyingly Case-marked (P-marked). But the embedded verb is not a Case-assigner at S-structure due to passive morphology, so the NP must be governed by the matrix INFL if it occupies an argument position at all in the Case-assignment structure. Here, we must assume that government by INFL is ambiguous between government by the matrix INFL and government by the embedded INFL, just as Nominative Case is assumed to be ambiguous in such constructions. Again, both embedded and matrix underlying subject positions are empty and therefore available for the GF-ASSUMPTION process. The chain headed by the NP will not violate the Binding Conditions if this ambiguity obtains.

These are the only instances in which such ambiguity arises. Whilst there is potential ambiguity in every complex sentence, the Theta-Criterion prevents it from being real in all cases except the ones just discussed.

The analysis of "raising" structures in terms of GF-ASSUMPTION provides explanations for further phenomena: Firstly, for the inability of an underlying embedded subject to be linearly displaced by the RIGHTWARD-SHIFT rule. This is exhibited in the sentences in (28) (see also section 1.4. above). The ungrammatical examples have the S-structure (29).

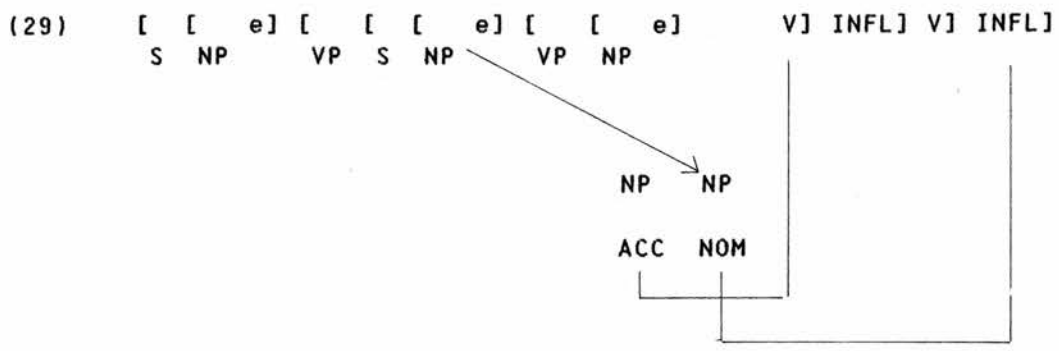
(28) a. , dass Karl das Maedchen zu lieben scheint.
K. the girl to love seems
NOM ACC
Karl seems to love the girl.

b. *, dass Karl das Maedchen zu lieben scheint.
ACC NOM
The girl seems to love Karl.

c. , dass das Maedchen Karl zu lieben scheint.
NOM ACC
= b.

d. *, dass das Maedchen Karl zu lieben scheint.
ACC NOM
= a.

(29)



With respect to the process of GF-ASSUMPTION, Nominative Case here is unambiguous, for the underlying embedded subject assumes the matrix subject GF. Nominative Case cannot assign the NP in question to the thematically relevant embedded subject position, since it is the matrix subject position which requires to be "filled" by the process of GF-ASSUMPTION. This latter GF is not thematically relevant, and neither is the track upon which the NP stands after the application of RIGHTWARD-SHIFT -- it is not linearly defined as such at D-structure. For the raised NP to be associated with a thematic role after RIGHTWARD-SHIFT, it must head a chain which assigns it to a thematically relevant GF. Here, the NP heads a chain which can only assign it to the embedded GF, [NP,VP]. Because [NP,S] is a linearly specified position, an NP raised from this position can never be shifted, or a Theta-Criterion violation ensues (see section 1.8. above). This contrasts, of course, with the simple sentence where no GF-ASSUMPTION is involved:

(30) , dass Karl das Maedchen liebt.

ACC NOM

The girl loves Karl.

Secondly, GF-ASSUMPTION explains why the embedded clause in a "Raising" structure cannot be extraposed (cf. Kohrt:1976/Koster:1984). Verbal heads govern and assign Case only to their left. Thus, if the complement is moved to the right across the matrix V-INFL complex, the embedded subject can never be governed by the matrix verb, nor be assigned Case by the matrix INFL.

2.4. Exceptional Case-marking Structures.

The fourth type of sentential complement that we have distinguished has two characteristics in common with the third type: a) It cannot be extraposed (section 2.1.); b) It has an overt subject. The differences between the two types, however, extend far beyond the simple presence versus absence of the infinitive marker, zu, as we shall see. b) awaits proof, and it is this to which we direct our attention first.

As has already been seen, these bare infinitive clauses enter into paradigmatic relationships with tensed clauses (section 2.1. (15/16)). It is apparent from the tensed clause in (1) that the NP which we are claiming to be the embedded subject in (2) (i.e. den Mann) functions as a thematic argument of the embedded verb. It is further apparent from (3) and (4) that this NP does not additionally function as a thematic argument of the matrix verb.

(1) , dass Ute sah, [wie der Mann das Buch las].

U. saw how the man the book read

Ute saw the man reading the book.

(2) , dass Ute [den Mann das Buch lesen] sah.

= (1).

(3) *, dass Ute den Mann sah, [wie er das Buch las].

U. the man saw how he the book read

(4) *, dass Ute den Mann sah, [das Buch lesen].

Application of PASSIVE (GF-ASSUMPTION) in the complement preserves the thematic structure of the complex sentence, so that the Accusative NP which we are calling the embedded subject cannot be an object of the matrix verb (contrast the discussion of the same in control structures (section 2.2.)).

(5) a. , dass Paul [den Arzt seine Frau untersuchen] laesst.

P. the doctor his wife examine makes

NOM ACC ACC

Paul has the doctor examine his wife.

b. , dass Paul [seine Frau vom Arzt untersuchen] laesst.

Paul has his wife examined by the doctor.

(6) a. , dass Ute [ihren Freund die Bamk ausrauben] laesst.

U. her friend the bank rob-out lets

Ute lets her friend rob the bank.

b. , dass Ute [die Bank ausrauben] laesst.

Ute lets the bank be robbed.

Again, selectional restrictions hold between the Accusative NP in question and the embedded verb, not the matrix verb:

(7) a. , dass Karl den Mann das Buch lesen laesst.

Karl has the man read the book.

b. ?, dass Karl die Waschmaschine das Buch lesen laesst.

?Karl has the washing-machine read the book.

c. , dass Karl die Waschmaschine reparieren laesst.

Karl has the washing-machine repaired.

Finally, certain adverbial clauses have a controlled subject (PRO) which can only have a subject as an antecedent (cf. section 1.3. above). This is revealed through the behaviour of reflexive anaphora, which, by the Binding Conditions, must be coreferent with PRO (Hoehle:1978,71):

(8) , dass ich die Katze fuetterte, ohne einen Laut
i

I the cat fed without a sound
von mir zu geben.
i

from me to give

I fed the cat without making a sound.

(9) *, dass ich die Katze fuetterte, ohne einen Laut
i
von sich zu geben.
i

I fed the cat without it making a sound.

(10) , dass die Katze von mir gefuettert wurde, ohne einen
i
Laut von sich zu geben.
i

The cat was fed by me without it making a sound.

(11) *, dass die Katze von mir gefuettert wurde, ohne einen
i
Laut von mir zu geben.
i

The cat was fed by me without me making a sound.

The examples (12/13) show that the co-indexed Accusative NP is indeed a subject.

(12) , dass ich Karl die Katze fuettern liess, ohne einen
i
Laut von sich zu geben.
i

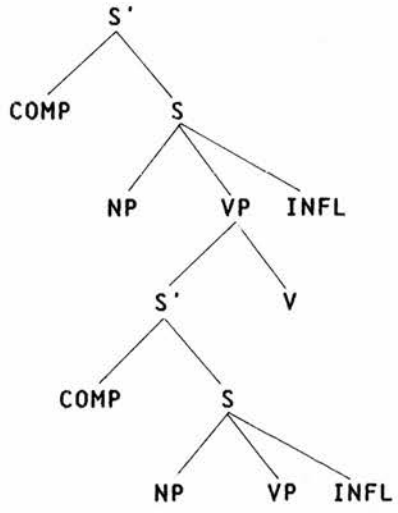
I had Karl feed the cat without making a sound.

(13) , dass Karl mich die Katze fuettern liess, ohne einen
i
Laut von mir zu geben.
i

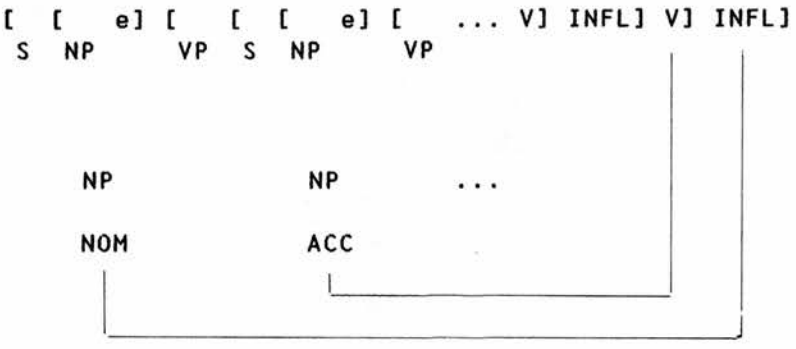
Karl had me feed the cat without me making a sound.

We conclude that these complex constructions have the D-structure (14) and the S-structure (15).

(14)



(15)



As the matrix verb assigns Accusative Case to an NP object in other constructions (see section 2.1.), so it assigns Case here across the clause-boundary to the embedded subject, a phenomenon which has come to be known as "Exceptional Case-marking" (Chomsky:1982a) and which is found in English in structures of the following sort:

(16) John believes [Mary to be rich].

As was the case in "Raising" structures, S'-DELETION must take place between the two derivational levels, so that the chain headed by the underlying embedded subject NP at S-structure does not violate the Binding Conditions -- the S' boundary prevents government of the embedded [NP,S] track by the matrix verb. In (15), the Accusative NP heads a double-link chain whose tail has an overt representation in the form of the non-linear trace. It at once occupies the embedded [NP,S] track (and is thereby defined as embedded subject) and is assigned Accusative Case by the matrix verb (and thereby defined as matrix object). Since the track is governed by the matrix verb, the chain's tail is correctly bound in its governing category, the matrix S.

"Exceptional Case-marking" falls effectively under the process of GF-ASSUMPTION -- the embedded subject is "raised" to matrix object. As in "raising" structures, this process provides immediate explanations for several other phenomena: Firstly, for the impossibility of extraposing the sentential complement (see section 2.1.). The embedded subject requires to be governed and Case-marked by the matrix verb, a requirement which can only be met if this NP lies to the left of the governor, German being a head-final language (cf. Koster:1984). Secondly, GF-ASSUMPTION explains the inability of the embedded subject to undergo RIGHTWARD-SHIFT. The following contrasts are observed between simple and complex sentences (Hoehle:1978,56/Thiersch:1978,168):

(17) a. , dass Karl ihr ein Bild gezeigt hat.

K. her a picture shown has

NOM DAT ACC

Karl has shown her a picture.

b. , dass ihr Karl ein Bild gezeigt hat.

DAT NOM ACC

= a.

(18) a. , dass der Mann die Katze gefuettert hat.

NOM ACC

The man has fed the cat.

b. , dass die Katze der Mann gefuettert hat.

ACC NOM

= a.

(19) a. , dass ich Karl ihr ein Bild zeigen liess.

NOM ACC DAT ACC

I had Karl show her a picture.

b. *, dass ich ihr Karl ein Bild zeigen liess.

NOM DAT ACC ACC

= a.

(20) a. , dass ich den Mann die Katze fuettern liess.

NOM ACC ACC

I had the man feed the cat.

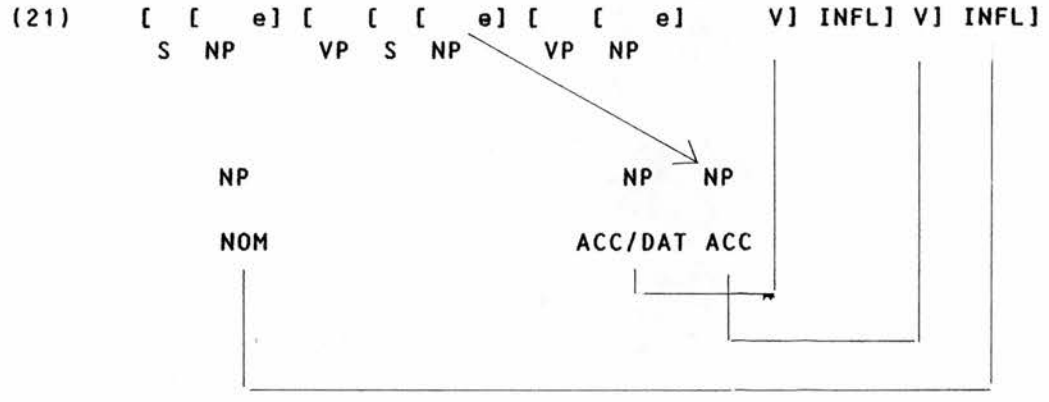
b. *, dass ich die Katze den Mann fuettern liess.

NOM ACC ACC

= a.

The ungrammatical instances have the derived structure (21).

(21)

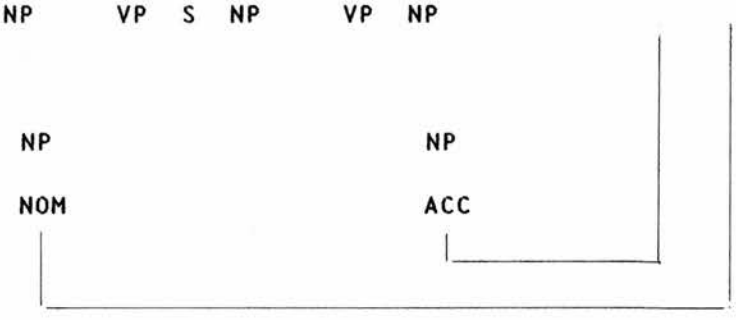


The shifted NP must assume the matrix object GF, and this GF is necessarily not thematically relevant. RIGHTWARD-SHIFT has, in addition, removed this NP from the thematically relevant [NP,S] track in the complement. For the shifted NP to be associated with the required thematic role, it must head a chain which assigns it to the appropriate underlying GF. Here, the NP heads a chain which can only assign it to the embedded GF, [NP,VP]. Because [NP,S] is a linearly specified position, an NP raised from this position can never be shifted, or a Theta-Criterion violation ensues (see sections 1.8./2.3. above).

The well-formedness of the output of RIGHTWARD-SHIFT in the corresponding simple sentences follows from the lack of GF-ASSUMPTION, and the contrasts are explained.

Thirdly, our analysis provides for an account of a wide range of phenomena peculiar to "Exceptional Case-marking" constructions which contain an embedded ergative clause. Given the process of GF-ASSUMPTION, the Binding Conditions force us to adopt a structural analysis of such constructions from which these phenomena, and attendant contrasts with non-ergative structures, follow automatically. Let us consider the hypothetical S-structure (22), an "Exceptional Case-marking" construction which contains an ergative complement clause.

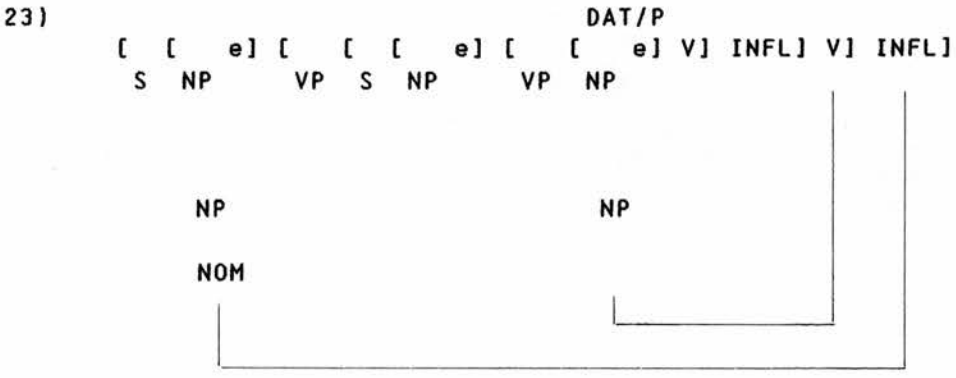
(22) [[e] [[[e] [[e] V] INFL] V] INFL]
S NP VP S NP VP NP



The embedded verb, being ergative, does not assign Accusative Case so that the embedded direct object has assumed the matrix direct object GF, as defined by the Accusative Case assigned by the matrix verb. However, this involves a violation of the Binding Conditions, for the non-linear trace governed by the embedded verb is not bound in its governing category, the embedded S. This case contrasts with the corresponding case found in Raising structures (discussed in the previous section). Here, the Case-marking of the embedded object NP does not re-define the embedded subject GF, and so cannot allocate the NP to this intermediate position to satisfy the Binding Condition on anaphors.

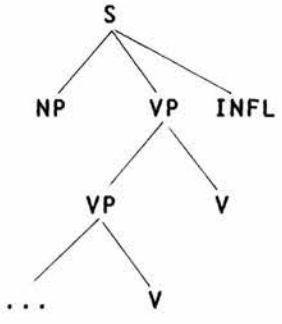
The same ill-formedness appears when the embedded clause is an impersonal passive. Thus, the underlyingly Case-marked (P-marked) embedded object in (23) must assume the GF of matrix object, if it is to occupy an argument position at all in the Case-assignment structure -- again, the embedded verb is not a Case-assigner. The chain thus created violates the Binding Conditions.

(23)

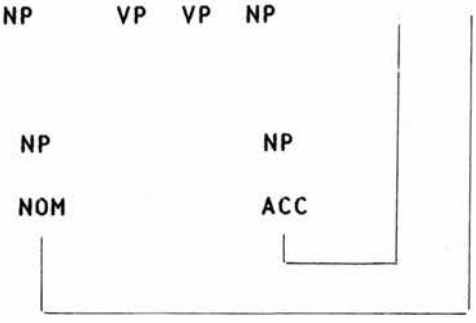


To escape this ill-formedness, ergative complements must have VP status at D-structure (cf. (24)), such that the S-structure (25) is derived.[8]

(24)



(25) [[e] [[[e] V] V] INFL]
S NP VP VP NP



The offending S-node has now been removed, and the chain headed by the "raised" NP is well-formed with respect to the Binding Conditions. Examples of these constructions are the following (see also (5/6) above):

(26) , dass ich der Frau (von ihm) ein Bild zeigen liess.
I the woman by him a picture show made
I had a picture shown to the woman by him.

(27) , dass Karl die Katze (von der Frau) fuettern liess.
Karl had the cat fed by the woman.

(28) , dass Paul mir den Stein auf die Fuesse fallen liess.
P. me the stone on the feet fall let
Paul let the stone fall on my feet.

(29) , dass Paul der Frau (von seinem Freund) helfen liess.
P. the woman by his friend help made
NOM DAT
Paul had the woman helped by his friend.

(30) , dass Karl auf sich warten laesst.

K. for himself wait makes

Karl takes his time.

(26) and (27) contain embedded passives, as is revealed by the optional presence of the agentive von-phrase; (28), an embedded intransitive; and (29) and (30), embedded impersonal passives.

That the complements here are indeed ergative can, in the case of (26-28), be tested with adverbial clauses, in the same way as the presence of an overt subject was tested in non-ergative complements above (12/13). These clauses, it will be recalled, require a subject controller for their PRO subjects, and the behaviour of the reflexive anaphora in the following shows that the matrix subject is the only such controller available in the constructions under consideration (cf. Hoehle:1978,71):

(31) *, dass ich der Frau die Katze$_{i}$ zeigen liess, ohne einen Laut von sich$_{i}$ zu geben.

I had the cat shown to the woman without it making a sound.

(32) , dass ich der Frau die Katze zeigen liess, ohne einen Laut von mir zu geben.

I had the cat shown to the woman without (me) making a sound.

(33) *, dass Karl mich fallen liess, ohne einen Laut
i
von mir zu geben.
i

Karl let me fall without (me) making a sound.

(34) , dass Karl mich fallen liess, ohne einen Laut
von sich zu geben.

Karl let me fall without making a sound.

Further evidence is provided by the word-order contrast between (26/28) and (19b) above, repeated here as (35).

(35) *, dass ich ihr Karl ein Bild zeigen liess.
NOM DAT ACC ACC

I had Karl show a picture to her.

In the non-ergative complement, the structural subject cannot be shifted to the right across the Dative NP. In the ergative complement, on the other hand, the unmarked order is that in which the embedded direct object, the derived matrix object, follows the Dative NP.

The explanatory force of the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions will become apparent in the course of what follows. Let us simply note here that it explains and is reflected by the lack of passive morphology in the embedded passives.

It will be apparent that the process of "Exceptional Case-marking" presents certain complications with respect to the Projection Pinciple, for there seems to be no D-structure source for the Accusative thus assigned: Recall that the generation of an empty subject position in simple ergative structures was deemed to be necessary to permit the assignment of Nominative Case, or, in English, to provide a landing-site for NP-MOVEMENT (see section 1.5.). The derivation would otherwise involve the creation of a GF. In "Exceptional Case-marking" constructions, precisely this illicit creation of structure seems to be in operation, there being no empty category corresponding to the GF defined by the "exceptional" Accusative.

This violation of the Projection Principle is, however, only apparent, as becomes obvious when we retrace our steps and re-examine the D-structure representation of the complex sentence. One of our first observations was that sentential complements must be complements because they enter into paradigmatic relationships with NP and PP complements (section 2.1.). Thus, at D-structure, they are defined as direct objects or prepositional objects of the matrix verb. Now, the application of the Case-assignment rules to constituents within the embedded and matrix clauses serves to destroy, in the non-linear projection, the configuration which defines the GF of the embedded clause (or VP, in the case of embedded ergatives). Effectively, the S', S or VP nodes are destroyed in the non-linear projection.

In "Exceptional Case-marking" constructions, the D-structure GF of the complement clause supplies the source for the "exceptionally" assigned Accusative Case: The sentential complement has the grammatical function of matrix direct object at D-structure, but this complement, as a constituent, is not preserved in the non-linear projection. Instead, the embedded subject (or, in ergatives, the embedded object) assumes this same GF.

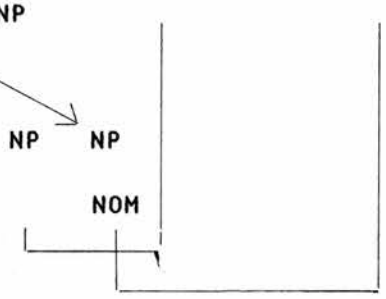
One final remark must be made with respect to the Theta-Criterion in these constructions. There is an apparent conflict between the fact that the sentential direct object fulfils a thematic role at D-structure and the requirement for the Accusative Case assigned by the same verb not to be thematically relevant -- the embedded subject or object already has a thematic role as an argument of the embedded clause or VP. It seems, however, that the Accusative Case assigned by the matrix verb is not associated with a thematic role by virtue of the fact that there is no matrix [NP,VP] track at S-structure. This track is destroyed with the destruction of the S or VP node of the complement clause. The association of the matrix direct object GF with a thematic role is, in other words, and in this case only, restricted to the level of D-structure, and there is no violation of the Theta-Criterion at S-structure.

2.5. The RIGHTWARD-SHIFT Rule.

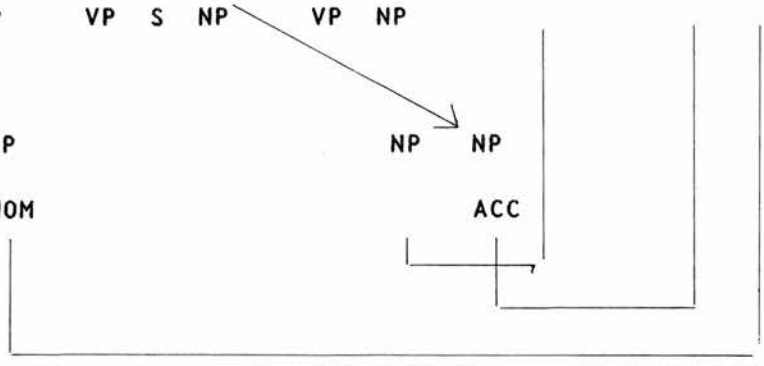
The question which concerns us here is how the RIGHTWARD-SHIFT rule operates in the complex sentence. In particular, we shall examine its application across a clause-boundary, and in so doing, unearth further evidence for the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions.

It has already been shown that the Theta-Criterion prevents RIGHTWARD-SHIFT from applying to underlying embedded subjects in "Raising" structures and in "Exceptional Case-marking" constructions. Thus, the following theoretical possibilities are ruled out:

(1) [[e] [[[e] [[e] V] INFL] V] INFL]
S NP VP S NP VP NP

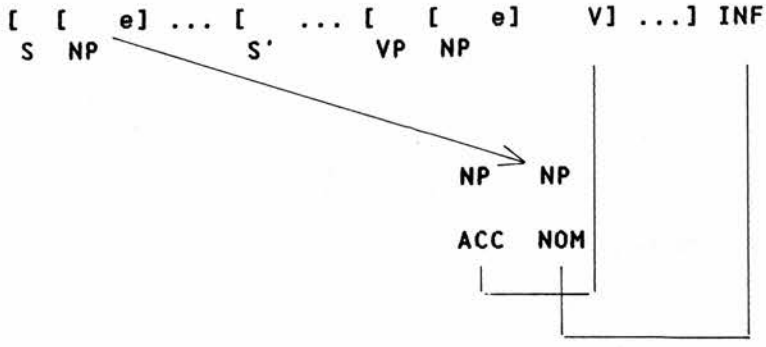


(2) [[e] [[[e] [[e] V] INFL] V] INFL]
S NP VP S NP VP NP

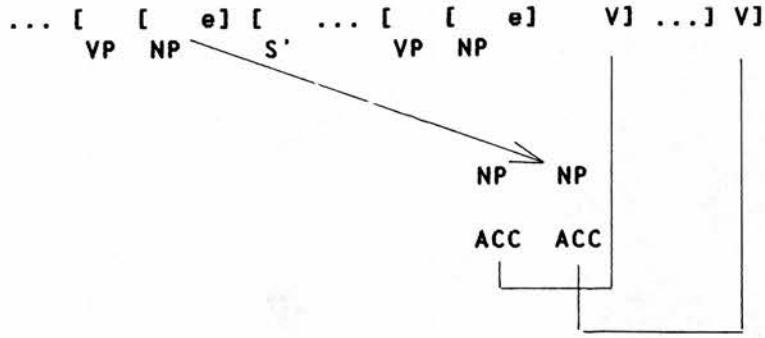


The following theoretical possibilities exist for cross-boundary applications of RIGHTWARD-SHIFT:

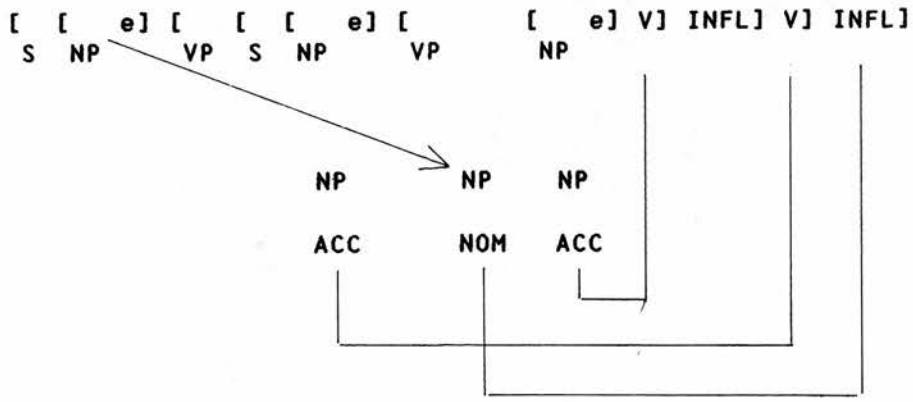
(3)



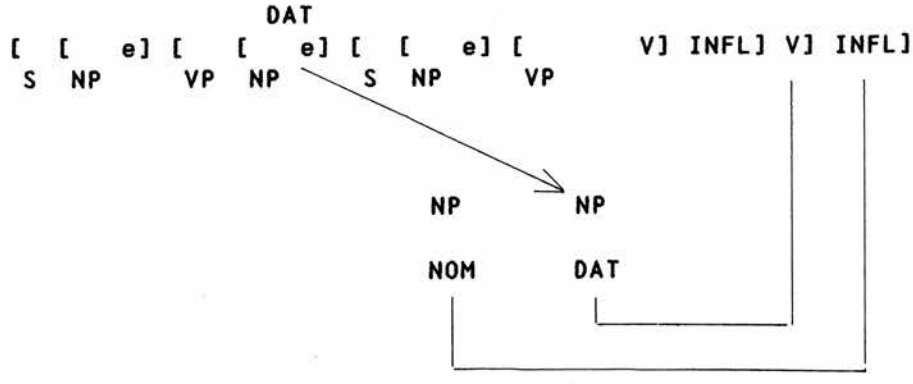
(4)



(5)



(6)



These possibilities are realized, respectively, by the second sentence in each of the following pairs. In each case, the first

b. *, dass der Junge dem Mann gross zu sein scheint.

It is apparent that applications of RIGHTWARD-SHIFT across a clause-boundary are not permitted, and that all of (3-6) are ill-formed S-structures.[9]

The factor which prevents an embedded subject from undergoing the rule, namely, the Theta-Criterion, cannot be appealed to here, for none of the shifted NP in (7-10) undergo GF-ASSUMPTION from a specified linear position. The rule is, therefore, subject to additional constraints in the complex sentence which do not hold in the simple sentence.

The relevant factor becomes apparent when the position of the shifted NP in the two-dimensional S-structure is examined more closely. The configurational D-structure representation is a factor of S-structure. The shifted NP occupy in each case a position to the right of the subject of the embedded clause in terms of the underlying configurational representation. In terms of the Case assigned in the non-linear projection, however, each NP is defined to be an argument of the matrix clause. A corresponding structure in a strictly configurational language such as English would be (11).

(11) *John seems [Mary to like t].
i S i

We see now that both structures are to be accounted for in the same way, namely, as involving violations of the Opacity Condition (Chomsky:1980):

sentence contains the corresponding underlying (unmarked) order.

(7) a. , dass Karl das Buch zu lesen versuchte.

K. the book to read tried

NOM ACC

Karl tried to read the book.

b. *, dass das Buch Karl zu lesen versuchte.

(8) a. , dass Karl den Mann das Buch zu lesen zwang.

K. the man the book to read forced

NOM ACC ACC

Karl forced the man to read the book.

b. *, dass Karl das Buch den Mann zu lesen zwang.

(9) a. , dass eine Frau den Kellner den Wein holen liess.

a woman the waiter the wine fetch made

NOM ACC ACC

A woman had the waiter fetch the wine.

b. *, dass den Kellner eine Frau den Wein holen liess.

(10) a. , dass dem Mann der Junge gross zu sein scheint.

the man the boy tall to be seems

DAT NOM

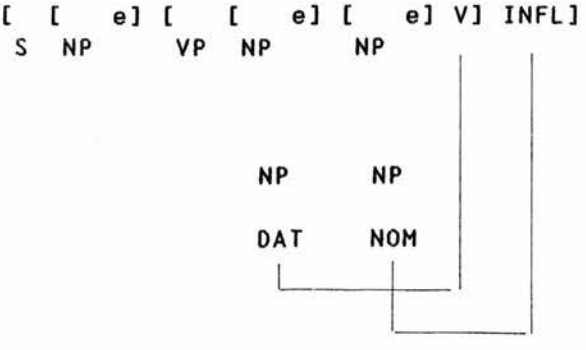
The boy seems to the man to be big.

"If A is in the domain of the subject of B, B minimal, then A cannot be free in B".

A is free if there is no c-commanding constituent with which it is co-indexed. The trace in (11) is in the domain of (is c-commanded by) the embedded subject, and is free in S. In (3-6), each NP heads a chain whose tail is linearly in the domain of the embedded subject relative to the D-structure representation, yet each NP is determined to have a position outside this domain by virtue of its Case-marking. Because German is two-dimensional, all applications of RIGHTWARD-SHIFT lead to the creation of a double-link chain comparable to that which obtains under the application of GF-ASSUMPTION (cf. (12) and its structure (13), where the Nominative NP similarly heads a double-link chain, though, in this case, the tail has an overt representation).

(12) , dass dem Kind das Buch gegeben wurde.
the child the book given was
The book was given to the child.

(13)



The Opacity Condition translates as the following Binding Condition:

An anaphor is bound in its governing category.

The linear position of the NP in (3-6) must be interpreted as defining a non-Case-marked empty category, an anaphor, in terms of D-structure. Since this position (track) is to the right of the embedded subject or object, we may assume the anaphor (the tail of the chain) to be contained in the embedded VP and, thus, governed by the embedded verb. Its governing category -- the minimal S containing its governor -- is the embedded S. In this light, it is clear that Case-assignment induces a transformational process which is constrained by principles which restrict transformational processes in general.

We see now that the domains of the Binding Condition on anaphors and the Theta-Criterion overlap with respect to the application of RIGHTWARD-SHIFT to embedded subjects, for the structures (1) and (2) pattern with (3-6): The shifted NP, defined by Case to be arguments of the matrix clause, occupy a track which is within the embedded VP, and therefore head chains whose tails are not bound in their governing categories. Neither the Binding Conditions nor the Theta-Criterion alone, however, are sufficient to account for all of the phenomena associated with RIGHTWARD-SHIFT. (3-6) are blocked solely by the Binding Conditions, while a simple sentence such as (14) involves a violation only of the Theta-Criterion, the Binding Conditions being, by their nature, inoperative in the simple

sentence.

(14) *, dass das Auto unser Chef besitzt.

the car our boss owns

ACC NOM

Our boss owns the car.

It is the Binding Conditions which are responsible for the contrasts in the distribution of NP between simple and complex sentences such as the following:

(15) a. , dass unser Chef das Auto faehrt.

NOM ACC

b. , dass das Auto unser Chef faehrt.

ACC NOM

Our boss drives the car.

(16) a. , dass Karl unseren Chef das Auto fahren laesst.

NOM ACC ACC

b. *, dass unseren Chef Karl das Auto fahren laesst.

ACC NOM ACC

Karl has our boss drive the car.

(17) a. , dass ein Foerster den Baum gefaellt hat.

NOM ACC

b. , dass den Baum ein Foerster gefaellt hat.

ACC NOM

A forester has felled the tree.

(18) a. , dass Paul einen Foerster den Baum faellen sah.

NOM ACC ACC

b. *, dass den Foerster Paul den Baum faellen sah.

ACC NOM ACC

Paul saw the forester fell the tree.

(19) a. , dass ein Mann das Buch las.

NOM ACC

b. , dass das Buch ein Mann las.

ACC NOM

A man read the book.

(20) a. , dass ein Mann das Buch zu lesen versuchte.

NOM ACC

b. *, dass das Buch ein Mann zu lesen versuchte.

ACC NOM

A man tried to read the book.

Consider now the following examples:

(21) a. , dass der Junge [den Wein holen] liess.

the boy the wine fetch made

NOM ACC

The boy had the wine fetched.

b. , dass den Wein der Junge holen liess.

ACC NOM

(22) a. , dass der Kerl [der Frau einen Stein auf die Fuesse

the bloke the woman a stone on the feet

NOM DAT ACC

fallen] liess.

fall let

The bloke let a stone fall on the woman's feet.

b. , dass der Frau der Kerl einen Stein auf die Fuesse

DAT NOM ACC

fallen liess.

(23) a. , dass die Frau [den Stein fallen] liess.

NOM ACC

The woman let the stone fall.

b. , dass den Stein die Frau fallen liess.

ACC NOM

Under a standard transformational analysis, the bracketed constituent in the first sentence of each pair would be assigned

sentential status, on the basis of the systematic relationship which holds between this constituent and the respective simple sentences (24-26).

(24) , dass der Wein geholt wurde.
The wine was fetched.

(25) , dass der Frau einen Stein auf die Fuesse gefallen ist.
A stone fell on the woman's feet.

(26) , dass der Stein gefallen ist.
The stone fell.

Such an analysis ignores the observations of Chapter One regarding word-order, etc.', and predicts that (21-23) should pattern with (9) and (10), i.e. the restriction preventing RIGHTWARD-SHIFT in the latter should prevent RIGHTWARD-SHIFT in the former.

We have argued above for a VP-complement analysis of "Exceptional Case-marking" constructions which contain embedded ergatives, and therefore predict that RIGHTWARD-SHIFT should be possible in (21-23): Given that the bracketed constituent has VP status, the governing category for all elements is the matrix S, such that the double-link chain headed by a shifted NP can never violate the Binding Conditions. Conversely, (21-23) constitute direct evidence for the VP-complement analysis of embedded ergatives, and, thus also, for the ergativity of passives and certain intransitives.

The fact that RIGHTWARD-SHIFT is subject to syntactic constraints at all reveals that the rule itself is syntactic, and not stylistic, as Thiersch (1978) claims. And from this it follows that our earlier suggestion that Case alone defines surface GF in simple sentences manifesting marked word-order is correct: If the rule is syntactic, then the patterning of anaphoric dependencies (in 1.4. (11/12/16/17)) cannot be explained in configurational terms by arguing that the Nominative NP are in S-initial (subject) position at S-structure.

Thiersch's claim that RIGHTWARD-SHIFT is stylistic is based upon complex constructions containing the matrix verbs <u>lehren</u> and <u>helfen</u>. In such constructions, cross-boundary applications of RIGHTWARD-SHIFT are, apparently, possible and therefore not subject to syntactic constraints (Thiersch:1978,111).

(27) a. , dass ich eine sehr beruehmte Sopranistin
I a very famous soprano
NOM ACC
[das Lied singen] lehrte.
the song sing taught
ACC
I taught a very famous soprano to sing the song.

b. , dass ich das Lied eine sehr beruehmte Sopranistin
NOM ACC ACC
singen lehrte.
= a.

However, these cases would appear to be exceptions (the only ones) to the general pattern which we have observed, and despite his claim that the rule is stylistic, Thiersch has to invoke an ad hoc restriction on permutations across a VP boundary in order to account for the regular cases (Thiersch gives the example (28) (Thiersch:1978,168)), a restriction which incorrectly serves to block simple sentences such as that in (29) and all applications of RIGHTWARD-SHIFT in embedded ergatives.

(28) *, dass Fritz ihr den Jungen ein Bild zeigen sah.
F. her the boy a picture show saw
NOM DAT ACC ACC
Fritz saw the boy show her a picture.

(29) , dass ihr der Junge ein Bild zeigte.
DAT NOM ACC
The boy showed her a picture.

The verbs lehren and helfen are exceptional in another respect: They belong to very small class of verbs which have both marked and bare infinitive complements.[10] Thus, alongside (27), there also exists the form (30) (the marked infinitive being obligatorily extraposed).

(30) , dass ich eine Sopranistin lehrte, [das Lied zu singen].
= (27).

We have no analysis to offer for these cases, and will simply set them aside as proven exceptions.

2.6. Reflexivization.

In this section, we turn to an apparent problem for the Binding theory, noted by Reis (1973/1976). Here too, ergativity and the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions provide an explanation for otherwise anomalous phenomena.

Reflexivization in German, as in English, is clause-bound. This is demonstrated by the following examples (taken from Ebert:1973):

(1) a. Nachdem dieser Hund mich$_i$ gebissen hat,

after this dog me bitten has

[vermeide ich ihn$_i$].

avoid I him

Since this dog bit me I have avoided him.

b. *Nachdem dieser Hund mich$_i$ gebissen hat,

[vermeide ich sich$_i$].

*Since this dog bit me I have avoided himself.

(2) a. Er hat mich gebeten, [dass ich ihn
i i

he has me asked that I him

zum Bahnhof fahre].

to-the station drive

He asked me to drive him to the station.

b. *Er hat mich gebeten, [dass ich sich
i i

zum Bahnhof fahre].

*He asked me to drive himself to the station.

(3) a. Als er die Maenner erblickte, [die auf ihn
i i

when he the men noticed who on him

zukamen], war es schon zu spaet.

towards-came was it already too late

When he noticed the men who were coming towards him,

it was already too late.

b. *Als er die Maenner erblickte, [die auf sich
i i

zukamen], war es schon zu spaet.

*When he noticed the men who were coming towards himself,

it was already too late.

(4) a. Er verabschiedete sich von der Insel,
i i

he took-leave himself from the island

[die ihm so lieb geworden war].
i

which him so dear become had

He took his leave of the island which had become

so dear to him.

b. *Er verabschiedete sich von der Insel,
i i
[die sich so lieb geworden war].
i

*He took his leave of the island which had become

so dear to him.

(5) a. Er spuerte deutlich den Zorn, [der in ihm aufstieg].
i i

he sensed clearly the anger which in him rose-up

He sensed clearly the anger which rose up in him.

b. *Er spuerte deutlich den Zorn, [der in sich aufstieg].
i i

*He sensed clearly the anger which rose upin himself.

Thus, in accordance with the Binding Conditions, a reflexive anaphor must be bound in its governing category, i.e. it must be co-indexed with a c-commanding argument which is contained in the minimal S which also contains its governor. In the above examples, the anaphor, sich, is never bound in its governing category, as it is in (6).

(6) , dass er sich im Spiegel sah.
i i

he himself in-the mirror saw

He saw himself in the mirror.

In "Exceptional Case-marking" constructions, we expect embedded subjects, but not embedded objects, to undergo REFLEXIVIZATION under coreference with the matrix subject, given that the complement is sentential.

(7) , dass Karl [sich das Maedchen kuessen] sah.
i i

K. himself the girl kiss saw

Karl saw himself kiss the girl.

(8) a. *, dass Karl [das Maedchen sich kuessen] sah.
i i

*Karl saw the girl kiss himself.

b. , dass Karl [das Maedchen ihn kuessen] sah.
i i

Karl saw the girl kiss him.

(9) a. *, dass Hans [Fritz sich toeten] liess.
i i

H. F. himself kill made

Hans had Fritz kill himself.

b. , dass Hans [Fritz ihn toeten] liess.
i i

Hans had Fritz kill him.

(10) a. *, dass Hans [Fritz sich helfen] liess.
i i

H. F. himself help made

Hans had Fritz help himself.

b. , dass Hans [Fritz ihm helfen] liess.
i i

Hans had Fritz help him.

(11) a. *, dass Hans [die Leute sich Schnaps besorgen]
i i

H. the people himself schnaps acquire

liess.

made

*Hans had the people acquire schnaps for himself.

b. , dass Hans [die Leute ihm Schnaps besorgen] liess.
i i

Hans had the people acquire schnaps for him.

(12) a. *, dass Paul [Ute sich einen Mantel schneidern] liess
i i

P. U. himself a coat tailor made

*Paul had Ute tailor a coat for himself.

b. , dass Paul [Ute ihm einen Mantel schneidern] liess.
i i

Paul had Ute tailor a coat for him.

In these sentences, the embedded subject is governed, and assigned Case, by the matrix verb such that the anaphor in (7) is correctly bound in its governing category, the matrix S. The anaphors in (8-12), on the other hand, are governed by the embedded verb and require an antecedent within the complement S.[11] But consider now the following examples (the majority of which are taken from Reis:1973/1976; see also Ebert:1973):

(13) a. , dass Hans [sich den Brief geben] laesst.
i i

H. himself the letter give makes

Hans has the letter given to him.

b. *, dass Hans [ihm den Brief geben] laesst.
i i

(14) a. , dass Hans [sich von Kunz die Frau rauben] laesst.
i i

H. himself by K. the wife rob makes

Hans has his wife robbed by Kunz.

b. *, dass Hans [ihm von Kunz die Frau rauben] laesst.
i i

(15) a. , dass Hans [sich Schnaps besorgen] laesst.
i i

H. himself schnaps acquire makes

Hans has schnaps acquired for him.

b. *, dass Hans [ihm Schnaps besorgen] laesst.
i i

(16) a. , dass Paul [sich einen Mantel schneidern] laesst.
i i

P. himself a coat tailor makes

Paul has a coat tailored for him.

b. *, dass Paul [ihm einen Mantel schneidern] laesst.
i i

(17) a. , dass die BRD [sich von der DDR den Haeftling
i i

the FRG itself by the GDR the prisoner

ausliefern] laesst.

extradite makes

The FRG has the prisoner extradited to it by the GDR.

b. *, dass die BRD [ihr von der DDR den Haeftling
i

ausliefern] laesst.

(18) a. , dass er [es sich schmecken] laesst.
i i

he it himself taste lets

He lets it taste good to himself.

i.e. He enjoys his food.

b. *, dass er [es ihm schmecken] laesst.
i i

(19) a. , dass er [sich so etwas nicht gefallen]
i i

he himself such something not please

laesst.

lets

He won't let such a thing please him.

i.e. He won't stand for such a thing.

b. *, dass er [ihm so etwas nicht gefallen] laesst.
i i

(20) a. , dass er [Zorn in sich aufsteigen] fuehlte.
i i

he anger in himself rise-up felt

He felt anger rising up in himself.

b. *, dass er [Zorn in ihm aufsteigen] fuehlte.
i i

(21) a. , dass der Herr [die Kleinen zu sich
i i

the master the little-ones to himself

kommen] liess.

come made

The master had the little ones come to him.

b. *, dass der Herr [die Kleinen zu ihm kommen] liess.
i i

(22) a. , dass Hans [sich mal was Neues
i i

H. himself for-once something new

einfallen] liess.

occur let

Hans thought of something new.

b. *, dass Hans [ihm mal was Neues einfallen] liess.
i i

Under a standard transformational analysis, which assigned sentential status to the bracketed phrase in (13-17), the Accusative NP, Brief, Frau, Schnaps, Mantel, Haeftling, would be derived subjects of the complement clauses, by analogy with the following simple sentences:

(23) , dass dem Hans der Brief gegeben wurde.

DAT NOM

The letter was given to Hans.

(24) , dass dem Hans die Frau vun Kunz geraubt wurde.

DAT NOM

Hans' wife was robbed by Kunz.

(25) , dass dem Hans Schnaps besorgt wurde.

DAT NOM

Schnaps was acquired for Hans.

(26) , dass dem Paul ein Mantel geschneidert wurde.

DAT NOM

A coat was tailored for Paul.

(27) , dass der BRD der Haeftling ausgeliefert wurde.

DAT NOM

The prisoner was extradited to the FRG.

That is, it would be assumed that PASSIVE had applied in the embedded clauses, an NP fulfilling the role of "agentive subject" being lacking (or being replaced by the agentive phrase, von NP). Similarly, a standard analysis would assume the NP, es, so etwas, Zorn, die Kleinen, was Neues, in (18-22), to be subjects of the intransitive verbs.

We see that these (derived) subjects do not prevent embedded Dative and prepositional objects from being coreferential with the matrix subject, though this constitutes a violation of the Binding Conditions. But the anomaly is explained if the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions is correct, for under this analysis, the governing category for any element internal to the VP-complement is the matrix S. And for the same reason, it is impossible for the pronominals in (13-22) to be coreferential with the matrix subject.[12]

The behaviour of reflexive anaphors in "Exceptional Case-marking" constructions constitutes further evidence for the VP-complement analysis of embedded ergatives.

2.7. Correlates of Semi-configurationality.

The two-dimensional analysis of the complex sentence has been motivated entirely on the basis of arguments relating to the semi-configurational nature of the simple sentence. As far as the complex sentence is concerned, no independent evidence for the adoption of the two-dimensional analysis has been presented, though it has already been shown that several phenomena find a natural explanation as a result. We shall discuss here certain correlates of semi-configurationality in the complex sentence so as to fill this gap in the argumentation.

Most of what has been said in this chapter has been concerned with the distribution of NP in complex constructions. Let us examine now the form of such constructions themselves. Evidence has been provided for an underlying bi-sentential analysis (embedded ergative structures in "Exceptional Case-marking" constructions excepted), i.e. for the configurational structure (1).

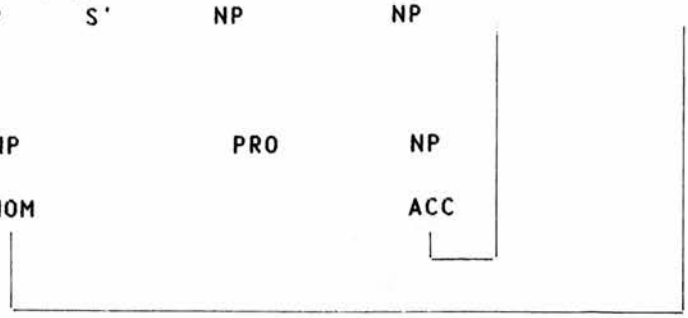
(1) $\underset{S'}{[} \ldots \underset{S'}{[} \ldots] \ldots]$

The effect of the application of the Case-assignment rules within each component sentence is, however, to destroy the bi-sentential configuration, to destroy the S'-nodes, in the non-linear projection. In this projection, there is a simple linear string of Case-marked NP, followed, if the rule of EXTRAPOSITION has not applied, by a cluster of verbs; and no trace of bi-sententiality (cf. (2)).

(2) [... [e] [... [e] ... [e] V INFL] V INFL]
S' NP S' NP NP

NP PRO NP

NOM ACC



If the complex sentence is indeed partially "flat", then we should expect to see this manifested in some way. Several phenomena have been observed in the literature which defy bi-sententiality in the complex sentence:

I. A left-branching complex sentence (i.e. one in which EXTRAPOSITION has not applied) manifests mono-sententiality insofar as it forms a rythmic or intonational unit (cf. Bech:1955). Simple and left-branching complex sentences are characterized by the fact that they contain no internal intonational pause and only a single placement of primary stress (under normal intonation). Cf. (3-5), where "'" indicates primary stress and "£" marks an intonational pause. In complex sentences in which EXTRAPOSITION has applied, on the other hand, distinct intonational units can be determined which correspond to underlying sentential constituents. Each such unit terminates with a pause and contains a placement of primary stress. Cf. (6/7).

(3) , dass der Mann das 'Buch las.£

the man the book read

The man read the book.

(4) , dass ich dem Mann zu 'helfen versuchte.£

I the man to help tried

I tried to help the man.

(5) , dass ich den Mann das 'Buch zu lesen zwang.£

I the man the book to read forced

I forced the man to read the book.

(6) , dass sie ver'sucht haben,£ ihn zu 'zwingen,£

they tried have him to force

das 'Buch zu lesen.£

the book to read

They tried to force him to read the book.

(7) , dass er den 'Vater bat,£ den 'Jungen laufen zu lassen.£

he the father asked the boy run to let

He asked the father to let the boy go.

An intonational unit (in Bech's terms, a "coherence-field") thus correponds to a unit defined in the non-linear projection by the process of Case-assignment, a unit whose rightward boundary is a head, or cluster of heads, which govern to the left:

(8) , dass ich den Mann das Buch zu lesen zwang.

(9) , dass sie versucht haben, ihn zu zwingen, das Buch zu lesen.

II. In simple and left-branching complex sentences, the negation element, nicht, and certain quantifier-like elements undergo contraction (cf. (10-13)), in accordance with the following rules (Bech:1955):

nicht + jemand -----> niemand
nicht + etwas -----> nichts
nicht + ein -----> kein
nicht + je -----> nie
nicht + irgendwo -----> nirgendwo

(10) a. *, dass er nicht etwas Besseres tat.
he not something better did

b. , dass er nichts Besseres tat.
He did not do something better.

(11) a. *, dass er nicht etwas Besseres zu tun vermag.

b. , dass er nichts Besseres zu tun vermag.
He does not have it in his power to do anything better.

(12) a. *, dass er nicht mit jemand darueber zu sprechen wagt.
he not with somebody about-it to speak dares

b. , dass er mit niemand darueber zu sprechen wagt.

He does not dare to speak to anybody about it.

In complex sentences in which EXTRAPOSITION has applied, contraction of this sort is never possible across the clusters of verbal elements which define the rightward boundaries of the units of government discernible in the non-linear projection:

(13) a. , dass er nicht vermag, etwas Besseres zu tun.

b. *, dass er nichts vermag, Besseres zu tun.

He does not have it in his power to do anything better.

III. Only one negation element is permitted per sentence, where contrastive stress is not involved (Evers:1975).

(14) a. , dass wir keine Kraniche sahen.

we not-any cranes saw

We did not see any cranes.

b. *, dass wir nicht keine Kraniche sahen.

?We did not see no cranes.

The following examples suggest, therefore, that left-branching complex sentences are mono-sentential at some level, in accordance with the two-dimensional analysis:

(15) a. , dass sie keine Kraniche zu fotografieren pflegten.

They were not wont to photograph cranes.

b. , dass sie Kraniche nicht zu fotografieren pflegten.

= a.

c. *, dass sie keine Kraniche nicht

zu fotografieren pflegten.

(16) a. , dass er ihn kein Buch lesen liess.

He did not let him read a book.

b. , dass er ihn das Buch nicht lesen liess.

He did not let him read the book.

c. *, dass er ihn kein Buch nicht lesen liess.

Where EXTRAPOSITION has applied, characteristics of bi-sententiality re-appear:

(17) , dass wir nicht versprochen haben,

keine Kraniche zu fotografieren.

We have not promised not to photograph cranes.

A single negation element is thus permitted in each unit of government (Case-assignment) discernible in the non-linear projection, but not in each underlying S' constituent, as would be expected if German were purely configurational.

IV. Because German is an SOV language, the following rule (from Evers:1975) assigns the negation element to a position which, in terms of the postulated underlying configuration, is within the embedded VP in a left-branching complex sentence.

If contrastive stress is not involved, and no major phrase is quantified, the negation element occurs in: _____ (PP) V.

In such sentences, however, the negation element can be interpreted only as having scope over the matrix clause. Thus, in (18), the a. sentence can only have the interpretation of the b. sentence, not of the c. sentence, where b. and c. are equivalent to a. except for the application of EXTRAPOSITION in their derivation; in (19) (taken from Bierwisch:1966,127), the a. sentence can only have the interpretation b.

(18) a. , dass sie die Kraniche nicht zu fotografieren versucht.
she the cranes not to photograph tries

b. , dass sie nicht versucht, die Kraniche zu fotografieren.
She is not trying to photograph the cranes.

c. , dass sie versucht, die Kraniche nicht zu fotografieren.
She is trying not to photograph the cranes.

(19) a. , dass wir ihn die Partie nicht singen hoeren.
we him the part not sing hear

b. neg (we hear (him singing the part))

c. (we hear (neg (him singing the piece)))

In a parallel fashion, the position of certain adverbials in left-branching complex sentences does not accord with their interpretation as matrix clause modifiers. (20a) and (21a) can only have the interpretations (20b) and (21b), respectively (Bierwisch:1966,127).

(20) a. , dass Klaus dich den Wagen bestimmt
K. you the car without-a-doubt
in die Garage fahren sah.
in the garage drive see

b. Without a doubt (Klaus saw you drive the car into the garage)

c. Karl saw (without a doubt (you drove the car into the garage))

(21) a. , dass er den Klienten den Antrag sicher
he the client the petition surely
nicht unterschreiben liess.
not sign made

b. Surely (he did not have the client sign the petition)

c. He had (surely (the client signed the petition))

The behaviour of the frames, _____ ebenso ("just as much") and _____ ebensowenig ("just as little"), which may be conjoined with positive and negative sentences respectively, also reflects mono-sententiality in left-branching complex sentences (noted by Evers:1975): It is clear from the sentences (22) and (23), whose derivations involve an application of EXTRAPOSITION, that the occurrence of either one of these frames is determined solely by the polarity of the matrix clause.

(22) a. , dass sie sich nicht freute, Kraniche zu sehen,
she herself not please cranes to see
und er ebensowenig.
and he just as little
She did not like seeing cranes and he (liked it) just as little.

b. *, dass sie sich nicht freute, Kraniche zu sehen,
und er ebenso.

(23) a. , dass sie sich freute, keine Kraniche zu sehen,
she herself pleased no cranes to see
und er ebenso.
and he just as much
She liked seeing no cranes and he (liked it) just as much.

b. *, dass sie sich freute, keine Kraniche zu sehen,
und er ebensowenig.

However, in left-branching complex sentences, a negation element positioned in the underlying embedded VP can impose negative polarity over the whole construction, as (24) and (25) serve to show.

(24) a. *, dass sie keine Kraniche zu fotografieren pflegten,
they no cranes to photograph were-wont
und er ebenso.
and he just as much
They were not wont to photograph cranes
and he equally so.

b. , dass sie keine Kraniche zu fotografieren pflegten,
und er ebensowenig.

(25) a. *, dass sie keine Kraniche fotografieren liessen,
they no cranes photograph made
und er ebenso.
and he just-as-much
They did not have any cranes photographed
and he did also.

b. , dass sie keine Kraniche fotografieren liessen,
und er ebensowenig.

The contrast between left-branching complex sentences and those in which EXTRAPOSITION applies with respect to the position and interpretation of negative and adverbial elements is incompatible with an analysis which assigns a bi-sentential configurational structure to both types of construction. The contrast is, however, reflected in the two-dimensional analysis.

V. In left-branching complex sentences, a certain amount of intermingling of NP constituents belonging to distinct underlying clauses is observed (Bech:1955/Evers:1975):

(26) , dass mich seine Ergebnisse nicht zu befriedigen vermoegen.
me his results not to satisfy be-capable
His results are not capable of satisfying me.

(27) , dass ich es meinen Freund machen liess.
I it my friend do made/let
I had/let my friend do it.

(28) , dass wir es Cecilia auf Arabisch erzaehlen hoerten.
we it C. in arabic tell heard
We heard Cecilia tell it in arabic.

In such cases, the embedded object pronoun appears in a position preceding the matrix or embedded overt subject, an order neither found underlyingly (see section 1.2.) nor derivable via RIGHTWARD-SHIFT across a clause-boundary (section 2.5.) (contrary to the claims of Thiersch:1978). The same kind of pronoun-preposing

phenomena are not found in complex sentences in which EXTRAPOSITION has applied:

(29) *, dass wir es$_i$ uns weigern, t$_i$ deinem Freund zu erzaehlen.

we it us refuse your friend to tell

We refuse to tell it to your friend.

(30) *, dass sie versuchen, es$_i$ ihn zu zwingen, t$_i$ zu lesen.

they try it him to force to read

They try to force him to read it.

Thus, again, centrally embedded constructions lack characteristics of bi-sententiality -- they permit apparent violations of the Opacity Condition.

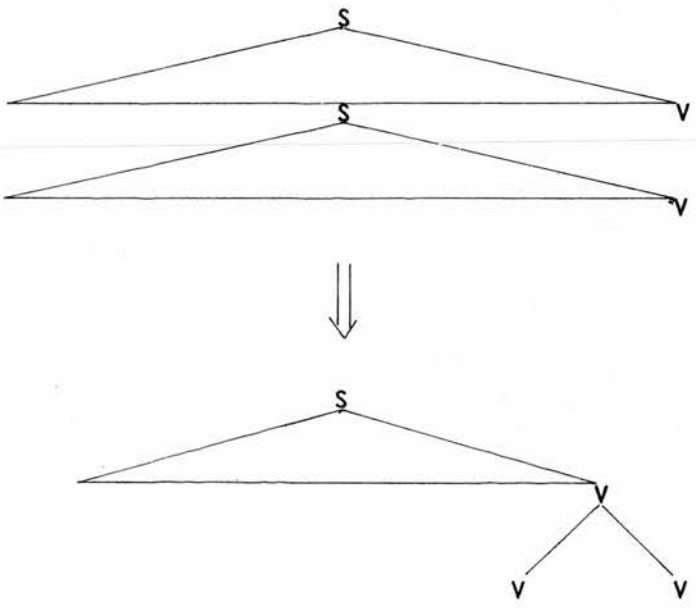
Pronoun-preposing of the sort exemplified here is, in fact, quite severely restricted. However, where it is possible, a pronoun's ability to escape the Opacity Condition is derivable directly from the two-dimensional analysis of S-structure, as will be seen in Chapter Four.[13]

2.8. V-Raising and EXTRAPOSITION.

Arguments for mono-sententiality in left-branching complex constructions of the sort presented in the preceding section have been used by Evers (1975) to motivate a V-Raising (restructuring) rule, for both German and Dutch, comparable to the restructuring rule

motivated by Rizzi (1978) for certain Italian constructions. The rule has the following effect:

(1)



The verb of the embedded sentential complement is raised and Chomsky-adjoined to the matrix verb, and the S-node of the complement is pruned in the process.

Such a rule in fact becomes unnecessary once an analysis is adopted which determines syntactic structure to be partially defined by the process of Case-assignment. The Case-assignment rules assign VP-complement status to embedded infinitive clauses so that the derived mono-sentential structure of left-branching complex sentences falls out without additional stipulation. There are, however, independent reasons for rejecting such an approach:

Firstly, the rule violates the Projection Principle, since it destroys underlying structure in the course of the derivation.

Secondly, the Restructuring (V-Raising) analysis predicts a degree of disorder with respect to the linear order of nominal elements belonging to different underlying clauses. As we have seen, however, this degree of disorder is very slight (cf. section 2.5.): Full NP can, in fact, never be shifted to the right across a clause-boundary, or from embedded subject position (ignoring the exceptional cases in which helfen or lehren are the matrix verbs). Thus, the complex sentence lacks characteristics of mono-sententiality insofar as restrictions hold over RIGHTWARD-SHIFT which do not hold in the simple sentence.

Thirdly, it can be demonstrated that "Exceptional Case-marking" constructions which have non-ergative complements are bi-sentential at S-structure. Since the Binding Conditions are operative at this level (or, perhaps, at LF), the ungrammaticality of (2) reveals the presence of an S-boundary in derived structure.[14]

(2) *, dass Karl$_i$ es das Maedchen sich$_i$ zeigen liess.

Karl let the girl show it to himself.

Fourthly, there is no direct evidence for the existence of a V-Raising process in German: There is no linear permutation of the verbs clustered to the right as there is in Dutch. Cf. (3/4).[15]

(3) , dat Jan Piet met Marie in de tuin laat spelen.

J. P. with M. in the garden lets play

Jan lets Piet play with Marie in the garden.

(4) , dat Jan de kinderen een verhaaltje trachtte te vertellen.

J. the children a story tried to tell

Jan tried to tell the children a story.

Finally, as Thiersch (1978) notes, the attempt to derive the impossibility of EXTRAPOSITION in Raising and "Exceptional Case-marking" structures from the obligatoriness of V-RAISING in just these cases is viciously circular. Furthermore, in those cases where EXTRAPOSITION is obligatory, the stipulation is required that, in just such cases, V-RAISING is blocked.

A quite natural explanation is provided in the analysis adopted here for the impossiblity of EXTRAPOSITION in Raising and "Exceptional Case-marking" constructions in terms of general principles of the Government-Binding theory. Why EXTRAPOSITION should, in some cases, be obligatory remains, for the most part, unclear, although a certain pattern does emerge: The rule is obligatory:

a) If the governing verb is inherently reflexive.

(5) a. *, dass er sich, den Regen zu sehen, freute.

he himself the rain to see pleased

He was glad to see the rain.

b. , dass er sich freute, den Regen zu sehen.

b) If the embedded sentence is a sentential subject.

(6) a. *, dass mich den Regen zu sehen erschuettert.
me the rain to see shocks
It shocks me to see the rain.

b. , dass es mich erschuettert, den Regen zu sehen.

c) If the governing verb is a lexicalized noun-verb complex ("Funktionsverbgefuege").

(7) a. *, dass wir den Film zu gucken in Erwaegung ziehen.
we the film to watch in consideration draw
We are considering watching the film.

b. , dass wir es in Erwaegung ziehen, den Film zu gucken.

d) If the embedded sentence is contained within a prepositional complement of the governing verb.

(8) a. *, dass wir dazu Filme zu gucken neigen.
we to-it films to watch tend
We tend to watch films.

b. , dass wir dazu neigen, Filme zu gucken.

e) If the governing verb is morphologically composed of a stem and a separable prefix.

(9) a. *, dass wir Filme zu gucken aufgehoert haben.
we films to watch stopped have
We have stopped watching films.

b. , dass wir aufgehoert haben, Filme zu gucken.

f) If the sentential complement is tensed (see section 2.1. above).

As Evers notes, the obligatory applications of EXTRAPOSITION seem to be related in some way to the presence of a constituent which intervenes underlyingly between the S' complement and the governing verb, this constituent being the reflexive pronoun in a), the noun of the noun-verb complex in c), the preposition in d), the separable prefix (particle) in e) and the tense auxiliary in f). It is suggested that these constituents serve to prevent the structural description of the V-RAISING rule from being met.[16]

No alternative explanation for the phenomenon will be offered here although we note that it is likely that case b) reduces to the fact that only NP constituents can be generated in subject position. If Koster's (1978b) arguments are valid, then sentential subjects are base-generated in S-external positions and associated with the subject position via an interpretive rule.

Notes to Chapter Two.

1. The modal verbs (e.g. duerfen, koennen, muessen, wollen) are ignored here. It has, however, been claimed that these too are main verbs which have sentential complements (cf. Evers:1975).

2. The verbs of perception include : sehen ("see"), hoeren ("hear"), spueren ("sense"), fuehlen ("feel"). Versprechen and drohen also exist as control verbs (see section 2.2.).

3. See Chomsky:1982a,95-7 for arguments against possible alternative analyses.

4. Tappe:1984 argues that there is no direct evidence for the presence of COMP in infinitival structures in German: It is never overtly present as it is in English, cf. (i) and (ii). However, there is also no direct evidence to suggest that the assumption being made here is false.

(i) I don't know [what] PRO to do.
COMP

(ii) *, dass ich nicht weiss, was zu machen.

5. See Chomsky:1982a/b for a full discussion of these properties of PRO and other empty categories.

6. The idea that the infinitive marker, zu, is a preposition and a governor is somewhat unorthodox. However, the same claim is made by Reuland:1982a about the Dutch equivalent, te, but under different assumptions.

7. It is assumed that S'-DELETION entails the deletion of the COMP node.

8. The VP status of ergative complements is also maintained by Thiersch:1978 and, for Italian, by Burzio:1981/83. There appear to be certain differences between constructions with lassen and constructions with the verbs of perception here. In particular, it does not seem to be possible for passives to be embedded under the verbs of perception. Cf. Harbert:1977.

9. Since the embedded PRO subject in control structures is the unrealized argument (see section 2.2.), we take it that this element does not figure as a term in the Structural Description of the RIGHTWARD-SHIFT rule. The application of the rule across PRO would be vacuous insofar as the output would be undetectable in the surface string.

10. The other verbs in this class are: heissen ("bid") and lernen ("learn").

11. Despite being governed by the matrix verb in the Case-assignment structure, the embedded subject in an "Exceptional Case-marking" construction can function as an antecedent for a reflexive pronoun within the sentential complement because it occupies the embedded subject position with respect to the underlying configuration which

is a factor of S-structure. Thus, the ungrammatical sentences in (8-12) are grammatical if the pronoun is interpreted as being coreferential with the NP which is assigned Accusative Case by the matrix verb.

12. Reis:1976,51 makes reference to a possible solution in terms of ergativity. See also McKay:1983 for discussion of this and possible alternative approaches which it has been impossible to consider here.

13. The evidence for mono-sententiality in left-branching complex sentences in German would appear to accord with a general, cross-linguistic tendency to effect, what Reis (1973) has called, "clause-integration" (see also Ebert:1975). In English (as in German), this tendency is evident in Raising and "Exceptional Case-marking" constructions, where anaphoric dependencies created across the underlying clause-boundary by the processes of REFLEXIVIZATION and NP-MOVEMENT (Raising) appear to violate the Binding Condition on anaphors (cf. (i)). It is therefore necessary to postulate that the clausal boundary is reduced in status from S' to S under a process of S'-DELETION (cf. Chomsky:1980).

(i) a. John believes [himself to be rich].
i S i

b. John seems [t to be rich].
i S i

In French, causative constructions seem to involve some form of "predicate-raising" (cf. Kayne:1975; Rouveret/Vergnaud:1980) or, alternatively, VP-complements (Burzio:1981/1983), the surface form containing, what appears to be, a complex verb.

(ii) *Paul fait [Jean lire le livre] ----->
Paul fait lire le livre a Jean.
Paul has Jean read the book.

Similarly, in Italian, there is evidence that certain types of complex construction involve a process of "restructuring" (cf. Rizzi:1978, Burzio:1981, Rouveret/Vergnaud:1980).

14. Cf. Reuland:1980.

15. From Zaenen:1979. For discussion of the Dutch V-Raising phenomena, see also Bresnan et al.:1982, Huybregts:1976, Koster:1984, Reuland:1980/1982a/b, and Steedman:1984.

16. It may not be out of place here to mention that the phenomenon of an "intervening constituent" is not specific to German. For example, a preposition may never govern an infinitive or tensed clause in English, as the sentences in (i) reveal. Here, the gerund must be used to replace the embedded clauses.

(i) a. *I thought about to go to the pictures.

b. *I told him about to go to the pictures.

c. *I told him about that I went to town.

In certain cases, a verb-particle construction cannot govern an infinitive clause, and, again, the gerund must be used as a replacement:

(ii) a. *He gave up to read.

b. *He kept on to go.

Similarly, in French, a preposition cannot directly govern an embedded clause: As in German, a pronominal copy of the clause must be inserted as object of the preposition.

(iii) a. *Il s'attend à qu'elle fasse la vaisselle.

b. Il s'attend à ce qu'elle fasse la vaisselle.

CHAPTER THREE.

EXTRAPOSITION AND THE TRANSFORMATIONAL CYCLE.

3.0. Introduction.

In this chapter, rightward extractions and the linear rule of EXTRAPOSITION are dealt with. It is here that we shall encounter direct evidence for the existence of the non-linear transformational derivation induced by the Case-assignment rules in the mapping from D-structure to S-structure. A cyclic process of this sort will be shown to be necessary in order to explain the behaviour of the rule. As has already been seen, only adverbial adjuncts and certain types of sentential complement undergo EXTRAPOSITION. NP and PP complements cannot be extraposed since a verbal head can govern and assign Case only to its left in German. Of primary interest are the sentential complements.

We begin by examining in detail the complex behaviour of EXTRAPOSITION as it applies to infinitival complements and show how this behaviour is accounted for directly under the analysis of German sentence structure established in the two preceding chapters. Evidence to the effect that S', rather than S, constitutes the bounding and cyclic node in German is then presented in section 3.2. before contrasts in the behaviour of infinitive and tensed clauses under EXTRAPOSITION are considered in section 3.3. The concluding section looks at the possibility of accounting for the EXTRAPOSITION phenomena under an alternative base-generative approach and presents

a further argument against Ever's (1975) V-Raising analysis of the complex sentence.

3.1. The Mechanics of EXTRAPOSITION.

EXTRAPOSITION applies to derive a form such as (2) from the structure underlying (1).

(1) *, dass ich [das Buch zu lesen] versucht habe.
I the book to read tried have
I have tried to read the book.

(2) , dass ich versucht habe, [das Buch zu lesen].

The tense auxiliary in the matrix clause comes to precede the extraposed element. We therefore assume that the rule of EXTRAPOSITION attaches a sentential complement as a right-hand sister to its containing S, as follows:

(3) [COMP [NP [... X ... V] INFL]] ------>
S' S VP
[COMP [NP [... t ... V] INFL] X]
S' S VP i i

Note that we do not need to specify the categorial status of X in (1), for other principles determine which elements are subject to the rule, essentially, the principle that a head only governs and assigns Case to its left. We need simply specify the landing-site for this form of MOVE ALPHA. Discussion of the status of the linear trace

left by the rule, and of its optional realization as a copy, is postponed until the next chapter.

Crucial to our account of the mechanics of EXTRAPOSITION are the principle of the transformational cycle and the process of non-configurational Case-assignment. EXTRAPOSITION will, in fact, provide us with evidence for the two-dimensional nature of S-structure.

Let us take the underlying structure associated with (4). The application of EXTRAPOSITION produces (5) as one of only two grammatical outputs.

(4) , dass der Lehrer [den Mann [das Buch zu lesen]
S' S'

the teacher the man the book to read

zu zwingen] versucht.

to force tries

The teacher tries to force the man to read the book.

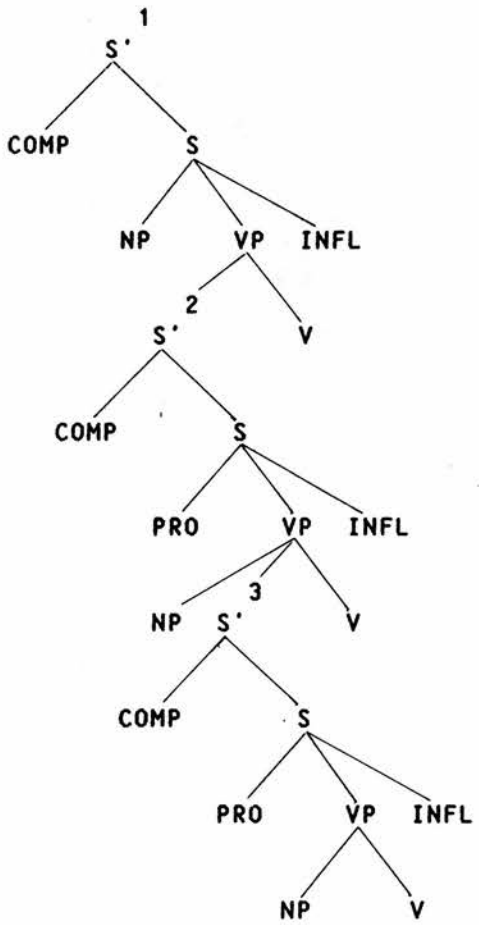
(5) , dass der Lehrer versucht, [den Mann zu zwingen,
S'

[das Buch zu lesen]].
S'

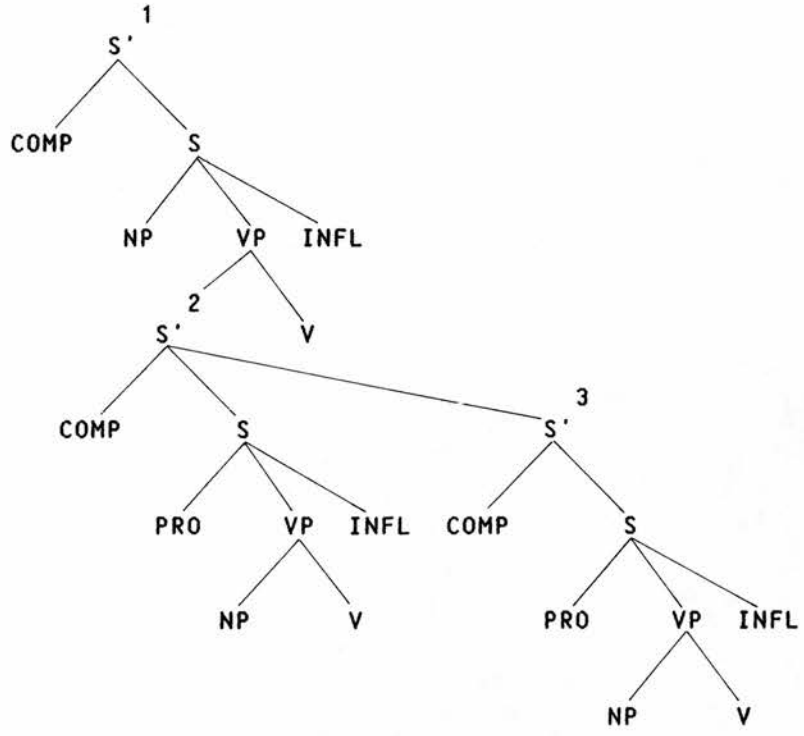
The extraposed sentential complements appear in exactly the reverse order of their centrally embedded counterparts, i.e. in their underlying positions, these complements have the order: ..., 3, 2, 1., where the increasing integers indicate the increasing depth of embedding; when extraposed, they have the order: 1, 2, 3, ... This fact can, in part, be captured in terms of the transformational cycle

-- the rule of EXTRAPOSITION, like all transformational rules, applies from the bottom upwards. It applies to the most deeply embedded complement, S'_3, in (6) (= (4)) to produce the structure (7), then to S'_2, to produce the structure (8) (= (5)).

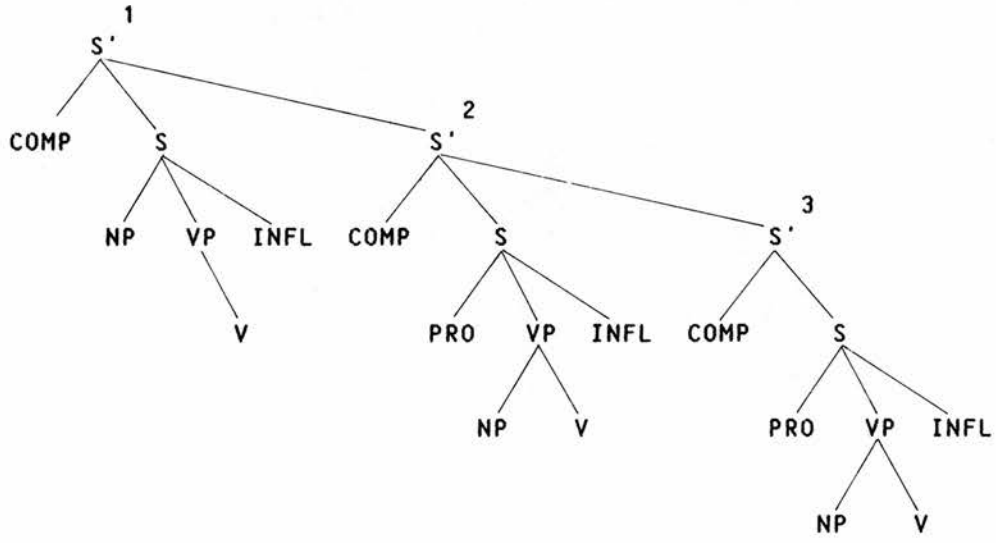
(6)



(7)

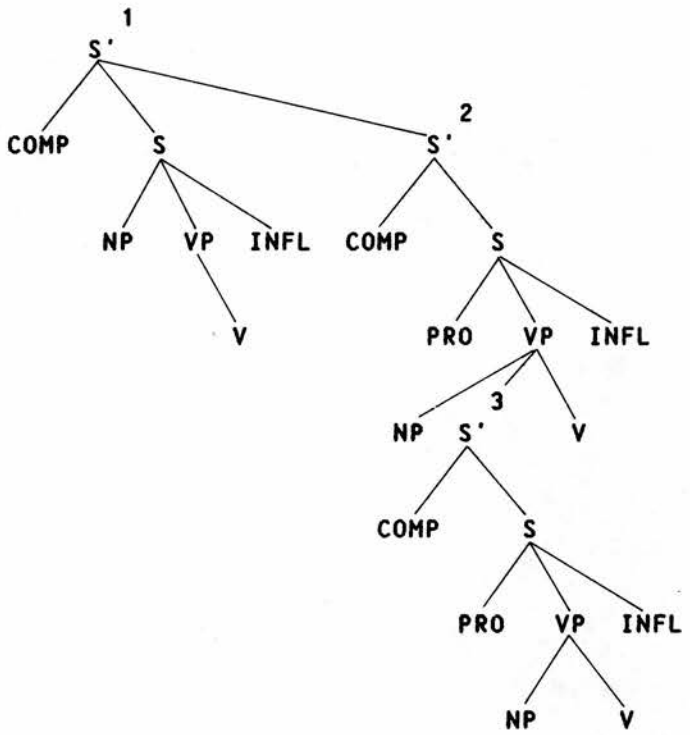


(8)



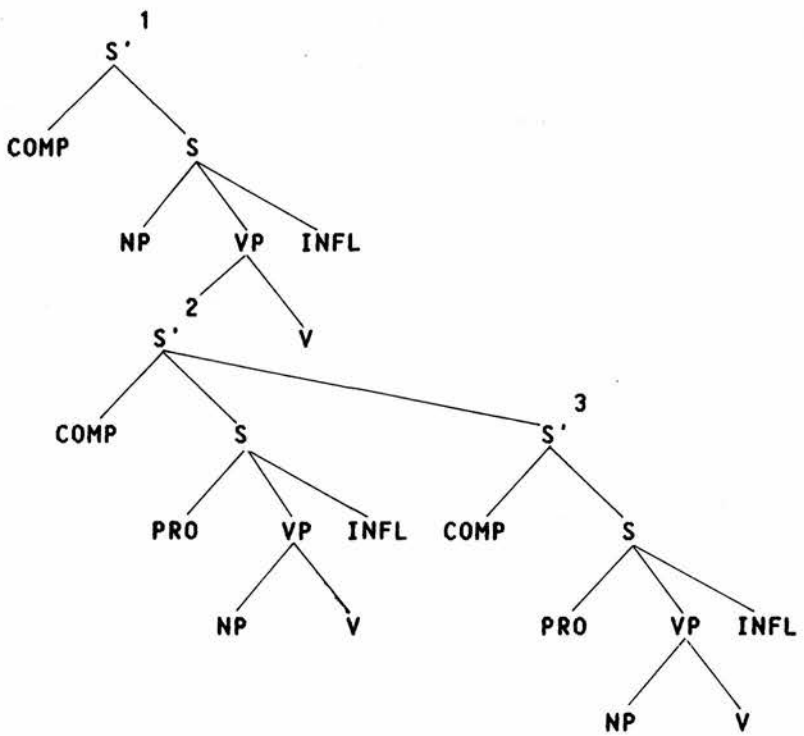
Complications arise when other possible applications of EXTRAPOSITION are attempted. Since the rule is optional, we may refuse to apply it to S'_3 and apply it directly to S'_2, producing the structure (9) and the ungrammatical (10). Or we may apply the rule to S'_3, but then refuse to apply it to S'_2, producing the structure (11) and the ungrammatical (12).

(9)



(10) *, dass der Lehrer versucht, [S' den Mann [S' das Buch zu lesen] zu zwingen].

(11)



(12) *, dass der Lehrer [den Mann zu zwingen,
S'
[das Buch zu lesen]] versucht.
S'

It seems that EXTRAPOSITION is conforming to two conditions:

a) It must begin its application at the bottom of the structure;

b) Having once applied, it must continue to apply up through the structure until the top node is reached.[1]

We are presented with further problems upon consideration of more complicated cases. The sentence (13) has the structure (14). It is ungrammatical because tensed complements are obligatorily extraposed, but it is a well-formed underlying structure. The grammatical (15) is produced if EXTRAPOSITION applies cyclically and in accordance with the above two conditions a) and b).

(13) *, dass Karl [den Mann [[dass er reich ist]
S' S' S'

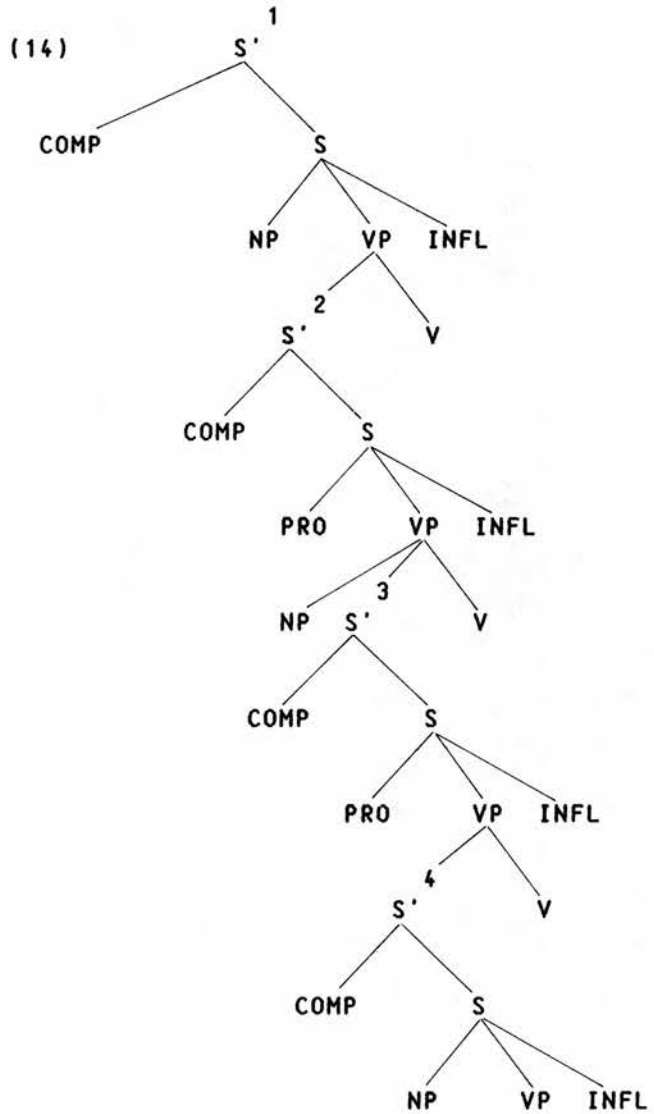
K. the man that he rich is

zu gestehen] zu zwingen] versucht.

to admit to force tries

Karl tries to force the man to admit that he is rich.

(15) , dass Karl versucht, [den Mann zu zwingen,
S'
[zu gestehen, [dass er reich ist]]].
S' S'

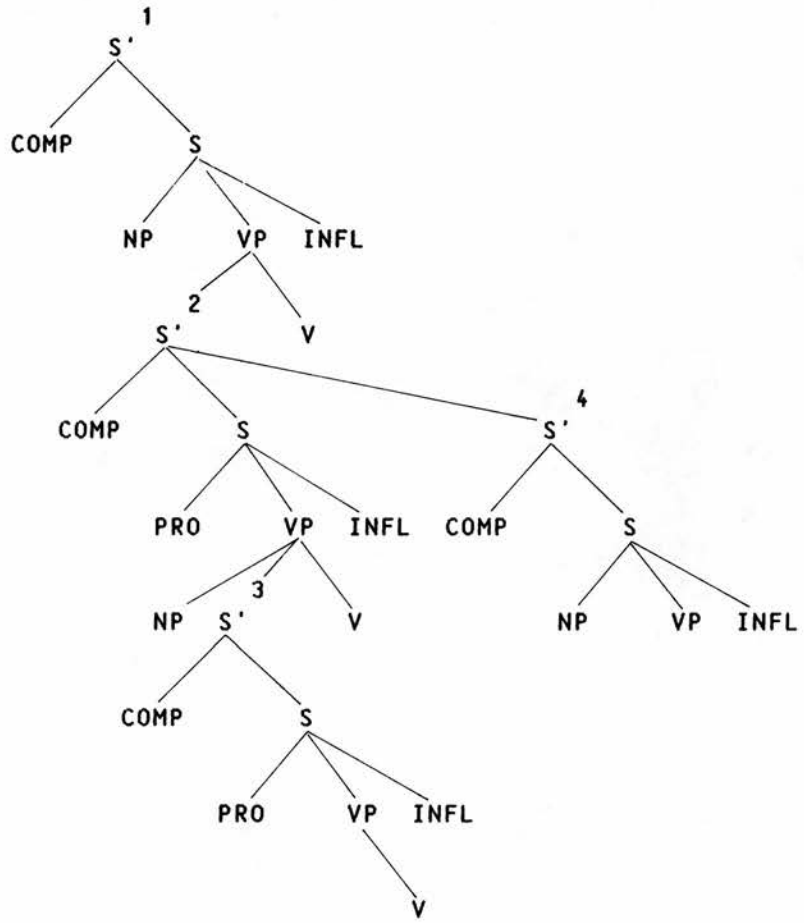


However, suppose that we apply the rule to S'_4 in (14), and attach this complement as a sister to the S of S'_2. This would produce (16), with the structure (17), or (18), with the structure (19), if EXTRAPOSITION additionally applies to S'_2.

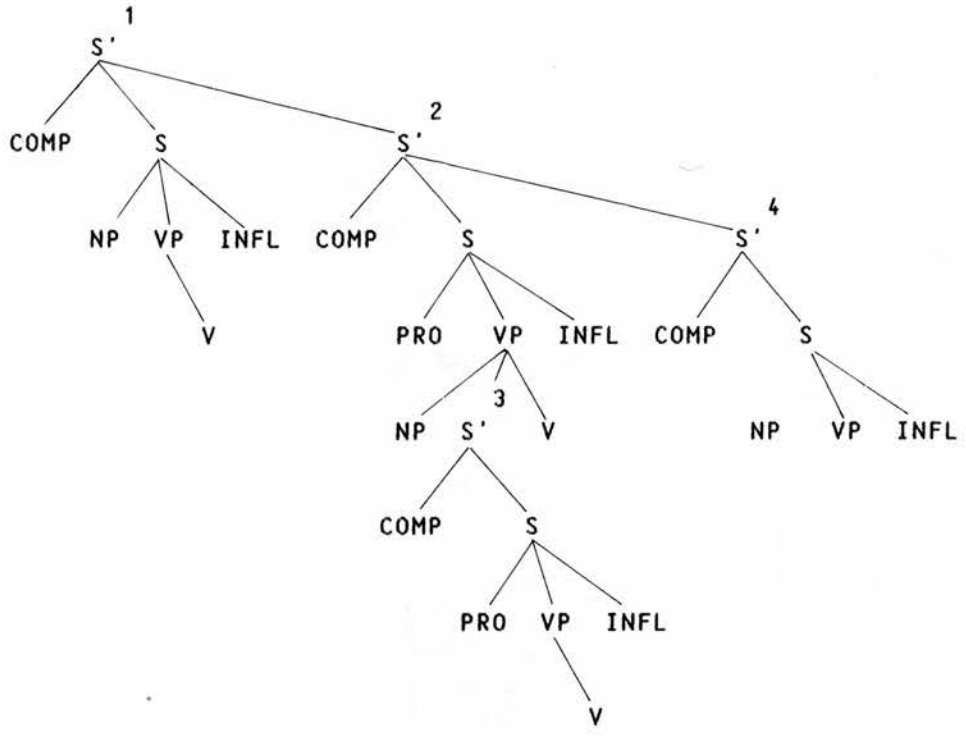
(16) *, dass Karl [$_{S'}$ den Mann [$_{S'}$ zu gestehen] zu zwingen, [$_{S'}$ dass er reich ist]] versucht.

(18) *, dass Karl versucht, [den Mann [zu gestehen]
S' S'
zu zwingen, [dass er reich ist]].
S'

(17)



(19)

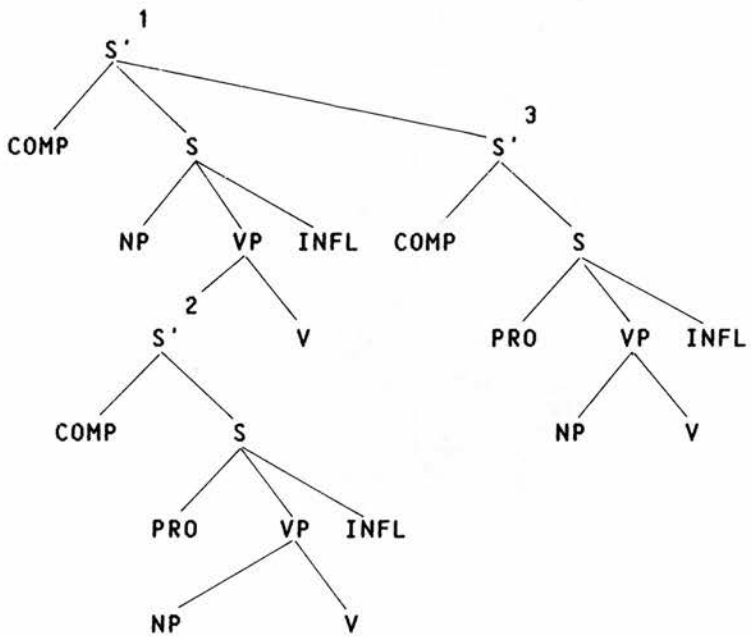


Both results are ungrammatical, and we might seek to explain this in terms of the A-over-A Principle (Chomsky:1965) which would prevent the extraction of any S' constituent out of any containing S'. However, this principle does not serve to prevent the second grammatical output of EXTRAPOSITION as applied to (4) -- (20) is derived by extracting S'_3 in the structure (6) from its containing S'_2 and sister-adjoining it to the matrix S (cf. the structure (21)). Nor does it prevent the second grammatical output of EXTRAPOSITION as applied to (13). Here, the rule applies to S'_4 in the structure (14) and attaches it under S'_3, then it applies to S'_3 itself, but, in violation of the A-over-A Principle, attaches this under S'_1, producing (22) and the structure (23) (cf. Kohrt:1975/1976).

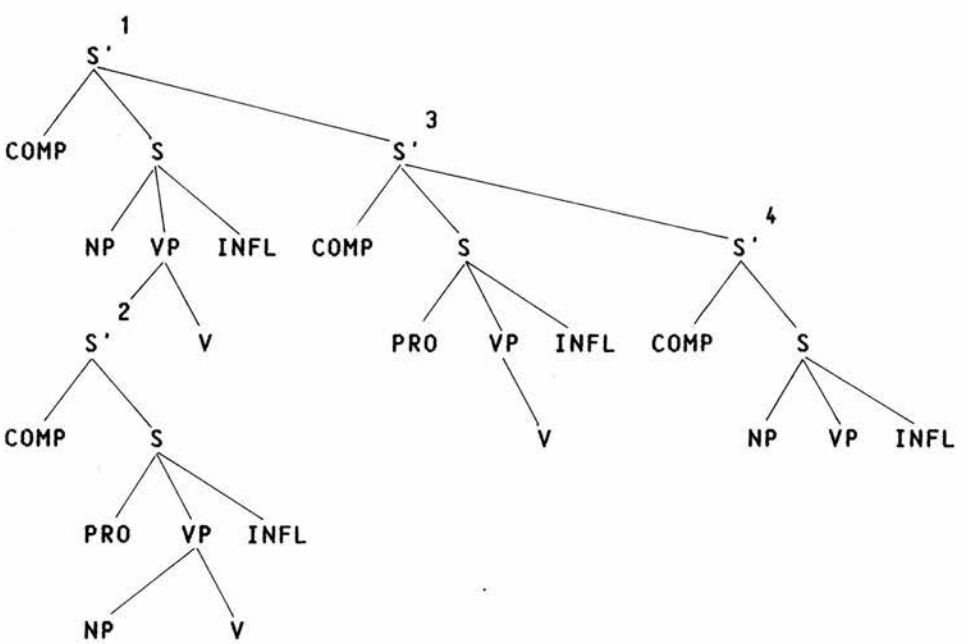
(20) , dass der Lehrer [den Mann zu zwingen] versucht,
S'
[das Buch zu lesen].
S'

(22) , dass Karl [den Mann zu zwingen] versucht,
S'
[zu gestehen, [dass er reich ist]].
S' S'

(21)



(23)



We now face a bewildering set of anomalous facts: EXTRAPOSITION appears to be an optional, cyclic rule, yet it conforms to the conditions a) and b) above; and it at once obeys and violates the

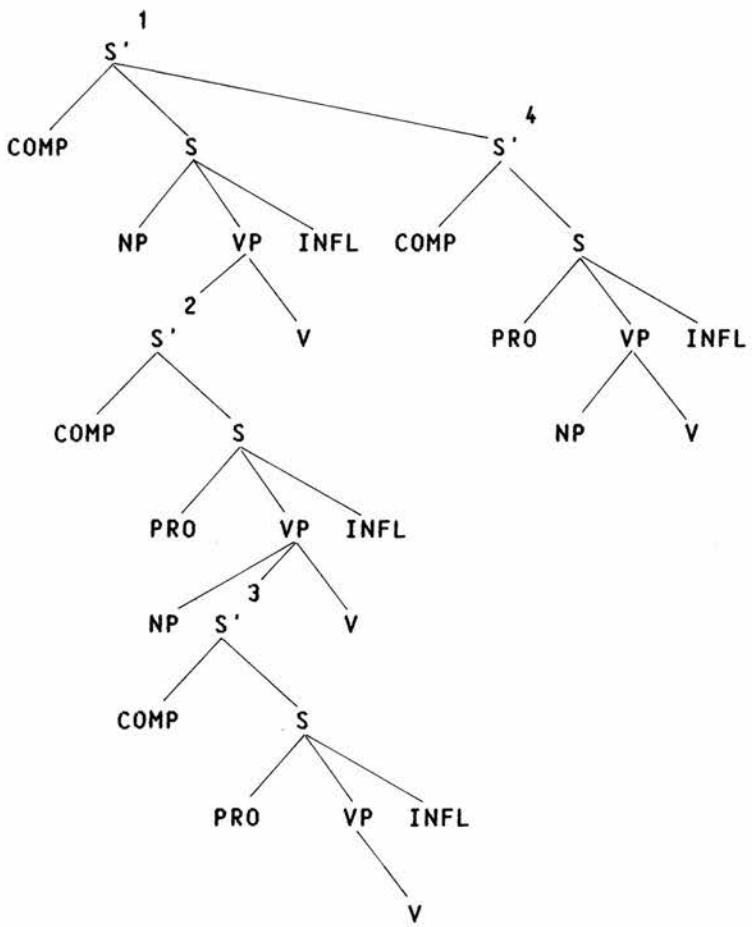
A-over-A Condition.

One consistent observation can be made, at least, with regard to the contrast between (20) and (22), on the one hand, and (24), on the other.

(24) *, dass Karl [S' den Mann [S' zu gestehen] zu zwingen]
versucht, [S' dass er reich ist].

The derivation of the last would involve the extraction of S'[4] in the structure (14), and its attachment under the matrix S' (cf. the structure (25)).

(25)



Assuming that the A-over-A Condition can be violated here, as before, then the present contrast can only be a result of the additional distance over which the extraposed complement has travelled in (24): It has crossed two S'-boundaries here, but only one in (20) and (22). This suggests that the Subjacency Condition holds:

No rule may involve X, Y in the following structure, if a and b are bounding nodes:

... X ... [... [... Y ...] ...] ... X ...
a b

Let us simply assume for the present that S' is the relevant bounding node (see section 3.2.). Note that in none of the previous derivations is this condition violated, so that it is reasonable to make a preliminary division of the data accordingly. It will now be shown that the descriptive conditions a) and b) above, and the apparent violations of the A-over-A Condition are accounted for by the intervention of the transformational process which is induced by the Case-assignment rules, i.e. the mapping of the Case-assignment structure onto the underlying configuration and the concomitant creation of a non-linear derivational projection.

Consider again how the application of the Case-assignment rules affects the underlying, D-structure configuration in the complex sentence:

(26) [... [e] ... [... [e] ...] ...]
S' NP S' NP

NP NP

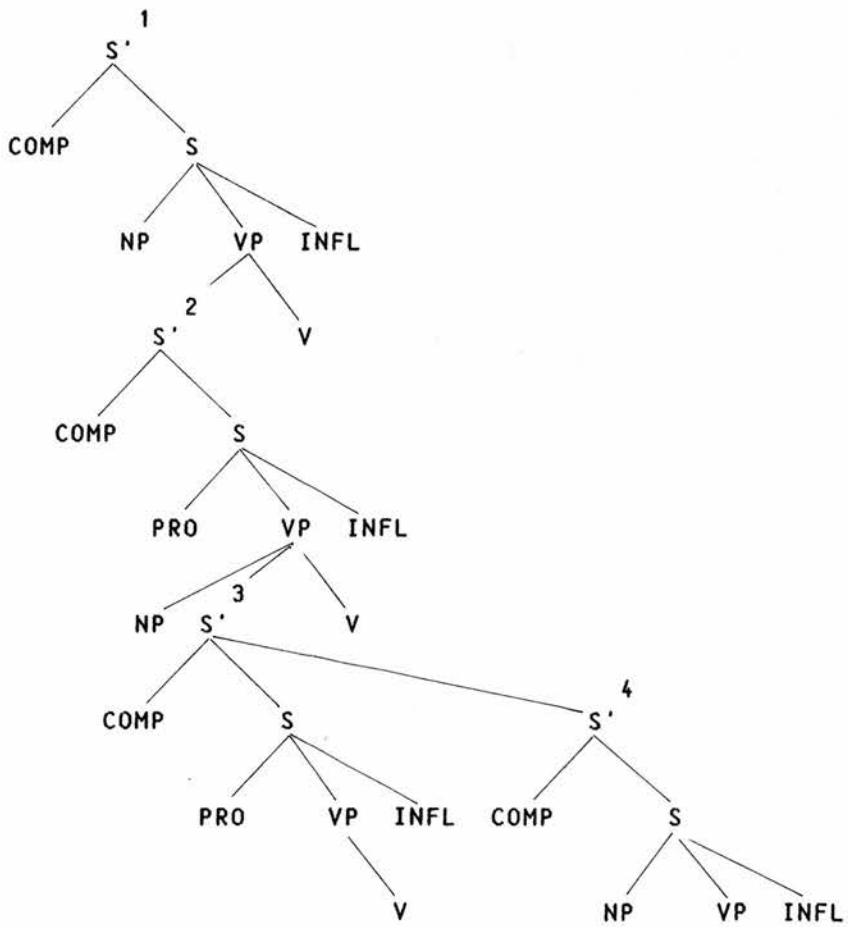
NOM ACC

The S' constituent is destroyed in the non-linear projection, and only its internal constituents are preserved. S' is not Case-marked. Now, the creation of a non-linear projection, induced by the Case-assignment rules, is a transformational process and, like all transformational processes, is subject to the principle of the transformational cycle. We shall identify the cyclic domain with the bounding domain, which we assume to be S' (for discussion see section 3.2.). In a complex sentence, then, the Case-assignment rules induce the creation of a non-linear projection first over argument positions contained in the most deeply embedded S', then over the argument positions contained in the second most deeply embedded S', and so on, and each successive S' constituent is destroyed in the process (though not destroyed in the sense that the Projection Principle is violated, for the configurational representation is preserved at S-structure). The rule of EXTRAPOSITION, however, requires access to the S' constituent: It cannot move this constituent if it has already been destroyed by the application of the Case-assignment rules to its own internal constituents. Only a single, one dimensional constituent can ever undergo movement.

EXTRAPOSITION must, therefore, apply immediately on the second cycle, defined by S'_3, to move S'_4 in the structure (14), if it is to apply at all. If the application is not made, then the

Case-assignment rules will automatically induce the creation of a non-linear projection within S'_4. EXTRAPOSITION can then never apply, even on a higher cycle; and we have a principled account for the descriptive condition a) and for the ungrammaticality of (10) and all such similar structures in which S' constituents are centrally embedded in an extraposed S'. If the application is made, the structure (27) is produced, corresponding to the ungrammatical sentence (28).

(27)

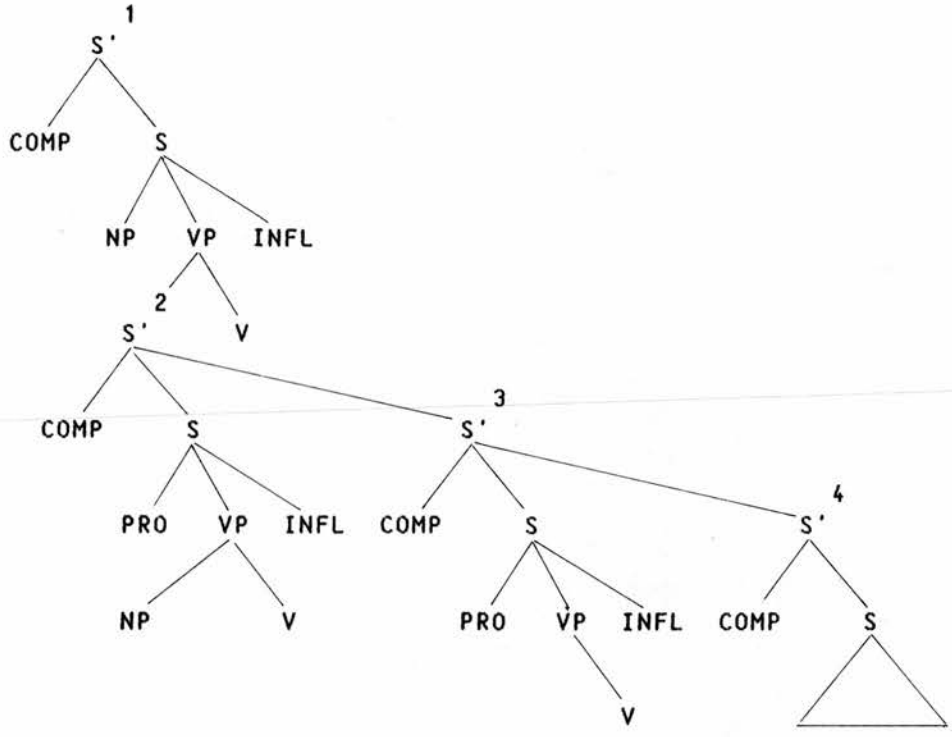


(28) *, dass Karl [S' den Mann [S' zu gestehen, [S' dass er reich ist]] zu zwingen] versucht.

Note, however, that the principle of the strict cylce now prevents the application of the Case-assignment rules to elements contained in the extraposed S'_4, for the associated transformational process properly belongs to the lower cyclic domain, S'_4. Thus, if the Case-assignment rules now induce the creation of a non-linear projection on the successive cycles, S'_3, S'_2 and S'_1, the elements in S'_4 remain in their D-structure positions, the cycle being irreversible. (28) is not derivable because the structure-assignment rules have not fully applied.

An alternative derivation would involve the immediate application of EXTRAPOSITION on the third cycle, moving S'_3 and the contained, extraposed S'_4 to the right-hand boundary of S'_2, before the Case-assignment rules have chance to induce the creation of a non-linear projection over the elements of S'_3 (cf. the structure (29)). Again, the Case-assignment rules will automatically apply in S'_3 if EXTRAPOSITION does not apply on the third cycle, and any attempts to apply the same on higher cycles will be frustrated, since parts of the constituent to be moved will have been destroyed, i.e. will no longer be one-dimensional. The extraposed complement, S'_4, cannot be extracted from S'_3 on this third cycle by virtue of the A-over-A Condition.

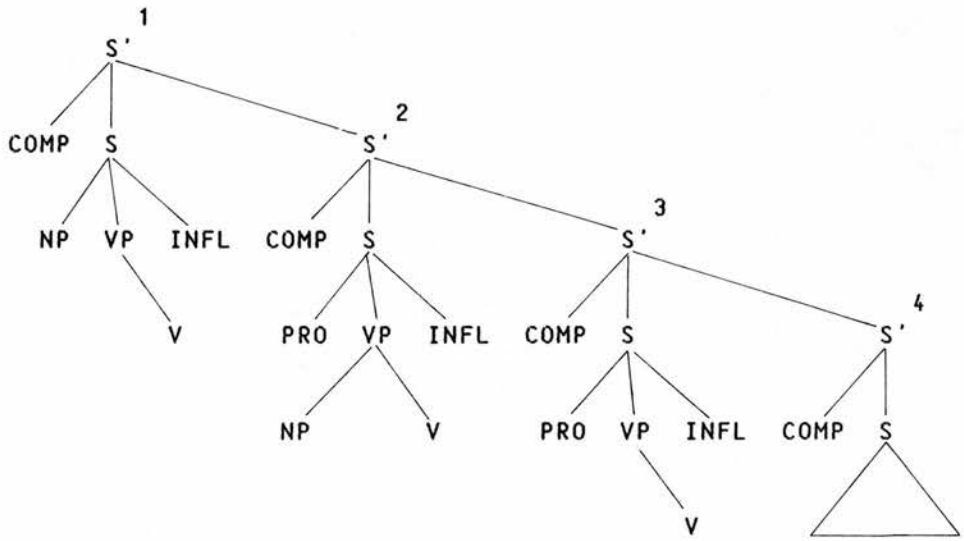
(29)



It is clear now that we have explained our former condition b): Having once applied, EXTRAPOSITION must continue to apply on each successive cycle so as to effectively prevent the application of the Case-assignment rules and the violation of the strict cycle which would then necessarily be involved in the derivation of any S-structure. Additionally, the A-over-A Condition determines EXTRAPOSITION to be cumulative -- an extraposed complement can never be extracted from its containing S', so it is carried along in situ when this latter is itself extraposed. In this way, the derivation from the underlying (14) will, through the intermediate structures (27) and (29), produce the structure (30), before the Case-assignment rules apply and a non-linear projection is created. Having thus reached the top cyclic domain, S'_1, the principle of the transformational cycle still holds, and the Case-assignment rules will apply cyclically, first to define a derived structure over

elements contained in S'^{4}, then over elements contained in S'^{3}, and so on, upwards through the tree. The result is the sentence (15), repeated here as (31).

(30)



(31) , dass Karl versucht, [den Mann zu zwingen,
S'
[zu gestehen, [dass er reich ist]]].
S' S'

This is, however, not the only possible output of EXTRAPOSITION as applied to the structure (14): We must also be able to derive (22). Let us return to the third cycle in our derivation. At this point, EXTRAPOSITION has applied on the second cycle to S'^{4}, and we have the structure (27) above. To prevent the Case-assignment rules from applying in S'^{3}, we would normally have to apply EXTRAPOSITION immediately on this third cycle to produce the structure (29). However, all rules are optional -- EXTRAPOSITION appears to be obligatory in certain cases only because of the intervention of independent principles. Suppose, then, that EXTRAPOSITION fails to apply in this case, and that another transformational process, namely

the creation of a non-linear projection as induced by the Case-assignment rules, operates immediately on the cycle under consideration, before the same has chance to take place in S'_3. If the Case-assignment rules now induce the same transformational process on the last cycle, no well-formed S-structure can be derived, because the strict cycle prevents the Case-assignment rules from applying in S'_4 and S'_3. But it is now possible instead to apply EXTRAPOSITION on this last cycle to adjoin S'_3 to the right of the matrix S. This is because the S'_2 node has been destroyed through the creation of a non-linear projection over argument positions contained within it, as illustrated in (32).

(32) [COMP [[e] [[e] S'_3 V] INFL]]
S' S NP VP NP

PRO NP

ACC

S'_2 is no longer a one-dimensional constituent and is not available for MOVEMENT, so the extraction of S'_3 does not involve a violation of the A-over-A Condition. This condition effectively serves to prevent any potential ambiguity with respect to the domain of application of a transformational rule. There is no such ambiguity in the structure (32), since S'_3 is the only S' constituent accessible to EXTRAPOSITION. (23) is, therefore, a well-formed intermediate structure if the Case-assignment rules have applied in S'_2 (as in (33)).

(33) [... [COMP [[e] [[e] t V] INFL]] ... S']
S' S' S NP VP NP i i

PRO NP

ACC

As before, the principle of the transformational cycle holds over applications of transformational processes on the last cycle: The Case-assignment rules induce a non-linear projection first over argument positions contained in S'_4, then over argument positions in S'_3, and then over argument positions in the next cycle up, which in (33) is S'_1. Note that this repetition of the cycle is permitted here and in (30) because the Case-assignment rules are capable of applying in each successive, cyclic domain, whereas this is not the case in those derivations in which, we have claimed, there is a violation of strict cyclicity.

The violation of the A-over-A Condition in (20) and (22) is, as we now see, only apparent. (34) and (35) are further examples which require a derivation similar to that just described.

(34) , dass Karl mir [den Jungen zu zwingen] versprach,
S'

K. me the boy to force promised
[zu versuchen, [den Hund zu suchen]].
S' S'

to try the dog to look-for

Karl promised me to force the boy to try to look for the dog.

(35) , dass Karl [zu wissen] glaubte,
S'

K. to know believed
[wie man Torten backt].
S'

how one cakes bakes

Karl believed that he knew how one bakes cakes.

The contrast between these and (24), repeated here as (36), results, as already observed, from the Subjacency Condition.

(36) *, dass Karl [den Mann [zu gestehen] zu zwingen]
S' S'
versucht, [dass er reich ist].
S'

The derivation of the last from (14) would involve the immediate application of the Case-assignment rules on the second cycle and the application of the same rules on the third cycle. On the last cycle, EXTRAPOSITION would attach S'_4 to the right of the matrix S, and there would be no violation of the A-over-A Condition, S'_3 and S'_2 having been destroyed as movable, one-dimensional constituents. The Case-assignment rules could now apply cyclically to create a non-linear projection of elements in S'_4 and S'_1. But S'_4 is moved across two bounding nodes, S'_3 and S'_2, and the structure is ill-formed for this reason. Although the constituents, S'_3 and S'_2, are destroyed in the non-linear projection, the D-structure configurational representation remains a factor of S-structure and these bounding nodes are still relevant to the interpretation of linearly moved elements.

The complex behaviour of EXTRAPOSITION has now been explained, essentially in terms of one very simple principle, the transformational cycle. It has been shown that of all the logically possible, relative, linear orders of S' complements in a complex sentence, only three will be grammatical, and that the grammar correctly generates these, and only these, latter. Thus, given the underlying structure (37), all of (38a-j) are possible permutations of the S' complements, but only (38a), (38f) and (38g) are grammatical, and only these are derivable in the present theory.

(37) , dass Karl mir [den Jungen [[den Hund zu suchen]
S' S' S'

zu versuchen] zu zwingen] versprach.

= (34).

(38) a. = (37).

b. *, dass Karl mir [den Jungen [zu versuchen,
S' S'
[den Hund zu suchen]] zu zwingen] versprach.
S'

c. *, dass Karl mir [den Jungen [zu versuchen] zu
S' S'
zwingen, [den Hund zu suchen]] versprach.
S'

d. *, dass Karl mir [den Jungen [zu versuchen]
S' S'
zu zwingen] versprach, [den Hund zu suchen].
S'

e. *, dass Karl mir [den Jungen zu zwingen,
S'
[zu versuchen, [den Hund zu suchen]]] versprach.
S' S'

f. , dass Karl mir [den Jungen zu zwingen] versprach,
S'
[zu versuchen, [den Hund zu suchen]].
S' S'

g. , dass Karl mir versprach, [den Jungen zu zwingen,
S'
[zu versuchen, [den Hund zu suchen]]].
S' S'

h. *, dass Karl mir versprach, [den Jungen
S'
[zu versuchen] zu zwingen, [den Hund zu suchen]].
S' S'

i. *, dass Karl mir versprach, [den Jungen
S'
[[den Hund zu suchen] zu versuchen] zu zwingen].
S' S'

j. *, dass Karl mir [den Jungen zu zwingen,
S'
[zu versuchen]] versprach, [den Hund zu suchen].
S' S'

The explanation is possible, however, only if the two-dimensional analysis of German sentence structure is given. Consequently, the mechanics of EXTRAPOSITION constitutes evidence for the correctness of this analysis, for the conclusion that German is a semi-configurational language.

3.2. Determining the Bounding and Cyclic Node.

It has been claimed that S', rather than S, is the relevant bounding node for linear movement rules, and that this node also delimits the cyclic domain to which applications of transformational processes are restricted at any one time in the course of the

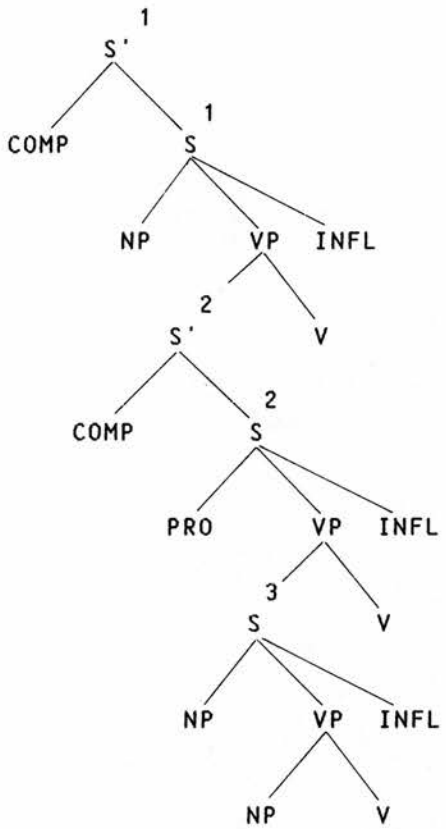
derivation from D-structure to S-structure. We shall now present evidence for this claim.

Let us consider sentences such as the following:

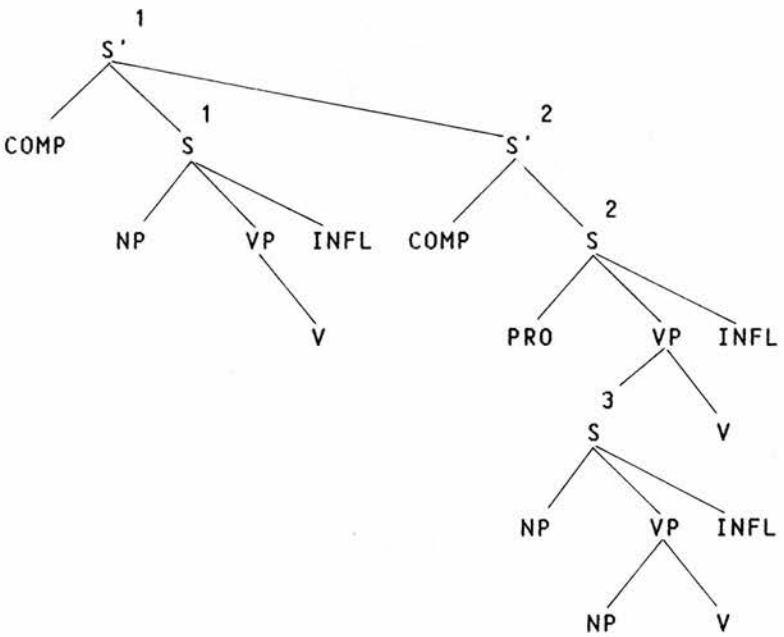
(1) , dass Paul versuchte, den Mann den Berg besteigen
P. tried the man the mountain climb
zu sehen.
to see
Paul tried to see the man climb the mountain.

This has the intermediate structure (2) before the application of EXTRAPOSITION and the Case-assignment rules, but after S'-DELETION has taken place in the complement of sehen. S complements cannot be extraposed (see Chapter Two), but the rule may apply to the S'_2 constituent to produce the structure (3) in the derivation of (1). If S were a cyclic node, the Case-assignment rules would apply cyclically in (2) to produce a derived two-dimensional structure over S_3 and S_2, before EXTRAPOSITION had chance to apply on the last cycle. It has been noted, however, that linear movement rules can only apply to single, one-dimensional constituents. EXTRAPOSITION could therefore never apply to S'_2 in (2), and (1) could never be derived. S, then, is not a cyclic node.

(2)



(3)



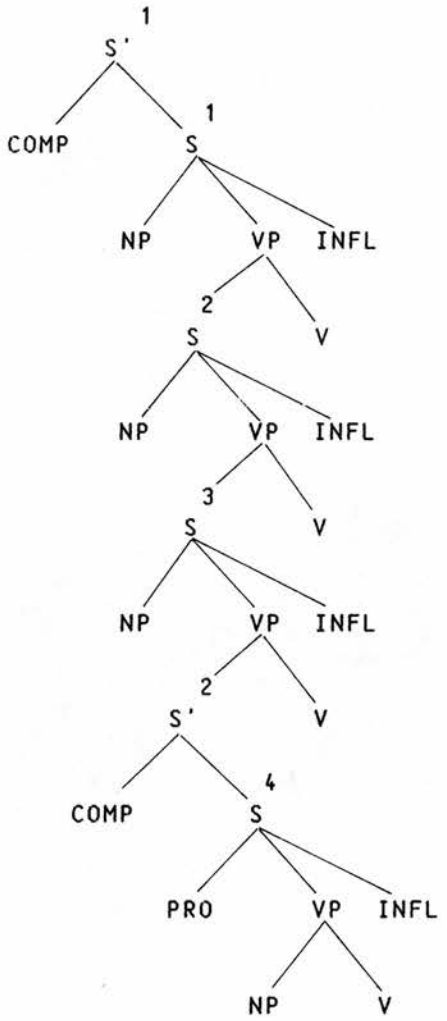
Instead, the derivation of (1) must involve the immediate application of EXTRAPOSITION on the second, and last, cycle, S'_1, before the Case-assignment rules have chance to apply in S'_2. The

transformational cycle then determines that the Case-assignment rules apply cyclically in (3), creating a non-linear projection first in S'_2, then in S'_1.

"Exceptional Case-marking" structures are also relevant to the determination of the bounding node. Consider a complex sentence such as (4), and its underlying structure (5).

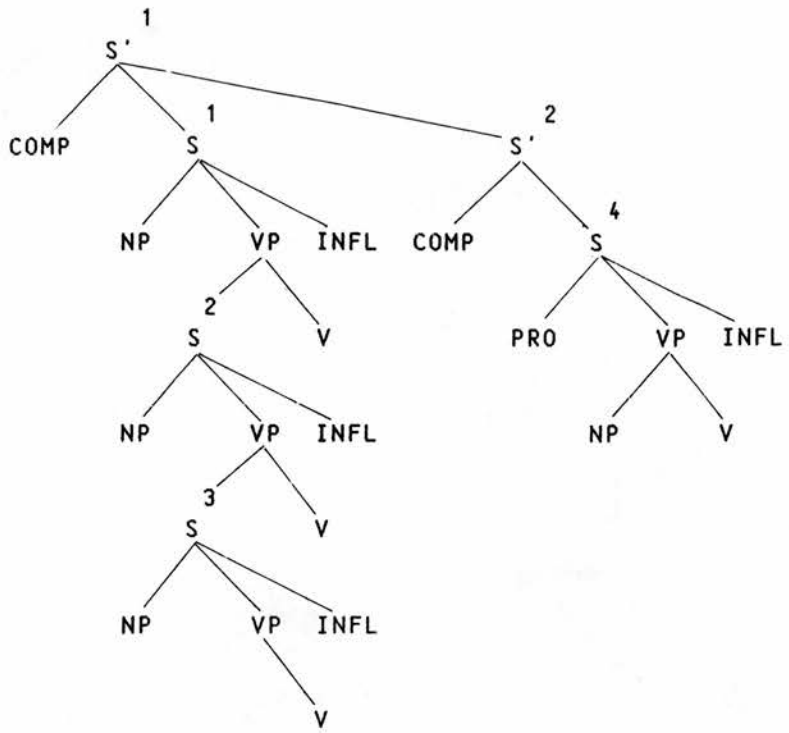
(4) , dass sie Paul den Mann den Berg zu besteigen
they P. the man the mountain to climb
versuchen sehen lassen.
try see let
They let Paul see the man try to climb the mountain.

(5)



Since the cyclic domain is S', EXTRAPOSITION may apply immediately on the second, and last, cycle, S'_1, and move S'_2 to the right periphery of the matrix S' to produce (6), before the Case-assignment rules have chance to induce a non-linear projection on the first cycle. This latter process then takes place cyclically, first in S'_2, and then in S'_1, to derive the grammatical (7). It is clear that S does not count as a bounding node, for (6) would otherwise involve a violation of the Subjacency Condition, S'_2 having been moved across both S_3 and S_2 S_2.

(6)



(7) , dass sie [2 Paul [3 den Mann versuchen] sehen] lassen,
S S
[2 den Berg zu besteigen].
S'

3.3. Tensed Clauses and Cyclic Domains.

Our discussion has been restricted to EXTRAPOSITION as it applies to infinitival complements. We have seen that it is impossible for an S' infinitive complement to appear as a left-sister to a verb which is contained within another S' infinitive complement which has been extraposed -- the structure (1) is impossible because EXTRAPOSITION must apply successive cyclically from the bottom upwards.

(1) [... [... t ...] [... [... S' ... V] ...]]
S' S i S' VP i

The sentence (2) is therefore ungrammatical.

(2) *, dass ich versuchte, den Mann das Buch zu lesen zu zwingen.
I tried the man the book to read to force
I tried to force the man to read the book.

But consider now the following sentence:

(3) , dass Karl mir versprochen hat, dass er das Buch
K. me promised has that he the book
zu lesen versuchen wuerde.
to read try would
Karl promised me that he would try to read the book.

This sentence has the same structure as the sentence (2), namely (1), yet it is grammatical. The sole difference is that the extraposed clause is tensed in the grammatical case.

We will show now that the explanation for this contrast is directly derivable from the two-dimensional analysis of German sentence structure, specifically, from the form of the structure-assignment rules.

The grammar of German assigns two distinct structures to the sentence, as follows:

S -----> NP VP INFL

VP -----> (DAT) (___) (P) V

a) [+TENSE] assigns Nominative Case to NP.

b) V assigns Accusative and/or Dative Case, or neither, to NP, in accordance with its lexical properties.

The structure defined by the Case-assignment rules makes crucial reference to the feature [+TENSE], i.e. a sentence in the Case-assignment structure always contains an assignment of Nominative Case. As was seen in the previous chapter, infinitive complements are assigned VP status in the non-linear projection, since they contain no constituent which is assigned Nominative Case (which is governed by INFL). Underlyingly complex sentences containing infinitival complements are therefore mono-sentential in the Case-assignment structure.

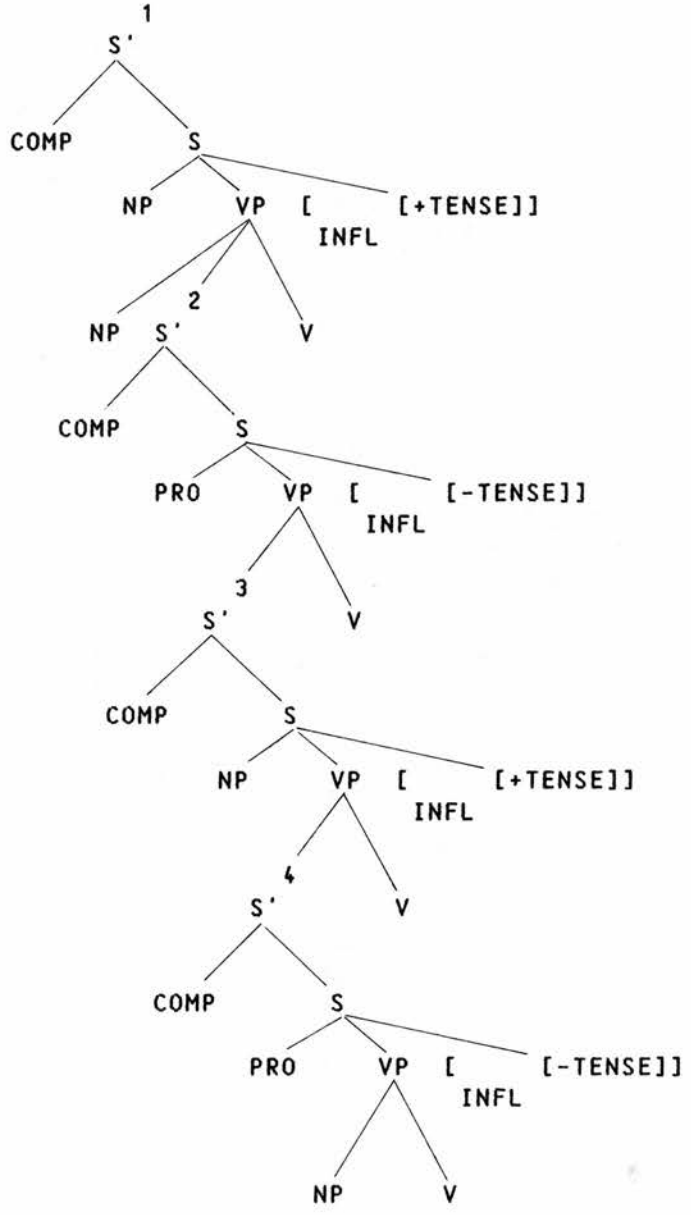
The reference to the feature [+TENSE] in the Case-assignment rules has a major consequence for the transformational cycle, for these rules can only begin to apply in a cyclic domain which contains an occurrence of [+TENSE], that is, on an S' cycle which may be indefinitely "high up" in the underlying configurational structure. Furthermore, by the form of the grammar, no other rules can be considered before this cycle is reached: Since the Case-assignment rules assign structure, i.e. define the sentence in the non-linear projection, a transformational rule such as EXTRAPOSITION can only apply once the domain of application of the Case-assignment rules has been met. Once this domain is met, the transformational process

induced by the Case-assignment rules -- the creation of a non-linear projection -- takes place cyclically within this domain. As we have seen, this process takes place automatically on each successive cycle, unless the rule of EXTRAPOSITION intervenes to prevent it. But, if EXTRAPOSITION does intervene, the domain of application of the Case-assignment rules is still met thereafter, and the process induced by these rules must still take place cyclically within this domain once the process of EXTRAPOSITION is complete within this same domain. It is by virtue of these principles that the transformational cycle may recommence in the way described above (sections 3.1. and 3.2.).

Now, just as EXTRAPOSITION can intervene to prevent the application of the Case-assignment rules on a particular cycle within a domain of application of these rules, so EXTRAPOSITION can intervene to prevent the application of the Case-assignment rules within a complete domain of their application. Consider the configurational structure (5) which underlies the sentence (4).

(4) , dass ich Karl zwang, zu versprechen,
I K. forced to promise
dass er das Buch zu lesen versuchen wuerde.
that he the book to read try would
I forced Karl to promise that he would try to read the book.

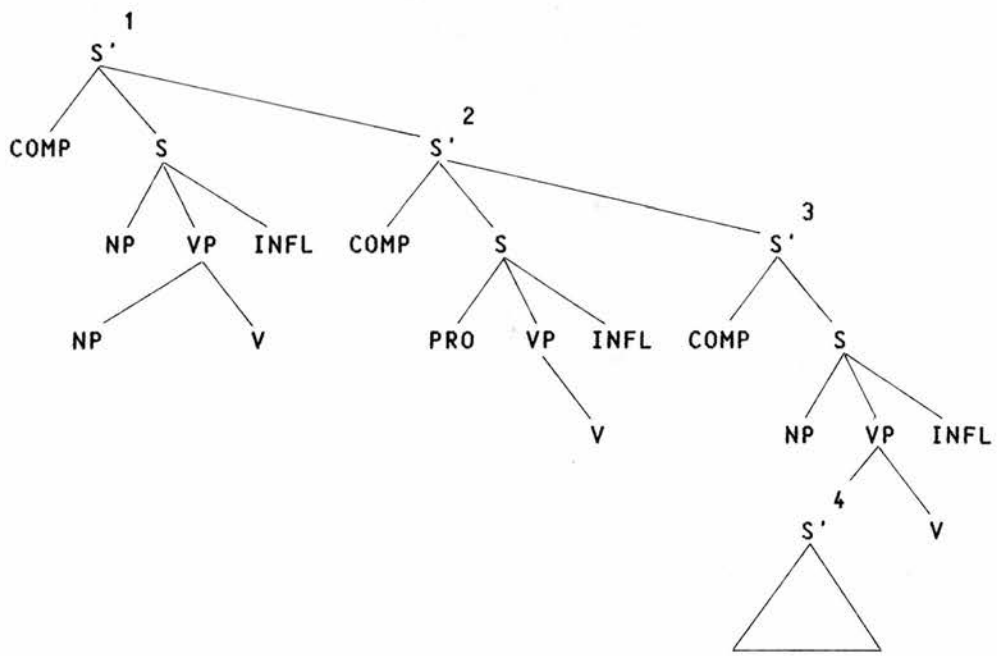
(5)



The first domain of application for the Case-assignment rules is S'^{3}, a domain in which the transformational process induced by the Case-assignment rules and/or EXTRAPOSITION would otherwise take place cyclically. The grammar has the alternative option, however, of processing first the next cyclic domain of application of the Case-assignment rules, S'^{1}, the transformational process induced by the Case-assignment rules and/or EXTRAPOSITION taking place within

this domain before the same processes have chance to apply in the lower domain, S'^{3}. By virtue of the strict cycle, however, the Case-assignment rules cannot apply on the higher domain before they have applied on the lower domain, for the rules could otherwise never apply in the lower domain. In contrast, the rule of EXTRAPOSITION can apply immediately on the third cycle (i.e. S'^{2}, the first cycle of the higher domain), and on each subsequent cycle, to prevent Case-assignment entirely and to produce the structure (6), the intermediate structure underlying (4).

(6)



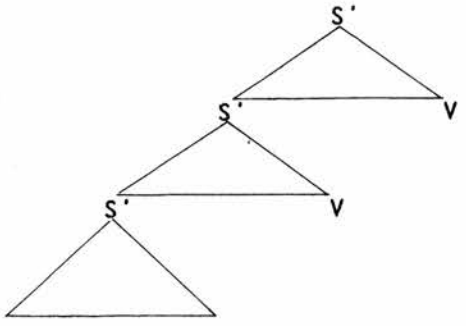
The Case-assignment rules have yet to apply. In accordance with the principle of the transformational cycle, they apply now cyclically within each cyclic domain of their application to produce the sentence (4) and variants thereof which involve the intervening application of EXTRAPOSITION on the lower domain.

3.4. Alternative Approaches to Extraposition.

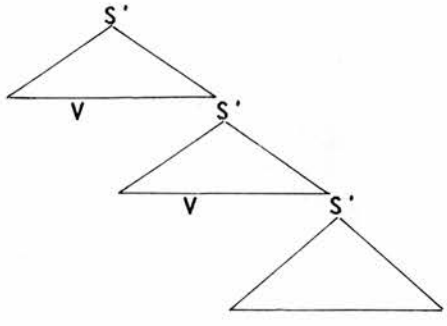
We have maintained throughout that German is an SOV language, and that elements appearing to the right of the verbal head are extracted from their underlying pre-verbal positions by a derivational transformational rule. Various arguments were presented in Chapters One and Two in support of this. Additionally, our analysis of EXTRAPOSITION as it applies to infinitive clauses has relied crucially on the intervention of the cyclic process of Case-assignment and the concomitant creation of a non-linear projection. In this section, we shall mention briefly some of the problems which would be encountered under possible alternative approaches to the process of EXTRAPOSITION in German and thereby derive further support for the analysis of S-structure advanced in Chapter One.

Consider again the distribution of S' complements in German as this was outlined in section 3.1.: Essentially, a complex sentence composed of S' complements is either exclusively left-branching or exclusively right-branching, with respect to the configurational relationship between V and S'. That is, a complex sentence has either the structure (1) or the structure (2). With one exception, to be discussed below, a composite left- and right-branching structure is impossible.

(1)



(2)



A phrase-structure analysis of left- and right-branching VP structures would require the following disjunctive rule, assuming that, in such a "base-generative" analysis, an extraposed S' constituent is a right-sister to the verb.

(3) VP -----> { ... S' ... V }
{ ... V S' }

As it stands, a context-free rule, (3) will generate not only structures such as (1) and (2), but also all possible, composite, left- and right-branching structures. It will be apparent that a PS-rule can be made to generate (1) and (2) exclusively only if it is context-sensitive, i.e. any application of (3) must make reference to

a previous application of the rule, as follows: If the first option in the rule is taken upon its initial application, then the same option must be taken in all subsequent applications; if the second option is taken initially, then this option must be taken in all subsequent applications. (3) becomes (4) after its initial application.

(4) VP -----> { ... S' ... V / _____ V }
{ ... V S' / V _____ }

More generally, no language which consists of the sentences (5) and (6), and only these, can be described by a single, context-free, phrase-structure grammar of the type defined by Chomsky (1956/57). (5) and (6) can only be described as separate languages by the grammars (7) and (8), respectively.

(5) ... X X X X Y Y Y Y ...

(6) X Y X Y X Y X Y ...

(7) Z -----> X Z Y

(8) Z -----> X Y Z

The same problem is encountered if right-hand occurrences of S' complements are base-generated in the extraposed position, as VP-external constituents, under the set of rules (9).

(9) S' -----> COMP S (S')

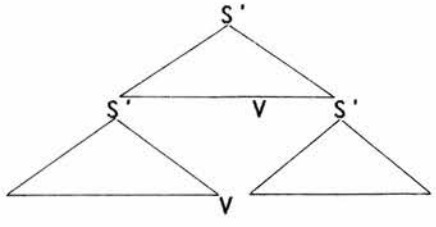
S -----> NP VP INFL

VP -----> ... S' ... V

In some way, it must be ensured that where the VP-external option is taken in the first rule, the VP-internal S'-node is not expanded in the third . But, in order to generate the set of exclusively left-branching and exclusively right-branching structures, it must, again, be stipulated that if the VP-external option is taken initially, then it must be taken on each subsequent application of the set of rules; that if the VP-internal option is taken initially, this option must be taken on all subsequent applications.[3]

The base-generative approach to EXTRAPOSITION is yet further complicated upon consideration of the one exception to our generalization: The structure (10) is, as we have seen (cf. section 3.1. (22/23)), a possible alternative to the structures (1) and (2).

(10)



In order to base-generate this, the initial rule (11), or some equivalent, would be required.

(11) VP -----> ... S' ... V S'

This rule may never re-apply, and the first option in (4) is blocked since no further S' complements may appear under the pre-verbal S'. Furthermore, there can now be no one-to-one correspondence between syntactic and semantic (i.e. thematic) structure, for the post-verbal S' constituent is not a logical complement of the matrix V.

But a standard transformational approach to EXTRAPOSITION is also thwarted if the analysis of S-structure defended here is not adopted. As we have seen, the transformational derivation of exclusively right-branching structures from exclusively left-branching structures requires the stipulations:

a) If the rule applies at all, it must apply on the first cycle;

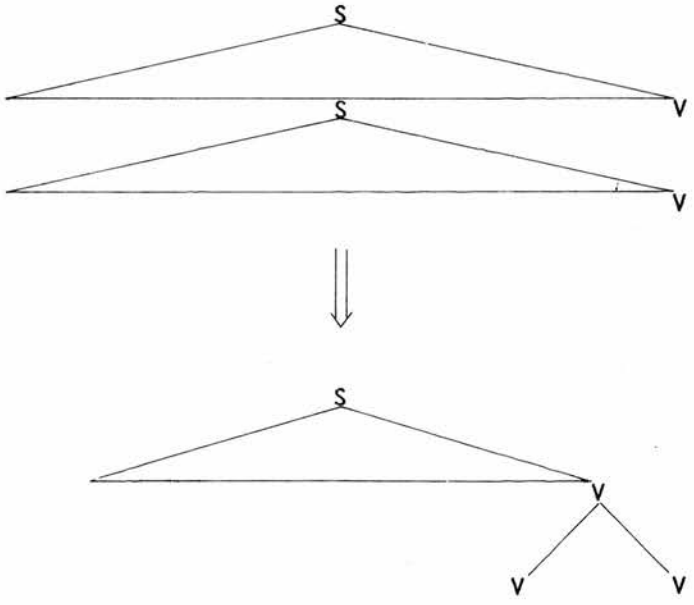
b) If the rule applies on the first cycle, then it must apply on each subsequent cycle.

For a) and b) to follow without stipulation, some obligatory intervening process is required whose nature is such that it serves to prevent the application of EXTRAPOSITION on subsequent cycles and that it applies automatically if EXTRAPOSITION does not apply, thus either preventing EXTRAPOSITION entirely or forcing its repeated application from the first cycle upwards to permit the subsequent application of the intervening process on each cycle. Just such a process is that of the creation of a non-linear projection of elements contained within each S' constituent as this is induced by the application of the Case-assignment rules, under the interpretation of these rules taken here. Additionally, the approach taken here explains the apparent violation of the A-over-A Condition

in (10) above, the Case-assignment rules having the effect of destroying a containing S'-node and of invalidating the condition.

Similar remarks apply to restructuring approaches to complex sentences in which EXTRAPOSITION has not applied. It will be recalled from the previous chapter (section 2.7.) that such constructions, though arguably bi-sentential underlyingly, have certain characteristics of mono-sententiality, characteristics which, we claim, are merely reflections of semi-configurationality. It will further be recalled that Evers (1975) argues that a mono-sentential phrase-structure constituent is to be derived in such cases by a V-Raising rule which has the following effect:

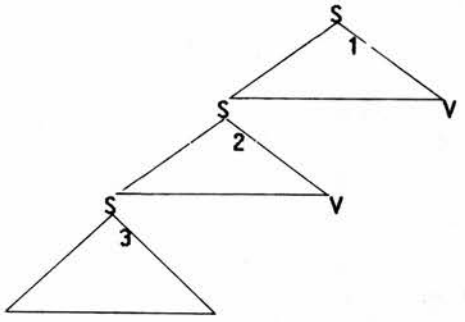
(12)



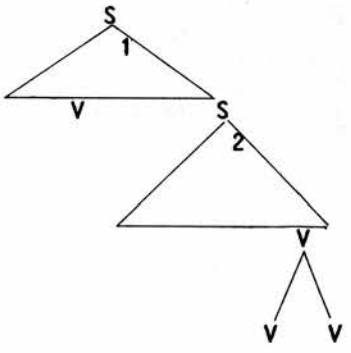
However, this rule will interact with the rule of EXTRAPOSITION in such a way as to produce (among others) precisely the type of structures which must be ruled out: V-RAISING may apply on the second

cycle in the structure (13) before EXTRAPOSITION applies to its output to produce the structure (14), the structure corresponding to ungrammatical sentences of the form (15).

(13)



(14)



(15) *, dass er versuchte, [mich [das Buch zu lesen]
S' S'

he tried me the book to read

zu zwingen].

to force

He tried to force me to read the book.

Notes to Chapter Three.

1. These conditions are also noted by Kohrt:1975,169. In his words: "If we assume that Extraposition operates successively from bottom to top, we may say that the extraposition of a zu clause is obligatory if the S node in question directly dominates another S node that has previously been extraposed."

2. That S', rather than S, is the bounding node is also maintained for Italian by Rizzi:1980.

3. A language which consists only of the sentences (5) and (6) may, however, be captured in a context-free phrase-structure grammar, by a Gazdarian meta-rule (Gazdar:1981/82) of the following form, if the use of feature-indices is permitted:

$$\text{(i)}\quad [_{VP}\ i\ \ldots\ S'\ \ldots\ V] \longrightarrow [_{VP}\ j\ \ldots\ V\ S'_{j}\ ]$$

I am indebted to Ronnie Cann for clarification of this point.

CHAPTER FOUR.

CLITICS AND CLITIC-CLIMBING.

4.0. Introduction.

We turn now to the distribution of unstressed pronominal elements in German. Our primary concern in the initial sections will be to show how the two-dimensional analysis of S-structure provides a mechanism for capturing the transformational process of CLITICIZATION. The third and fourth sections then establish the existence of a CLITIC-CLIMBING rule, for Accusative and Dative pronouns respectively, and determine the conditions under which the rule may apply.

The analysis will rely crucially on observations made in Chapter Two regarding the RIGHTWARD-SHIFT rule and will, therefore, run contrary to the line of argument adopted by Thiersch (1978). It will be demonstrated that the semi-configurational nature of German is responsible for the behaviour of the CLITIC-CLIMBING rule, that this behaviour can only be explained by virtue of the fact that derived structure is partially defined in terms of Case-assignment.

Section 4.5. examines the CLITIC-CLIMBING process in "Exceptional Case-marking" constructions which contain embedded passivès and intransitives, and shows how the VP-complement analysis of ergative structures provides a possible explanation for contrasts between these and other constructions.

Section 4.6. looks at the ways in which the Theta-Criterion interacts with the CLITIC-CLIMBING process, while section 4.7. discusses the nature of the impersonal pronoun, whose distribution differs in a number of ways from that of the personal pronouns.

Further arguments against Thiersch's analysis of the CLITIC-CLIMBING phenomena, and against Ever's V-Raising rule, are presented finally in section 4.8..

4.1. An Analysis of CLITICIZATION.

German has a set of unstressed object pronouns whose behaviour is somewhat similar to that of clitic pronouns in the Romance languages. That is, the pronoun appears on the surface in a preposed position relative to the unmarked position of the corresponding full NP object (cf. Lenerz:1977/Thiersch:1978). We have seen that the unmarked linear order of nominal elements is as shown in (1). The examples (2) and (3) show that an unstressed, Accusative pronoun precedes, rather than follows, a Dative object, and that it permutes freely with the subject.

(1) , dass der Mann dem Kind ein Buch gab.
the man the child a book gave
NOM. DAT ACC
The man gave a book to the child.

(2) a. , dass der Mann es dem Kind gab.

b. , dass es der Mann dem Kind gab.

The man gave it to the child.

(3) a. , dass der Mann ihn der Frau vorstellte.

the man him the woman introduced

b. , dass ihn der Mann der Frau vorstellte.

The man introduced him to the woman.

A reflexive anaphor behaves in the same way:

(4) a. , dass der Mann sich der Frau vorstellte.

b. , dass sich der Mann der Frau vorstellte.

The man introduced himself to the woman.

There is, then, some regular fronting process comparable to the French rule of CLITICIZATION which is exemplified in (5).

(5) a. Je lis le livre.

I read the book.

b. Je le lis.

I read it.

Any analysis of CLITICIZATION must capture the relationship between the preposed pronoun and the corresponding full NP complement position generated by the structure-assignment rules, for the

position occupied by the pronoun is not a D-structure position: Since the pronoun and the full NP are in complementary distribution, the former does not occupy an independent thematic position. Rather, the preposed position is external to the argument-structure of the verb.

The process of CLITICIZATION is thus a transformational one, and early analyses, in particular that of Kayne (1975), posited a movement rule, under the assumption that clitics are generated in the position of the corresponding full NP complement. Thus, (5b) would be derived from the underlying configuration (6) by the rule (7).

(6) *Je [lis le].
VP

(7)

	X	V	Y	Pro	Z
	1	2	3	4	5
----->	1	4+2	3	5	

In a more restrictive theoretical framework, such a movement rule cannot be permitted, for two reasons: a) It must apply obligatorily if the complementary distribution of unstressed pronouns and full noun-phrases is to be accounted for -- (6) is ungrammatical, and so there is no evidence that clitics ever occur in the NP complement position; b) As a linear rule, it creates structure and therefore violates the Projection Principle.

As an example of the way in which CLITICIZATION might be handled within the more restrictive theoretical framework of the Government-Binding theory, we take the analyses offered by Chomsky

(1982a) and Jaeggli (1981). Here it is assumed that languages which manifest CLITICIZATION have the following option in the base component:

(8) VP -----> CL ... V ...

Unstressed pronouns may be inserted at D-structure in the VP-initial position and linked via co-superscripting with a phonetically unrealized pronominal, PRO, in the corresponding full NP complement position, the clitic pronoun having the property that it "absorbs" government. Under this analysis, the French example (5b) would have the S-structure (9).

(9) [NP INFL [CL V PRO$_i$]]$_i$.
S VP

The LF representation must, by the Projection Principle, be roughly as follows (cf. Chomsky:1982a,276):

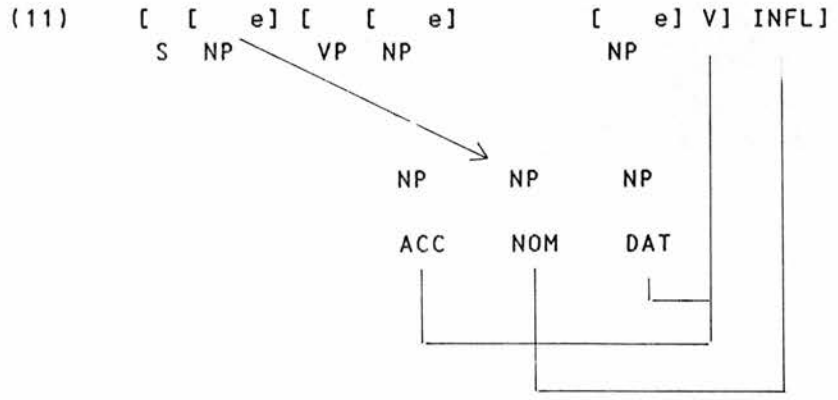
(10) [NP INFL [V NP]]
S VP

Accordingly, it is stipulated that the full NP complement position is subcategorized for, and assigned a thematic role, by the verb via the co-superscripting process, i.e. on the assumption that a verb assigns a thematic role to a position which it governs, the clitic, but not PRO, is "theta-marked" in (9), but PRO inherits this property of the clitic via co-superscripting. In other words, the process of CLITICIZATION is reversed, the co-superscripting process effectively assigning the clitic back to the object position.

We are forced to take a rather different approach, though one which necessarily has the same effect with respect to the mapping from S-structure to LF.

CLITICIZATION is a linear process and we must introduce the linear position occupied by the preposed pronoun in the phrase-structure rules, as in (8) above. Following Thiersch (1978), we claim that the possibility of permutation of the clitic and the subject is a result of the optional application of the RIGHTWARD-SHIFT rule, cf. (11).

(11)



Firstly, we must consider the status of the two positions related by the process of CLITICIZATION in the two-dimensional structure created by the structure-assignment rules. The linear position of the pronoun distinguishes itself from the corresponding empty full NP position with which it is associated in that it is not an argument position -- it is external to the underlying argument-structure of the verb, despite being governed by the same. Let us consider then how this distinction emerges in the structure assigned by the Case-assignment rules. We have, until now, taken Case-assignment to be free -- it applies freely to underlying arguments, subject only to the limitations imposed by the Theta-Criterion. This has been

possible because elements have only appeared in their D-structure positions at the point at which Case-assignment has applied. Thus, the linear D-structure has been an immediate factor of the two-dimensional S-structure, and the Projection Principle has been satisfied. We are now permitting the occurrence of elements in non-argument positions at the point at which the Case-assignment rules apply, but if we allow the direct assignment of Case into such positions, then S-structure will no longer be linearly factored into D-structure. Instead, the derivation from D-structure to S-structure will have involved the creation of an argument position (a position within the VP) in violation of the Projection Principle. Case can only be assigned into argument positions and, therefore, only into the full NP complement position associated with a clitic, but never into the position occupied by the clitic in the type of constructions under discussion.

In our terms, then, the element occupying the linear argument position associated with a preposed pronoun cannot be PRO, for this element is assigned to a position in the structure defined by the Case-assignment rules. It must be a Case-marked empty category.

Secondly, we must note that the linear abstraction to D-structure which is the relation between clitic and Case-marked empty category must be expressed, in a two-dimensional S-structure, not simply with respect to the underlying configurational structure, but also with respect to the structure defined by the Case-assignment rules.

With these preliminary remarks in mind, we advance an analysis of CLITICIZATION now which makes crucial use of the observation that pronouns in general have content only as realizations of the grammatical features, person, number, gender and Case (cf. the paradigm (12))[1]. Pronouns are not lexical NP, but specify anaphoric or deictic reference in terms of feature-specifications, i.e. they identify a D-structure argument. This process of identification is perceived syntactically as the relation between a clitic pronoun and the gap in the corresponding full NP position.

(12)

Singular.

Person.	Gender.	Case.			
		NOM.	ACC.	DAT.	GEN.
1st.		ich	mich	mir	meiner
2nd.		du	dich	dir	deiner
3rd.	Masc.	er	ihn	ihm	seiner
3rd.	Fem.	sie	sie	ihr	ihrer

Plural.

Person.	Gender.	Case.			
		NOM.	ACC.	DAT.	GEN.
1st.		wir	uns	uns	unser
2nd.		ihr	euch	euch	eurer
3rd.	Masc./Fem.	sie	sie	ihnen	ihrer

Let us say that the rule (8) generates an empty category in the VP-initial position if the CL option is taken and that the phrase-structure rules are supplemented by the transformational rule,

"CO-INDEX", which assigns the referential index of a D-structure argument to the empty category and, in so doing, "fills" it with appropriate specifications for the features, person, number and gender. The formulation, "CO-INDEX", expresses the fact that the CLITICIZATION process does not involve movement of a lexical NP in the way that EXTRAPOSITION, for example, involves movement of an S' constituent, but rather the creation of a pro-form for one such NP. The process is thus to be interpreted as a variant form of lexical insertion: We may equate the insertion of lexical NP with the assignment of a referential index to NP positions. Where insertion fails, the intended referent is identified in terms of a feature-matrix in the CL position. Given that the Theta-Criterion requires all and only the thematically relevant argument positions to be filled at D-structure, any empty position must be assigned an antecedent under CO-INDEX. Since pronouns are not lexical NP, and in this sense, have no independent reference, they are not eligible to occupy D-structure argument positions and only function as pro-forms, as both their morphological and semantic characteristics would suggest.

These inherent properties, we claim, are responsible for the complementary distribution of pronouns and lexical (full) NP. Their mutual exclusion as argument elements will reduce to the Theta-Criterion.

CO-INDEX is a sub-form of MOVE ALPHA.[2] As did Kayne's standard transformational formulation of CLITICIZATION which they replace, CO-INDEX and the phrase-structure rule (8) express a linear

abstraction to D-structure. But the analysis has necessitated the generation of a position within VP which is external to the argument-structure of the verb -- as noted above, the rules no longer generate D-structure prior to the application of Case-assignment, but a (partially "base-generated") transform. Lest the Case-assignment rules process this transform as if it were an underlying structure, therefore, the linear abstraction to D-structure must find an expression in the structure defined by these rules, in the form of a transformational rule, "TRANSMIT CASE", manifested as the assignment of a Case-feature to an element which has gained an index under the co-indexing process.

The application of Case-transmission rather than Case-assignment in any particular instance will follow from the Theta-Criterion and the form of the grammar, which now appears as follows:

S -----> NP VP INFL

VP -----> CL ... V

a) [+TENSE] assigns Nominative Case to NP.

b) V assigns Accusative and/or Dative Case, or neither, to NP, in accordance with its lexical properties.

"CO-INDEX"

"TRANSMIT CASE"

The Case-assignment rules define a non-linear projection over elements appearing at D-structure, where these elements lend

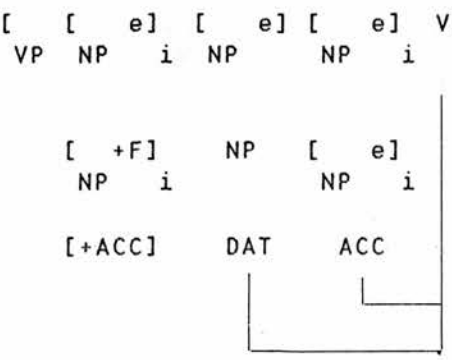
themselves to non-linear factorization, by assigning each such element to an argument position (a GF), as defined by the Case assigned. By the Theta-Criterion, each element occupies a thematically relevant position at D-structure.

CO-INDEX permits a deviation from D-structure. It stipulates that lexical insertion, as formally expressed by a referential index, may take place in the CL position, on the interpretation outlined above. Now, each indexed element is, by the Theta-Criterion, a D-structure argument, for all and only thematically relevant positions are filled (indexed) at D-structure. And the grammar assigns to each element a position in the structure defined by the Case-assignment rules. Thus, at the point at which the Case-assignment rules apply, an element in the CL position, a potential argument position, is subject to Case-assignment. But if the intended LF representation is well-formed, then the Case-assignment structure is linearly restricted in that it can only define a non-linear projection over D-structure argument positions -- as noted above, structure cannot be created. This conflict between Case-assignment and the Theta-Criterion is resolved by Case-transmission: An element in the CL position is assigned to a position in the Case-assignment structure, which exists only over linear positions which are thematically relevant, via the assignment of a Case-feature. TRANSMIT CASE must apply, by the Theta-Criterion.

We shall see that TRANSMIT CASE in fact takes several forms. Where the indexed element in the CL position and the associated, empty full NP complement are configurationally governed by the same

verb, it involves the direct assignment of a Case-feature, so that the process of Case-assignment as it otherwise applies to the corresponding full NP complement is recaptured. The clitic is thereby assigned to the same position as the corresponding full NP in the derived S-structure. The Case-assignment rules and TRANSMIT CASE apply simultaneously to produce a structure of the following form:

(13)

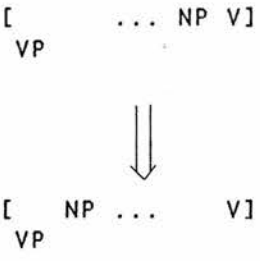


The Theta-Criterion will prevent random Case-transmission as it prevents random Case-assignment, since Case defines GF and a single element cannot be assigned to two thematically relevant positions. The clitic will thus always receive its Case-feature from the empty category with which it is co-indexed.

At S-structure, the feature-matrix which is the clitic pronoun in the CL position, though occupying a position within the linear VP, stands in a non-argument position with respect to the structure-assignment rules. As becomes clear when we consider the effect of CO-INDEX and TRANSMIT CASE in terms of the structural change of Kayne's (1975) standard transformational rule, the two-dimensional approach "explains" the derivational projection associated with the process of CLITICIZATION at S-structure: CO-INDEX within VP expresses a linear abstraction to D-structure of the

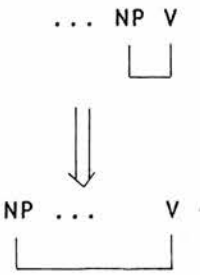
following form (equivalent to that expressed by Kayne's rule (7) above):

(14)



TRANSMIT CASE expresses the same linear abstraction:

(15)



The structural change of the standard formulation of the transformational rule applies in both the underlying configurational structure and in the Case-assignment structure to create a feature-matrix on the surface, while the feature-specification for Case assigns the feature-matrix "back" into the two-dimensional structure defined by the structure-assignment rules, such that the whole process does not involve the creation of an illegitimate linear position within VP. Thus, by virtue of its index, the clitic is assigned to a legitimate, thematically relevant, underlying GF; by virtue of the fact that Case defines GF, its Case-feature assigns it to a legitimate position in the derived argument-structure of the verb. Viewed in this way, the CL position only exists at an

intermediate level, between the configuration and the Case-assignment structure, which corresponds to surface form.

In terms of chains, the empty category in the D-structure position of the corresponding full NP complement is argument-bound by the clitic, which is assigned by its Case-feature to the position of the Case-marked empty category in the Case-assignment structure. Since in this instance the Case assigned to this empty category redefines the GF of the empty category bound by the clitic pronoun, the pronoun heads a single-link chain. However, the Case-marked empty category is not linearly argument-bound by the clitic at S-structure because this latter element is not assigned Case directly and is, therefore, external to argument-structure at the derived level. In a well-formed S-structure, a Case-marked empty category can never be argument-bound as a result of CO-INDEX. For this reason, it is not necessary to distinguish between the kind of index which is relevant to the Binding Conditions as they operate between linear argument positions and the kind of index assigned under CO-INDEX. We take it, in fact, that the only kind of index available is the referential index.

Unstressed subject pronouns in non-ergative structures appear in the same position as full NP subjects (cf. (16)), and it is therefore assumed that they are also generated in this position. However, they can never undergo RIGHTWARD-SHIFT (cf. (17)) since they cannot carry stress and are always definite and, consequently, do not meet the conditions of the rule.

(16) , dass er dem Kind das Buch gab.

he the child the book gave

NOM DAT ACC

He gave the book to the child.

(17) *, dass dem Kind er das Buch gab.

In ergative structures, on the other hand, derived subject pronouns are underlying direct objects, there being no thematic subject. In the linear string, they precede a Dative object (cf. (18)), i.e. they stand in the CL position. Since ergative verbs are not Case-assigners, a Nominative Case-feature will be transmitted to these clitics under Case-transmission, such that double-link chains are created (cf. the structure (19)).

(18) , dass er der Frau vorgestellt wurde.

He was introduced to the woman.

(19) [[e] [[e] ... [e] V] INFL]
S NP VP NP i NP i

[+F] ... [e]
NP i NP i

[+NOM] NOM

4.2. CLITICIZATION in the Complex Sentence.

We turn now to consider CLITICIZATION as it applies across a clause-boundary. There are only two cases where this takes place: In "Raising" and "Exceptional Case-marking" constructions in which an embedded overt subject comes to be configurationally governed by the matrix verb as a result of the application of S'-DELETION.

Consider the following:

(1) a. , dass dem Jungen [$_{S}$ der Mann gross zu sein] scheint.

the boy the man big to be seems

DAT NOM

The man seems to the boy to be big.

b. , dass er dem Jungen gross zu sein scheint.

he the boy big to be seems

NOM DAT

He seems to the boy to be big.

c. *, dass der Mann dem Jungen gross zu sein scheint.

NOM DAT

(2) , dass ihn der Mann das Maedchen kuessen sah.

him the man the girl kiss saw

The man saw him kiss the girl.

(3) , dass sich Karl das Maedchen kuessen sah.

Karl saw himself kiss the girl.

It is apparent from the contrast between (1a) and (1b) that an unstressed, embedded subject pronoun in "Raising" structures is preposed from the underlying embedded subject position, for it precedes the matrix Dative object. The corresponding linear order of full NP is not possible (cf. (1c)), i.e. there is no rule of NP-MOVEMENT (cf. Thiersch:1978,159), and RIGHTWARD-SHIFT across the embedded subject is prevented by the Binding Conditions (cf. section 2.5.) -- if the matrix Dative object occupies a position within the embedded VP, then it heads a chain whose tail is not bound in its governing category, the embedded S.

(2) and (3) are "Exceptional Case-marking" constructions, which have the respective clausal structures (4) and (5) after the application of S'-DELETION.

(4) [der Mann [ihn [das Maedchen kuessen]] sah]
S' S VP

(5) [Karl [sich [das Maedchen kuessen]] sah]
S' S VP

The overt subject of the complement clause, a clitic, permutes with the matrix subject. Again, this permutation cannot be the result of RIGHTWARD SHIFT, for if the matrix subject is moved to a track contained in the embedded VP, as in (6), then it heads a non-linear chain which violates the Binding Condition on anaphors: It is at once embedded object and matrix subject, the latter by virtue

of its being assigned Nominative Case. Again, it will be recalled from Chapter Two that the corresponding sentences with full NP embedded subjects are not possible. Consequently, it must be the case that the clitic has moved up into the matrix VP, as shown in (7).

(6) [[e] [[e] [[e] V] INFL] ...]
S NP S NP VP NP

NP NP NP
ACC NOM ACC

(7) [... [CL [NP ...] V] ...]
S' VP S

<-----

We shall take it that (1b), (2) and (3) result from the process of CLITICIZATION (and in (2) and (3), from the additional application of RIGHTWARD-SHIFT). The CL option is taken in the phrase-structure rule (8) at D-structure and S'-DELETION and CO-INDEX apply subsequently to produce the intermediate structure (9).

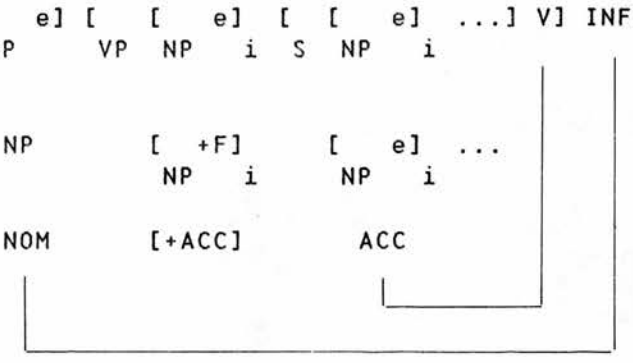
(8) VP -----> CL ... V

(9) [[+F] ... [[e] ...] V]
VP NP i S NP i

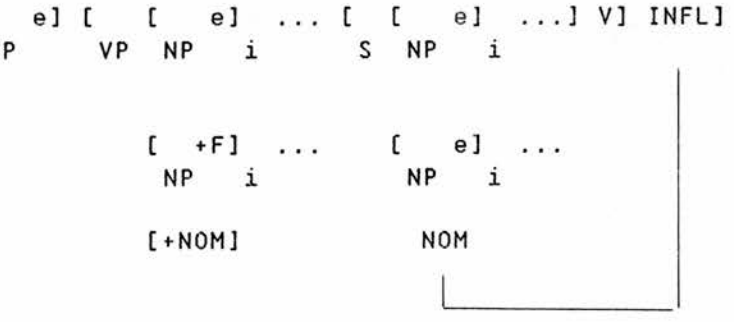
Since both the pronoun and the empty embedded subject are configurationally governed by the matrix verb, both can, indeed must, function in the same way at S-structure: The clitic must be assigned to a legitimate linear position in the two-dimensional structure

which is the product of the structure-assignment rules. That is, the Case assigned to the embedded subject under the structure-assignment rules will be transmitted to the linear CL position as a Case-feature under TRANSMIT CASE. The "Exceptional Case-marking" constructions therefore have the S-structure form (10); the "Raising" structures, the form (11).

(10)



(11)



In the "Raising" structures, the clitic undergoes GF-ASSUMPTION because it is co-indexed with an empty category configurationally governed by the verb which is subject to the same rule (see section 4.3.). The Theta-Criterion will prevent the transmission of a Dative Case-feature, if a Dative object is present, or the direct assignment of Dative Case if such an object is not present (recall that scheinen is lexically specified to be a Dative Case-assigner). In the "Exceptional Case-marking" structures, the clitic can bind the empty

category which undergoes GF-ASSUMPTION (from embedded subject to matrix object), because the embedded subject position is configurationally governed by the same verb as the clitic.

In both (10) and (11), the clitic pronoun is defined as occupying a non-argument position with respect to the structure-assignment rules, its Case-feature assigning it to a legitimate argument position -- that of the empty category with which it is co-indexed. In terms of chains, the clitic pronoun argument-binds the empty category in the underlying embedded subject position and heads a double-link chain by virtue of its being assigned by its Case-feature to the matrix object position, in (10), and to the matrix subject position in (11).

4.3. CLITIC-CLIMBING.

Consider now the following examples of CLITICIZATION:

(1) , dass mich die Ergebnisse nicht zu befriedigen vermoegen.
me the results not to satisfy are-able
The results are not able to satisfy me.

(2) , dass sich viele Leute zu toeten versuchen.
themselves many people to kill try
Many people try to kill themselves.

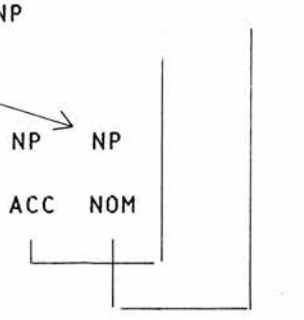
These are control structures which have the respective D-structure forms (3) and (4).

(3) [' die Ergebnisse [' PRO mich zu befriedigen] vermoegen]
S S

(4) [' viele Leute [' PRO sich zu toeten] versuchen]
S S

The unstressed pronouns are direct objects of the embedded verbs, yet they permute with the matrix subjects. It cannot be the case that this permutation is a result of RIGHTWARD-SHIFT in the complex sentence, for the rule cannot apply across a clause-boundary (see sections 2.5. and 2.7.). The matrix subject in (5) heads a chain by virtue of its position with respect to the underlying configuration: It at once stands on a track contained in the VP of the embedded clause and is subject of the matrix clause in terms of its Case-marking. And this chain violates the Binding Condition on anaphors.

(5) [[e] ... [... [[e] V]] INFL]
S NP S' VP NP



As we have already seen, the corresponding sentences with full NP objects are not possible.

For the matrix subject to be able to permute with an embedded object clitic, this latter must be a daughter of the matrix VP. Let us, therefore, posit a linear process of CLITIC-CLIMBING which, in the construction under discussion, transports the clitic from the CL position in the embedded VP to the CL position in the matrix VP, as illustrated in (6). Thus, we maintain the principle that a clitic is generated as a complement to that verb which supplies its thematic role.

(6) [... [CL ... [... [CL ... V] ...] V] ...]
S' VP S' VP

<----------

Having established the existence of CLITIC-CLIMBING, it is now necessary to determine the conditions under which it operates so that a precise formulation of the rule can be attained. We shall see that the two-dimensional analysis of S-structure is crucial to a proper understanding of the processes involved.

A striking fact about the CLITIC-CLIMBING rule as it applies in the control structures discussed above is that it appears to violate the Opacity Condition, now subsumed under the Binding Conditions:

> If A is in the domain of the subject of B, B minimal, then A cannot be free in B. (Chomsky:1980).

Precisely this configuration obtains in (6) above, where the trace of the clitic in the CL position in the embedded VP is free in the complement S and also in the domain of the subject of this S. Thus,

(6) should be on a par with (7).

(7) *Mary seems [John to like t].
i S i

Consider now the following examples of CLITIC-CLIMBING:[3]

(8) *, dass Karl ihn [einen Freund t holen] liess.
i S i

K. him a friend fetch made

Karl had a friend fetch him.

(9) *, dass Karl sich [den Jungen t entschuldigen] hoerte.
i S i

K. himself the boy excuse heard

Karl heard the boy excuse himself.

(10) *, dass sich der Mann [das Maedchen t waschen] sah.
i S i

herself the man the girl wash saw

The man saw the girl wash herself.

(11) *, dass ihn der Mann [das Maedchen t kuessen] liess.
i S i

him the man the girl kiss let

The man let the girl kiss him.

As in the control structures discussed above, the embedded object clitic is transported to the matrix CL position. Here, however, the Opacity Condition is obeyed -- this removal of the pronoun from the domain of the embedded subject is not permitted. That the Opacity Condition (or the Binding Condition on anaphors) is the relevant factor is revealed by the contrast between these sentences and (1b),

(2) and (3) of the previous section in which a subject clitic was subjected to CLITICIZATION, i.e. the familiar subject:object asymmetry obtains which the Opacity Condition was designed to capture.

We now face the problem of having to explain why the Opacity Condition should hold over CLITIC-CLIMBING only in "Exceptional Case-marking" constructions. The correct approach to this problem requires an examination of the nature of the matrix CL position in the two-dimensional analysis of S-structure. Let us begin by making the process of CLITIC-CLIMBING more precise. Assuming that empty categories are generated freely in the CL position, CO-INDEX may apply to link a matrix CL position with an embedded CL position, and in turn with an argument position of the embedded VP. This type of co-indexing, a variant form of lexical insertion, is equivalent to a movement rule -- we may view it as the transportation of a feature-matrix from one linear position to another. For this reason, the process can only take place within the configurational representation. Once an element appears in the structure defined by the Case-assignment rules, it cannot move because it has nowhere to move to -- positions, in this sense, are not specified by the Case-assignment rules. Thus, CO-INDEX is intrinsically ordered to precede Case-assignment.

Furthermore, as a transformational rule, CO-INDEX is subject to the principle of the transformational cycle. In an "Exceptional Case-marking" construction, the S' node and COMP of the complement are erased by S'-DELETION, so that the matrix S' node constitutes the

sole cyclic domain (see section 3.2.). CO-INDEX can, therefore, apply directly, as in (12).

(12) [... [CL [... [CL ... [e] V] INFL] V] ...]
S' VP i S VP i NP i

Recall, however, that S' is a cyclic node and that S'-DELETION does not take place in control structures. Therefore, CO-INDEX cannot apply directly on the first cycle between matrix and embedded CL positions as it is able to in "Exceptional Case-marking" constructions, for this would belong properly to the second cyclic domain. Furthermore, Case-transmission applies automatically in the embedded VP, assigning to the element in the CL position a Case-feature and, thereby, a position in the Case-assignment structure, so that subsequent linear extractions are prevented -- CO-INDEX is intrinsically ordered to precede Case-assignment.

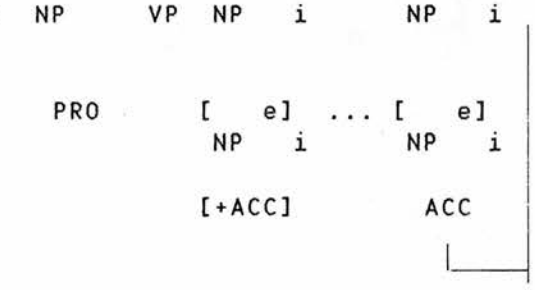
To permit extraction on the second cycle, the embedded pronoun object must, on the first cycle, be co-indexed with a linear position within the complement clause which is inaccessible to Case-transmission. The only such position available is COMP, since the assignment of a Case-feature under Case-transmission can only take place into linear positions which are potential argument positions. A derived argument-structure cannot be defined over non-argument positions, because only argument positions are filled at D-structure. Transmitting Case into COMP would be equivalent to assigning potential argument-position status to COMP at D-structure.

We conclude that the COMP position may function as an intermediate landing-site for CLITIC-CLIMBING, so that further extraction is possible. More precisely, let us assume that this position is like the CL position, that empty NP categories are generated freely in it at D-structure.[4] In an embedded cyclic domain, then, a pronoun may "move" linearly to COMP under CO-INDEX before the Case-assignment rules have chance to apply. Case-transmission subsequently applies to the "trace" of the pronoun in VP to produce the S-structure form (13). Case is not transmitted directly into COMP, and so the pronoun is assigned to no position in the Case-assignment structure.

(13) [[+F] [[e] [[e] ... [e] V] INFL]]
S' NP i S NP VP NP i NP i

PRO [e] ... [e]
NP i NP i

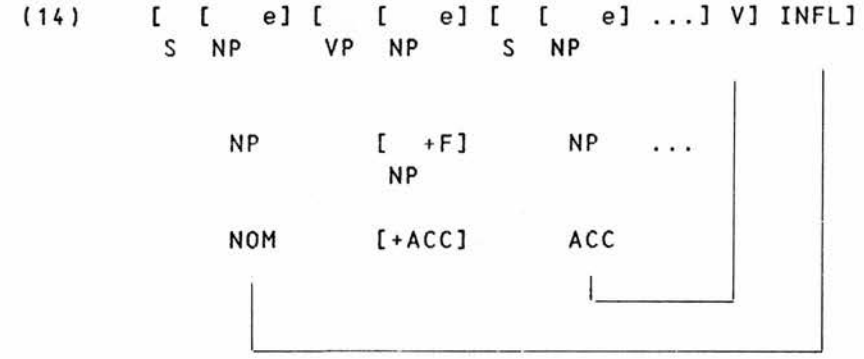
[+ACC] ACC



We return now to the nature of the matrix CL position in "Exceptional Case-marking" constructions. Under CLITIC-CLIMBING, co-indexing takes place between embedded and matrix CL positions, not between positions dominated by the matrix VP. There is, therefore, no linear position within the matrix VP to which the clitic can legitimately be assigned under Case-transmission. However, the matrix verb is a Case-assigner -- it assigns Accusative Case to the underlying subject of the embedded clause, and the clitic, an indexed element in a potential argument position, is subject to Case-assignment. There is, then, a non-linear position within the matrix VP to which the clitic can be assigned: The Accusative Case

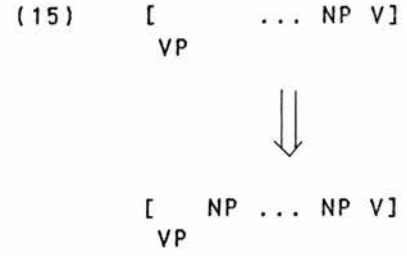
assigned by the matrix verb to the underlying embedded subject will be transmitted in the form of a feature to the clitic.

(14)

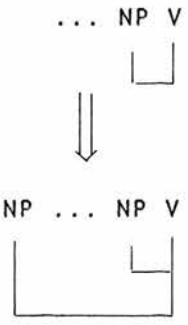


Again, this will follow automatically from the form of the grammar: The Case-assignment rules define a non-linear projection over indexed elements in argument positions, while the Theta-Criterion restricts direct Case-assignment to linear positions which are thematically relevant. The clitic bears an index and it occupies a potential argument position (it lies within the matrix VP). A Case-feature is therefore transmitted into the CL position to assign the clitic pronoun to a legitimate linear position within the two-dimensional structure which is the product of the structure-assignment rules. The abstraction to D-structure expressed by the assignment of an index to the CL position in the matrix VP in (14) (cf. (15)) is thus equivalently expressed by the assignment of a Case-feature (cf. (16)).

(15)



(16)



The derivation of the control structures (1) and (2) above proceeds rather differently: On the second cycle, co-indexing takes place between the embedded COMP and the matrix CL positions, such that the matrix clause has the intermediate internal structure (17).

(17) [COMP [NP [[+F] [[e] ...] V] INFL]]
S' S VP NP i S' NP i

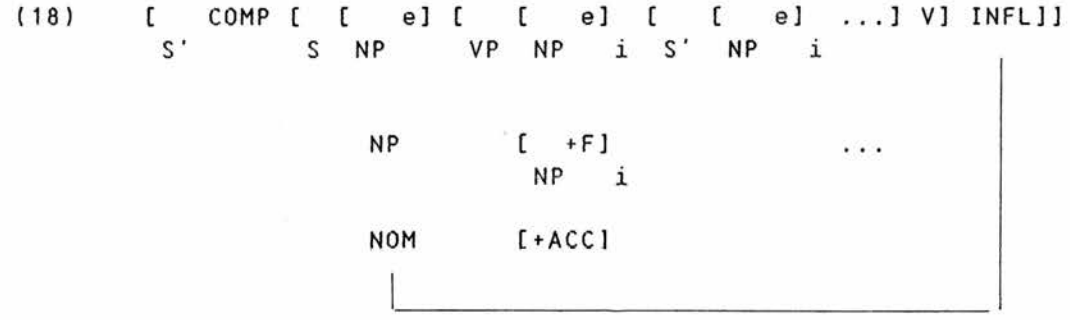
...

But in contrast to the corresponding case in "Exceptional Case-marking" constructions, the matrix verb is not a Case-assigner: It has no complement in the Case-assignment structure, the embedded clause having been effectively destroyed via the application of Case-assignment to elements contained within it. Although the verb is lexically specified to be a Case-assigner, we cannot permit Case to be assigned directly to the element in the CL position, since this would involve the creation of structure and would violate the Theta-Criterion. Intuitively, if a verb does not assign Case to a complement, then there is no argument position, i.e. GF, defined in the non-linear projection and no Case-marking which could realize the potential argument-position status of the CL position in the configurational representation, as there was in the "Exceptional

Case-marking" construction discussed above.

Nevertheless, the climbed clitic bears morphological Case because it must be assigned to a position in the Case-assignment structure -- unlike the embedded S' constituent, it appears in the non-linear projection. The abstraction to D-structure in the linear dimension can only be properly expressed if the pronoun is in fact assigned to the position of its trace, and this can only be achieved within the Case-assignment structure in terms of Case. Specifically, we claim that this too is the result of Case-transmission, manifested not as the assignment of a Case-feature, but as the transference of a Case-feature which has already been assigned. Thus, in the construction under discussion, the co-indexed element in the embedded CL position (see (13) above) transmits its Case-feature to the climbed clitic upon the application of Case-assignment on the second cycle, so that (17) becomes (18).

(18)



The fact that the clitic is configurationally governed by the matrix verb yet bears a Case-feature supplied by the embedded verb is of no import, precisely because the Case-feature is not assigned directly but transferred. The clitic is assigned neither by its index nor by its Case-feature to a complement position within the

matrix VP, though it occupies a potential argument position and is therefore subject to Case-assignment. Case-transmission of the sort in operation here permits this last requirement to be satisfied in positions which are linearly removed from a D-structure argument position. The clitic is assigned by both its index and its Case-feature to a legitimate position in the embedded VP.

The reason for the contrast between control structures and "Exceptional Case-marking" structures with respect to the possibility of CLITIC-CLIMBING out of the embedded clause, and the reason for the applicability of the Opacity Condition only in the latter, is now apparent: While in both cases the climbed clitic occupies a non-argument position with respect to the structure-assignment rules, as required, Case-transmission applies in such a way as to assign the clitic to a position within the complement-structure of the matrix verb in "Exceptional Case-marking" constructions, but not in control structures. It is only Case which can define the derived position, if any, of an extracted element in the two-dimensional S-structure, for the ultimate landing-site of extracted elements figures only in the Case-assignment structure. It is only the process of Case-transmission which can define the degree of abstraction from a clitic to an argument position, i.e. it is only Case which determines whether movement to a position governed by a verb is to an argument position or not. The CL position is external to argument-structure at D-structure (and LF). Therefore, if a given VP has any internal structure at all, an indexed element in the CL position must be part of it; but only Case can determine this for extracted elements.

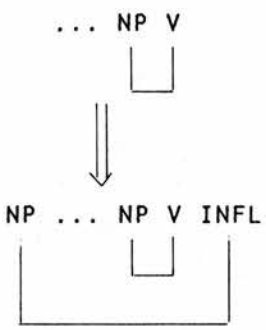
A double-link argument chain is created in "Exceptional Case-marking" constructions between the climbed clitic and the D-structure position of the corresponding full NP complement in the embedded VP. This chain is well-formed with respect to the Theta-Criterion, since only its tail is assigned a thematic role -- the Accusative Case assigned by the matrix verb is not thematically relevant (see Chapter Two). But it is ill-formed with respect to the Binding Condition on anaphors, or the Opacity Condition, for the tail is not bound in its governing category, the embedded S, but rather by a direct object of the matrix clause.

In contrast, only a single-link chain is created in control structures, since the climbed clitic is assigned by its Case-feature to the position of its trace in the embedded VP. Because Case defines GF at S-structure in German, the matrix CL position in control structures such as those exemplified in (1) and (2) above is determined to be a suitable landing-site for a clitic pronoun.

Note that, in contrast to the cases of CLITICIZATION, it is only the Case-feature which in "Exceptional Case-marking" constructions assigns the clitic to a legitimate position in the complement-structure of the matrix verb. In both "Exceptional Case-marking" and control structures, the clitic is not co-indexed with a full NP complement position configurationally governed by the same matrix verb. One of the consequences of this is that it is impossible for a Nominative Case-feature to be transmitted from the matrix subject, since the index borne by the clitic does not assign it to a D-structure argument position within the configurational VP:

If the intended LF representation is well-formed, then the clitic cannot undergo GF-ASSUMPTION. Nor can Nominative Case assign the clitic, as a governee of the verb in the underlying configuration, to a position within VP, because Nominative Case defines the GF, "subject". The abstraction expressed by TRANSMIT CASE (cf. (19)) would then not parallel that expressed by the assignment of an index to the CL position (cf. (15)).

(19)



This is apparent in constructions in which GF-ASSUMPTION takes place within the matrix VP, and in which CLITIC-CLIMBING has a grammatical output, cf. (20) and (21).

(20) a. , dass der Kerl sie zu lieben scheint.
the bloke her to love seems
NOM ACC
The bloke seems to love her.

b. , dass sie der Kerl zu lieben scheint.

(21) a. , dass der Mann sie zu suchen gezwungen wurde.

the man her to look-for forced was

NOM ACC

The man was forced to look for her.

b. , dass sie der Mann zu suchen gezwungen wurde.

These have the respective underlying structures (22) and (23) (after the application of S'-DELETION in the "Raising" structure (20)).

(22) [[e] [[NP [NP V] INFL] V] INFL]
S NP VP S VP

(23) [[e] [NP [COMP [PRO [NP V] INFL]] V] INFL]
S NP VP S' S VP

The embedded subject in (20) and the matrix subject in (21) may permute with the embedded direct object clitic, but, as before, this cannot be the result of RIGHTWARD-SHIFT. Here too, the clitic must be preposed to the matrix CL position under CO-INDEX (cf. (24/25)).

(24) [[e] [[+F] [NP [...] INFL] V] INFL]
S NP VP NP i S VP

(25) [[e] [[+F] NP [...] V] INFL]
S NP VP NP i S'

In neither case is the matrix verb a Case-assigner. Both the embedded subject in (22) and the matrix object NP in (23) must undergo GF-ASSUMPTION to be governed by the matrix INFL in the Case-assignment structure. But it cannot be the case that Nominative

Case is transmitted to the climbed clitics, for then each clitic would be assigned to an argument position in the matrix clause, the Binding Condition on anaphors would be invoked, and the sentences would be ungrammatical. Since neither clitic is co-indexed with a full NP complement position governed by the matrix verb, neither is assigned to a D-structure argument position within the matrix VP and neither is available for GF-ASSUMPTION.

The grammaticality of (1) and (2) above, repeated here as (26) and (27), and their apparent violation of the Opacity Condition, is now explained.

(26) , dass mich die Ergebnisse nicht zu befriedigen vermoegen.
The results are not able to satisfy me.

(27) , dass sich viele Leute zu toeten versuchen.
Many people try to kill themselves.

The two-dimensional analysis of S-structure in German thus provides a very neat account of the behaviour of CLITIC-CLIMBING: The processes involved are conditioned crucially by the principle that Case defines argument positions at a derived level.

4.4. Dative Clitics.

Our discussion so far has only taken into consideration the distribution of unstressed Accusative pronouns. The possibility that unstressed Dative pronouns are also subject to CLITICIZATION has been ignored.

There is no evidence from unmarked word-order alone to suggest that Dative pronouns occur in any position other than that occupied by a corresponding full Dative NP:

(1) , dass der Mann dem Kind ein Buch gab.
the man the child a book gave
NOM DAT ACC
The man gave a book to the child.

(2) , dass der Mann mir ein Buch gab.
NOM DAT ACC
The man gave a book to me.

Consider, however, the following sentence in which RIGHTWARD-SHIFT has applied to move the subject NP, not across a single element, but across both an Accusative clitic and a Dative pronoun. This contrasts with the sentence (4).

(3) , dass sie mir der Mann vorstellte.

her me the man introduced

ACC DAT NOM

The man introduced her to me.

(4) *, dass sie der Frau der Mann vorstellte.

her the woman the man introduced

ACC DAT NOM

The man introduced her to the woman.

If a movement analysis of CLITICIZATION is adopted, (3) does not necessarily lead one to the conclusion that Dative pronouns undergo CLITICIZATION, for it can be derived via the interaction of RIGHTWARD-SHIFT and CLITICIZATION of the Accusative pronoun:

(5) , dass der Mann mir es gab. -----> RIGHTWARD-SHIFT

, dass mir der Mann es gab. -----> CLITICIZATION

, dass es mir der Mann gab.

This kind of ordering solution must be rejected, however, for the application of RIGHTWARD-SHIFT and CLITICIZATION in the order given in (5) will also generate the ungrammatical (4).

Under our analysis of CLITICIZATION, the contrast between (3) and (4) presents a problem which can only be overcome if both Accusative and Dative pronouns are generated in the CL position and if RIGHTWARD-SHIFT treats this position as a single term in its structural description. Thus, we must allow for the simultaneous

occurrence of two elements in the CL position.

More concrete evidence for the clitic nature of unstressed Dative pronouns comes from the complex sentence, where it can be shown that such pronouns are subject to CLITIC-CLIMBING. From the control structures in (6) and the "Raising" structures in (7), for example, we see that a matrix subject may permute with an embedded Dative object.

(6) a. , dass viele Leute [ihm zu helfen] versuchen.
S'

many people him to help try

Many people try to help him.

b. , dass ihm viele Leute zu helfen versuchen.

(7) a. , dass der Mann [ihm zu helfen] scheint.
S

the man him to help seems

The man seems to help him.

b. , dass ihm der Mann zu helfen scheint.

As has already been seen, such permutations cannot be the result of RIGHTWARD-SHIFT alone -- corresponding applications of RIGHTWARD-SHIFT across a full Dative NP are not possible (cf. (8/9) -- for the following reason: The matrix subject in the embedded VP heads a chain which violates the Binding Condition on anaphors (cf. section 2.5. above). It must be, therefore, that the Dative pronouns in (6b/7b) have been preposed to the matrix VP.

(8) *, dass dem Kind viele Leute zu helfen versuchen.

(9) *, dass dem Kind der Mann zu helfen scheint.

Movement of a Dative clitic under CLITIC-CLIMBING is constrained in the same way as is movement of an Accusative clitic. Thus, whilst CLITIC-CLIMBING is possible in the control structure (6), it is not possible in "Exceptional Case-marking" constructions, as the sentences in (10) reveal (cf. Hoehle:1978/Thiersch:1978). This itself suggests that Dative and Accusative pronouns are to be treated in the same way.

(10) a. *, dass Karl ihm [den Mann t das Buch geben] liess.
i S i

K. him the man the book give made

Karl made the man give him the book.

b. *, dass Ute ihm [das Maedchen t helfen] liess.
i S i

U. him the girl help made

Ute made the girl help him.

The same principles as explained the distribution of Accusative pronouns will also account for the behaviour of the Dative pronouns. Given the rules, VP -----> CL ... V, which generates empty categories in the VP-initial position, and CO-INDEX, a feature-matrix will be created under CL just in case lexical insertion fails in one of the thematically relevant GF-positions. Where the clitic pronoun bears Dative Case, we must assume that Case-transmission operates at this stage, since Dative Case is assigned to a full Dative NP

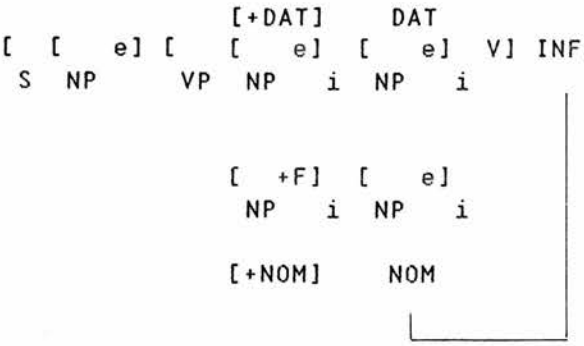
complement at D-structure (cf. section 1.7.).

In the simple sentence, both clitic and associated (empty) NP complement are assigned to a position in the Case-assignment structure, the clitic by virtue of TRANSMIT CASE. However D-structure Case-assignment is actually achieved, it is the Case-feature gained by the clitic at this underlying level which is realized on the surface. Thus, in ergative structures, in which a Dative clitic is "raised" by the Case-assignment rules and TRANSMIT CASE to subject, the original Dative Case-feature is retained:

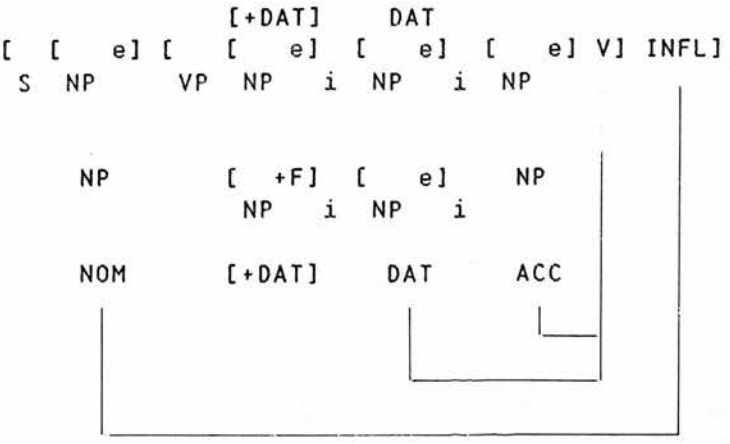
(11) , dass mir geholfen wurde.
me helped was
DAT
I was helped.

(11) has the S-structure (12), while (2) has the S-structure (13). Given that two empty categories may be generated in the CL position, and that RIGHTWARD-SHIFT treats this position as a single term in its structural description, (14) will be the well-formed S-structure for (3), while (4) will not be derivable.[5]

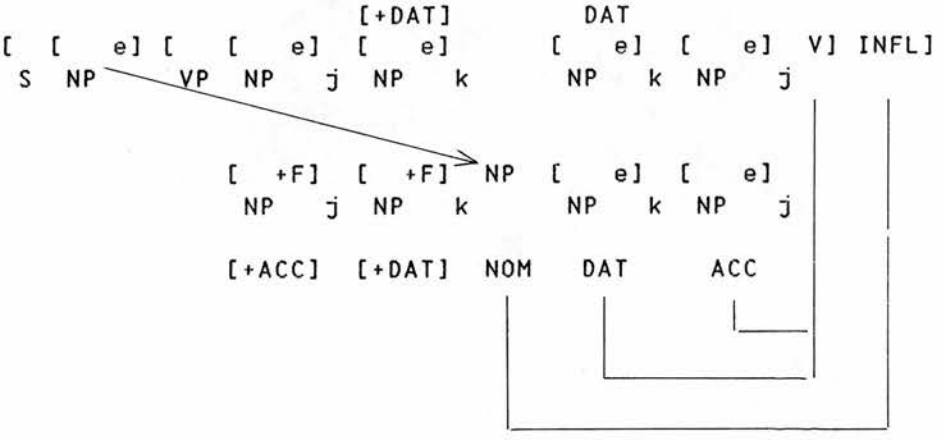
(12)



(13)



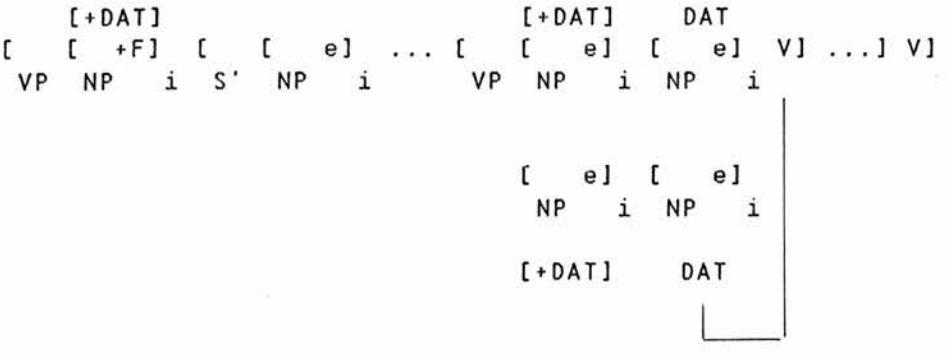
(14)



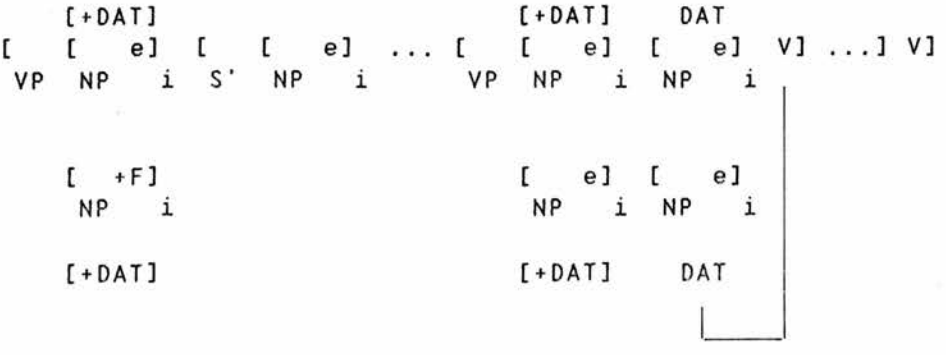
In control structures of the sort exemplified in (6) above, the Dative clitic will, like any Accusative clitic, be available for CLITIC-CLIMBING, i.e. it will attempt to climb from its D-structure position in the CL slot in the embedded VP to the CL slot in the matrix VP. On the embedded cycle, co-indexing will take place between the CL and COMP positions prior to the application of the Case-assignment rules, such that the clitic pronoun is not assigned to a position in the Case-assignment structure and is available for extraction on the second cycle, where embedded COMP and matrix CL positions will be co-indexed.

Again, we must assume that Case-transmission operates simultaneously with CO-INDEX at each successive linear stage in the derivation, as will follow automatically if the indexed element in the embedded CL position bears a Case-feature as a result of D-structure Case-assignment. The Dative Case-feature will, then, be transmitted to the matrix CL position as in (15), and will appear on the surface. The Dative Case-feature assigned to the element in the embedded CL position in the Case-assignment structure is similarly transmitted to the matrix CL position upon application of the Case-assignment rules on the matrix cycle, there being no other source for Case-transmission in the matrix VP (cf. (16)). The pronoun thus occupies a linear non-argument position with respect to the structure-assignment rules, whilst being assigned to a legitimate position by virtue of its Case-feature, gained under TRANSMIT CASE.

(15)



(16)



Similarly, in "Raising" structures (cf. (7)), co-indexing and Case-transmission will apply between embedded and matrix CL positions, as in (17).

(17)
```
        [+DAT]              [+DAT]    DAT
[   [  +F]  [  NP [   [   e]  [   e]  V] INFL] V]
 VP  NP   i  S     VP  NP   i  NP   i
```

Since the clitic is not co-indexed with a D-structure argument position within the matrix VP, it is not available for GF-ASSUMPTION (given the intended LF representation) and therefore cannot receive a Nominative Case-feature from the embedded subject under Case-transmission. Instead, the Dative Case-feature assigned to its trace in the embedded CL position will be transmitted to assign the clitic to a position in the Case-assignment structure:

(18)
```
                [+DAT]
[  [   e] [   [   e]  [  [   e] ...] V] INFL]
 S  NP     VP  NP   i  S  NP
                                          |
                                          |
            [  +F]        NP              |
             NP   i                       |
                                          |
            [+DAT]        NOM             |
                           |______________|
```

The CLITIC-CLIMBING process therefore involves the creation of a single-link chain between the climbed clitic and the empty category in the D-structure position of the corresponding full NP complement, and the structure is well-formed.

In contrast, the Dative clitic's attempt to climb to the matrix CL position in the "Exceptional Case-marking" constructions, as exemplified in (10), is doomed to failure because the matrix verb assigns Case to the embedded subject and thus provides a source for Case-transmission within the matrix VP. In the intermediate structure (19), the climbed clitic occupies a potential argument position and is therefore subject to Case-assignment.

(19)

```
        [+DAT]              [+DAT]    DAT
[   [  +F]  [  NP [   [   e]  [   e]  ... V] INFL] V]
 VP  NP   i  S     VP  NP   i  NP   i
```

The clitic pronoun will be assigned to a position in the argument-structure of the matrix verb via TRANSMIT CASE, as in the S-structure (20).

(20)

```
        [+DAT]                [+DAT]    DAT
[   [   e]  [  [   e] [   [   e]  [   e]  V] INFL] V]
 VP  NP   i  S  NP     VP  NP   i  NP   i
                                            |      |
    [  +F]       NP       [   e]  [   e]    |      |
     NP   i                 NP   i  NP   i   |      |
                                             |      |
    [+ACC]       ACC      [+DAT]    DAT      |      |
                                              |     |
                                              |     |
                                              |     
```

4.5. CLITIC-CLIMBING out of Embedded Ergatives.

We have argued that sentences such as (1) must be assigned the underlying structure (2), i.e. we have argued for a VP-complement analysis of embedded ergatives (passives and certain intransitives) in "Exceptional Case-marking" constructions.

(1) , dass der Kerl der Frau einen Stein auf die Fuesse
the bloke the woman a stone on the feet
fallen laesst.
fall lets
The bloke lets a stone fall on her feet.

(2) [COMP [NP [[NP NP V] V] INFL]]
S' S VP VP

Our analysis makes certain predictions as to the behaviour of the CLITIC-CLIMBING and RIGHTWARD-SHIFT rules in such constructions: Because the whole complex structure contains just a single governing category, there can never be a violation of the Binding Conditions in the event of an argument chain being created through the application of a movement rule. Thus, movement of the subject NP across the Dative NP into the complement VP under RIGHTWARD-SHIFT is permitted, since the Nominative NP's derived linear position is within the governing category in which Nominative Case is also assigned (cf. section 2.5. above):

(3) , dass der Frau der Kerl einen Stein auf die Fuesse
fallen laesst.

Given that an empty category may be generated in the matrix CL position, we also expect it to be possible for an embedded object clitic to climb to the matrix VP. Such an application of CO-INDEX would produce the following intermediate structure:

(4) [... [[+F] [[e] ... [e] V] V] ...]
S' VP NP i VP NP i NP i

In such cases, the embedded verb is not an Accusative Case-assigner. Rather, the matrix verb assigns Accusative to an embedded direct object, "raising" the latter to matrix object. VP-complement constructions thus differ from other "Exceptional Case-marking" constructions insofar as the NP to which the matrix verb assigns Case is not governed by the same verb in the underlying configuration. Within the embedded VP, Case will be transmitted directly (a Case-feature, [+ACC], will be assigned) to an object clitic in the embedded CL position (cf. (5)), as [+NOM] is assigned to an underlying object pronoun in simple ergatives.

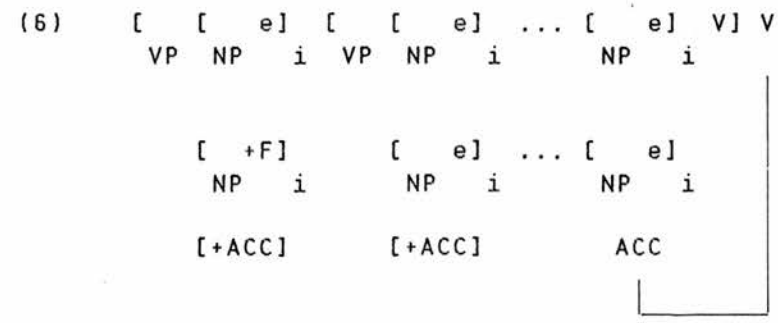
(5) [[e] ... [e] V] V
VP NP i NP i

[+F] ... [e]
NP i NP i

[+ACC] ACC

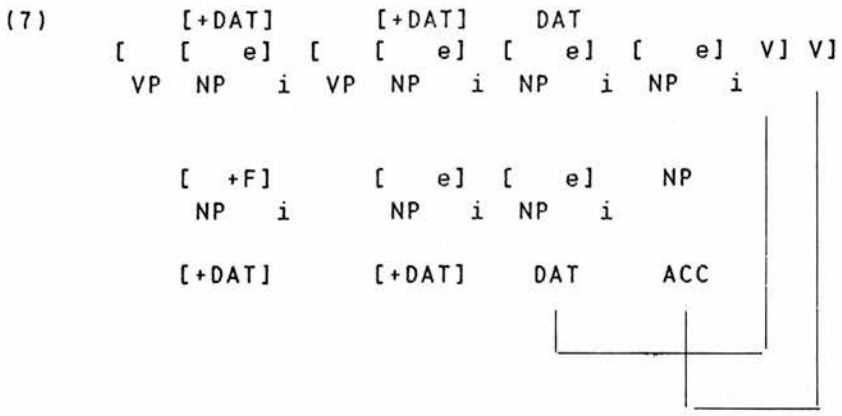
In the matrix VP, however, there is no source for the direct assignment of a Case-feature to the indexed element in the CL position, even though the matrix verb assigns Accusative Case to the embedded direct object. This is because this latter NP is not

governed by the matrix verb in the underlying configuration: The "Raising" of this NP from embedded object to matrix object, as this results from the application of the Case-assignment rules, cannot be recaptured via the assignment of an Accusative Case-feature into the matrix CL position, i.e. there is no position in the two-dimensional S-structure to which the pronoun can thereby be assigned. Instead, the climbed pronoun will be assigned to a position in the Case-assignment structure via the transference of the feature [+ACC] from the embedded CL position under Case-transmission (cf. (6)).



Similar remarks apply in cases where it is a Dative clitic which undergoes CLITIC-CLIMBING. CO-INDEX applies between embedded and matrix CL positions, a Dative Case-feature is assigned directly into the embedded CL position (both in the underlying configuration and in the non-linear projection (cf. section 4.4.)) and, since there is no source for Case-transmission within the matrix VP, the same Case-feature is transferred to the matrix CL position, as in (7).

(7)



CLITIC-CLIMBING out of embedded ergatives consequently leads to the creation of a double-link chain in those cases where an Accusative pronoun is extracted (the pronoun is "raised" from embedded object to matrix object), and a single-link chain in those cases where a Dative pronoun is extracted. In neither case is the Binding Condition on anaphors violated, in contrast to the corresponding case of CLITIC-CLIMBING out of S-complements in "Exceptional Case-marking" constructions. The VP analysis would, then, provide for the contrast between the sentences in (8) and those in (9) (cf. sections 4.3./4.4. See also Hoehle:1978,56 and Thiersch:1978,168).

(8) a. *, dass Karl sie [den Jungen t kuessen] sah.
i S i

K. her the boy kiss saw

NOM ACC ACC

Karl saw the boy kiss her.

b. *, dass Karl ihr [den Jungen t die Bilder
i S i

K. her the boy the pictures

NOM DAT ACC ACC

zeigen] liess.

show let

Karl let the boy show her the pictures.

(9) a. , dass Karl ihn [der Frau t vorstellen] liess.
i VP i

K. him the woman introduce made

NOM ACC DAT

Karl had him introduced to the woman.

b. , dass Karl ihr [t die Bilder zeigen] liess.
i VP i

K. her the pictures show made

NOM DAT ACC

Karl had the pictures shown to her.

Unfortunately, there is no way of seeing if CLITIC-CLIMBING actually takes place in such cases, since the linear process is string-vacuous. The sentences (10) and (11), for example, are derivable via the application of RIGHTWARD-SHIFT alone (cf. section 2.5.).

(10) , dass ihr der Kerl einen Stein auf die Fuesse fallen liess.

The bloke let a stone fall on her feet.

(11) , dass ihn Karl umbringen laesst.

him K. kill makes

Karl has him killed.

4.6. CLITIC-CLIMBING and the Theta-Criterion.

It was shown in section 4.3. how the semi-configurational nature of S-structure in German permits CLITIC-CLIMBING in control structures of the type exemplified by (1): Because the matrix verb has no Case-marked complement, the landing-site in the matrix clause is determined to be a non-argument position. There is no source for Case-transmission in the matrix VP, no linear deviation from D-structure can be captured in the Case-assignment structure, and so a climbed clitic pronoun cannot be assigned to a position in the argument-structure of the matrix verb.

(1) , dass mich die Ergebnisse nicht zu befriedigen vermoegen.

The results are not able to satisfy me.

In such cases, the sentential complement is the sole underlying complement of the matrix verb. Where other complements are present, however, the matrix CL position is not available as a landing-site. Thus, (1) contrasts with the following:

(2) *, dass Karl sie$_i$ den Mann [t$_i$ zu fuettern]$_{S'}$ zwang.

K. her the man to feed forced

Karl forced the man to feed her.

(3) *, dass Karl ihn der Frau [t zu suchen] versprach.
i S' i

K. him the woman to seek promised

Karl promised the woman to look for him.

(4) *, dass Ute mir den Mann [t zu helfen] bat.
i S' i

U. me the man to help asked

Ute asked the man to help me.

The co-occurrence of a clitic pronoun and another NP complement is not of itself the source of the ungrammaticality here, as (5) shows.

(5) , dass Karl ihn dem Maedchen vorstellte.

K. him the girl introduced

Karl introduced him to the girl.

The relevant factor is rather the clitic's ability to become an illegitimate complement of a verb via the process of CLITIC-CLIMBING (co-indexing and Case-transmission): Whereas the direct object pronoun in (5) is assigned to a legitimate position in the argument-structure of the verb, otherwise occupied by a full Accusative NP, the pronouns in (2-4) are assigned, under Case-transmission, a thematically relevant Case-marking which is also assigned to the matrix NP object, so that a violation of the Theta-Criterion ensues.

To make this precise, let us run through a derivation. On the first cycle in control structures, CO-INDEX applies between the CL

position, COMP and an empty full NP complement position before the Case-assignment rules apply. Case-transmission into COMP is not possible because COMP is not a potential argument position. (cf. (6)). On the second cycle, the embedded COMP and matrix CL positions are co-indexed to produce the intermediate structure (7).

(6) [[+F] [[e] [[e] [e] V] INFL]]
S' NP i S NP VP NP i NP i

PRO [e] [e]
NP i NP i

[+ACC/DAT] ACC/DAT

(7) [... [[+F] NP [[e] [...]] V] ...]
S' VP NP i S' NP i S

...

The matrix verb is a Case-assigner -- it assigns Case to the matrix NP object. Thus, the same structural relations obtain here as were also found in "Exceptional Case-marking" constructions. Whilst there is no linear position within the matrix VP to which the clitic can legitimately be assigned under TRANSMIT CASE, there is a non-linear position, as defined by the Case assigned to the matrix NP object. The clitic bears an index and occupies a potential argument position, and is subject to Case-assignment. Therefore, Case is transmitted in the form of a Case-feature to the CL position upon application of the Case-assignment rules on the second cycle.

(8) [... [[e] [e] ... V] ...]
S' VP NP i NP

... [+F] NP ...
NP i i

[+ACC/DAT] ACC/DAT

In contrast to the comparable case in "Exceptional Case-marking" structures, the transmitted Case is here thematically relevant -- it re-defines a D-structure argument position. But this will not prevent Case-transmission (equivalent to Case-assignment) as it prevents random Case-transmission (Case-assignment) in the simple sentence, for it is not the case here that a single element is being assigned to two different, thematically relevant positions in the non-linear projection as a result of "faulty" Case-assignment. Rather, Case-transmission is simply assigning the indexed element in the CL position to a legitimate position in the argument-structure of the matrix verb. Thus, the resultant structure is ill-formed not because of any fault in the Case-assignment (Case-transmission) rules, but because two argument-elements come to be associated with a single D-structure argument position, in violation of the Theta-Criterion. The same violation would ensue in the simple sentence if the CL position were co-indexed with a complement position which was lexically filled at D-structure.

We take it that the Theta-Criterion violation is the sole reason for the ill-formedness of (2-4), i.e. that the CLITIC-CLIMBING process does not additionally violate the Binding Condition on anaphors as it does in "Exceptional Case-marking" constructions:

Whilst the trace of the clitic in (6) is bound by an argument which is external to the former's governing category (cf. (8)), this argument is assigned an independent thematic role, so that the trace, as an empty category, counts as a pronominal, rather than as an anaphor, and is not subject to the Binding Condition on anaphors.

Note that neither the distinction between Accusative and Dative Case nor the way in which PRO is construed in these structures is of relevance here. Thus, the fact that the matrix verb in (3) assigns Dative, rather than Accusative, Case, and that PRO is controlled by the matrix subject, rather than by the matrix object, plays no role; the pronoun still comes to function as a complement. Nor is the Case-marking of the pronoun, as assigned in the embedded VP, relevant: The underlyingly Case-marked clitic in (4) is still assigned, via Case-transmission, to a position in the argument-structure of the matrix verb.

That the factor which is responsible for the contrast between (1) and (2-4) is indeed the presence of a Case-marking assigned by the matrix verb in the latter is revealed by the grammaticality of the following:

(9) , dass sie der Mann [t zu suchen] gezwungen wurde.
i S' i

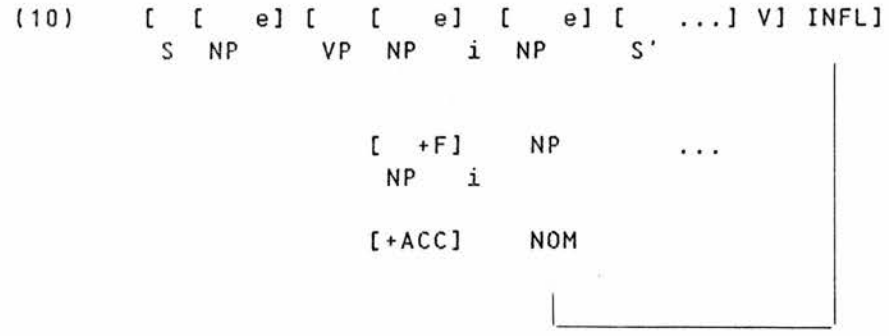
her the man to look-for forced was

ACC NOM

The man was forced to look for her.

The matrix clause is in this case ergative: It has no underlying subject and the underlying matrix direct object is assigned Nominative Case by the matrix INFL, since the matrix verb is not a Case-assigner. Given the intended LF representation, a Nominative Case-feature cannot be assigned to the indexed element in the matrix CL position under Case-transmission because this element does not share its index with that of a D-structure argument position within the matrix VP. Being associated with no position within the underlying configurational VP, the clitic cannot undergo GF-ASSUMPTION; nor can Nominative Case itself assign the clitic to a position within the argument-structure of the verb, since Nominative Case defines the GF, "subject" (see section 4.3. above). The climbed clitic therefore receives the Case-feature assigned to its trace in the embedded clause under Case-transmission, such that the matrix clause has the form (10) at S-structure.

(10)



This case thus falls together with that of (1) above: The outputs of CLITIC-CLIMBING in both involve single-link chains and are therefore well-formed.

A further aspect of the Theta-Criterion is important in constructions in which the linear rule of EXTRAPOSITION has applied,

constructions which have so far been ignored in our discussion of CLITIC-CLIMBING. Recall that EXTRAPOSITION derives strings of the type exemplified by (12) from the structures underlying sentences such as (11).

(11) , dass Karl [S' die Katze zu fuettern] versuchte.

K. the cat to feed tried

Karl tried to feed the cat.

(12) , dass Karl versuchte, [S' die Katze zu fuettern].

Pending the presentation of direct evidence in Chapter Five, we make the specific claim now that CO-INDEX, as it applies across an S' boundary, is not conditioned by c-command, as a result of the cyclic application of the Case-assignment rules and the concomitant creation of a non-linear projection, and that it is possible for an object clitic to be extracted to the matrix CL position from an extraposed clause, in spite of the fact that this process always leads to ungrammaticality in practice (cf. (13-15)). We will search for independent factors to explain why it is, in fact, not possible.

(13) *, dass Karl sie$_i$ versuchte, [S' t$_i$ zu fuettern].

Karl tried to feed her.

(14) *, dass Ute ihn$_i$ sagte, [S' dass sie t$_i$ gesehen haette].

U. him said that she seen had

Ute said that she had seen him.

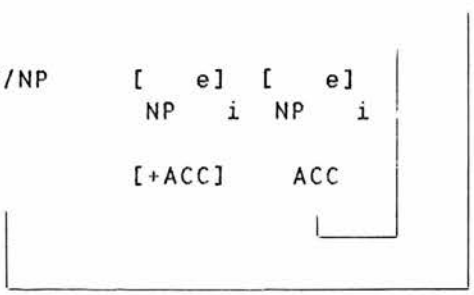
(15) *, dass Karl sie den Mann zwang, [t zu fuettern].
i S' i

Karl forced the man to feed her.

Note, to begin with, that CO-INDEX is intrinsically ordered to follow EXTRAPOSITION: It will be recalled from Chapter Three that for an application of EXTRAPOSITION to be successful it must apply immediately on the second cycle before the Case-assignment rules have chance to apply on the first, because a two-dimensional constituent cannot be moved. Not only is Case-assignment prevented on the first cycle, but also the application of any other rule, since the Case-assignment rules apply automatically if an embedded S' domain is processed at all. A cyclic rule such as CO-INDEX must therefore follow EXTRAPOSITION if EXTRAPOSITION is to apply (see Chapter Five for direct evidence of this).

The embedded clauses in the sentences (13-15) thus have the intermediate underlying structure (16) after EXTRAPOSITION, CO-INDEX and the application of the Case-assignment rules on the first cycle.[6]

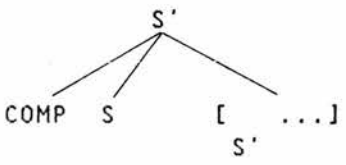
(16) [[+F] [[e] [[e] [e] V] INFL]]
S' NP i S NP VP NP i NP i



At this stage, the extraposed clause is no longer a one-dimensional constituent -- elements contained linearly within it now appear in a non-linear projection. Whilst the extraposed

complement is still an immediate constituent of the matrix S' in terms of containment, there is no sense in which it can be said to be dominated, in configurational terms, by the matrix S' node, since the extraposed clause itself no longer constitutes a node (cf. (17)).

(17)



...

Accordingly, it is postulated that co-indexing between an element contained within an extraposed clause and an element contained within a matrix clause simply involves linear non-argument positions -- the one being "superior" to the other in that it lies to the left and in a higher cyclic domain -- not just positions which are superior in terms of c-command. In other words, the CLITIC-CLIMBING process operates within the derived two-dimensional structure, which is "flat". It is predicted, then, that it is possible for an object clitic to be extracted to the matrix CL position from an extraposed clause under CLITIC-CLIMBING.

That (15) should be ungrammatical is to be expected, given our examination of the interaction between the derived complement status of clitics and the Theta-Criterion: This case falls together with (2-4) above. But some factor other than the clitic's ability to become an illegitimate complement of a verb via the processes of CLITIC-CLIMBING and Case-transmission must be at play in (13) and

(14), for here the matrix verb has no complement in the Case-assignment structure.

Let us consider the intermediate structures underlying (13) and (14) after the application of CO-INDEX across the clause-boundary. They will then have the form (18).

(18) [... [[+F] [e] V] ... [[e] [...]]]
S' VP NP i S' j S' NP i S j

...

Sentential complements do not appear in the non-linear projection, since they are destroyed through the application of Case-assignment to elements contained within them; nor is there any evidence to suggest that Case is assigned to their traces in the examples considered here (cf. section 4.7.). If a verb does not assign Case to a complement, then there is no source for Case-transmission within the matrix VP, and so the climbed clitic cannot be assigned to a position in the argument-structure of the matrix verb. A Case-feature is consequently transmitted from the embedded CL position and the pronoun regains its rightful position in the embedded VP. The matrix clause then has the S-structure form (19).

(19) [... [[e] [e] V] ... [...]]
S' VP NP i S' j S' j

... [+F] ...
NP i

[+ACC]

In all respects, (19) appears to be well-formed: The pronoun heads a single-link chain and the Theta-Criterion is satisfied. But consider now the fact that the S'-trace stands on a thematically relevant track, a track which is not present in the corresponding centrally embedded constructions, as a comparison of (20) and (21) reveals. The thematically relevant linear position of the sentential complement is preserved in, and thus pertinent to, the non-linear projection.

(20) [... [... [e] V] ... [...]]
S' VP S' i S'

... ...

(21) [... [... [...] V] ...]
S' VP S'

... ...

Consider too the fact that the pronoun in (19), although in a non-argument position with respect to the structure-assignment rules, is an argument-element which is associated with a thematic role only by virtue of its being linked, via co-indexing and Case-transmission, with the Case-marked empty category in the embedded clause, and that this argument exists alongside the thematically relevant track of the S'-trace in the matrix clause.

Now the Theta-Criterion states that:

a. Each argument is assigned a thematic role.

b. Each thematic role is assigned to an argument.

(19) violates these principles in the following sense: There is at once an argument which is associated with no thematically relevant position and a thematically relevant track, both within the governing domain of the matrix verb and INFL, in the flat, two-dimensional S-structure, and the one has not been assigned to the other. The co-existence of the track and the non-theta-marked argument in the matrix clause is incompatible with the bi-unique relationship between arguments and thematic roles that is expressed under the Theta-Criterion.

The same violation does not occur where either the non-theta-marked argument exists alone (as in centrally embedded constructions) or the track exists alone, for the argument is linked with the thematically relevant position of its trace, there being no other track for it to be associated with, and the S'-track will be occupied by a trace, albeit one which figures only in the configurational representation, though we assume this to be sufficient to satisfy the Theta-Criterion. Thus, the contrast between centrally embedded constructions and rightward-branching (extraposed) constructions with respect to the process of CLITIC-CLIMBING is that, in the former, there is no non-linear projection of the sentential complement, because Case-assignment applies to elements contained within it.

The factor we are appealing to here is rather unusual in that it is not structural, but is simply a restriction on co-occurrence (of a

non-theta-marked argument and a thematically relevant track) in the linear string. It makes no reference to government, whether defined by Case-assignment or c-command. However, in a semi-configurational language, in which structure is partially reduced to a flat, linear string, such linear restrictions may be to be expected. We will examine now a slightly more complex instance of CLITIC-CLIMBING out of an extraposed complement which, given the analysis, suggests that the restriction on linear co-occurrence is the right one.

It was shown in Chapter Three that EXTRAPOSITION can produce sentences such as (22), with the clausal structure indicated, if the Case-assignment rules apply immediately on the second cycle.

(22) [dass ich [PRO den Mann [e] zu zwingen] versuchte,
S' S' S' i

I the man to force tried
[PRO ihn zu suchen]].
S' i

him to seek

I tried to force the man to look for him.

Since c-command does not condition co-indexing, we predict that it should be possible for the clitic in the extraposed clause to be extracted to the matrix CL position, the matrix S' constituting the cyclic domain which follows that of the extraposed S' in the transformational cycle. Such extraction would produce the following matrix clause structure prior to the application of the Case-assignment rules on this last cycle.

(23) [... [[+F] [... [e] ...] V] [...]]
S' VP NP S' S' S'

... ...

The matrix verb is not a Case-assigner -- it has no complement in the Case-assignment structure. There is, therefore, no source within the matrix VP for Case-transmission to the clitic. Instead, the clitic will gain its Case-feature from its trace in the embedded clause in the S-structure (24).

(24) [... [[e] [... [e] ...] V] [...]]
S' VP NP S' S' S'

... [+F] ... ...
NP

This structure appears to be well-formed, the CLITIC-CLIMBING process constituting a case of single-link argument-binding. Yet the sentence (25) is ungrammatical.

(25) *, dass ich ihn den Mann zu zwingen versuchte, t zu suchen.
i i

As before, there is, within the simple matrix clause, as defined by the Case-assignment rules, a thematically relevant track in the centrally embedded VP, the projection of the S'-trace which has resulted from the application of EXTRAPOSITION, and there is an argument, the pronoun, which is associated with no thematically relevant position. Structurally, however, there is no reason for the two to be associated with each other. Therefore, the principle which rules out their co-occurrence, namely the bi-uniqueness condition

expressed under the Theta-Criterion, must also be non-structural.

4.7. The Impersonal Pronoun.

We have seen that sentences of the following form are ungrammatical because they contain a violation of the Binding Conditions:

(1) *, dass Karl ihn$_i$ [einen Freund t$_i$ holen] liess.

K. him a friend fetch made

Karl had a friend fetch him.

(2) *, dass sie$_i$ Karl [den Mann t$_i$ schlagen] sah.

her K. the man hit saw

Karl saw the man hit her.

The sentences (3) and (4), in which the impersonal pronoun es has been preposed from embedded object position, would appear to constitute counter-examples to what we have so far been claiming.

(3) , dass Karl es$_i$ [einen Freund t$_i$ holen] liess.

Karl had a friend fetch it.

(4) , dass es$_i$ Karl [den Mann t$_i$ schlagen] sah.

Karl saw the man hit it.

For some reason, es escapes the Binding Conditions when it is extracted under CLITIC-CLIMBING. Since it is only this pronoun which behaves in this way, it is reasonable to attribute the aberrations of (3) and (4) to properties of the pronoun itself. In fact, this impersonal pronoun distinguishes itself from the personal pronouns in a number of interesting ways, as a more detailed consideration of its distribution and its morphology reveals.

Distributionally, es functions as an object pronoun both in (3/4) and in simple sentences such as the following in which it has undergone CLITICIZATION:

(5) , dass Karl es dem Kind gab.
K. it the child gave
Karl gave it to the child.

However, we have already encountered two other occurrences of es where it was not functioning as an object pronoun. Firstly, it was shown in Chapter One that es may be inserted in the position immediately preceding the inflected verb in a matrix clause, a position which is external to the basic sentence. Thus, if nothing is extracted to the left from the matrix clause, es appears as in (6).

(6) Es kommt gleich ein Zug.
it comes soon a train
A train is coming soon.

Secondly, it has been mentioned (Chapter Two) that es may function as the "copy" of an extraposed sentential complement, as in (7).

(7) , dass er (es) sagte, [dass ...] .
i i

he it said that

He said that ...

In neither of these cases can es be the result of the failure of lexical insertion, i.e. in neither case is es functioning as a pro-form for a D-structure argument, for all argument positions were filled at D-structure in these constructions. Given that the Theta-Criterion requires that only thematically relevant positions be filled at D-structure, then es can only have appeared at a subsequent stage in the derivation of (6) and (7), i.e. after the application of EXTRAPOSITION or as a result of the lack of leftward extractions.

Morphologically, es finds no place in the feature-paradigm (8) (cf. 4.1. (12)). It is the pleonastic element, an unmarked third-person form which lacks a specification for gender.

(8)

		Singular.			
Person.	Gender.	Case.			
		NOM.	ACC.	DAT.	GEN.
1st.		ich	mich	mir	meiner
2nd.		du	dich	dir	deiner
3rd.	Masc.	er	ihn	ihm	seiner
3rd.	Fem.	sie	sie	ihr	ihrer

Plural.

Person.	Gender.	Case.			
		NOM.	ACC.	DAT.	GEN.
1st.		wir	uns	uns	unser
2nd.		ihr	euch	euch	eurer
3rd.	Masc./Fem.	sie	sie	ihnen	ihrer

Maintaining our analysis of pronouns as surface realizations of feature-matrices, the impersonal pronoun is specified negatively with respect to the grammatical features, person, number, gender and Case -- precisely what we expect of an "impersonal" pronoun. The morphology of pronouns reflects their semantics: Pronouns specify deictic or anaphoric reference in terms of feature-specifications, i.e. they identify a D-structure argument. A personal pronoun refers to an animate entity, an entity which can be identified semantically in terms of the features, person and gender; an impersonal pronoun refers simply to some thing, an entity which cannot be identified in terms of grammatical features because it lacks features such as person and gender semantically.[7]

Syntactically, then, the failure of the insertion of a D-structure argument which cannot be identified in terms of grammatical features cannot lead to the insertion of a feature-matrix in the CL position under CO-INDEX. The morphology of <u>es</u> thus correlates with its syntactic distribution in (6) and (7) above: By definition, it cannot function as a D-structure argument, since it can identify no such argument. The impersonal pronoun must, however, function as an S-structure argument in those cases where lexical insertion fails at

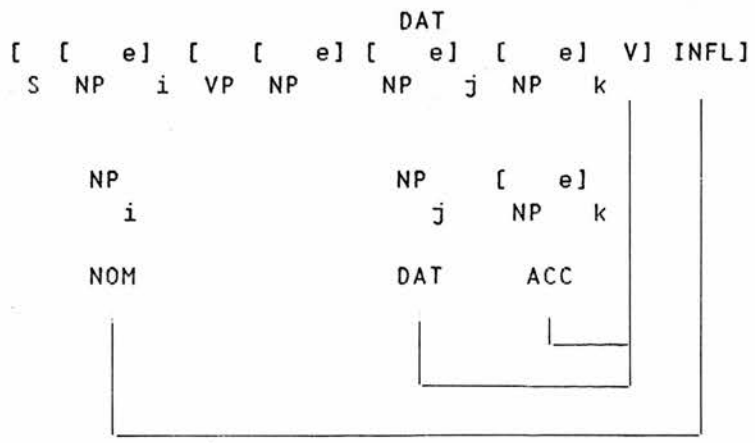
D-structure and a D-structure argument cannot be identified in terms of a feature-matrix, since the Theta-Criterion requires all thematically relevant positions to have been filled at D-structure. Thus, the presence of es at S-structure in (3-5) is obligatory, cf. (9).

(9) *, dass Karl dem Kind gab.

*Karl gave to the child.

We can unify the three distinct occurrences of es in (5-7) by claiming that the feature-matrix underlying es is inserted at S-structure in empty non-argument positions (CL and COMP) and that CO-INDEX may apply at any level of representation. Let us consider first the S-structure underlying (5):

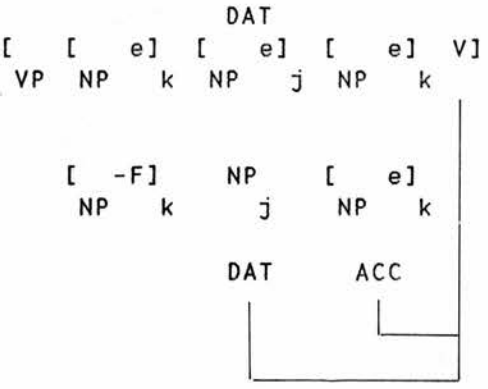
(10)



Lexical insertion has failed in the direct object position and an empty category has been generated in the VP initial CL position, but CO-INDEX has not applied since the reference of k cannot be identified in terms of grammatical features. The Theta-Criterion is violated because the DO position was not filled at D-structure. The

unspecified feature-matrix, [-F], is therefore inserted into the CL position and CO-INDEX applies to bind the empty category in the DO position, cf. (11).

(11)



Case cannot be transmitted from the DO position, since the Case-assignment rules have already applied. The pronoun is, therefore, specified negatively with respect to Case.

Note that CO-INDEX at S-structure simulates CO-INDEX as it would have applied from D-structure, i.e. it proceeds linearly first to the empty category in the CL position in (10) and then non-linearly to the feature-matrix in the non-linear projection. This corresponds to the behaviour of the impersonal pronoun, <u>it</u>, in English which is likewise inserted at S-structure and which also simulates movement in constructions such as that exemplified in (12).

(12) It$_i$ seems [t$_i$ to be the case that ...].

Co-indexing is actually forced in (11) by the Theta-Criterion: The latter requires each argument to be associated with a thematic role, and each thematic role to be associated with an argument.

Similarly, in those cases where es functions as a copy of an extraposed clause, the unspecified feature-matrix underlying this pronoun will be inserted at S-structure in the linear matrix CL position, and CO-INDEX will apply simultaneously to bind the empty category which is the trace of the extraposed element. The difference here is that the insertion of es is not forced, because the Theta-Criterion was satisfied at D-structure: At that point, the S' constituent occupied the DO position. We have seen above that the appearance of a copy is in many cases optional.

We shall make the claim that the appearance of copy es is contingent upon the assignment of Case to the S'-trace, this latter process being, in certain cases at least, optional. As a phonetically realized element, es must figure in the non-linear projection, i.e. in the linear Case-assignment structure at S-structure. But if we permit the occurrence of es and, at the same time, the failure of Case-assignment to the empty category which es is to bind, as in the structure (13), then es, lacking a Case-feature itself, can find no position in the Case-assignment structure. In accordance with our general line of argument, this possibility must be ruled out, even though es is not Case-marked, since it is then an argument which is associated with no position in the two-dimensional structure defined by the structure-assignment rules.[8]

(13) ... [[e] [e] V] ... S'
VP NP i S' i i

[-F]
NP i

Conversely, if S'-trace were assigned to a position in the Case-assignment structure and were not bound by some realized element, then the position of the trace would not be filled at D-structure, by implication. Empty categories cannot bear morphological Case. Thus, some other morphologically realized element must fill the position defined by the Case-assignment rules.

It follows that if Accusative Case is assigned to S'-trace, by whatever principles permit or force this process, then the unspecified feature-matrix, [-F], is inserted in the CL position to bind the empty category (cf. (14)). Again, co-indexing is forced by the Theta-Criterion.

(14) ... [[e] [e] V] ... S'
VP NP i S' i i

[-F] [e]
NP i S' i

ACC

Some evidence for the correctness of this analysis is to be found in constructions in which a PP-copy appears. Consider, for example, the sentence (15).

(15) , dass Paul daran glaubte, [dass ...] .
i i

P. therein believed that

Paul believed (in it) that ...

The copy, daran, is morphologically composed of the element da ("there") and the preposition, an. It is, therefore, Case-marked (P-marked) and distinguishes itself from es crucially in this respect. Furthermore, it does not stand in the CL position, as (16) reveals.

(16) , dass Paul den Mann daran$_i$ erinnerte, [dass ...]$_i$.

P. the man thereof reminded that

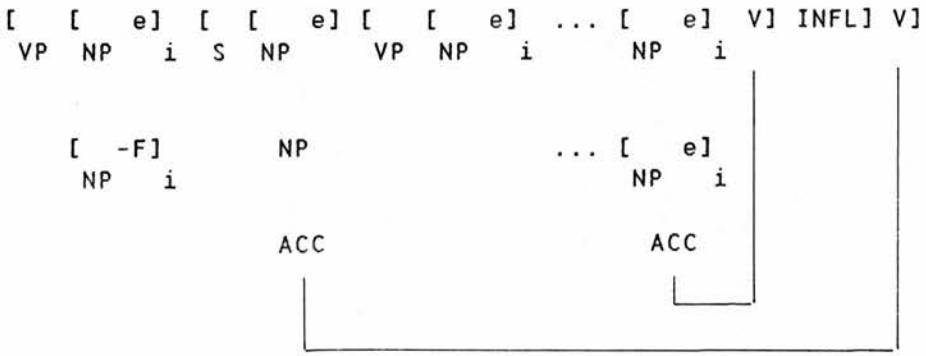
Paul reminded the man (of it) that ...

Therefore, it must be possible for S'-trace to be Case-marked. Just as it is optionally possible for S'-trace to be assigned Accusative Case, and for it to be bound by es, so is it possible for S'-trace standing in an underlyingly Case-marked position to be assigned a preposition at S-structure. Presumably, the element da has to be inserted in the latter case because the empty category itself cannot carry the preposition (or bear morphological Case).[9]

The complex sentences, (3) and (4) above, now have the derived structure (17), in which es has been inserted at S-structure in the matrix CL position. Lexical insertion has failed at D-structure in the embedded DO position and co-indexing has taken place at S-structure. Note again that CO-INDEX at S-structure simulates CO-INDEX as it would have applied from D-structure, such that the empty NP in both embedded and matrix CL positions become co-indexed with es. The Case-assignment rules have already applied, and so Case can be transmitted to neither of the indexed elements in the CL positions. The pronoun is therefore specified negatively with

respect to Case and it occupies a non-argument position with respect to the structure-assignment rules. As an argument element, however, it serves to "fill" the empty category in the Case-assignment structure, and thus argument-binds the empty category which occupies the D-structure position of a corresponding full NP complement in the embedded VP. The pronoun heads a single-link chain, since only a specification for Case could assign it to a different argument position, and there is no violation of the Binding Conditions.

(17)



Consider now the following examples:

(18) a. , dass Karl es zu lesen versuchte.

K. it to read tried

Karl tried to read it.

b. , dass es Karl zu lesen versuchte.

(19) *, dass Ute es das Maedchen zu lesen zwang.

U. it the girl to read forced

Ute forced the girl to read it.

These are instances of control structures, in which the impersonal pronoun, interpreted as object of the embedded verb, appears in the matrix CL position. Here, this pronoun behaves in the same way as the personal pronouns: It may climb and permute with the matrix subject, just in case there is no matrix object. Again, this is to be explained in terms of the Theta-Criterion.

At S-structure, the matrix VP of (18a) has the form (20).

(20) [[e] [[e] ... [[e] [e] V] ...] V]
VP NP i S' NP i VP NP i NP i

[-F] ... [e]
NP i NP i

ACC

<u>es</u> has been inserted at S-structure and CO-INDEX has applied to bind the empty category which is object of the embedded verb. Again, CO-INDEX simulates the transformational process from D-structure so that the empty categories in the COMP and CL positions are co-indexed. No Case can be transmitted to <u>es</u> after the application of the Case-assignment rules, and so it can only serve to fill the empty category in the Case-assignment structure to head a single-link chain.

(19) has the same form, but for the presence of the matrix object, which is assigned a thematically relevant Case-marking. Cf. (21).

(21) [[e] [e] [...] V]
VP NP i NP j S'

[-F] NP ...
NP i j

ACC

(3/4 (=17)) and (19) differ solely with respect to the thematic relevance of the Case assigned by the matrix verb. Although the pronoun in (21) is not assigned directly via Case-transmission to a position in the argument-structure of the matrix verb, it is still an argument element occupying a linear position within a VP which is defined to contain a thematic complement position. The presence of two argument elements within such a VP contravenes the Theta-Criterion, as would the insertion of a pronoun in the CL position of a simple sentence in which all argument positions were filled at D-structure. But the same contravention does not occur in (3/4 (=17)), where the Case assigned by the matrix verb is not thematically relevant and there is no thematic position within the VP with which the pronoun could be associated. That the GF defined by Case is the distinguishing factor is further revealed by the grammaticality of (22).

(22) , dass es der Kerl zu lesen gezwungen wurde.
it the bloke to read forced was
NOM
The bloke was forced to read it.

The impersonal pronoun also patterns with the personal pronouns in constructions which involve EXTRAPOSITION. As (23) shows, es cannot be inserted into the matrix CL position in such constructions, just as the personal pronouns cannot climb to this position.

(23) *, dass Karl es versuchte, zu machen.
Karl tried to do it.

And the same factor, namely, the bi-unique relationship between arguments and thematic roles, as expressed under the Theta-Criterion, is responsible. Thus, in the pertinent S-structure, (24), the presence of the clitic, es, an argument, in a position in which it is not directly assigned a thematic role, is not compatible with the existence of the thematically relevant track which is the non-linear projection of the S' trace and which is occupied by no argument (cf. note 8.).

(24) ... [[e] [e] V] ...
VP NP i S' j

[-F]
NP i

We see, then, that the distinct functions of the impersonal pronoun that have been discussed here in detail, namely its function as an object pronoun and its function as an S'-copy, can be accounted for uniformly under the assumption that this pronoun is inserted at S-structure as a result of the requirements of the Theta-Criterion and that CO-INDEX may apply at this level.

10

4.8. Further Evidence for CLITIC-CLIMBING.

Our argument for the existence of a CLITIC-CLIMBING rule was based on the observation that it is impossible for NP to be shifted to the right across a clause-boundary, so that the surface word-order in examples such as (1) cannot be derived other than via the leftward movement of the clitic pronoun. It was then shown how this process may escape the Opacity Condition by virtue of the fact that Case-assignment, rather than the underlying configuration, determines derived argument positions.

(1) , dass mich die Ergebnisse nicht zu befriedigen vermochten.
The results were not capable of satisfying me.

Thiersch (1978) takes the opposite view and argues on the basis of examples such as (2) that the surface word-order (1) must be derived by RIGHTWARD-SHIFT because a CLITIC-CLIMBING rule violates the Opacity Condition.

(2) , dass ich das Lied eine schoene Sopranistin singen lehrte.
I taught a beautiful soprano to sing the song.

We have already seen that (2) is an exception, and that RIGHTWARD-SHIFT across a clause-boundary or from embedded subject position is otherwise not attested (see Chapter Two). However, further arguments against Thiersch's approach can be derived from the CLITIC-CLIMBING phenomena themselves. Consider firstly the fact that it is only the impersonal pronoun, es, which may appear in a preposed

position in "Exceptional Case-marking" constructions of the following sort:[11]

(3) , dass ich es das Maedchen machen liess.

I had the girl do it.

(4) , dass ich es Cecilia auf Arabisch singen hoerte.

I heard Cecilia sing it in Arabic.

The example (5) is only grammatical under the interpretation: "I saw him beat Cecilia up".

(5) , dass ich ihn Cecilia zusammenschlagen sah.

I him C. beat-up saw

Whilst it would not be at all easy to see why an NP permutation rule should be constrained in this way, an analysis which adopts a CLITIC-CLIMBING rule can, as we have seen, provide a quite natural explanation for the phenomenon in terms of inherent properties of the respective pronouns.

Secondly, Thiersch's analysis would rule out examples such as the following:

(6) , dass ich es ihn machen liess.

I had him do it.

The permutation of two pronouns should not be possible, since pronouns are not stressed and are, therefore, not subject to the RIGHTWARD-SHIFT rule.[12]

Thirdly, Thiersch fails to take examples such as (7) into consideration, which, in our terms, are derived via rightward movement of the matrix subject across the preposed (climbed) pronoun.

(7) , dass es Karl den Kellner holen liess.
Karl had the waiter fetch it.

If there is no CLITIC-CLIMBING rule, then such constructions are not the result of a simple permutation rule, but would require movement, to the right, of both matrix and embedded subjects.

Finally, as is noted by Thiersch himself (see sections 2.4./2.5./4.4./4.5. above; cf. also Hoehle:1978,56), RIGHTWARD-SHIFT cannot apply across an embedded Dative object pronoun in "Exceptional Case-marking" constructions:

(8) a. , dass ich den Jungen ihr ein Bild zeigen liess.
I had the boy show a picture to her.

b. *, dass ich ihr den Jungen ein Bild zeigen liess.

The ad hoc restriction which is then invoked to rule this out also blocks the derivation of simple sentences such as (9).

(9) , dass ihr der Junge ein Bild zeigte.

The boy showed a picture to her.

Aside from these arguments, a rule of CLITIC-CLIMBING appears to be well-motivated cross-linguistically. There can be no denying its existence in, for example, French (cf. (10)) and Italian (cf. (11)).

(10) Elle le fera manger à Jean.

she it will-make eat to J.

She will have Jean eat it.

(11) Giovanni lo vuole leggere.

G. it wants read

Giovanni wants to read it.

The CLITIC-CLIMBING phenomena also provide yet further evidence to support the view that a "Restructuring" or "V-Raising" process is not involved in the derivation of complex sentences. Examples of CLITIC-CLIMBING, such as (1/3/4/) above, which appear to violate the Opacity Condition, have been used to argue for a derived mono-sentential structure in complex sentences (see section 2.7. above). But, as we have seen, the distribution of unstressed pronouns is, in fact, quite severely restricted: CLITIC-CLIMBING in "Exceptional Case-marking" constructions is only possible with the pronoun es, because of the unique inherent properties of this particular pronoun (cf. (5) above); and the process may only take place in control structures if there is no matrix object present (cf. (12)).

(12) *, dass ich ihn$_i$ meine Freunde t$_i$ zu suchen zwang.

I forced my friends to look for him.

The complex sentence exhibits characteristics of mono-sententiality only to a very limited extent, as is predicted to be the case under the two-dimensional analysis of S-structure. The degree to which the intermingling of constituents belonging to distinct underlying clauses is possible is determined by the principles of Case-assignment which define a derived mono-sentential argument-structure over an underlying multi-sentential configurational structure.

Notes to Chapter Four.

1. We shall not be concerned here with the distribution of pronouns marked with Genitive Case.

2. CO-INDEX is not movement in the standard sense, but "delayed" lexical insertion. It differs from Koster's (1978a) co-indexing rule in that it is subject to the principle of the transformational cycle, as will be seen below. This way of viewing "movement" rules such as CLITIC-CLIMBING and WH-MOVEMENT is actually forced by the form of the grammar: Since the Case-assignment rules apply immediately upon the completion of lexical insertion, they do not permit the intervention of an independent movement operation, unless this movement serves to prevent Case-assignment as, for example, EXTRAPOSITION does.

3. Example (9) is taken from Bierwisch:1966.

4. The idea that COMP is a position rather than a node or category is also adopted by Stowell:1981 and Lasnik/Saito:1984.

5. Note that, within CL, an Accusative clitic always precedes a Dative clitic (the reverse order of full NP complements), and that this will have to be stipulated in the grammar.

6. The presence of the overt complementizer in (14) is ignored here. For discussion see Chapter Five.

7. This does not imply that personal pronouns cannot be used to identify an inanimate entity whose grammatical gender is given in the discourse. Since our main concern here is to explain the distribution of <u>es</u>, such cases will not enter into our discussion.

8. Note that the illegitimate structure (13) resembles closely the ill-formed outputs of CLITIC-CLIMBING discussed in the previous section (cf. (i)). The co-indexing between the pronoun and the S'-trace in (13), or the lack of it in (i), is irrelevant -- the realized element in the CL position potentially fills the position optionally assigned to the S'-trace in the two-dimensional structure defined by the structure-assignment rules.

(i) ... [[e] [e] V] ...
VP NP i S' j
[+F]
NP i

9. The occurrence of PP-copies constitutes evidence in support of the idea that prepositions are assigned like any Case-marking. Cf. section 1.7..

10. <u>es</u> additionally functions as a "dummy" subject in constructions of the following sort:

(i) , dass (es) mich friert.
it me freezes
I am cold.

(ii) , dass es nur noch einen Stuhl gibt.
it only yet a chair gives
There is only one chair left.

Here, too, es is not a D-structure argument but, we assume, is inserted at S-structure because there is no underlying element to which Nominative Case can be assigned.

11. Thiersch:1978,109 cites example (4).

12. As is also noted by McKay:1983,233.

CHAPTER FIVE.

WH-MOVEMENT.

5.0. Introduction.

The German sentence is a unit which, at D-structure, has the following internal structure:

(1) [NP [CL (DAT) (...) (P) V] INFL]
S VP

The underlying order of the nominal elements contained in S, as well as various possible permutations thereof, have been discussed above. It has also been shown that there is a rightward extraction rule (EXTRAPOSITION) which moves certain elements across the rightward boundary of S. We come now to leftward extraction rules which prepose constituents to precede S.

The first section of this chapter defines the class of constructions in which WH-MOVEMENT applies, and presents an analysis of matrix clauses. Section 5.2. demonstrates that WH-MOVEMENT in German is subject to severe restrictions in the complex sentence of a kind not found in English. An explanation for these restrictions is then presented in section 5.3., where it is argued that WH-pronouns are subject to CLITIC-CLIMBING. Further parallels between the WH-MOVEMENT and CLITIC-CLIMBING rules are sought in the subsequent two sections before it is shown in section 5.6. how WH-pronouns are to be integrated into the theory of pronouns developed in Chapter

Four. Section 5.6., finally, deals with contrasts in the behaviour of the CLITIC-CLIMBING and WH-MOVEMENT rules as they apply in complex constructions in which there has been an application of EXTRAPOSITION.

5.1. WH-MOVEMENT Constructions.

It will be recalled from Chapter One that matrix clauses are not simple S constituents but that they are rather a composite of the basic sentence as we have defined it and an external constituent which is associated with a position within the basic sentence. Corresponding to the tensed, subordinate clause (2) are the matrix clauses in (3).

(2) ,dass Karl das Buch las.
K. the book read
Karl read the book.

(3) a. Es las Karl das Buch.

b. Karl las das Buch.

c. Das Buch las Karl.

We have argued that the existence of (3a) reveals that the leftward boundary of S immediately follows the tensed verb in the latter type of clause. The element <u>es</u> appears just in case there is

no external element.

Compare now the matrix clause (4) with the relative clause (5) and the WH-interrogative (6).

(4) Das Buch (das) hat Karl gelesen.
the book that has K. read
Karl has read the book.

(5) Das Buch, das Karl gelesen hat.
The book that Karl has read.

(6) Was hat Karl gelesen?
What has Karl read?

In the matrix, a pronoun may optionally appear between the external element and the basic sentence which is associated with a position within the basic sentence, just as in the relative clause and WH-interrogative constructions, a pronoun associated with a position within S appears in a preposed position. The three cases can be unified if it is in fact the pronoun which is extracted in each case, such that sentences such as (3b) and (3c) involve base-generation, rather than extraction, of the external full NP, which we shall call a <u>topic</u>.

We will adopt this analysis of matrix clauses in German, as it has also been adopted by Koster (1978a) for Dutch. Each of the three constructions then involve movement of a pronoun from its D-structure

position to a position outside S, and, following Chomsky (1977), we take this latter position to be the COMP position, introduced by the rule (7).

(7) S' -----> COMP S

Thus, we assume that this movement rule is an instance of WH-MOVEMENT, the rule which similarly derives WH-interrogatives and relative clauses in English (and other languages). Below, we shall integrate WH-pronouns into our analysis of pronouns in general, advanced in the previous chapter, but, for the moment, we take it that the pronoun is inserted in a D-structure position with the feature, [+WH], which attracts it to COMP and determines it to be a non-argument element. COMP is assumed to be a position, rather than a node, in which empty NP are freely generated (cf. section 4.3. above). The effect of the linear movement rule is formally as follows:

(8) [[e] [... [+WH] ...]] ------>
S' NP S NP
[[+WH] [... [e] ...]]
S' NP S NP

The intermediate structures of the sentences (4), (5) and (6) are, respectively, (9), (10) and (11).

(9) [NP [[+WH] [NP [[e] V] INFL]]].
S'' S' NP i S VP NP i

(10) [NP [[+WH] [NP [[e] V] INFL]]]
NP S' NP i S VP NP i

(11) [[+WH] [NP [[e] V] INFL]]
S' NP i S VP NP i

We take the relative clause in (10) to be a modifier of, and a sister to, the head NP which is interpreted as satisfying the open sentence from which the WH-pronoun has been extracted. Such complex NP will be generated by the rule (12).

(12) NP -----> NP S'

A similar rule of interpretation applies in the topicalized matrix clause, (9), which, as Chomsky (1977) and Koster (1978a/b) have suggested, is generated by the rule (13).

(13) S'' -----> TOP S'

The structural difference between interrogatives, on the one hand, and relatives and topicalized clauses, on the other, is reflected in the morphological form of the WH-pronoun: Tappe (1981) has observed that the pronoun takes on the W-form (i.e. wer (Nominative), wen (Accusative), wem (Dative), was (impersonal)) just in case it is not subject to the interpretive rule which co-indexes pronoun and head NP in the relative and matrix clause constructions. Otherwise, it has the D-form (that of the definite article, i.e. der, den, dem, die, das). Thus, sentences such as the following are not to be found:

(14) *Paul, wen kenne ich.
P. whom know I
Paul, I know.

The strings (4) and (6) have undergone an additional rule which inverts the subject NP and the tensed verb. This is possibly the same rule as applies in other languages, cf. (22).

(22) a. You saw him.

b. Who did you see?

The details of this rule are irrelevant for the present discussion, though we may assume with Koster (1978a) and den Besten (1983) that the tensed verb moves from the sentence-final position to COMP.

It has been claimed that three different constructions, topicalized matrix clauses, relative clauses and WH-interrogatives, are derived via the same linear process. The validity of this claim rests with proof that the same restrictions hold over the process in each type of construction. The data presented in the remainder of this chapter will provide that proof.

5.2. Restrictions on WH-MOVEMENT.

Let us look now at the conditions under which WH-MOVEMENT operates To begin with, there are no restrictions in the simple sentence, and the examples in (1), (2) and (3) show that WH-pronouns can be extracted from any position, i.e. may carry any Case-marking.

(1) a. Der Mann, der das Maedchen kuesste.
the man who-NOM the girl kissed
The man who kissed the girl.

b. Wer hat das Maedchen gekuesst?
who-NOM has the girl kissed
Who has kissed the girl?

c. Paul, (der) hat das Maedchen gekuesst.
P. he-NOM has the girl kissed
Paul has kissed the girl.

(2) a. Der Mann, den ich gesehen habe.
the man who-ACC I seen have
The man whom I have seen.

b. Wen habe ich gesehen?
who-ACC have I seen
Whom have I seen?

c. Paul, (den) habe ich gesehen.
P. he-ACC have I seen
Paul, I have seen.

(3) a. Der Mann, dem ich das Buch gab.
the man who-DAT I the book gave
The man to whom I gave the book.

b. Wem hast du das Buch gegeben?

who-DAT have you the book given

To whom have you given the book?

c. Paul, (dem) habe ich das Buch gegeben.

P. he-DAT have I the book given

Paul, I have given the book to.

Quite severe restrictions become apparent upon examination of the complex sentence, however. (4) and (5) show, first of all, that extraction from an embedded clause is possible.

(4) a. Das Buch, das ich [t zu lesen] versucht habe.
i S' i

the book which I to read tried have

The book which I have tried to read.

b. Was hast du [t zu lesen] versucht?
i S' i

what have you to read tried

What have you tried to read?

c. Das Buch, (das) habe ich [t zu lesen] versucht.
i S' i

the book that have I to read tried

The book, I have tried to read.

(5) a. Der Kerl, den ich [t Paul betruegen] sah.
i S i

the bloke who I P. betray saw

The bloke who I saw betray Paul.

b. Wen hast du [t Paul betruegen] sehen?
i S i

who have you P. betray see

Who have you seen betray Paul?

c. Den Kerl, (den) habe ich [t Paul betruegen] sehen.
i S i

the bloke him have I P. betray see

The bloke, I saw betray Paul.

In the control structures in (4), the extractions must involve cyclic movement to the embedded COMP, for reasons encountered in our analysis of CLITIC-CLIMBING: If the WH-pronoun is to be extracted from the embedded clause, it must move linearly to a position within the first cyclic domain which is inaccessible to Case-assignment and Case-transmission. If it does not, then it will be assigned to a position in the Case-assignment structure, and will, consequently, be unavailable for linear extraction. Evidence for this cyclic movement to COMP is provided by examples such as those in (6), which suggest that a phonetically realized complementizer blocks WH-extractions.[1]

(6) a. *Das Buch, das du gesagt hast, [dass Paul t las].
i S' i

the book which you said have that P. read

The book which you said (that) Paul read.

b. *Was hast du gesagt, [dass Paul t las]?
i S' i

What did you say (that) Paul read?

c. *Das Buch, (das) hast du gesagt, [dass Paul t las].
i S' i

The book, you said that Paul read.

In the "Exceptional Case-marking" constructions in (5), on the other hand, there is no reason why WH-MOVEMENT should not proceed directly to the matrix COMP, since there is no embedded cyclic domain.

The following examples show that extraction from an embedded clause is constrained by the Subjacency Condition, as it is in English. This condition prevents a single movement operation from applying across two bounding nodes, where the bounding nodes are S' and NP (cf. section 3.2. above).

(7) a. *Das Maedchen, das Paul [den Mann [der t liebt]]
i NP S' i

the girl who P. the man who loves

sah.

saw

*The girl who Paul saw the man who loves.

b. *Wen hat Paul [den Mann [der t liebt]] gesehen?
NP S' i

*Who did Paul see the man who loves?

c. *Das Maedchen, (das) hat Paul [den Mann
i NP
[der t liebt]] gesehen.
S' i

*The girl, Paul saw the man who loves.

These are transformationally related to the grammatical (8).

(8) , dass Paul [den Mann [der das Maedchen liebt]]
NP S'

gesehen hat.

Paul saw the man who loves the girl.

But consider now the following examples:

(9) a. *Die Katze, die ich deinen Freund [t
i S' i

the cat which I your friend

zu fuettern] zwang.

to feed forced

The cat which I forced your friend to feed.

b. *Wen hast du deinen Freund [t zu fuettern] gezwungen?
i S' i

Who did you force your friend to feed?

c. *Die Katze, (die) habe ich deinen Freund [t
i S' i

zu fuettern] gezwungen.

The cat, I forced your friend to feed.

(10) a. *Das Maedchen, das Paul [den Mann t schlagen] sah.
i S i

the girl who P. the man hit saw

The girl who Paul saw the man hit.

b. *Wen hat Paul [den Mann t schlagen] sehen?
i S i

Who did Paul see the man hit?

c. *Das Maedchen, (das) hat Paul [den Mann t schlagen]
i S i

sehen.

The girl, Paul saw the man hit.

(11) a. *Der Mann, dem Karl das Maedchen [t zu helfen] zwang.
i S' i

the man who K. the girl to help forced

The man who Karl forced the girl to help.

b. *Wem hat Karl das Maedchen [t zu helfen] gezwungen?
i S' i

Who did Karl force the girl to help?

c. *Dem Mann, (dem) hat Karl das Maedchen [t zu helfen]
i S' i

gezwungen.

The man, Karl forced the girl to help.

(12) a. *Der Mann, dem Karl [das Maedchen t helfen] liess.
i S i

the man who K. the girl help made

The man who Karl had the girl help.

b. *Wem hat Karl [das Maedchen t helfen] lassen?
i S i

Who did Karl have the girl help?

c. *Dem Mann, (dem) hat Karl [das Maedchen t helfen]
i S i

lassen.

The man, Karl had the girl help.

For some reason, WH-MOVEMENT from an embedded clause appears to be blocked by a superordinate object in control structures; and the rule manifests a subject-object asymmetry in "Exceptional Case-marking" constructions,[2] as the contrast between (5) and (10/12) reveals. There is, logically, nothing to exclude the required interpretation here, the association of the WH-pronoun with the embedded object

position, and, indeed, the English translations are grammatical. Furthermore, because German is an SOV language, any string containing a preposed constituent is potentially ambiguous, since it is impossible to determine from the surface form which linear position this constituent has been extracted from (in cases where this is not apparent from morphological Case-markings). It is desirable, therefore, to have some proof that these dependencies are impossible linguistically.

To test the grammaticality of the sentences under consideration, we can use adverbial clauses which have controlled subjects, as we have done previously (in Chapter Two. Cf. Hoehle:1978). The subjects of these clauses must have a controller which is also a subject, as (13a) and (13b) show -- the reflexive pronoun, necessarily bound by the unrealized subject of the adverbial clause, cannot be interpreted as referring to an object.

(13) a. *, dass der Mann mich schlug, ohne einen Laut
i

the man me hit without a sound
von mir zu geben.
i

from myself to give

The man hit me without me making a sound.

b. , dass der Mann mich schlug, ohne einen Laut
i
von sich zu geben.
i

The man hit me without making a sound.

A prerequisite for coreference is feature-matching, i.e. another way of viewing the ungrammaticality of (13a) is to say that the grammatical features of the pronoun in the adverbial clause ought to match those of the matrix subject, as they do in (13b). Thus, in the control structure (14), the pronoun in the adverbial clause may share the grammatical features of the matrix object, since this controls the subject of the sentential complement, which, in turn, is a permitted controller for the subject of the adverbial clause.

(14) a. , dass du mich [PRO sie zu schlagen] zwangst,
i S' i
ohne PRO einen Laut von mir zu geben.
i i

You forced me to hit her without making a sound.

b. *, dass du mich [sie zu schlagen] zwangst,
S'

ohne einen Laut von sich zu geben.

If WH-MOVEMENT can extract an element from the complement clause, it should still be possible for the anaphor in the adverbial clause to enter into feature-matching with the matrix object. But, as the sentences in (15) show, it may only match, i.e. be coreferential with, the WH-element or the matrix subject.

(15) a. *Wen habt Ihr mich zu suchen gezwungen,
who have you me to seek forced
ohne einen Laut von mir zu geben?
without a sound from me to give
Who did you force me to look for without me
making a sound?

b. Wen habt Ihr mich zu suchen gezwungen,
ohne einen Laut von sich zu geben?
Who did you force to look for me without him/her making a sound?

c. Wen habt Ihr mich zu suchen gezwungen,
ohne einen Laut von Euch zu geben?
Who did you force to look for me without (you) making a sound.

Similarly, in "Exceptional Case-marking" constructions, if WH-MOVEMENT can extract an object from the complement clause, then the anaphor in the adverbial clause should still be able to match with the embedded subject. The following show, however, that only the WH-element itself can be interpreted as the embedded subject:

(16) a. *Wen hat Paul [dich betruegen] sehen,
S
who has P. you betray seen
ohne einen Laut von dir zu geben?
without a sound from you to give
Who did Paul see you betray without you making a sound?

b. Wen hat Paul [dich betruegen] sehen,
S
ohne einen Laut von sich zu geben?
Who did Paul see betray you without making a sound?

Thus, the strings in (15) and (16) prove that it is linguistically impossible for a WH-pronoun to be interpreted as the object of an

embedded clause, if there is a matrix object or a phonetically realized embedded subject.

Under the standard analysis of WH-MOVEMENT as involving successive cyclic movement to COMP, it is impossible to explain these very severe restrictions on leftward extractions. An alternative analysis must be found, and this will be presented in the following section.

5.3. WH-MOVEMENT and CLITIC-CLIMBING.

The explanation for the above-noted restrictions on leftward extractions derives from the observation that there is a parallelism between constructions involving such extractions and those involving CLITIC-CLIMBING. It is apparent that personal clitic pronouns and personal WH-pronouns manifest the same behaviour: In control structures, they may be preposed, just so long as there is no matrix object; and in "Exceptional Case-marking" structures, they may be preposed from embedded subject position, but not from embedded object position. The patterns are diagrammatically reconstructed in (1-4), and exemplified by (5-8) respectively.

(1) [... [[... NP ...]]].
S' VP S'

<------ <--------

(2) [... [NP [... NP ...]]].
S' VP S'

<--*--- <------*-----

(3) [... [[NP VP INFL]]].
S' VP S

<------ <----

(4) [... [[NP [... NP ...]]]].
S' VP S VP

<--*-- <-------*-------

(5) a. , dass mich die Ergebnisse [t nicht zu befriedigen]
i S' i

vermoegen.

The results are not able to satisfy me.

b. Wen haben die Ergebnisse [t nicht zu befriedigen]
i S' i

vermocht?

Who have the results not been able to satisfy?

(6) a. *, dass er ihn Karl [t zu suchen] zwang.
i S' i

He forced Karl to look for him.

b. *Wen hat er Karl [t zu suchen] gezwungen?
i S' i

Who did he force Karl to look for?

(7) a. , dass sich Paul [t das Maedchen kuessen] sah.
i S i

Paul saw himself kiss the girl.

b. Wen hat Paul [t das Maedchen kuessen] sehen?
i S i

Who did Paul see kiss the girl?

(8) a. *, dass Karl sich [den Schueler t entschuldigen]
i S i

hoerte.

Karl heard the pupil excuse himself.

b. *Wen hat Karl [den Schueler t entschuldigen] hoeren?
i S i

Who did Karl hear the pupil excuse?

This parallelism can be captured by making use of the fact that both WH-MOVEMENT and CLITIC-CLIMBING operate on pronouns. Specifically, let us postulate that the sole distinction between WH-pronouns and unstressed pronouns is the feature, [+WH]. Both types of pronoun are then inserted in the CL position upon the application of CO-INDEX and are subject to CLITIC-CLIMBING. The process of WH-MOVEMENT now consists simply of movement from the matrix CL position to the matrix COMP position, and the apparent restrictions on its application in the complex sentence reduce to the principles which independently constrain the process of CLITIC-CLIMBING.[3]

The embedded clause in a complex sentence such as (5b) will then have the form (9), after co-indexing has taken place on the first cycle.

(9) [[+WH] [PRO [[e] [e] V] INFL]]
S' NP i S VP NP i NP i

Lexical insertion has failed at D-structure, and so a pronoun appears in the empty categories generated in the COMP and CL positions to function as an antecedent. Co-indexing has proceeded to

COMP in order to permit extraction on the second cycle, i.e. to escape Case-transmission as it applies into the CL position in the intermediate structure (10) upon application of the Case-assignment rules.

(10) [[+WH] [[e] [[e] [[e] V] INFL]]
S' NP i S NP VP NP i NP i

PRO [e] [e]
NP i NP i

[+ACC] ACC

Co-indexing proceeds further on the second cycle to the matrix CL and COMP positions, so that the intermediate structure (11) results.

(11) [[+WH] [NP [[e] [[e] ...] V] INFL]]
S' NP i S VP NP i S' NP i

...

In (5b), the matrix verb has no complement in the Case-assignment structure: It is not a Case-assigner in this instance and so there is no source in the matrix VP for Case-transmission to the indexed element in the matrix CL position, a potential argument position, upon application of the Case-assignment rules on this second cycle.

The Case-feature borne by the element in the embedded CL position will, however, be transmitted to the indexed element in the matrix CL position to assign this latter element to a position in the two-dimensional structure defined by the structure-assignment rules

(cf. (12)), such that the CLITIC-CLIMBING process leads to the creation of a single-link argument chain which satisfies the Binding Condition on anaphors.

(12) [[+WH] [[e] [[e] [...] V] INFL]]
S' NP i S NP VP NP i S'

NP [e] ...
NP i

NOM [+ACC]

The derivation of (6b) will proceed in the same way, except that the presence of the matrix object means that the matrix clause of this structure will have the pre-final form (13) before Case-assignment takes place on this second cycle. The indexed element in the matrix CL position is subject to Case-assignment and will, in this case, gain a Case-feature under Case-transmission from the matrix object and be assigned to a position in the argument-structure of the matrix verb. Therefore, (6) has the S-structure (14).

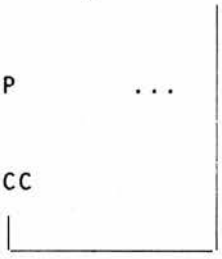
(13) [[+WH] [NP [[e] NP [...] V] INFL]]
S' NP i S VP NP i S'

...

(14) [[+WH] ... [[e] [e] [...] V] ...]
S' NP i VP NP i NP S'

... [e] NP ...
NP i

[+ACC] ACC



The Case assigned to the trace in the matrix CL position is thematically relevant -- it corresponds to the track upon which the matrix object stands. Two arguments thus share a thematic role in violation of the Theta-Criterion, and the sentence is ungrammatical (cf. section 4.6.).

The relevance of the fact that the matrix verb assigns Case to a complement is revealed by the grammaticality of the following sentence:

(15) Wen wurde die Frau zu suchen gezwungen?
who was the woman to look-for forced
NOM
Who was the woman forced to look for?

Here, the indexed element in the matrix CL position, though subject to Case-assignment, cannot be assigned a Nominative Case-feature and thereby undergo GF-ASSUMPTION, since it is co-indexed with no D-structure argument position within the underlying matrix VP (see section 4.3. above).

Further, as in the CLITIC-CLIMBING cases, neither the Case assigned to the matrix object, nor the Case borne by the extracted pronoun, is relevant, as (16) and (17) serve to show. The indexed element in the matrix CL position still receives a Case-feature from the matrix object.

(16) a. *Die Katze, die er Karl [t zu fuettern] versprach.
i S' i

the cat which he K. to feed promised

The cat which he promised Karl to feed.

b. *Wen hat er Karl [t zu fuettern] versprochen?
i S' i

Who did he promise Karl to feed?

c. *Die Katze, (die) hat er Karl [t
i S' i

zu fuettern] versprochen.

(17) a. *Der Mann, dem Karl das Maedchen [t zu helfen] zwang.
i S' i

the man who K. the girl to help forced

The man who Karl forced the girl to help.

b. *Wem hat Karl das Maedchen [t zu helfen] gezwungen?
i S' i

Who did Karl force the girl to help?

c. *Dem Mann, (dem) hat Karl das Maedchen [t zu helfen]
i S' i

gezwungen.

The man, Karl forced the girl to help.

WH-MOVEMENT in the "Exceptional Case-marking" structures (7b) and (8b) exhibits the same subject-object asymmetry as does CLITIC-CLIMBING, again, because co-indexing crucially involves the matrix CL position, a potential argument position, into which Case will be transmitted. The matrix clauses in these sentences have the intermediate structures (18) and (19), and the S-structures (20) and (21), respectively.

(18) [[+WH] ... [[e] [[e] ...] V] ...]
S' NP i VP NP i S NP i

(19) [[+WH] ... [[e] [NP ...] V] ...]
S' NP i VP NP i S

(20) [[+WH] ... [[e] [[e] ...] V] ...]
S' NP i VP NP i S NP i

... [e] [e] ...
NP i NP i

[+ACC] ACC

(21) [[+WH] ... [[e] [[e] ...] V] ...]
S' NP i VP NP i S NP

... [e] NP ...
NP i

[+ACC] ACC

The matrix verb is, in both cases, a Case-assigner and the embedded subjects assume the GF of matrix direct object, a GF which is not thematically relevant, since there is no track to which it corresponds, the underlying complement clauses being destroyed in the

non-linear projection upon application of the Case-assignment rules to elements contained within them (see section 2.4. above). There is, therefore, a source for Case-transmission, under which process an Accusative Case-feature will be assigned to the indexed element in the matrix CL position. The trace in the embedded clause is, in each case, linearly argument-bound and subject to the Binding Condition on anaphors. Only in (20) is this condition satisfied.

We see that this subset of the restrictions on WH-MOVEMENT can be accounted for in terms of CLITIC-CLIMBING because the trace of the WH-pronoun which then appears in the matrix CL position has, like any clitic, the potential to become an illegitimate complement of the matrix verb. It is reasonable now to try to extend the coverage of this analysis of WH-MOVEMENT, for we should expect the rule to operate uniformly in all constructions, i.e. if the analysis is correct, every application of WH-MOVEMENT in the complex sentence will involve the prior application of CLITIC-CLIMBING to the WH-pronoun.

5.4. WH-MOVEMENT out of Embedded Ergatives.

It was shown in the preceding chapter (section 4.5.) that the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions predicts that CLITIC-CLIMBING will be possible in constructions containing embedded passives and intransitives where it is not possible in constructions containing embedded transitives. Since there is no embedded S-node in the

former type of construction, there can never be a violation of the Binding Conditions in the event of an argument chain being created through the application of a movement rule. Unfortunately, it was impossible to test this prediction since CLITIC-CLIMBING in such cases would be string-vacuous, cf. (1).

(1) [NP [CL [CL ... V] V] INFL]
S VP VP

<------

Given that WH-MOVEMENT crucially involves the prior application of CLITIC-CLIMBING in the complex sentence, evidence to the effect that the prediction is borne out is provided by the contrast between the examples (2/3) and those applications of WH-MOVEMENT in "Exceptional Case-marking" constructions discussed in the previous two sections (a contrast also noted by Hoehle:1978 and Thiersch:1978). Conversely, this contrast is a further indication of the parallelism which obtains between WH-MOVEMENT and CLITIC-CLIMBING.

(2) a. Der Mann, den Karl [t umbringen] laesst.
i VP i

the man who K. kill makes

The man who Karl has killed.

b. Wen laesst Karl [t umbringen]?
VP i

Who does Karl have killed?

c. Den Mann, (den) laesst Karl [t umbringen].
i VP i

The man, Karl has killed.

(3) a. Die Frau, der Karl [t einen Stein auf die Fuesse
i VP i

the woman who K. a stone on the feet

fallen] laesst.

fall lets

The woman whose feet Karl lets a stone fall on.

b. Wem laesst Karl [t einen Stein
i VP i

auf die Fuesse fallen]?

Whose feet does Karl let a stone fall on?

c. Der Frau, (der) laesst Karl [t einen Stein
i VP i

auf die Fuesse fallen].

The woman's feet, Karl lets a stone fall on.

The sentences in (2) and (3) have the intermediate structures (4) and (5), respectively.

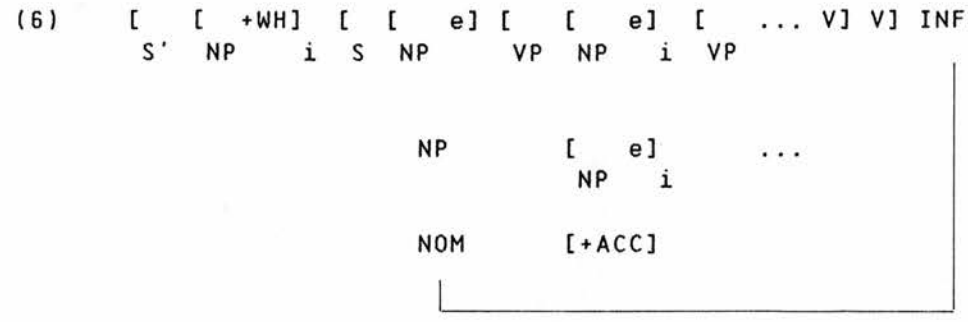
(4) [[+WH] [NP [[e] [... V] V] INFL]]
S' NP i S VP NP i VP

(5) [+DAT]
[[+WH] [NP [[e] [... V] V] INFL]]
S' NP i S VP NP i VP

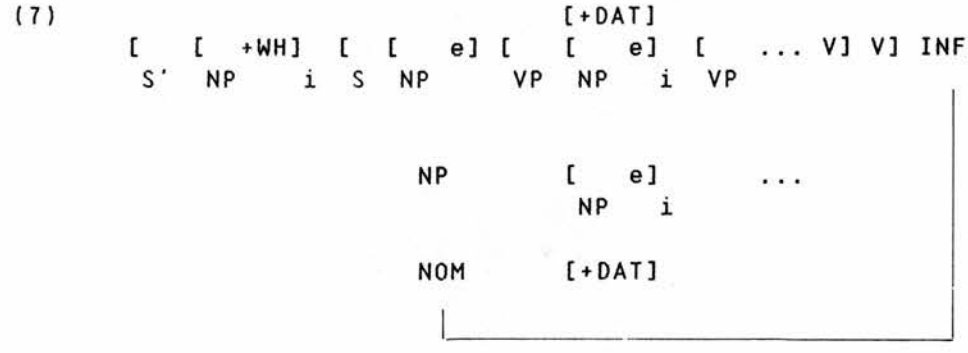
The indexed element in the matrix CL position occupies a potential argument position and is therefore subject to Case-assignment. Despite the fact that the matrix verb is a Case-assigner, however, Case-transmission cannot apply directly from the derived matrix object into the matrix CL position because the element to which the matrix verb assigns Case is not configurationally governed by the

same verb, i.e. there is no position in the two-dimensional S-structure to which the clitic can thereby be assigned (see section 4.5. above). In the S-structures (6) and (7) a Case-feature is consequently transferred from the embedded CL position.

(6)



(7)



In (7), the pronoun heads a single-link chain; in (6), a double-link chain. In neither case is the Binding Condition on anaphors violated.

5.5. The Impersonal WH-pronoun.

As a further example of the parallelism which obtains between WH-MOVEMENT and CLITIC-CLIMBING, consider again the contrast between the personal clitic pronouns and the impersonal pronoun, es. In the

preceding chapter, it was observed that the impersonal pronoun escapes the Binding Condition on anaphors which restricts the distribution of the personal pronouns in "Exceptional Case-marking" constructions, and this was explained in terms of the inherent properties of this pronoun: Its morphology reveals that it is specified negatively with respect to the grammatical features, person, number, gender and Case, and this, in turn, determines that it can only have been inserted at S-structure.

A similar contrast is found between WH-pronouns which refer to an animate entity and those which refer to an inanimate entity, i.e. the latter escape the conditions which restrict the distribution of the former. Here, however, the contrast extends to control structures.

(1) a. *Der Mann, den$_i$ ich meinen Freund [$_{S'}$ t$_i$ zu suchen] zwang.

the man who I my friend to seek forced

The man who I forced my friend to look for.

b. *Wen$_i$ hast du meinen Freund [$_{S'}$ t$_i$ zu suchen] gezwungen?

Who did you force my friend to look for?

c. *Den Mann, (den$_i$) habe ich meinen Freund [$_{S'}$ t$_i$

zu suchen] gezwungen.

The man, I forced my friend to look for.

(2) a. Der Tisch, den$_i$ ich das Maedchen [$_{S'}$ t$_i$ zu bauen] zwang.

the table which I the girl to build forced

The table which I forced the girl to build.

b. Was hast du das Maedchen [t zu bauen] gezwungen?
i S' i

What did you force the girl to build?

c. Den Tisch, (den) habe ich das Maedchen [t
i S' i

zu bauen] gezwungen.

The table, I forced the girl to build.

(3) a. *Die Katze, die er Karl [t zu fuettern] versprach.
i S' i

the cat which he K. to feed promised

The cat which he promised Karl to feed.

b. *Wen hat er Karl [t zu fuettern] versprochen?
i S' i

Who did he promise Karl to feed?

c. *Die Katze, (die) hat er Karl [t
i S' i

zu fuettern] versprochen.

The cat, he promised Karl to feed.

(4) a. Das Buch, das er seinem Lehrer [t zu lesen]
i S' i

the book which he his teacher to read

versprach.

promised

The book which he promised his teacher to read.

b. Was hat er seinem Lehrer [t zu lesen] versprochen?
i S' i

What did he promise his teacher to read?

c. Das Buch, (das) hat er seinem Lehrer [t zu lesen]
i S' i

versprochen.

The book, he promised his teacher to read.

(5) a. *Das Maedchen, das er Paul [t zu kuessen] bat.
i S' i

the girl who he P. to kiss asked

The girl who he asked Paul to kiss.

b. *Wen hat er Paul [t zu kuessen] gebeten?
S' i

Who did he ask Paul to kiss?

c. *Das Maedchen, (das) hat er Paul [t zu kuessen]
i S' i

gebeten.

The girl, he asked Paul to kiss.

(6) a. Die Papiere, die er mich [t ins Fach
i S' i

the papers which he me in-the pigeon-hole

zu legen] bat.

to lay asked

The papers which he asked me to lay in the pigeon-hole.

b. Was hat er mich [t ins Fach zu legen] gebeten?
i S' i

What did he ask me to lay in the pigeon-hole?

c. Die Papiere, (die) hat er mich [t ins Fach
i S' i

zu legen] gebeten.

The papers, he asked me to lay in the pigeon-hole.

(7) a. *Das Maedchen, das Paul [den Mann t schlagen] sah.
i S i

the girl who P. the man hit saw

The girl who Paul saw the man hit.

b. *Wen hat Paul [den Mann t schlagen] sehen?
i S i

Who did Paul see the man hit?

c. *Das Maedchen, (das) hat Paul [den Mann t schlagen]
i S i

sehen.

The girl, Paul saw the man hit.

(8) a. Das Buch, das Paul [den Mann t lesen] sah.
i S i

the book which P. the man read saw

The book which Paul saw the man read.

b. Was hat Paul [den Mann t lesen] sehen?
S i

What did Paul see the man read?

c. Das Buch, (das) hat Paul [den Mann t lesen] sehen.
i S i

The book, Paul saw the man read.

(9) a. *Die Katze, die er [seinen Freund t fuettern] liess.
i S i

the cat which he his friend feed made

The cat which he made his friend feed.

b. *Wen hat er [seinen Freund t fuettern] lassen?
i S i

Who did he make his friend feed.

c. *Die Katze, (die) hat er [seinen Freund t fuettern]
i S i

lassen.

The cat, he made his friend feed.

(10) a. Der Wein, den ich [den Kellner t holen] liess.
i S i

the wine which I the waiter fetch made

The wine which I had the waiter fetch.

b. Was hast du [den Kellner t holen] lassen?
S i

What did you have the waiter fetch?

c. Den Wein, (den) habe ich [den Kellner t holen]
i S i

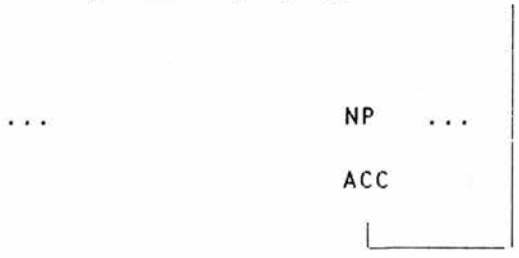
lassen.

The wine, I had the waiter fetch.

Suppose now that the same strategy as is adopted by the impersonal clitic pronoun is also pursued by a WH-pronoun which refers to an inanimate entity. This would be reasonable, because it would reflect the semantic parallel between the two cases. An inanimate entity cannot be identified underlyingly in terms of the grammatical features of a pronoun, because such an entity lacks the semantic features of person and gender. But if lexical insertion fails in such a case, an element is required at S-structure to satisfy the requirement of the Theta-Criterion that argument positions be filled at D-structure (see section 4.7. above). WH-pronouns referring to inanimate entities would then be inserted into the matrix COMP at S-structure, and CO-INDEX would apply at this level to link the pronoun with a D-structure argument position.[4]

In the structures underlying (2/4/6/8/10) then, an indexed empty category functions as embedded object, and empty categories are generated in the matrix and embedded COMP and CL positions at D-structure. The insertion of the pronoun is accompanied by the simultaneous application of CO-INDEX, which simulates CO-INDEX as it would apply from D-structure, such that all the empty categories become co-indexed. In the "Exceptional Case-marking" constructions (8/10), the matrix clauses have the S-structure form (11). The Binding Condition on anaphors is not invoked since neither the pronoun nor its traces have been subject to the direct assignment of a Case-feature under TRANSMIT CASE, the Case-assignment rules having already applied at the point at which co-indexing takes place.

(11) [[+WH] ... [[e] [[e] ...] V] ...]
S' NP i VP NP i S NP



The matrix clauses in the control structures (2/4/6) have the S-structure form (12). They contrast with the corresponding cases of WH-MOVEMENT in (1/3/5) because CO-INDEX applies at S-structure, i.e. after the Case-assignment rules have applied, and so the indexed element in the matrix CL position cannot be assigned to a position in the argument-structure of the matrix verb; but they also contrast with the corresponding case of CLITIC-CLIMBING (13) because the WH-form of es is not inserted into the non-linear projection of the matrix CL position and cannot, therefore, potentially fill the

thematically relevant position defined by the Case assigned to the matrix NP object. It could not, therefore, function as the complement of the matrix verb, as <u>es</u> is forced to in (13) (cf. section 4.7.).

(12) [[+WH] ... [[e] [e] [...] V] ...]
S' NP i VP NP i NP S'

... NP ...

ACC/DAT

(13) *, dass du es Paul [t zu bauen] gezwungen hast.
i S' i

You forced Paul to build it.

Thus, given that WH-pronouns which refer to inanimate entities are inserted at S-structure, we can explain the contrast between the distribution of these elements and that of those WH-pronouns which refer to animate entities.

5.6. WH-pronouns, Morphology and Semantic Interpretation.

Having shown that the process of WH-MOVEMENT in the complex sentence crucially involves the process of CLITIC-CLIMBING, that WH-pronouns exhibit essentially the same behaviour as clitic pronouns, we turn now to consider in more detail how WH-pronouns are to be integrated into the theory of pronouns developed in Chapter Four.

WH-pronouns differ from unstressed clitic pronouns in several respects: They bear the morphological feature [+WH], they end up in the linear matrix COMP position, which is inaccessible to Case-assignment and Case-transmission, and, as is apparent from WH-interrogatives, they do not specify anaphoric or deictic reference via identification of a D-structure argument. Whilst WH-pronouns bind the empty category which must occupy the associated D-structure argument position, their feature-specifications are gained only as a result of the interpretive rule which co-indexes them with a head NP. Thus, the personal WH-pronoun in WH-interrogative constructions, which is not subject to this interpretive process, takes on the unmarked masculine form; and impersonal WH-pronouns in relative clauses and topicalized matrix clauses, which lack features underlyingly, bear morphological features on the surface.

Like all pronouns, however, WH-pronouns result from the failure of lexical insertion: They are associated with a "gap". But this gap differs from that bound by a clitic pronoun insofar as it, and not the pronoun, must function as the argument at S-structure, for a WH-pronoun comes to occupy a position which is inaccessible to the assignment or transference of a Case-feature under Case-transmission, is assigned to no position in the Case-assignment structure, and therefore non-argument-binds the associated empty category. In this case, lexical insertion is replaced by the insertion of a variable, an empty WH-element, [WH], as can be reasonably deduced from the
NP

existence of corresponding echo questions such as (1), i.e. the possibility of inserting [WH] must, in any case, be provided for.
NP

(1) Du hast welchen Mann gesehen?

you have which man seen

You saw which man?

Where [WH] is empty, an antecedent is required. Therefore, a
NP
pronoun, [+WH], appears in the COMP and CL positions under the
NP

application of CO-INDEX. Cf. (2).

(2) [[+WH] [NP [[e] [WH] V] INFL]]
S' NP i S VP NP i NP i

Note that the pronoun is constituted solely of the feature [+WH] and is specified for none of the grammatical features, person, number, gender, in accordance with observations made above. The referential scope of the variable is not specified at this level, by definition.

The indexed element in the CL position occupies a potential argument position and is, therefore, subject to Case-assignment (if CO-INDEX has applied before Case-assignment). A Case-feature will be assigned to it under TRANSMIT CASE, so that it occupies the position of the variable in the Case-assignment structure. Case cannot, however, be transmitted into the linear COMP position, which is not a potential argument position, by the Theta-Criterion. Nevertheless, the WH-pronoun must be assigned to some position in the non-linear projection in a two-dimensional S-structure. This is achieved by the morphological feature, [+WH], which despite being gained underlyingly from the variable, serves to assign the pronoun to the equivalent of the COMP position in the non-linear projection. This feature fulfils

the same function as a Case-feature in assigning an indexed element to a non-linear position in the two-dimensional structure defined by the structure-assignment rules, namely, to a non-argument position, a linear position in the non-linear projection which is external to argument-structure. Just as COMP is a non-argument position in the configurational structure because it is not governed by a head, so an element bearing the feature [+WH] occupies a non-argument position in the Case-assignment structure because [+WH], unlike Case, is not assigned by a head. The extension of the grammar to include an S'-expansion rule in the phrase-structure rules which introduces the linear COMP position is now paralleled in the morphological Case-assignment structure by the assignment of the feature [+WH], in the same way as the co-indexing of the CL position is paralleled by the assignment of a Case-feature.

Thus, the logical interpretation of the WH-pronoun as an operator binding a variable (cf. Chomsky:1975) is provided for in the syntax via the assignment of [+WH]. In German, the same interpretive process is additionally manifested as a linear operation because COMP is also a linear position; whilst in a language such as Japanese, which appears to have no specified word-order, the morphology alone is sufficient to assign an element to the COMP position.

It is because the feature [+WH] serves to assign an element to the COMP position in the Case-assignment structure that a WH-pronoun can "surface" only in the linear COMP position of a tensed clause: The definition of the sentence in the Case-assignment structure requires an assignment of Nominative Case. Thus, underlying S' infinitive

complements have VP status in the non-linear projection because only the verb assigns Case (see in particular section 2.7. above). Since COMP is defined to be an S-external position by the rule (3), there can be no COMP position in the Case-assignment structure until Nominative Case-assignment has been effected, at which point an element bearing [+WH] is automatically defined to be occupying the COMP position in the morphological structure, given that this is the function of the feature. A WH-pronoun must also occupy the linear COMP position because S-structure in German is a composite of both an underlying configurational structure, definable in terms of phrase-structure rules, and a derived morphological Case-assignment structure.

(3) S' -----> COMP S

Not only does this explain why the co-indexing operation which is responsible for linear WH-MOVEMENT must proceed to the linear COMP position of a tensed clause in the cyclic transformational derivation, but it also provides a very plausible reason for the lack of WH-infinitve constructions of the sort found in English (cf. (5)).

(4) I don't know [what to do].
S'

(5) *, dass ich nicht weiss, [was zu machen].
S'

I not know what to do

We have claimed that WH-pronouns bear no grammatical features other than [+WH] in the syntax. Yet these pronouns may bear such

features on the surface. This, we maintain, is partly the result of a process in the PF component which simulates the process of interpretation in the LF component which, in the case of relative and topicalized matrix clauses, co-indexes the WH-pronoun with a head NP; partly, the result of the distinction between personal and impersonal pronouns. This latter distinction is a semantic one which is realized syntactically in the form of the distinction between D-structure and S-structure insertion of pronouns. A variable whose referential scope ranges over inanimate entities at LF can have no underlying pronominal antecedent, since it lacks the semantic features, person, number and gender, by definition. The WH-element in this case lacks content in terms of semantic features and so cannot be identified underlyingly by [+WH].

The empty WH-element must, however, be assigned an antecedent at S-structure, for the Theta-Criterion requires all argument positions to have been filled at D-structure. $[_{NP}$ +WH] is, therefore, inserted into the linear COMP position of a tensed clause at S-structure under an S-structure application of CO-INDEX, the latter rule assigning the feature [+WH], which in turn defines the pronoun to be in a position equivalent to COMP in the morphological Case-assignment structure.

Both personal and impersonal WH-pronouns must be assigned specifications for the grammatical features in the PF component of the grammar so that they become fully-fledged feature-matrices, [+WH,+F] or [+WH,-F]. The processes of the PF component simulate those of the LF component, as is revealed by the morphological distinction between the "D"- and "W"-forms of the pronoun. Where the

WH-pronoun is co-indexed with a head NP at LF, specifications for the grammatical features, person, number and gender, are simultaneously assigned to the WH-pronoun in PF under agreement with the head, and since pronouns are only either [+F] or [-F], a specification for Case is gained from the bound, Case-marked variable. In such cases, [+WH] is realized morphologically as /d/. Thus, here, the distinction between personal and impersonal WH-pronouns is annulled in the morphology, since both types are [+F] as a result of co-indexing at LF.

Where no co-indexing takes place at LF, i.e. in interrogatives, personal WH-pronouns take on the unmarked [+F] form in PF, namely, they are specified as: [third person, masculine, singular]; and again, since pronouns are only either [+F] or [-F], they gain a specification for Case. Impersonal WH-pronouns are specified negatively with respect to all features, including Case. In this instance, [+WH] is realized morphologically as /w/, and the personal:impersonal distinction is maintained.

In relative clauses, the head NP will be assigned Case by a Case-assigner in the clause in which it appears, and it will appear in the non-linear projection. But note that this non-linear extraction of the head NP from the NP which contains the relative clause does not constitute an A-over-A violation: As will be recalled from the discussion of EXTRAPOSITION, a transformational rule can only apply to a single, one-dimensional constituent. Here, the containing NP is already partially two-dimensional, for a non-linear projection has been created within the relative clause as a result of

the application of the Case-assignment rules on that S'-cycle. This NP is therefore not accessible to the transformational rule and is consequently irrelevant to the A-over-A Condition.

The NP in TOP in topicalized matrix clauses remains without Case at S-structure and, presumably, its inaccessiblity to Case-assignment serves precisely to assign it to the equivalent of the TOP position in the Case-assignment structure. It must be that its morphological Case-marking results from the PF process which simulates co-indexing at LF: In topicalized matrix clauses, the pronoun and the NP in TOP match not only with respect to the features, number and gender, but also with respect to the Case-feature which the pronoun gains from the variable which it binds (cf. (6)).

(6) a. Der Mann, (der) hat mich gesehen.
the-NOM man who-NOM has me seen
The man has seen me

b. Den Mann, (den) habe ich gesehen.
the-ACC man who-ACC have I seen
The man, I have seen.

c. Dem Mann, (dem) habe ich geholfen.
the-DAT man who-DAT have I helped
The man, I have helped.

5.7. WH-MOVEMENT Out Of Extraposed Clauses.

It was argued in the previous chapter (section 4.6.) that CO-INDEX as it applies across an S' clause-boundary is not conditioned by c-command in German, as a result of the two-dimensional nature of S-structure. In particular, it was predicted that clitic pronouns should be capable of climbing to the matrix CL position out of an extraposed clause, as in (1), in spite of the fact that this position does not c-command positions contained within such an extraposed clause. Given that Case-assignment intervenes on the embedded cycle to create a non-linear projection before the application of CO-INDEX on the matrix cycle, this latter rule simply involves linear non-argument positions, for the extraposed clause can no longer be said to be dominated in configurational terms by the matrix S'-node at the point at which the rule applies.

(1) [... [[+F] [e] V] ... [[e] ...]]
S' VP NP i S' j S' NP i j

...

Evidence that this prediction is borne out is provided by the behaviour of the WH-MOVEMENT process as it applies to extract a WH-pronoun from an extraposed clause. That such extraction is possible is shown first of all by (2).[5]

(2) a. Der Mann, den ich versucht habe, [t zu finden].
i S' i

the man who I tried have to find

The man whom I have tried to find.

b. Wen hast du versucht, [t zu finden]?
i S' i

Who have you tried to find?

c. Den Mann, (den) habe ich versucht, [t zu finden].
i S' i

The man, I have tried to find.

WH-MOVEMENT in these constructions is, however, subject to exactly the same restrictions as hold over the same process as it applies in centrally embedded complex constructions -- the extraction of a personal WH-pronoun, but not the extraction of an impersonal WH-pronoun, is sensitive to matrix objects.

(3) a. Das Haus, das Karl angefangen hat, [t zu bauen].
i S' i

the house which K. started has to build

The house which Karl has started to build.

b. Was hat Karl angefangen, [t zu bauen]?
i S' i

What has Karl started to build?

c. Das Haus, (das) hat Karl angefangen, [t zu bauen].
i S' i

The house, Karl has started to build.

(4) a. *Das Maedchen, das ich meine Freunde zwang, [t
i S' i

the girl who I my friends forced

zu suchen].

to seek

The girl who I forced my friends to look for.

b. *Wen hast du deine Freunde gezwungen, [t zu suchen]?
i S' i

Who have you forced your friends to look for?

c. *Das Maedchen, (das) habe ich meine Freunde gezwungen,
i
[t zu suchen].
S' i

The girl, I forced my friends to look for.

(5) a. Der Tisch, den ich Paul zwang, [t zu bauen].
i S' i

the table which I P. forced to build

The table which I forced Paul to build.

b. Was hast du Paul gezwungen, [t zu bauen]?
i S' i

What did you force Paul to build?

c. Den Tisch, (den) habe ich Paul gezwungen, [t
i S' i

zu bauen].

The table, I forced Paul to build.

(6) a. *Der Junge, den er Ute gebeten hat, [t zu kuessen].
i S' i

the boy who he U. asked has to kiss

The boy who he asked Ute to kiss.

b. *Wen hat er Ute gebeten, [t zu kuessen]?
i S' i

Who did he ask Ute to kiss?

c. *Den Jungen, (den) hat er Ute gebeten,
i
[t zu kuessen].
S' i

The boy, he asked Ute to kiss.

(7) a. Die Papiere, die$_i$ er Ute gebeten hat,

the papers which he U. asked has
[t$_i$ ins Fach zu legen]$_{S'_i}$.

in-the pigeon-hole to lay

The papers which he asked Ute to lay in the pigeon-hole.

b. Was$_i$ hat er Ute gebeten, [t$_i$ ins Fach zu legen]$_{S'_i}$?

What did he ask Ute to lay in the pigeon-hole?

c. Die Papiere, (die$_i$) hat er Ute gebeten,
[t$_i$ ins Fach zu legen]$_{S'_i}$.

(8) a. *Der Schachspieler, den$_i$ er mir versprochen hat,

the chess-player who he me promised has
[t$_i$ zu schlagen]$_{S'_i}$.

to beat

The chess-player whom he promised me to beat.

b. *Wen$_i$ hat er mir versprochen, [t$_i$ zu schlagen]$_{S'_i}$?

Who did he promise me to beat?

c. *Den Schachspieler, (den$_i$) hat er mir versprochen,
[t$_i$ zu schlagen]$_{S'_i}$.

The chess-player, he promised me to beat.

Maintaining a unitary analysis, WH-MOVEMENT crucially involves CLITIC-CLIMBING, and CO-INDEX may consequently apply between the matrix CL position and positions within an extraposed clause.

Further evidence comes from constructions in which a copy of the extraposed clause appears:

(9) a. *Der Mann, den Karl es versuchte, [t zu finden] .
i j S' i j

the man who K. it tried to find

The man who Karl tried to find.

b. *Wen hat Karl es versucht, [t zu finden]?
i j S' i

Who did Karl try to find?

c. *Den Mann, (den) hat Karl es versucht,
i j
[t zu finden] .
S' i j

The man, Karl tried to find.

(10) a. *Das Bild, das Karl es mir versprochen hatte,
i j

the picture which K. it me promised had
[t zu malen] .
S' i j

to paint

The picture which Karl had promised me to paint.

b. *Was hat Karl es mir versprochen, [t zu malen] ?
i j S' i j

What did Karl promise me to paint?

c. *Das Bild, (das) hatte Karl es mir versprochen,
i j
[t zu malen] .
S' i j

The picture, Karl had promised me to paint.

For a copy to block the extraction of a WH-pronoun, the matrix VP must figure in the application of WH-MOVEMENT, i.e. co-indexing proceeds through both CL and COMP positions.[6]

Our analysis must be able to explain the behaviour of WH-pronouns in constructions which involve an application of EXTRAPOSITION. At a superficial level here, there would seem to be little similarity between CLITIC-CLIMBING and WH-MOVEMENT, for CLITIC-CLIMBING out of an extraposed clause is never possible (cf. (11)), whilst WH-MOVEMENT operates as it does in centrally embedded constructions.

(11) a. *, dass Paul sie versuchte, [t_i]$_{S'_i}$ zu kuessen].

Paul tried to kiss her.

b. *, dass Paul es anfing, [t_i]$_{S'_i}$ zu lesen].

Paul started to read it.

The two rules exhibit the same behaviour only insofar as they are both sensitive to S'-copies, the occurrence of the latter being contingent upon the assignment of Case to S'-trace (cf. section 4.7. above). However, the contrast is simply a result of the fact that a clitic pronoun appears in the non-linear projection in the matrix VP, whilst the trace of a WH-pronoun is not necessarily forced to do so. The matrix clause in the string (12), for example, has the structure (13) immediately prior to the application of the Case-assignment rules on the last cycle, given that WH-pronouns are subject to CLITIC-CLIMBING.

(12) Wen hat Paul versucht, [t zu schlagen]?
i S' i

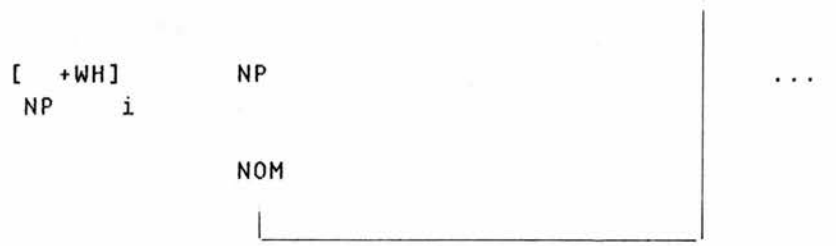
Who has Paul tried to beat?

(13) [[+WH] [NP [[e] [e] V] INFL] [...]]
S' NP i S VP NP i S' j S' j

...

Now, the matrix verb does not assign Case to the S'-trace, this assignment being optional, and so there is also no source for Case-transmission to the indexed empty category in the CL position. The matrix clause of (12) thus has the well-formed, derived internal structure (14).

(14) [[e] [[e] [[e] [e] V] INFL] ...]
S' NP i S NP VP NP i S'



Whilst the presence of a clitic pronoun, an argument, in the matrix CL position would be incompatible with the co-existence of the thematically relevant track which is the projection of the S'-trace (see section 4.6.), the trace of a WH-pronoun does not figure in the non-linear projection, and thus does not function as an argument, in the two-dimensional S-structure, which could be associated with the thematically relevant position of S'-trace. Nor does a WH-pronoun function as an argument, and so there is no restriction against the linear co-occurrence of this element and the S'-trace.

Similarly, the insertion of a WH-pronoun in the matrix COMP position in the S-structure (16) which underlies the sentence (15) does not contravene the Theta-Criterion as does the the insertion of es in the structure underlying (11b). The indexed empty category in the matrix CL position does not figure in the non-linear projection and the WH-pronoun is a non-argument element.

(15) Was hast du angefangen, [t zu lesen]?
i S' i

What have you started to read?

(16) [[e] [[e] [[e] [e] V] INFL] ...]
S' NP i S NP VP NP i S'

[+WH] NP ...
NP i

NOM

The presence of a copy on the surface reveals that S'-trace has received Case. Therefore, if a WH-pronoun is co-indexed with an empty category in the matrix CL position prior to the application of the Case-assignment rules, this latter element will receive a Case-feature under Case-transmission from the S'-trace.[7] The GF defined by the Case assigned will be thematically relevant since it corresponds to the track upon which the S'-trace stands. Thus, two elements bearing distinct indices are associated with a single, thematically relevant position, and a Theta-Criterion violation ensues.

As regards the cases which involve S-structure insertion of a WH-pronoun, there would appear to be some constraint on the way in which such insertion can be used to bind empty categories. Consider the type of structure which is involved here:

(17) [[e] ... [[e] [e] V] [... [e] ...]]
S' NP VP NP S' i S' NP j i

... [e] ... [e] ...
S' i NP j

Prior to insertion, two empty categories require to be bound, such that the insertion of any one pronoun, be it es or a WH-pronoun, gives rise to ambiguity. Whilst the string (18) could be achieved via insertion and co-indexing in the way shown in (19), it seems that such potential ambiguity is not permitted.

(18) *Was hast du es versucht, zu lesen?

(19) [[e] ... [[e] [e] [e] V] ...]
S' NP i VP NP i NP j S' j

[+WH] ... [-F] [e] ...
NP i NP j S' j

ACC

More generally, it is likely that only a single application of S-structure insertion is allowed in any one construction. Such a restriction would account for the contrast between (20) and (21).

(20) Es hat Karl versucht, das Buch zu lesen.

Karl has tried to read the book.

(21) *Es hat Karl es versucht, [das Buch zu lesen] .
i i

The rules of CLITIC-CLIMBING and WH-MOVEMENT interact in an interesting way with the rule of EXTRAPOSITION in more complex constructions. Recall, for example, that it is possible for EXTRAPOSITION to extract a complement clause from a containing clause, i.e. in apparent violation of the A-over-A Condition, by virtue of the intervention of Case-assignment and the creation of a non-linear projection. Thus, from the underlying structure (22), the string (23) can be derived via an application of EXTRAPOSITION on the last cycle following the immediate application of Case-assignment on the second cycle.

(22) [1 dass ich [2 Karl [3 ihn zu suchen]
S' S' S'

zu zwingen] versuchte].

I tried to force Karl to look for him.

(23) [1 dass ich [2 Karl t zu zwingen] versuchte,
S' S' i

[3 ihn zu suchen]].
S' i

A superficial glance at this surface form might lead us to expect the extraction of a WH-pronoun from the extraposed clause to be impossible, because of the presence of the object in the intervening S'_2, to which WH-MOVEMENT (CLITIC-CLIMBING) should be sensitive. Such an extraction is, however, possible, as (24) reveals.

(24) Wen hast du [Karl zu zwingen] versucht,
i S'
[t zu suchen]?
S' i

Who did you try to force Karl to look for?

The explanation for this follows naturally from the two-dimensional analysis of S-structure and the independently valid principle of the transformational cycle. The derivation will proceed as follows: On the first cycle in the underlying structure (22) nothing will happen, since the Case-assignment rules must apply immediately on the second. If it is attempted to apply CO-INDEX to the COMP of S'_3, then Case-assignment will automatically take place on this first cycle, all S'-internal rules applying on a given cycle if any is applied at all, and the subsequent extraction of the S' node will be impossible. Thus, CO-INDEX can only apply after EXTRAPOSITION has taken place on the last cycle. The intermediate structure (25) obtains.

(25) [COMP [NP [[...] V] INFL] S'_3]
S' S VP S'

...

The transformational cycle can and must now recommence, starting with co-indexing to the COMP of S'_3. The Case-assignment rules then apply on this same cycle. The next cycle is now S'_1, for S'_3 is no longer contained in S'_2, and so co-indexing will proceed to the matrix CL position and by-pass positions within S'_2 completely. Co-indexing through S'_2 is impossible, because this no longer constitutes a cyclic domain in the transformational cycle.

Again, (24) contrasts with the corresponding case of CLITIC-CLIMBING to the matrix CL position (cf. (26)) because the trace of the WH-pronoun in the matrix VP does not appear in the non-linear projection and because the WH-pronoun is not an argument.

(26) *, dass ich ihn [Karl zu zwingen] versucht habe,
i S'
[t zu suchen].
S' i

I have tried to force Karl to look for him.

Notes to Chapter Five.

1. This restriction appears to be subject to dialectal variation. The sentences in (6) are definitely ungrammatical in Northern German, but seem to be possible for at least some speakers of southern dialects.

2. It should be mentioned that a certain amount of difficulty was experienced in extracting the correct generalizations from native speakers when use was not made of the disambiguating adverbial clauses discussed below. Some speakers tend to force the required logical interpretation, a problem apparently also encountered by Thiersch:1978.

The presence of these restrictions on WH-MOVEMENT was first brought to my attention by Loetscher's:1972 discussion of S'-PIED-PIPING in Relative clauses (see Chapter Six).

My informants did not reproduce the judgements reported by Sweetser:1977, whose observations Hoehle:1978,54 describes as "unreliable".

3. There is mention in the literature of the possibility that WH-MOVEMENT and CLITIC-MOVEMENT behave analogously in a limited class of constructions in French. See Chomsky:1980,32 and Rouveret/Vergnaud:1980,fn.23. Kayne:1981,fn.12 plays down the possibility, and it is finally rejected by Chomsky:1982a,317,fn.15.

4. The reasons for the morphological contrast between es and the D-forms of the these pronouns, i.e. why the latter should be marked for number, gender and Case, will be discussed in detail in section 5.6.

5. Contrary to the claims of Thiersch:1978,fn.60. Bierwisch:1966,135 cites the following examples:

i) Wen wollen wir versuchen, fuer den Vortrag zu gewinnen?
whom want we try for the lecture to get
Who do we want to try to get for the lecture?

ii) Ein Bild, das ich mich nicht erinnern kann,
a picture which I myself not remind can
frueher schon gesehen zu haben.
earlier already seen to have
A picture which I cannot recall having seen earlier.

6. That S'-copies block the extraction of WH-pronouns is also noted by Bierwisch:1966.

7. Where the copy is a PP, the principle of Case-transmission still applies, even though PP clitics do not undergo CLITICIZATION.

CHAPTER SIX.

S'-PIED-PIPING.

6.0. Introduction.

It has been shown that WH-MOVEMENT in German crucially involves the independent process of CLITIC-CLIMBING, and that it is therefore subject to the restriction that it cannot apply across superordinate NP objects if the WH-element is a personal pronoun. In comparison with the fairly free behaviour of the corresponding rule in English, this seems to be a very severe constraint. However, German has access to an additional process which enables this constraint to be overcome. By this process, it is not simply the WH-element which appears in the matrix COMP position, as was the case under WH-MOVEMENT, but some larger constituent which contains this element.

The first section of this chapter provides an analysis of the PIED-PIPING process as it applies in relative clauses and WH-interrogative constructions, and shows that the rule behaves analogously to EXTRAPOSITION with respect to the way in which it interacts with Case-assignment. The corresponding topicalized matrix clause constructions differ in nature from the relative clauses and WH-interrogatives, and are therefore discussed separately in Section 6.2.

Section 6.3. examines the WH-MOVEMENT and CLITIC-CLIMBING processes as they apply within the structures preposed under

PIED-PIPING and demonstrates how this extraction strategy is to be integrated into the theory as a whole.

6.1. An Analysis of S'-PIED-PIPING.

The PIED-PIPING process is exemplified in the relative clause construction (1) and in the WH-interrogative construction (2).

(1) Das Buch, [das zu lesen]$_i$ Karl den Mann t$_i$ zwang.

the book which to read K. the man forced

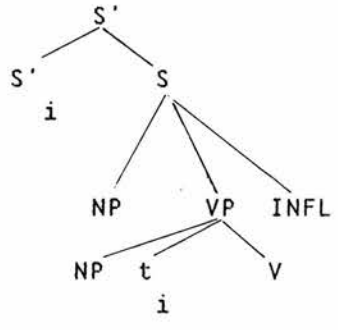
The book which Karl forced the man to read.

(2) [Was zu lesen]$_i$ hat Karl den Mann t$_i$ gezwungen?

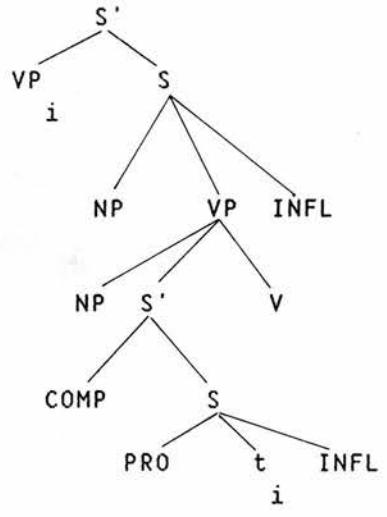
What has Karl forced the man to read?

The first question we must address relates to the categorial status of the constituent which appears in the matrix COMP under PIED-PIPING. Conceivably, it could be either of the maximal projections S' or VP, i.e. (1) and (2) could have either of the forms (3) or (4) after the application of the linear movement rule.

(3)



(4)



The correct choice cannot be determined from the surface forms of these control structures, for the embedded clauses have subjects which are not phonetically realized. The ungrammaticality of (5) and (6) would suggest, however, that it is not VP which is moved.[1]

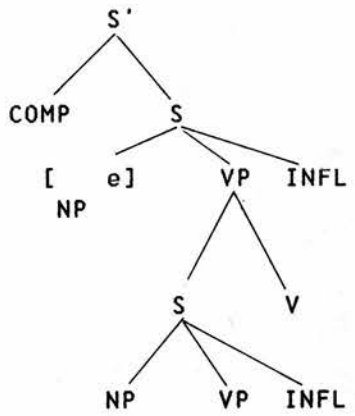
(5) *Der Mann, mit dem Karten zu spielen Karl pflegte.
the man with whom cards to play K. used-to
The man with whom Karl used to play cards.

(6) *Das Buch, das lesen Karl ihn sah.
the book which read K. him saw
The book which Karl saw him read.

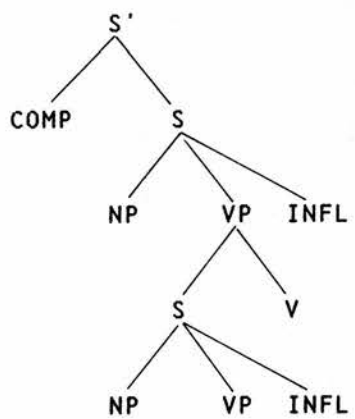
Recall that these complex structures involve "Raising" and "Exceptional Case-marking". They contain clausal complements with overt subjects which are governed and Case-marked by the matrix verb or INFL, and thus have the respective underlying structures (7) and (8) after the application of S'-DELETION. Deriving (5) and (6) from

these would involve extraction of the embedded VP to the matrix COMP to produce (9) and (10).

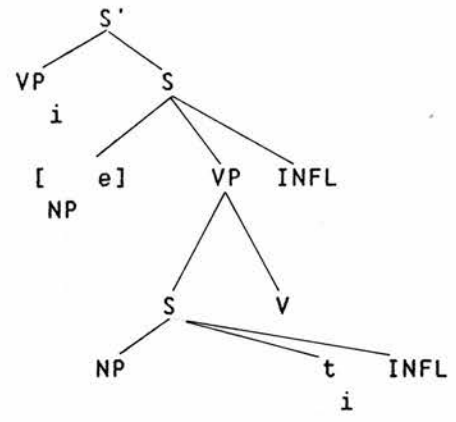
(7)



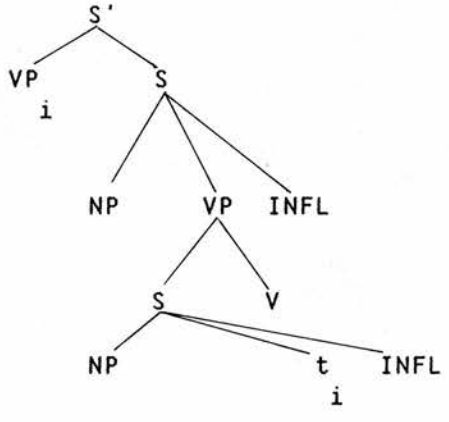
(8)



(9)



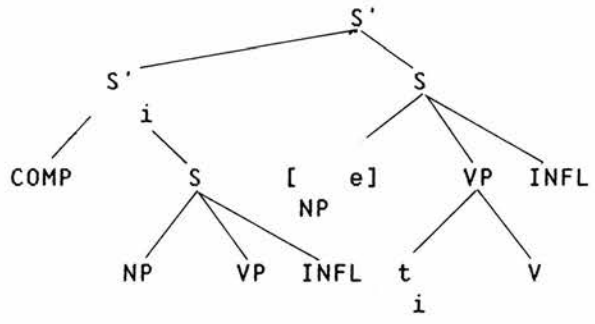
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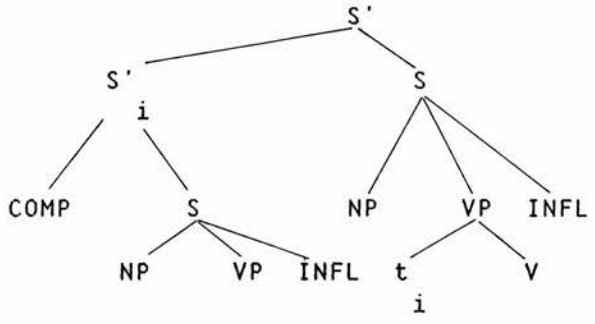
This is ruled out because it violates the A-over-A Condition: The embedded VP is extracted from the matrix VP. Now, given that linear movement precedes Case-assignment and the concomitant creation of a non-linear projection, exactly the same violation of the A-over-A Condition would be committed if the preposed constituent in (1) and (2) of the previous section were VP, for no matter how it is achieved, movement of the embedded VP to the matrix COMP involves extraction out of the matrix VP. We therefore take it that PIED-PIPING acts upon S'.[2]

But note that it is not possible for the D-structure S' complements to be moved by PIED-PIPING in the "Raising" and "Exceptional Case-Marking" constructions before S'-DELETION takes place. The resulting intermediate structures, (11) and (12), are ill-formed since the subjects of the preposed clauses are not configurationally governed, and would furthermore not be accessible to Case-assignment from the matrix V or INFL in this linear COMP position (see sections 4.3. and 5.6. above). PRO cannot be inserted to function as subject in these cases, because there is no available controller.

(11)

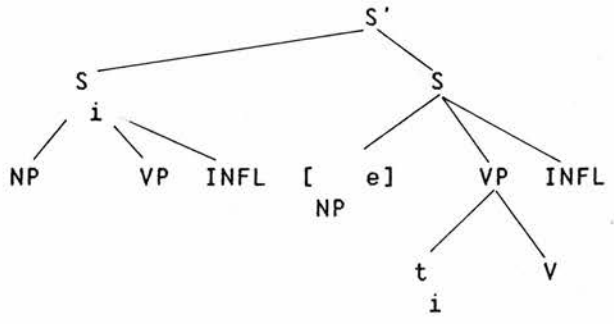


(12)

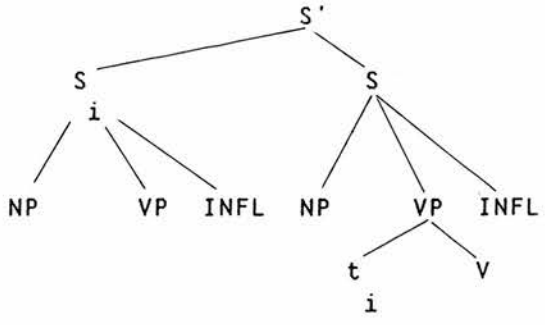


The attempt to move the S complement after S'-DELETION to produce the intermediate structures, (13) and (14), would fail on two counts: Firstly, the A-over-A Condition would be violated through the extraction of the embedded S from the matrix S; secondly, the embedded subjects would again not be governed.

(13)



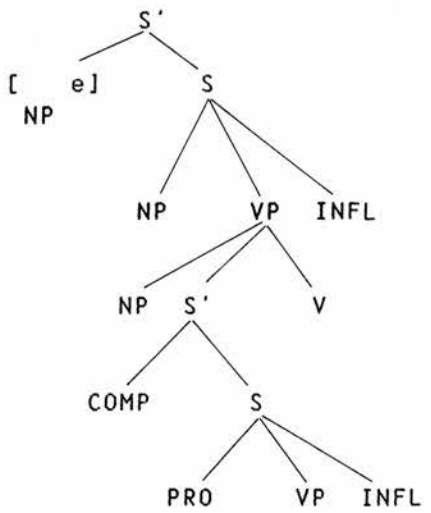
(14)



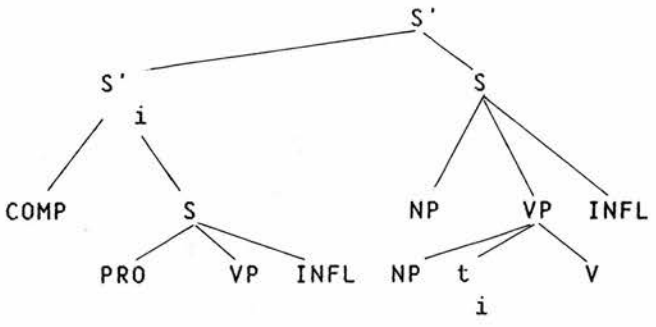
This explains Bech's (1955) observation that only those clause-types which are available for EXTRAPOSITION, i.e. sentential complements with controlled subjects, can undergo PIED-PIPING.

PIED-PIPING interacts with the Case-assignment rules in the same way as EXTRAPOSITION does, and for this reason, the two linear movement rules manifest the same properties. The derivation of (1) and (2) thus proceeds from the D-structure, (15), as follows: Because only a single, one-dimensional constituent can be subjected to a transformational rule (see Chapter Three), PIED-PIPING applies immediately on the second cycle to produce the intermediate structure (16), before the Case-assignment rules have chance to apply to elements contained within the embedded clause. The cycle can then re-begin and the Case-assignment rules apply cyclically, first to elements contained within the clause which has been moved, then to elements contained within the dominating clause.

(15)



(16)

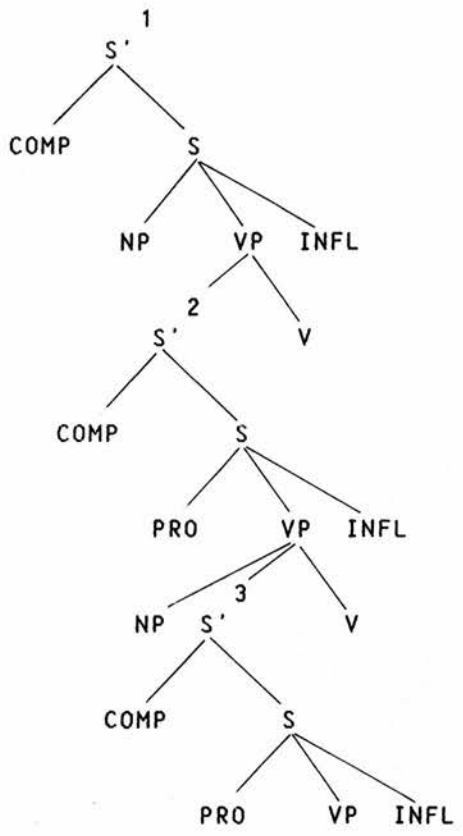


In the same way, the interaction of the cyclic Case-assignment process determines the sentence (17) to be ungrammatical.

(17) *Die Katze, [die Karl zu fuettern zu zwingen] ich versuche.
the cat which K. to feed to force I try
The cat which I try to force Karl to feed.

This could only be derived from the corresponding D-structure, (18), through linear movement of a two-dimensional constituent, S'[2]. That is, Case-assignment takes place automatically on the first cycle if no rule is invoked immediately on the second cycle to prevent it. But this now prevents any subsequent attempt to extract S'[3] or containing constituents to the matrix COMP position, because a constituent, any part of which is two-dimensional, cannot be moved. It is therefore impossible for PIED-PIPING to produce left-branching structures in COMP, just as it is impossible for EXTRAPOSITION to move such structures to the right.

(18)



Another property which PIED-PIPING shares with EXTRAPOSITION is that it permits an apparent violation of the A-over-A Condition. Consider, for example, the sentences (19) and (20).

(19) Das Buch, [das zu lesen] ich Karl zu zwingen versuchte.
the book which to read I K. to force tried
The book which I tried to force Karl to read.

(20) [Was gestohlen zu haben] hast du Karl zu gestehen
what stolen to have have you K. to admit
gezwungen?
forced
What have you forced Karl to admit to have stolen?

In each of these, the preposed S' constituent has been extracted from a containing S', as the diagram (21) serves to illustrate, yet the result is grammatical. The application of Case-assignment to elements contained within S'_2 on the second cycle destroys this S' node as a constituent accessible to the linear movement rule, such that it is no longer relevant to the A-over-A Condition. The subsequent extraction of S'_3 is then permitted.

(21) $[_{S'}\ 1\ \text{COMP}\ [_{S}\ \ldots\ [_{S'}\ 2\ \text{PRO}\ S'_3\ \text{zu V}]\ \ldots]]$

<----------

The movement of S' under PIED-PIPING is, however, subject to the Subjacency Condition, as is movement under EXTRAPOSITION. This condition is responsible for the contrast between (19) and (20), on the one hand, and (22) and (23) on the other: In the former, just one S' node is crossed in the preposing operation; whereas in the latter, two such nodes are crossed, as can be seen from the diagram (24).

(22) *Die Aufgaben, [die zu korrigieren] der Schueler
the exercises which to correct the pupil
den Lehrer zu versprechen zu ueberreden versuchte.
the teacher to promise to persuade tried
The exercises which the pupil tried to persuade the teacher to promise to correct.

(23) *[Was gestohlen zu haben] hast du den Mann zu gestehen
what stolen to have have you the man to admit
zu zwingen versucht?
to force tried
What have you tried to force the man to admit to have stolen?

(24) [1 COMP [... [2 ... [3 ... S' 4 zu V] zu V]]]
S' S S' S'

<----------

This is significant, for it reveals that PIED-PIPING does not involve COMP-to-COMP movement. It would have been quite conceivable for the derivations of (19) and (20) to have proceeded as follows: The most deeply embedded clause moves immediately on the second cycle to the COMP of the next clause up. The Case-assignment rules apply on the same cycle and destroy the containing S' node to permit the subsequent extraction of the clause standing in COMP. This whole process is then repeated on the next and following cycles, such that there is never a violation of the Subjacency Condition. Evidently, this is not the case -- for some reason, PIED-PIPING moves S' directly to the matrix COMP position. The S'-PIED-PIPING process cannot therefore be equated with the co-indexing process of WH-MOVEMENT.

6.2. S' in TOP.

Alongside the instances of PIED-PIPING in WH-interrogatives and relative clauses, discussed in the previous section, there also exist the superficially very similar topicalized matrix clause constructions exemplified in (1) and (2).

(1) [Das Buch zu lesen] (das) hat Karl versucht.
the book to read that has K. tried
Karl has tried to read the book.

(2) [Die Katze zu fuettern] (das) hat Karl versprochen.
the cat to feed that has K. promised
Karl has promised to feed the cat.

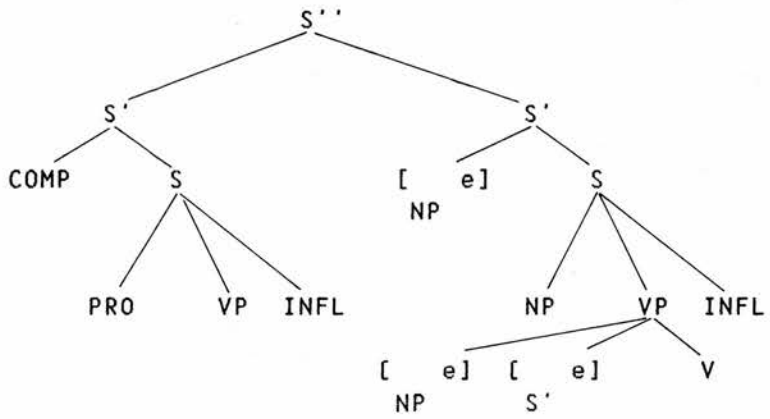
These differ considerably in nature from the previous cases of PIED-PIPING, as is to be expected from our analysis of such matrix clauses as involving base-generation of a topic in pre-S' position. Parallel to the structures which contain a topicalized NP, the string-initial S' constituent is interpreted as a complement of the matrix verb, not as a result of its having moved from an S-internal position, as was the case in the WH-interrogative and relative clause constructions, but indirectly, via association with the optionally realized WH-pronoun which is extracted to the COMP position (see Chapter Five). Evidence for our analysis of matrix clauses will be provided by the fact that the occurrence of topicalized S' constituents is not subject to the restrictions which we have seen to hold over the linear movement rules of PIED-PIPING and EXTRAPOSITION.

The base-rule (3) provides the TOP position where elements may be inserted at D-structure.

(3) S'' -----> TOP S'

(1) and (2) therefore have the underlying structure (4), in which an empty category (a variable) functions as complement to the matrix verb. An empty category is also generated in the COMP and CL positions.

(4)



No linear movement takes place between D-structure and S-structure but non-configurational Case-assignment induces the creation of a non-linear projection in each of the separate cycle-systems which compose S''.[4] At S-structure, the impersonal WH-pronoun is inserted in the empty COMP and CO-INDEX applies to bind the variable. Co-indexing at S-structure simulates the transformational process from D-structure, such that the S-structure form (5) results. The pronoun is linked with the S' in TOP via co-indexing at LF.

(5) [[...] [[e] ... [[e] [e] V]]]
S'' S' S' NP i VP NP i S' i

... [+WH] ... [e]
NP i S' i

ACC

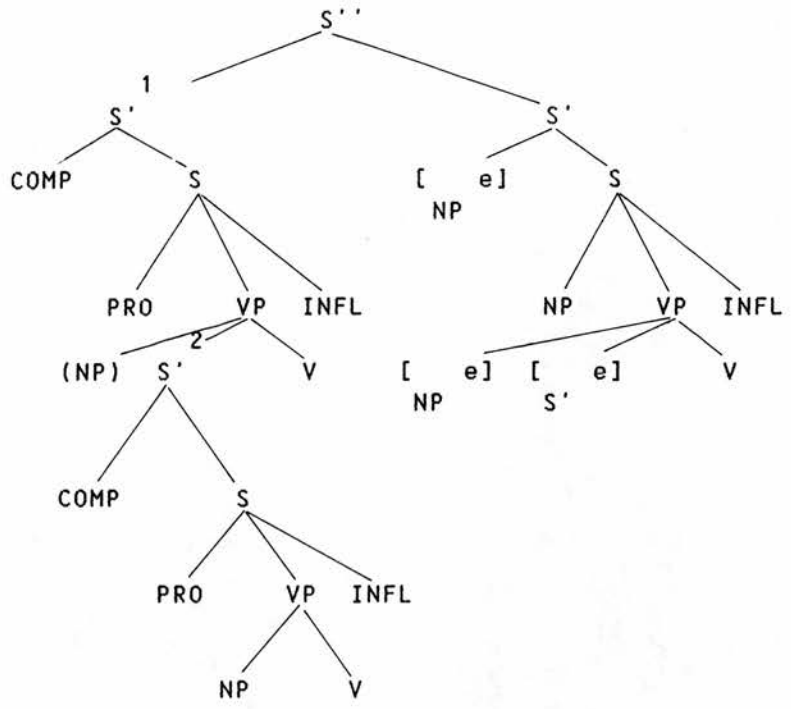
It was shown above that only a single, one-dimensional constituent can be moved, such that PIED-PIPING can never produce left-branching structures in COMP and EXTRAPOSITION can never move such structures, Case-assignment automatically taking place in left-sister S' complements. In contrast, complex left- and right-branching structures are free to occur in TOP. Cf. (6) and (7).

(6) [Karl das Buch zu lesen zu zwingen] (das) habe ich versucht.
K. the book to read to force that have I tried
I have tried to force Karl to read the book.

(7) [Zu versuchen, die Katze zu fuettern] (das) habe ich
to try the cat to feed that have I
aufgegeben.
given-up
I have given up trying to feed the cat.

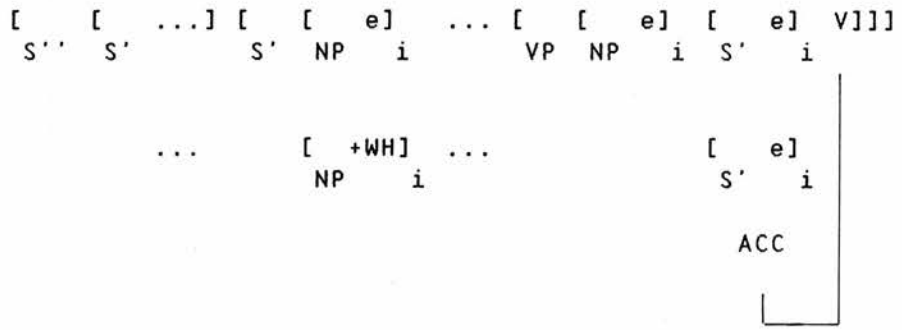
These are derived from an underlying structure of the form (8). Again, the elements in TOP are generated in situ, and an empty category (variable) functions as the complement of the matrix verb.

(8)



(6) is derived by the cyclic application of the Case-assignment rules in TOP and the simultaneous application of the same in the matrix S' itself. The additional insertion of the pronoun at S-structure produces (9).

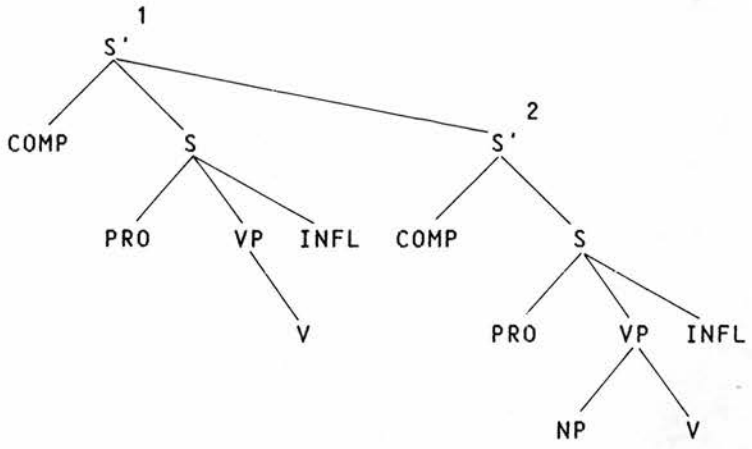
(9)



(7), on the other hand, involves an application of EXTRAPOSITION within the cycle-system in TOP: The embedded S'_2 is extracted to the right immediately on the second cycle, before the application of Case-assignment to elements contained within it, producing the

intermediate structure (10) within TOP.

(10)



The cycle in TOP then re-begins, and Case-assignment takes place first in S'_2, then in S'_1. At the same time, Case-assignment has also taken place in the matrix S' itself.

A second constraint holding over PIED-PIPING and EXTRAPOSITION is the Subjacency Condition on movement rules. This condition prevents a constituent from being moved across more than one bounding node. But the occurrence of S' in TOP is not subject to this constraint: The topicalized S' in (11) is interpreted as the complement of the most deeply embedded verb and is thus linked with a position which lies more than one bounding node distant from it, as the diagram (12) illustrates.

(11) [Das Auto gestohlen zu haben] (das) habe ich den Mann
the car stolen to have that have I the man
zu gestehen zu zwingen versucht.
to admit to force tried
I have tried to force the man to admit to having stolen
the car.

(12) [... [... [... S' zu V] zu V] ...]
S' S' S'
<------------------------

The analysis of topicalized matrix clauses adopted here provides an immediate explanation for this: WH-MOVEMENT is involved, and so the Subjacency Condition can be escaped via the co-indexing of the CL and COMP positions, as shown in (13):

(13) [COMP ... [CL [COMP ... [CL [COMP ...
S' VP S' VP S'
<---------- <------ <---------- <-------

Finally, we note that it is possible for a topicalized clause to be interpreted as the complement of a verb which stands in an extraposed clause, cf. (14). The same configuration is not possible for piped clauses in relatives and WH-interrogatives, where movement must take place directly from the centrally embedded D-structure position (cf. (15)). It is possible here precisely because the clause in TOP is not moved: (14) has the D-structure (16), in which once again a variable functions as the complement of the most deeply embedded verb.

(14) [Das Auto gestohlen zu haben] (das) habe ich den Mann gezwungen, zu gestehen.

I have forced the man to admit to having stolen the car.

(15) a. *Die Lampe, [die zu reparieren]$_i$ ich versuchte,

the lamp which to repair I tried
[den Installateur t$_i$ zu zwingen t$_i$].

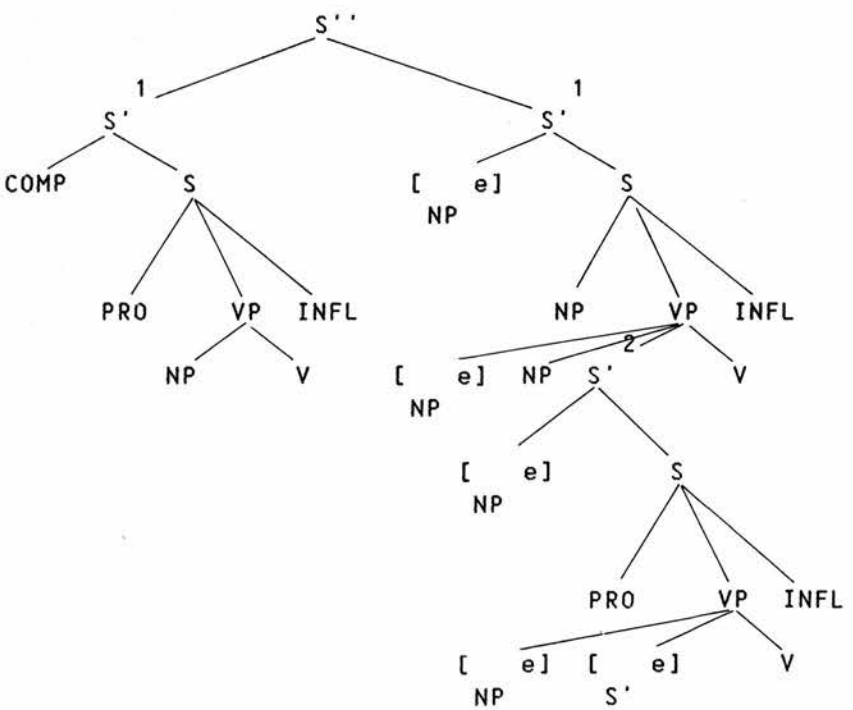
the electrician to force

The lamp which I tried to force the electrician to repair.

b. *[Was zu reparieren]$_i$ hast du versucht,
[den Installateur t$_i$ zu zwingen t$_i$]?

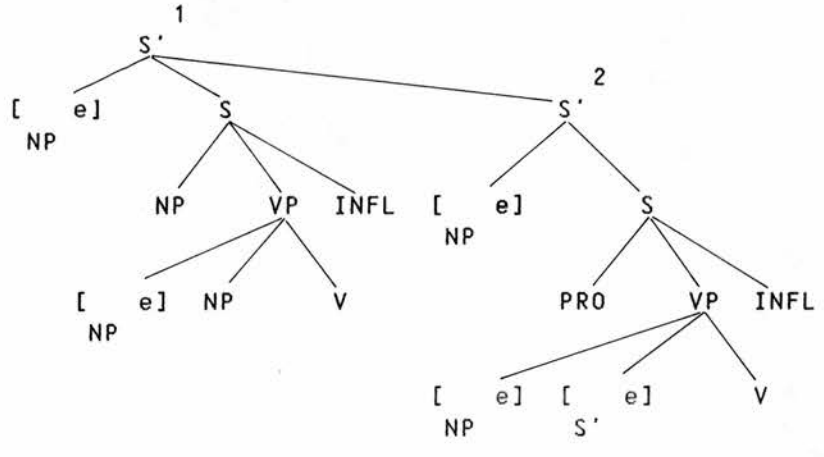
What have you tried to force the electrician to repair?

(16)



In the cycle-system whose uppermost cyclic domain is the matrix S', EXTRAPOSITION applies immediately on the second cycle to produce the intermediate structure (17). The cycle in this system recommences and the Case-assignment rules apply, first to elements contained within S'_2, then to elements contained in S'_1. At the same time, Case-assignment takes place in the clause standing in TOP. The impersonal WH-pronoun is inserted at S-structure in the empty COMP and CO-INDEX applies to bind the variable which now lies in the extraposed clause.

(17)



6.3. CLITIC-CLIMBING in Preposed Structures.

The discussion in Section 6.1. was devoted solely to the linear movement of S' to the matrix COMP position. It is necessary now to examine the behaviour of the WH-pronoun in the PIED-PIPING constructions. To begin with, let us note the fairly obvious point that the WH-pronoun in a structure such as (1) cannot have undergone WH-MOVEMENT in the usual way, because the matrix COMP is already

filled by the piped clause containing it. The linear process of extraction to the matrix COMP position cannot be instantiated twice. Theoretically, however, the possibility remains that the pronoun stands in the COMP of its own clause, as in (2).

(1) [[... [+WH] ...] [... [e] ...]]
S' S' NP i S S' i

(2) [[[+WH] [... [e] ...]] [... [e] ...]]
S' S' NP i S NP i j S S' j

Of relevance here are constructions which involve the PIED-PIPING of complex stuctures. Whilst the interaction of the Case-assignment rules makes it impossible for left-branching structures to be moved, the prior intervention of EXTRAPOSITION does permit the movement of right-branching structures. Thus, the contrasts between the respective sentences in (3) and (4) are to be found.

(3) a. *Der Hund, [den zu finden zu versuchen]
the dog which to find to try
ich Karl versprach.
I K. promised
The dog which I promised Karl to try to find.

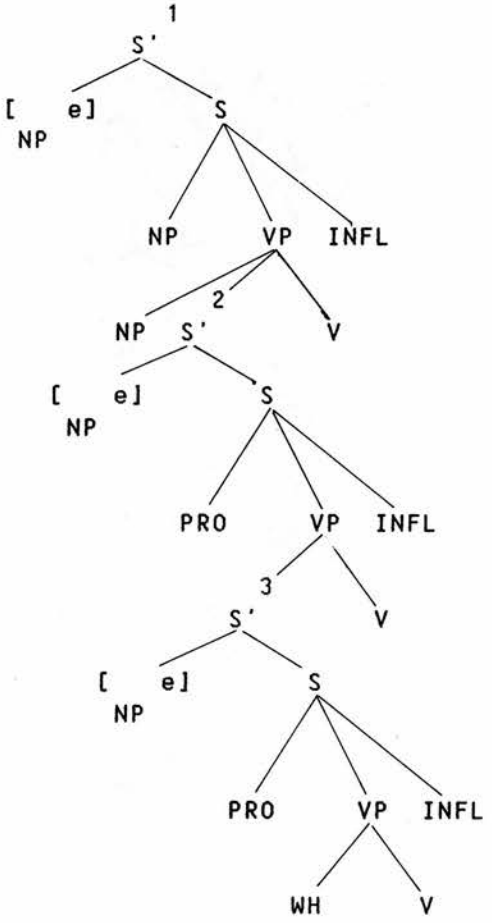
b. *[Wen zu finden zu versuchen] hast du Karl versprochen?
Whom have you promised Karl to try to find?

(4) a. Der Hund, [den zu versuchen zu finden] ich Karl versprach.

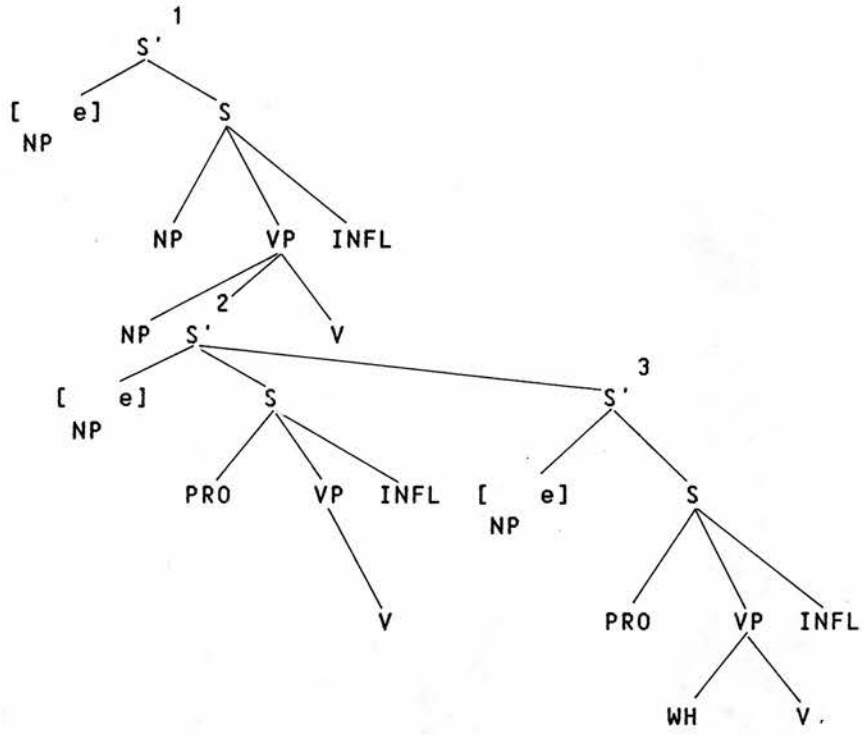
b. [Wen zu versuchen zu finden] hast du Karl versprochen?

The grammatical examples derive from the D-structure (5) via an application of EXTRAPOSITION immediately on the second cycle before the Case-assignment rules have chance to apply to elements contained within S'_3, producing (6), and an application of PIED-PIPING immediately on the third cycle, moving the whole of the complex structure dominated by S'_2 to the matrix COMP position, and producing (7).

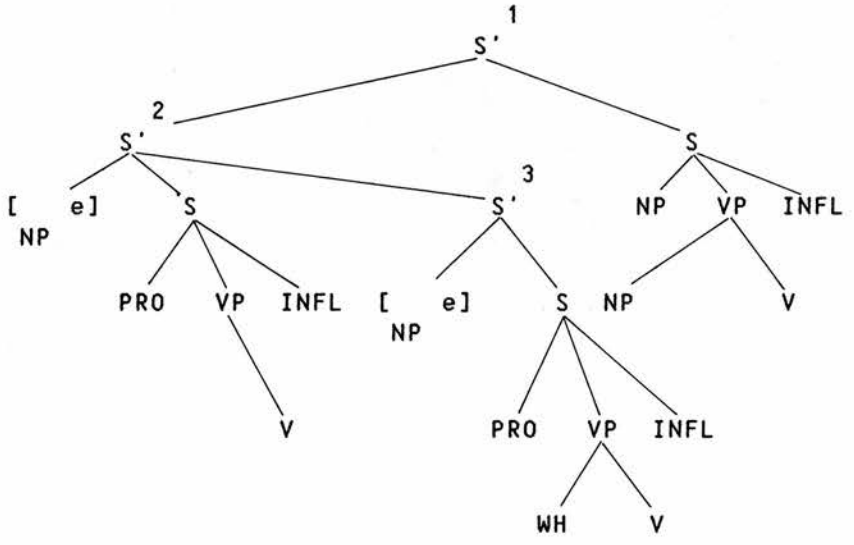
(5)



(6)



(7)



Observe now that the WH-pronoun appears in a preposed position relative to the D-structure argument position with which it is associated in the surface forms of (4). Consequently, it might be contended that the pronoun is indeed extracted to COMP within the

piped structure.

However, consider now the ungrammatical strings (8) and (9).

(8) *Der Apfel, [den den Jungen zu zwingen zu essen]
the apple which the boy to force to eat
ich versuchte.
I tried
The apple which I tried to force the boy to eat.

(9) *[Was den Jungen zu zwingen zu essen] hast du versucht?
What have you tried to force the boy to eat?

These involve leftward displacement of the impersonal WH-pronoun within the piped structure, and we would expect them to be on a par with (10) and (11), i.e. WH-MOVEMENT of an impersonal pronoun should not be sensitive to superordinate objects since they involve S-structure insertion (see section 5.5. above).

(10) Der Apfel, den$_i$ ich den Jungen [S' t$_i$ zu essen] zwang.
The apple which I forced the boy to eat.

(11) Was$_i$ hast du den Jungen [S' t$_i$ zu essen] gezwungen?
What have you forced the boy to eat?

However, impersonal WH-pronouns pattern with personal WH-pronouns in these constructions (cf. (12/13)).

(12) *Der Hund, [den den Jungen zu zwingen zu suchen]

the dog which the boy to force to look for

ich versuchte.

I tried

The dog which I tried to force the boy to look for.

(13) *[Wen den Jungen zu zwingen zu suchen] hast du versucht?

Who have you tried to force the boy to look for?

(8) and (9) resemble the cases of CLITIC-CLIMBING in (14) and those of WH-MOVEMENT in (15) where superordinate objects are relevant. On the other hand, there is also a contrast between the sentences in (4) above and the corresponding cases of CLITIC-CLIMBING exemplified in (16).

(14) a. *, dass ich es den Jungen [t zu essen] zwang.
i S' i

I forced the boy to eat it.

b. *, dass ich ihn Karl [t zu suchen] versprach.
i S' i

I promised Karl to look for him.

(15) a. *Der Hund, den ich den Jungen [t zu suchen] zwang.
i S' i

The dog which I forced the boy to look for.

b. *Wen hast du den Jungen [t zu suchen] gezwungen?
i S' i

Whom have you forced the boy to look for?

(16) a. *, dass ich es versuchte, [t zu finden].
i S' i

I tried to find it.

b. *, dass ich ihm versprach, [t zu helfen].
i S' i

I promised to help him.

In order to see the reason for this apparent anomaly, it is necessary to consider again the nature of WH-pronouns: The personal forms behave in every respect like personal clitic pronouns, in that they undergo CLITIC-CLIMBING, as was seen in Chapter Five. If uniformity between personal and impersonal WH-pronouns in this regard is maintained, then the ungrammaticality of (8) and (9) and the parallelism between these and the sentences in (14) can be explained under the assumption that linear movement of the WH-pronoun in piped structures is, in fact, a case of CLITIC-CLIMBING, rather than of WH-MOVEMENT, and that the impersonal WH-pronoun, like its [-WH] counterpart, cannot, as an indexed element, be inserted into the matrix CL position if a thematically relevant Case-marking is assigned by the matrix verb (cf. section 4.7.).

WH-pronouns differ crucially from clitic pronouns, however, in their morphology -- their feature matrices contain the [+WH] feature which assigns them to the COMP position in the Case-assignment structure and determines them to be non-argument elements. This difference will explain the contrast between the sentences in (4) and those in (16) above: It was argued above (sections 4.6./4.7.) that the ungrammaticality of the sentences in (16) results from the co-existence of an argument-element occupying a non-argument position

and a thematically relevant track (the projection of the trace of the extraposed complement), which is associated with no argument (cf. the S-structure (17)). This configuration violates the bi-uniqueness condition on arguments and thematic roles as expressed under the Theta-Criterion. Given that CLITIC-CLIMBING applies in piped structures, but not WH-MOVEMENT, then the sentences in (4) have the S-structure (18), similar to (17) except for the fact that the pronoun is marked [+WH] and is not an argument. The structure is well-formed because the above-mentioned bi-uniqueness condition makes no reference to non-arguments.

(17) [[e] [e] V] [... [e] ...]
VP NP i S' j S' NP i j

[±F] ... [e] ...
NP i NP i

(18) [[e] [e] V] [... [e] ...]
VP NP i S' j S' NP i j

[+WH] ... [e] ...
NP i NP i

CLITIC-CLIMBING within complex, right-branching structures in TOP is, of course, not possible, for such structures never contain WH-pronouns. The sentences in (19) thus fall together with those in (16) and share the S-structure (17), in which a Theta-Criterion violation obtains.

(19) a. *[Ihn zu versuchen zu finden] habe ich Karl versprochen.
I have promised Karl to try to find him.

b. *[Es zu versuchen zu essen] habe ich Karl gezwungen.

I have forced Karl to try to eat it.

We conclude this section, and this final chapter, by showing how the PIED-PIPING process in relative and interrogative clauses is now fully integrated into the general theory of WH-MOVEMENT outlined in Chapter Five.

An empty WH-element at D-structure must be assigned an antecedent under CO-INDEX. This antecedent will be a morphological feature-matrix which contains the feature [+WH] in the syntax. [+WH] serves to assign an element to the equivalent of the linear COMP position in the morphological Case-assignment structure, and for this reason, a WH-pronoun cannot "surface" (appear in the non-linear projection) until an assignment of Nominative Case has been effected, COMP being defined to be S-external and S being defined to involve an occurrence of Nominative Case in the Case-assignment structure. In the course of the derivation, the WH-pronoun must gain, or be inserted in, the linear matrix COMP position (the COMP position of a tensed clause). The syntax provides the option of moving an S' constituent containing the empty WH-element to COMP as a means to this end. Where the moved constituent is a simple S', or where the WH-element is in the uppermost clause of a complex preposed structure, no further linear movement is required: An antecedent for the WH-element appears in the CL position and, upon application of the Case-assignment rules on the matrix cycle, is automatically assigned to the COMP of the matrix clause by virtue of its [+WH] feature. WH-MOVEMENT as it applies to the pronoun is, in this case,

5
a non-linear process.

Where the moved constituent is complex and the WH-element lies within an embedded S' constituent (which has necessarily undergone EXTRAPOSITION, cf. section 6.1.), the antecedent must undergo CLITIC-CLIMBING: A WH-pronoun in the embedded CL position cannot be assigned directly to the matrix COMP position upon application of the Case-assignment rules on the matrix cycle, since the non-linear process of WH-MOVEMENT will then involve a violation of the Subjacency Condition, i.e. non-linear extraction out of two containing S' constituents (cf. the diagram (20)). But linear movement of the pronoun to the CL position in the uppermost clause of a preposed complex structure is sufficient to provide for a well-formed derivation, and linear movement to COMP is not required.

(20) [[... [... [e] ...] ...]]
COMP S' S' NP

... ... [+WH] ... ...
NP

Notes to Chapter Six.

1. Example (5) is taken from Loetscher:1972.

2. Movement of VP cannot escape the A-over-A Condition through the intervention of the Case-assignment rules as movement of S' under EXTRAPOSITION can. If VP were moved to the matrix COMP subsequent to the application of the Case-assignment rules on the top cycle, strict cyclicity would prevent the application of the same rules within VP.

3. The contrast between this and the above-mentioned cases of A-over-A violations lies with the fact that the node to which the rule applies here, i.e. S', is also the cyclic node. The type of constituent being extracted is precisely that type which constitutes the immediately superordinate cyclic domain, and which may be destroyed by Case-assignment in advance of extraction on a later cycle. VP extraction can never escape the A-over-A Condition because there will always be a one-dimensional VP constituent contained in the cyclic domain in which the rule applies.

4. It will be recalled from Chapter Three that an occurrence of [+TENSE] is required for the Case-assignment rules to be able to apply. Since there is no such occurrence within TOP in the constructions under discussion, it must be assumed that Case-assignment within TOP is triggered by the application of the rules in the matrix S' and that both cycle-systems proceed simultaneously.

5. Note that the preposed S' does not fill COMP in the Case-assignment structure because it is destroyed in the non-linear projection.

SUMMARY AND CONCLUSION.

The initial analysis of the internal structure of the sentence in German revealed that there is no linear rule of NP-MOVEMENT, but that the process of "Raising-to-subject", a specific instance of a more general process which we refer to as "GF-ASSUMPTION", is achieved via the assignment of Nominative Case. On the basis of this and other considerations, it was concluded that morphological Case in general serves to define grammatical functions at a derived level, that German is only partially characterizable in terms of a hierarchical constituent structure.

The analysis consequently required a re-interpretation of the Case-assignment rules of the Government-Binding theory under which the process of Case-assignment establishes structural relationships between constituents of the sentence distinct from those established in the constituent structure configuration which is present underlyingly.

This "two-dimensional" analysis of S-structure was subsequently extended to various types of complex construction, and was shown to have explanatory force in a number of empirical domains. It was shown that the analysis,

a) accounts for the phenomena which led to the formulation of the V-Raising rule, but, at the same time, explains why restrictions on Reflexivization and on NP permutations hold with respect to the underlying bi-sentential configuration at S-structure.

b) explains the complex behaviour of the rule of EXTRAPOSITION as it

applies to S' complements and overcomes the serious problems which would be encountered under alternative approaches.

c) accounts for the behaviour of the CLITIC-CLIMBING rule, in particular for this rule's ability to extract a pronoun from an embedded clause in apparent violation of the Opacity Condition. Because Case defines GF at a derived level, it is the Case-assignment process, and not the underlying configuration, which determines whether extraction is to an argument position or not.

In the analysis of the complex sentence, the Binding Conditions forced us to adopt the VP-complement analysis of embedded ergatives in "Exceptional Case-marking" constructions as this is also adopted by Thiersch (1978) (and, for Italian, by Burzio:1981). This analysis was shown to account for contrasts between these constructions and others which contain embedded transitives with regard to the behaviour of the Reflexivization, NP permutation and WH-MOVEMENT rules. Further support was thereby derived for the idea that passive and certain intransitive structures are linearly ergative.

It was also observed that WH-MOVEMENT in German is subject to very severe restrictions, unlike its counterpart in English. In particular, the rule is sensitive to superordinate objects. This was explained, on the basis of the analogous behaviour of the WH-MOVEMENT and CLITIC-CLIMBING rules, by arguing that WH-pronouns are subject to CLITIC-CLIMBING.

At various points in the course of the work, arguments were presented in favour of the analysis over the major alternative

proposals of Evers (1975) and Thiersch (1978).

The proposed re-interpretation of the Case-assignment rules of the Government-Binding theory has also been shown to have several desirable theoretical consequences. Given that the sentence has structure both in terms of morphological Case-assignment and in terms of an underlying configuration, the transformational notion of "abstraction to deep structure", of the type expressed by "Raising" transformations finds a concrete realization at S-structure in the form of the conjunction of these two structural properties. A "Raising" process (GF-ASSUMPTION) is the result of a defective correspondence between the GF defined in the Case-assignment structure and those defined in the underlying configuration, which is itself a result of lexical Case-assignment properties of verbal heads, as in the case of intransitives, or of regular morpho-syntactic processes, as in the case of the passive. Since the grammar is so formulated that an NP will always receive Case as a result of the Case-assignment properties of heads, it is no longer necessary to specify "ASSUME A GF" ("MOVE NP"). A GF will automatically be assumed, because Case defines GF by virtue of the fact that government is defined derivatively in terms of the process of Case-assignment. The theory is, consequently, considerably simplified, and certain redundancies which are apparent in the interaction of the Case, Government and Theta theories of the Government-Binding theory are removed.

But it is not only transformations of the "Raising" type which are explainable in terms of Case and configuration. As has been seen,

the existence of minor movement rules is provided for, because linear positions are not specified in the Case-assignment structure. The distinction between the structures assigned by the structure-assignment rules permits a deviation, in the Case-assignment structure, from underlying linear order, such that linear positions are not freely created by such a rule.

And, perhaps most significantly, the idea that Case defines GF at a derived level has permitted the use of the morphological features which are inherent properties of pronouns in order to capture the transformational process of CLITICIZATION. The deviation from D-structure expressed by the linear position of a clitic pronoun in relation to that of a corresponding full NP complement, and which results from the failure of lexical insertion, is recaptured in the form of the Case-feature borne by the pronoun.

Whilst distinct transformational processes have been factored out by this theoretical approach, it does not represent a regression to construction-specific rules. On the contrary, since it has been argued that even WH-MOVEMENT should be incorporated into the theory of pronouns and is, therefore, to be captured under CO-INDEX, the only remaining transformational rule which requires to be stipulated as such is that of EXTRAPOSITION.

Finally, on the basis of the role assigned to morphological Case in this analysis of German, it has been conjectured that the "strength" of morphology is one of the factors which enter into the determination of parametric variation between languages. English

differs from German with respect to "Raising" processes, for example, because it is not a morphologically Case-marked language, and therefore has a determinable structure only in linear terms. German would appear to lie somewhere in the middle of a continuum of configurationality, at whose extremes we should expect to find English, as an example of a configurational language, and Japanese, as an example of a non-configurational language.

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