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The Syntax of Verbs

From Verb Movement Rules
in the Kru Languages to
Universal Grammar



1984

FORIS PUBLICATIONS

Dordrecht - Holland/Cinnaminson - U.S.A.

Published by:
 Foris Publications Holland
 P.O. Box 509
 3300 AM Dordrecht, The Netherlands

Sole distributor for the U.S.A. and Canada:
 Foris Publications U.S.A.
 P.O. Box C-50
 Cinnaminson N.J. 08077
 U.S.A.

CIP-data

Koopman, Hilda

The Syntax of Verbs: From Verb Movement Rules in the Kru Language to Universal Grammar/
 Hilda Koopman. – Dordrecht [etc.]: Foris Publications. – (Studies in Generative Grammar; 15)
 Also published as thesis Tilburg. – With references.
 ISBN 90-6765-027-7 paper
 ISBN 90-6765-026-9 bound
 SISO 805.4 UDC 801.56
 Subject heading: verbs; syntax; African languages.

ISBN 90 6765 026 9 (Bound)
 ISBN 90 6765 027 7 (Paper)

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Printed in the Netherlands by ICG Printing, Dordrecht.

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Acknowledgements

The realization of this study would not have been possible without the cooperation, collaboration and support of many people on different continents.

Let me start by thanking Doua Ble Simeon & Doua Yao Adolphe, speakers of Vata, and Djedje Guita & Djedje Theodore, speakers of Gbadi. They served as the main informants in Montreal. Without their help and patience, the research for this study would have been impossible. Further thanks go to many people on the African continent: to Kokora Dago Pascal, director of the Institut de Linguistique Appliquée at the Université Nationale de Côte d'Ivoire. His taking care of the administrative aspects and his hospitality and cooperation have laid the basis for the success of our respective fieldworktrips; and to the inhabitants of the villages of Zaroko, Douaville, Gogobro, Aouati and Niakasse. Staying in their villages has been an invaluable linguistic and personal experience.

This study owes much to many linguists and friends. I am specially indebted: to Henk van Riemsdijk, who was my first syntax teacher. I have greatly benefited from his comments on previous versions and from our long discussions on many of the aspects discussed in this study; to Ken Hale, for the enthusiastic and stimulating hours we have spent discussing various issues of this study; to Noam Chomsky, for being so generous with his time. My intellectual debt to him is immeasurable; and to Dominique Sportiche, with whom I have discussed virtually any aspect of this study.

Introduction

This study contains an investigation of the syntactic properties of verbs, based primarily on research on the syntax of Vata, and to a lesser extent of Bete Gbadi, two hitherto virtually undescribed or unanalyzed languages¹ of the Kru family, spoken in the Ivory Coast. This study is guided by the questions raised by the research program as defined by Transformational Generative Grammar (Chomsky (1965), Chomsky (1980)). More specifically, we will adopt the framework of the *Government Binding Theory* (henceforth GB theory), as developed in Chomsky (1981) *Lectures on Government and Binding (LGB)*, Chomsky, 1982) and the references cited therein.

The application of the GB framework to Vata and Gbadi raises several types of problems. First, descriptive problems: what kind of (novel) concepts (if any) are needed in order to talk about the phenomena we will study? Once descriptive problems are solved, the problem of descriptive adequacy arises. How should the phenomena be analyzed? What is the correct analysis for these phenomena? Finally, after motivating particular analyses, the central problem of linguistic theory, that of explanatory adequacy, arises: what aspects of the descriptively adequate analyses are language specific, and what aspects can be ascribed to Universal Grammar? How much of the rule system must actually be learned by a child acquiring Vata or Gbadi as a first language?

Closely related to this latter problem is the question of how the proposed analyses extend to account for similar phenomena in other languages - and vice versa, how certain proposals in the literature fare when applied to the phenomena studied in Vata and Gbadi - and how observed differences can be reduced to minimal differences. Indeed, because of the conception of Universal Grammar as a system from which a specific core grammar can be derived by fixing the parameters of the system, questions of comparative syntax have become an important focus of theoretical interest in the last few years. We will show here that the powerful analytical tools provided by the GB theory meet with significant success if applied to the syntax of languages it has not been developed for, e.g. Vata and Gbadi, and also that it contributes to the discovery of deep similarities between superficially very different unrelated languages and permits to

systems enumerated in (1b). We will assume here the following definition of government, drawn from Aoun and Sportiche (1983):

- (2) *Government*
 α governs β iff they share all the same maximal projections. α is a governor iff α is an X in the X-bar system (i.e. lexical category, [+ Tense], and [+ AGR]).

According to (2), a lexical category governs all elements contained in its maximal projection (NP, VP, AP, PP), and INFL, the element referred to as AUX in earlier literature, governs the subject of a clause if it is specified as [+ Tense] or [+ AGR] (*agreement*, the abstract node underlying subject-verb agreement). From (2), it follows that a governor governs other maximal projections, but not projections contained in this maximal projection, however. We will assume with Belletti and Rizzi (1981) that the head of a maximal projection XP can be considered to be governed from the outside, if XP is governed.

Government theory also underlies the Empty Category Principle (ECP), which requires that traces be properly governed.

Chomsky (1981) proposes to account for subject-object asymmetries with respect to *wh*-movement, - exhibited in English, for example, by the so-called *that-t* phenomena in (3) - by means of the Empty Category Principle (ECP), a principle which governs the distribution of empty categories at LF:

- (3) a. *Who_i do you think [_{S'} [_{COMP} t_i that] [_S [_{NP} e]_i came]]
 b. Who_i do you think [_{S'} [_{COMP} t_i that] [_S Mary saw [_{NP} e]_i]]

The subject object asymmetry is viewed as the consequence of a difference concerning government: whereas the object of the verb is governed by the verb itself, hence governed by a lexical category - which counts as proper government - the subject is not.

In the case of subject extraction in matrix clauses, i.e. *who came*, it is generally assumed that the subject trace is properly governed by the *wh*-phrase in the adjacent COMP, by virtue of being coindexed with it. In the case of long extraction (3a), the complementizer *that* must be absent so as to allow a trace in COMP to properly govern the trace in subject position.

For traces in subject position, we assume, following Aoun, Hornstein and Sportiche (1981), that proper government is made possible at S-structure by a rule of COMP-indexing, allowing the index of a *wh*-phrase to percolate up to the COMP node in certain configurations (see also

Koopman (1982) for supporting arguments for COMP-indexing). This rule is subject to parametric variation (cf. also Bennis (1980)), and can be formulated as follows for English and French:

- (4) [_{COMP} X_i" ...] → [_{COMP}_i X_i" ...] iff COMP dominates only i-indexed elements

(Aoun, Hornstein & Sportiche (1981)).

The ECP will be extensively discussed in chapter 6 and chapter 7.

The Projection Principle

By virtue of the *Projection Principle* put forth in Chomsky (1981), the lexicon plays a central role in determining syntactic representations.

- (5) *Projection Principle*
 Representations at each syntactic level (i.e. LF, D- and S-structure) are projected from the lexicon, in that they observe the 'lexical' properties of lexical items

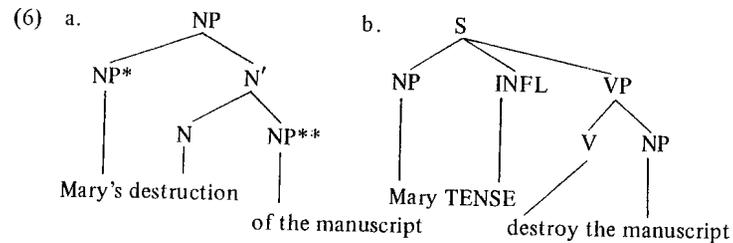
Given the importance of lexical properties, let us briefly review what lexical properties have to be distinguished.

As well as information concerning phonetic form and meaning, the lexicon contains information about the thematic structure of a particular lexical item, and specifies its subcategorization and selectional features.

θ-theory

Knowledge of a language implies knowledge of the fact that a particular verb is a one, two, or three place predicate. Verbs like *sleep*, *hit* and *give*, which are respectively one, two and three place predicates, will be said to assign respectively one, two, or three thematic roles (*θ-roles*). We will sometimes speak of particular *θ-roles* like *agent*, *theme*, *goal*, *source*, etc. It should be kept in mind however that these terms have no theoretical status.

How, and to what elements are *θ-roles* assigned? Consider the following examples, which, by virtue of the *Projection Principle* are projected from the lexical properties of their heads:



θ -roles are assigned to argument positions under government. Using the notation presented in *Aspects* (Chomsky, 1965), the complements [NP, N'] (=NP** in (6a)), [NP, NP] (= NP* in (6a)), and [NP, VP] in (6b) are governed and θ -marked by *destruction* and *destroy* respectively. However, given the assumption that VP is a maximal projection (cf. Aoun and Sportiche, 1983), the subject NP in (6b) is not governed by the verb, and therefore cannot be θ -marked by the verb under government. Chomsky proposes that the θ -role for the subject is assigned by the VP. The nature of the θ -role assigned by the VP is determined compositionally by the content of this VP. Chomsky points out the following observation in support of this hypothesis.

- (7) a. Mary broke John's arm
b. Mary broke her arm

In these examples, the available interpretation for the subject NP depends on the content of the VP. In (7a), *Mary* is interpreted as an agent, but in (7b), *Mary* can be interpreted either as an agent, in which case *Mary* and *her* are disjoint in reference or as a goal, in which case *Mary* and *her* corefer.

Adopting the terminology of Williams (1981), we will refer to the complements of a verb [XP, VP] as *internal arguments*, and to the subject NP, [NP, S], as the *external argument*. For convenience, we will further adopt his notation for indicating the external argument in lexical representations, and underline the θ -role assigned to the external argument (i.e. swim; agent).

θ -assignment to A-positions is governed by the θ -criterion, a basic principle of θ -theory:

- (8) *θ -criterion*
Each argument is assigned one and only one θ -role, and each θ -role is assigned to one and only one argument

The θ -criterion is a minimal condition of adequacy for LF-representations. Moreover, because θ -assignment is a lexical property, the θ -criterion extends to all levels of syntactic representations by virtue of the Projection Principle.

Subcategorization

Lexical categories specify the categorial status of their complements, a property subsumed under subcategorization. Verbs only subcategorize for their complements (i.e. their internal arguments), and not for their subjects, although, as we have seen above, they may indirectly θ -mark the latter. Subcategorization features should be met at least at LF. It is of little importance for our study here whether subcategorization features should be met at all levels of syntactic representations – the strongest hypothesis – or whether they only have to be satisfied at LF, as proposed in Pesetsky (1982).

Selection

Selectional restrictions have not really been discussed in recent work. Selectional restrictions are intimately linked to θ -marking properties, in the sense that positions on which selectional restrictions are imposed are also positions to which particular θ -roles are assigned. Chomsky (1981) argues, for instance, that the *quasi*-argument *advantage* which is part of the idiomatic expression *take advantage of* is assigned a particular θ -role which we will represent as #. In fact, this particular θ -role seems to be an abbreviation for the fact that the particular lexical item *advantage* is selected by the verb *take*. It thus seems reasonable to suppose that selectional restrictions and θ -marking properties are part of the same theory, and that selectional restrictions should also be met at all levels of syntactic representation by virtue of the Projection Principle.

The Extended Projection Principle

Chomsky (1981) shows that clauses must contain a subject NP, even if this is not required by lexical properties (cf. Chomsky (1981), for discussion). This requirement is incorporated, by stipulation, in the Extended Projection Principle that states that representations at each syntactic level are projections of θ -marking properties and that clauses must have subjects. In fact, clauses must not only contain an obligatory subject, but also a mood indicator of some sort, INFL. Clauses then consists of the set of the following categories NP, INFL, VP. How the relative order of these elements is determined is a problem to which we return in chapter 4 and chapter 7.

Case theory

The theory of (abstract) Case plays an important role in this study. The essential contribution of Case theory is to provide an adequate characterization of those positions in which a lexical NP may appear (Chomsky (1980), Rouveret and Vergnaud (1980), Vergnaud (1982)). This is achieved by assuming that Case is assigned in particular contexts like those in (9) in English, for example, and by assuming that all lexical NPs must be specified for Case.

- (9) a. The subject of a tensed clause is assigned nominative Case
 b. The object of a verb or a preposition is assigned objective Case
 c. An NP is assigned 's in the context [NP _____N']

Case assignment requires government between the Case assigner and an NP. Moreover, in English at least, Case assignment under (9b) requires adjacency between the NP and the Case assigning category, (e.g. the *Adjacency* Condition on Case assignment (Chomsky (1981), Stowell (1981))). We will return extensively to the conditions under which nominative Case is assigned and the Adjacency condition in chapter 7. The idea that every noun with a phonetic matrix must have Case, is expressed by the following well-formedness principle:

- (10) * [N α], where α includes a phonetic matrix, if N has no Case

Chomsky argues that (10) is entailed by the more general Case filter (11):

- (11) Case filter
 * [NP α], if NP has a phonetic matrix and no Case

If Case is assigned to NPs by virtue of the configuration in which they appear, and if Case percolates down to the head of the NP, (10) follows from (11). We will assume here that (11) represents the correct formulation of the Case filter, and refer the reader to Chomsky (1981) for further discussion of this matter

Case theory forces NP movement in raising and passive constructions. Raising verbs like *seem* have the lexical property of assigning an internal θ -role to a clausal complement, but without assigning it Case; furthermore, they assign no θ -role to the subject. Passive morphology has similar syntactic effects: verbs carrying passive morphology assign no Case to an [NP, VP], and no θ -role to the subject. By virtue of the Projection Principle, clauses containing raising verbs and passive verbs are assigned the following D-structure, in which each argument occurs in the position in which it is assigned a θ -role (D-structure is a projection of θ -theory).

- (12) a. [NP] [INFL + Tense, +AGR] seems [_S Mary to have left]
 b. [NP] [INFL + Tense, +AGR] have been destroyed [NP the city]

The lexical NPs *Mary* and *the city* occur in Caseless positions. They must therefore move into a Case position in order to satisfy the Case filter. This is achieved by moving the NP into the subject position which is Case marked by INFL and to which no θ -role is assigned (a *non- θ -position* also referred to as $\bar{\theta}$ -position). Indeed, a general characteristic of movement is that it can only take place to a $\bar{\theta}$ -position: movement into a θ -position would cause a θ -criterion violation.

We will not expand on movement constructions any more here: further properties of movement constructions will be discussed in due time.

In sum, lexical NPs must occur in Case marked contexts, and cannot occur in Caseless contexts in which PRO and NP-trace are found. In Chomsky (1981), Case theory has a wider application than that of providing an adequate characterization for the positions in which lexical NPs may occur: it also provides an explanation for the necessity of rules like *of*-insertion in NPs. We will return to this point in chapter 4.

Bounding Theory

The transformational rule Move- α is constrained by the Bounding Theory which comprises the Subjacency condition of Chomsky (1973), and the parameter that establishes which nodes count as Bounding nodes for Subjacency in a particular language (see amongst others Rizzi (1982), Sportiche (1981), and Van Riemsdijk (1978)). Bounding Theory will be discussed in more detail in chapter 6.

Binding Theory

In the GB theory, the distributional properties of NPs follow from the interaction of the Case filter, the ECP, and the Binding Conditions, whose basic format is illustrated in (13):

- (13) *Binding Theory*
 A. An anaphor must be bound in domain X
 B. A pronoun must be free in domain X
 C. An R-expression must be free

Here, *bound* means A-bound, i.e. c-commanded by a coindexed NP in an *A-position* (i.e. an obligatory NP-position), and *free* means A-free, i.e. not A-bound. An anaphor is defined as a category that lacks independent reference; this includes reflexives, reciprocals, and, by stipulation, NP

traces and PRO. A pronoun is defined in terms of ϕ -features (person, number and gender) and may be referentially dependent or independent. Empty pronominal categories include, by stipulation, PRO, and *pro* 'small pro', the empty category that has all the referential possibilities of a lexical pronoun (contrary to PRO).

How is domain X to be characterized? Chomsky (1981) discusses several definitions for this domain; the initial one, called the Governing Category, is presented in (14):

- (14) *Governing Category*
 α is the Governing Category for β iff α is the minimal category containing β and a governor of β , where $\alpha = \text{NP or S}$

This definition accounts for the distribution of pronouns, but runs into problems if the distribution of anaphors like *each other* is taken into consideration. The examples in (15), for instance, are incorrectly predicted to be ungrammatical, since the minimal category which contains *each other* and a governor of *each other* is NP*. NP* however does not contain an antecedent, and condition A is violated:

- (15) a. They_i like [_{NP*} each other's_i friends]
 b. We_i thought that [_{NP*} pictures of each other_i] would be on sale

The definition of Governing Category presented in (14) accounts correctly for the fact that, in the following contexts, pronouns are free:

- (16) a. He_i likes [_{NP*} his_{i/j} mother]
 b. He_i thought that [_{NP*} his_{i/j} pictures] would be on sale

We will assume (cf. Huang (1982) for much relevant discussion of these matters) that pronouns - informally speaking - must be bound in their Governing Category as defined in (14), but that certain lexical anaphors, like *each other* in English, can be bound in a less restricted domain: the domain of the Accessible SUBJECT (Chomsky, 1981).

In answer to the question why NP and S are Governing Categories, Chomsky proposes to modify the definition of Governing Category (14) into that presented in (17), to which we will refer as *Governing Category**, along with the two independent principles (18) and (19), and the notion *accessibility* defined in (20):

- (17) *Governing Category* or Binding Category*
 α is a Governing Category for β iff α is the minimal category containing β , a governor of β and a SUBJECT accessible to β

- (18) AGR is coindexed with the NP it governs
 (19) The i-inside-i well-formedness condition:
 * [_a..._b...], where *a* and *b* bear the same index
 (20) α is *accessible* to β iff β is in the c-command domain of α and assignment of the index of α to β would not violate (19)

The notion SUBJECT corresponds to the idea that the subject is "the most prominent nominal element" and translates as the AGR element in INFL, where present, or the syntactic subject [NP, S] or [NP, NP]. The following examples illustrate the functioning of (17)-(20):

- (21) a. *they_i think that each other_i AGR would leave
 b. they_i like [_{NP} pictures of each other_i]
 c. *they_i like [_{NP} Mary's pictures of each other_i]
 d. we_i thought that [_{NP} pictures of each other_i] would be on sale
 e. they_i AGR think that it AGR is a pity that [_{NP} pictures of each other_i] AGR are on sale

(21a) is excluded since the anaphor is free in the domain of the accessible SUBJECT, AGR, with which it is coindexed by virtue of (18). The anaphor in (21b) is correctly bound to its antecedent *they* in the domain of the accessible SUBJECT, AGR. The ungrammaticality of (21c) may be imputed to the fact that the anaphor is not bound in the domain of [NP, NP]. In (21d) AGR is coindexed with the subject NP *pictures of each other* (by virtue of (18)), so AGR is not accessible to the anaphor since assignment of the index of *each other* to AGR would violate the i-inside-i condition (19): the category with an accessible SUBJECT for the anaphor is then the matrix clause which contains an antecedent. Finally (21e) illustrates a case in which the anaphor may be bound across an expletive subject: the AGR node in the clause containing the anaphor is not an accessible SUBJECT for the same reason it is not in (21d). The question then arises of how it is possible that the clause containing *it* may be skipped (i.e. why does it not count as containing an accessible SUBJECT?). Chomsky (1981) proposes that the non-accessibility of the clause containing *it* is due to the fact that hypothetical coindexing would violate the i-inside-i condition, given the assumption that *it* is coindexed with the extraposed clause.

The structure of the Binding Conditions in Vata will be discussed in 3.3.2. It will be shown there that the domain of the Binding Conditions for pronouns and lexical anaphors (i.e. reflexives) must be characterized

as Governing Category defined in (14); (17) will be shown to correctly characterize the Binding domain of one particular class of lexical anaphors.

Control Theory

The theory of Control is concerned with the choice of antecedents for PRO, and will be only touched upon briefly in this study. (cf. Bouchard (1982), Koster (1981), Manzini (1983), Sportiche (1983), and Williams (1980) for discussion).

The Projection Principle and the θ -criterion have trace theory as a consequence, at least as far as movement of arguments is concerned. Consider, for example, the following S-structures:

- (22) a. the city_i has been destroyed [e]_i
 b. who_i did you see [e]_i

Since both the verb carrying passive morphology, and the verb *see* assign an internal θ -role (*see*, of course, also assigns an external θ -role, unlike the passive verb in (22a)), an empty category must be postulated to which this θ -role can be assigned, in accordance with the θ -criterion. This empty category is called NP-trace in (22a), and is A-bound to the NP *the city*, and *wh*-trace in (22b), where it is \bar{A} -bound to the *wh*-phrase *who* in COMP.

But (22a) can also be looked at from a slightly different angle. In (22a), the lexical NP *the city* occurs in a position to which no θ -role is assigned (a $\bar{\theta}$ -position). However, since it is an R-expression, and thus an argument, it must be assigned a θ -role by virtue of the θ -criterion. It satisfies the θ -criterion by forming a *chain* with the empty category, (it 'picks up' its Grammatical Function (GF- θ)). Chain formation requires feature agreement, and the θ -criterion is so reformulated as to apply to chains containing one or more members. It then follows that a surface structure like *the city has been destroyed* must be assigned the S-structure representation in (22a). Moreover, in order to capture the distribution of NP traces, it is assumed that: (i) the relation antecedent-NP trace obeys the Subjacency condition; (ii) (by stipulation), NP trace is an anaphor and must satisfy condition A of the Binding Theory; and (iii), NP traces must be properly governed by virtue of the ECP.

One may wonder whether a *wh*-phrase or a topicalized category and their respective traces also constitute a chain for the purposes of θ -role assignment. Chomsky (1981) argues that this is never the case for elements in positions peripheral to S. Given this assumption, we will suppose, following Sportiche (1983) that the requirement that *wh*-phrases in COMP must locally \bar{A} -bind an argument in a Case marked position follows from the *Map principle* (Sportiche (1983))²:

- (23) An \bar{A} -position must map onto an A-position

Let us point out here a further desirable consequence of the Map principle. Not only does it ensure that elements in an \bar{A} -position are related to A-positions, but it also yields, in essence, trace theory for adjuncts (i.e. arguments which are not directly θ -dependent on a verb). Adjuncts, as shown in Huang (1982), must be related to an "obligatory" position in the sentence, since the trace in this position obeys the ECP. Huang argues that the ECP is satisfied by coindexation with an antecedent in an \bar{A} -position.

In sum, then, the trace-leaving requirement of movement processes follows from the Projection Principle and the Map principle.

Let us elaborate on the characteristics of *wh*-traces (also called *variables*). Their distribution is accounted for by the assumptions that: (i) *wh*-traces occur only in Case marked contexts³; (ii) the antecedent-trace relation obeys the Subjacency condition; (iii) *wh*-traces must be properly governed by virtue of the ECP.

This concludes the presentation of the theoretical assumptions underlying our research. Although many assumptions have been left unstated, and the motivations for the particular assumptions we adopt have not been discussed, we feel that it provides those readers who are not very familiar with the GB framework with the necessary background information to follow the discussions in the succeeding chapters. Further properties of (1) will be developed as we proceed.

The organization of this study progresses from descriptive questions, to problems of descriptive adequacy, and finally to problems of explanatory adequacy.

The data in this study are drawn mainly from Vata. Some data on Gbadi will also be presented though: this will provide insight into the kind of variation that may exist between two closely related languages, and will permit us to illustrate the functioning of certain syntactic processes that do not occur or are particularly opaque in Vata.

We will start in chapter 2 with an overview of the phonological, morphological, and (surface) syntactic properties of Vata and Gbadi.

The main concern of chapter 3 is the establishment of D-structure representations in Vata and Gbadi. The pivotal elements around which this chapter is organized are the two 'verbal' nodes of a sentence: the main verb and its projection, and INFL. Starting out with a word order problem - how to account for the different positions in which a verb may appear - arguments will be presented to the effect that the main verb occurs in VP-final position at S-structure. It will be argued that those surface structures in which the verb precedes its complements are derived by a rule of verb movement (V-movement), which moves the main verb into INFL if INFL does not contain an auxiliary.

The establishment of the base rule for VP will lead to a discussion of the other lexical categories and their projections. These will also be shown to be head-final, making Vata and Gbadi regular head-final languages. Once we will have discussed the lexical categories, we shall turn next to a discussion of the internal structure of the node INFL. Special attention will be paid to the status of the node AGR, which we will argue to be absent (a hypothesis that draws support from the functioning of the Binding conditions in Vata), and to the question of what the properties of Vata's auxiliaries are, and how these can be best accounted for. Finally, this chapter contains a (preliminary) discussion of the lexical properties of verbs in Vata, paying some attention to subject-verb idioms, and analyzes the particular problems that concern the COMP node and complementation in general.

Chapter 4 focuses on the base component, as established in chapter 3, and addresses the particular problems that are encountered if one tries to reduce the base component to as few and as general statements as possible. This leads us to consider differences between the internal structures of NPs and VPs, the distribution of clausal complements, and the distribution of PPs. The distribution of PPs will be shown to provide evidence for the incorporation into θ -theory of a parameter which must be set with respect to the direction in which θ -roles are assigned. This parameter, we will argue, subsumes partly what is generally called the head initial/head final parameter of X-bar theory. Case theory, furthermore, must contain a similar specification for the directionality of Case assignment. And, although in many languages, θ -roles and Case are assigned in the same direction, in certain other languages, they differ. This hypothesis yields an elegant explanation of certain word order problems in Chinese, and Mahou, a Northern Mande language (and Mande languages in general). Finally, this chapter contains a brief discussion of how the position of INFL is determined.

Chapter 5 and chapter 6 are devoted to the analysis of the properties of the two types of verb movement rules discussed in this study. These, we will show, have properties parallel to those of NP-movement and *wh*-movement.

In chapter 5, the characteristic properties of the NP-type of verb movement will be established. Postponing certain questions until chapter 6, we will develop the hypothesis that verb movement must occur in order to insure Case assignment to the subject NP, and concentrate on the implications of this hypothesis.

In chapter 6, we analyse the characteristics of the so-called 'predicate cleft' construction, a construction in which the effects of the *wh*-type of verb movement can be observed. This chapter also contains a discussion of Bounding Theory, and argues that the ECP and Binding Theory apply

to verbal traces and account for their distribution.

Finally, in chapter 7, we extend the proposed analyses of Vata and Gbadi to other languages having V-movement rules, and we discuss the assignment of Nominative Case in general. This chapter also contains arguments to the effect that the NP-type of verb movement, also discussed in chapter 5, must apply in the syntax.

NOTES

1. For further information on Vata and Gbadi, see the references cited in this study. On Kru languages in general, see Marchese (1979) and (1979a) and references cited therein. On some syntactic aspects of a Kru language in the EST framework see Kokora (1976).
2. This requirement follows from the Bijection Principle as formulated in Koopman and Sportiche (1983):

Bijection Principle

There is a bijective correspondance between variables and \bar{A} -positions

Note however that the Bijection Principle should probably be formulated as holding of the relation between operators and variables in which case something like the Map principle cited in the text must be assumed.

3. Apparent counterexamples like (i) notwithstanding:

(i) qui_i crois-tu [c]_i être venu

See Kayne (1981) and Rizzi (1982) for discussion.

Outline of Vata and Gbadi

2.0. Preliminary remarks

In order to provide the reader with the necessary background to follow the matters discussed in the following chapters, this chapter contains a brief sketch of the phonological, morphological, and syntactic components of Vata and Gbadi, two Kru languages spoken in the Ivory Coast¹. The data presented in this study are drawn mainly from Vata. They are based on fieldwork with a number of informants in Montreal and in the Ivory Coast, and on recorded texts and conversations. We also present data from Gbadi, based mainly on fieldwork with informants. Our reason for doing so is twofold. First, it gives an idea of the variation between two closely related languages of the Kru family, and second, certain points of theoretical interest, like restructuring constructions, cannot be directly discussed in Vata, due to a particular configuration of data. Their functioning may be illustrated in Gbadi, however, as we will show in 3.1.4., for example. For expository reasons, the actual examples will be kept very simple. We refer the reader interested in a sample of Vata text to Kaye, Koopman, Lowenstamm and Sportiche (1983).

2.1. Phonology

The phonological systems of Vata and Gbadi and the particular orthography used in this study are represented in (1), where the feature [+ATR] stands for Advanced Tongue Root:

(1)	<i>Vata</i>	<i>Gbadi</i>
	<i>CONSONANTS</i>	
stops	p t c k kw kp b d j g gw gb	p t c k kw kp b d j g gw gb
fricatives	f s v z	f s v z
nasals	m n ny ng	m n ny ng
glides	ʃ l y gh w	ʃ l w

VOWELS

[+ ATR]		[- ATR]		[+ ATR]		[- ATR]	
i	u	I	U	i	u	I	U
e	o	E	O	E	O		
^		a			a		

The consonant systems of the two languages are virtually identical (for arguments for the status of implosives and liquids as glides, see Kaye (1981)).

The vowel systems, however, differ somewhat, as (1) shows. Vata has a ten-vowel system which reduces to a five vowel system at the segmental level, each member of which may or may not be associated with the autosegmental feature [+ATR]. Like so many African languages, Vata displays a wide array of harmony processes, which include dominant and directional harmony (Halle and Vergnaud, 1980) involving the autosegment [+ATR], and a parasitic harmony involving the autosegment [+High] (see Kaye (1982) for a detailed analysis of harmony processes in Vata).

Gbadi has a seven vowel system, the classification of which is still not uncontroversial. Evidence tends to indicate that the vowels transcribed as *I* and *U* should be defined as [+High, -ATR] vowels rather than [-High, +ATR] vowels. Harmony processes in Gbadi include a parasitic harmony involving the feature [+High] and possibly a directional rounding harmony.

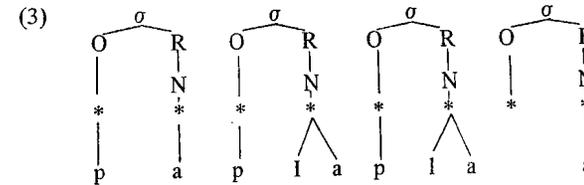
Like many African languages, Vata and Gbadi are tone languages. Four lexical tones can be distinguished, whose transcription is indicated in (2a) (where *V* represents a tone bearing element). They will also be occasionally represented as (2b):

(2) a. \acute{V} : high \check{V} : mid-high \bar{V} : mid \grave{V} : low

H	MH	M	L
b. : high	: mid-high	or : mid	: low
V	V	V	V

For the purposes of this study, we need not enter into the analysis of tones. A point which will arise rather often however is the functioning of the mid tone as the unmarked tone. As indicated in (2b), elements with *no* associated tone will be pronounced bearing a mid tone. Let us also mention that contour tones are transcribed and analyzed as sequences of level tones.

The syllable structure of Vata and Gbadi may be represented as in (3) where rimes are non-branching, and nuclei may dominate a vowel or a light diphthong (Kaye and Lowenstamm, to appear).



2.2. Verbal Morphology

Vata and Gbadi are exclusively suffixing languages. In this section, we will pay attention to those morphological processes which affect verbs, and which play a role in the argumentation in the following chapters.

2.2.1. The base form of verbs

In the Kru languages there exists a verbal form which we will refer to as the base form. This verbal form is used in a sentence which contains an auxiliary (4a), or an imperative (4b) for instance.

(4) a. Vata à nī̄ - k̄ā sáká lí
 Gbadi à yī̄ slká lī̄
 we FUT-A (TP) rice eat
 'we will eat rice'

b. Vata slá slé
 Gbadi sÉ6Ó b̄ùdù
 construct house
 'build a home'

Knowledge of this form permits the construction of other verbal forms such as the imperfective and perfective forms, nominalizations, middle verbs, applied verbs, causative verbs and reciprocal verbs.

2.2.2. Imperfective and perfective aspect

Although, tonologically speaking, surface structures are rather opaque, it can be shown that imperfective verb forms involve a process which disassociates the rightmost lexically associated tone (cf. Koopman and Sportiche (1982) for some discussion). Moreover, in Vata high vowels are lowered. Perfective verb forms are formed by the adjunction of a floating low tone suffix. Some examples of the two processes are presented in (5):

(5)	Base form	Imperfective	Perfective
a.	Vata slá 'construct'	slá	slá'
	Gbadi sĒbÓ	sĒbŌ	sĒbŌ
b.	Vata ĩĩ 'eat'	ĩĩ	li
	Gbadi ĩĩ	ĩĩ	li
c.	Vata sà 'pick, gather'	sā	sà
	Gbadi sĒ	sĒ	sĒ

An imperfective verb form either has a generic meaning or indicates that the action is taking place at the time expressed by the Tense of its clause. A perfective verb form indicates the completion of the action at the time expressed by the Tense of its clause.²

2.2.3. Nominalizations

In Vata, nominalizations are formed by adding the suffix *-li* to the base form of a verb:

(6)	Vata Base form	Nominalization
	pà 'throw'	páll 'action of throwing'
	ĩĩ 'eat'	ĩĩli 'eating'
	sà 'pick, gather'	sáll 'gathering'
	slá 'construct'	sláll 'action of constructing'
	sū 'crush'	sūli 'crushing'
	wlŪ 'leave'	wlŪli 'leaving'

In Gbadi, nominalizations are formed by suffixing *-E* to the base form of the verb. The latter must also be reduplicated, unless it is accompanied by an incorporated indefinite NP or by a verbal particle. If accompanied by an indefinite NP or a verbal particle, certain tone changes occur, which are typical of contexts which involve nominal compounds of some sort. These forms are often referred to as the "associative construction" in the literature.³

(7) Gbadi

Base form	Nominalization
pÓ	pĒpĒ' lí-pĒ'
throw	throw-throw-NOM arrow-throw-NOM
ĩĩ	ĩĩiĒ sĪká-ĩĩĒ
eat	eat-eat-NOM rice-eat-NOM
mí kpá	mí-kpĒ'
in ?	in-?-NOM
'shout'	'shouting'

In the two languages, nominalizations are fully productive and have the same distribution as regular lexical NPs. Vata and Gbadi seem to differ, however, with respect to the internal structure of nominalizations.

The following data allow us to establish that nominalizations in Vata are clausal and behave in all respects like English gerunds (i.e. *poss-ing* constructions: that is, the nominalized verb has verb-like characteristics), but that nominalizations in Gbadi must rather be assigned the internal structure of NPs, the nominalized verb being noun-like.

A first characteristic of Vata is the impossibility of the prenominal marker *na* (cf. 4.1. for more discussion) occurring on NP complements of a nominalized verb:

- (8) à wà kòfí (*ná) yé bátĩ-lĩ
 we like Kofi (*NA) PART observe-NOM
 'we like to observe Kofi'

This indicates that the NP, object of the nominalized verb, satisfies the Case filter by virtue of being governed by the verb.

Secondly, the nominalization may contain a subject, provided this latter is marked with the 'genitive' marker *ni*:

- (9) kòfí ní sàká pĩ-li
 Kofi NI rice prepare-NOM
 'Kofi's preparing rice'

Finally, complements of a nominalized verb may be extracted by means of *wh*-movement, as shown in (10). Complements of NPs may not be extracted, as shown in (11a); rather the entire NP must be preposed as shown in (11b):

- (10) yĩĩ ò cè [PRO [e]_i ĩĩ-li] kŪ lá
 what you start eat NOM PART WH
 'what did you start eating'
- (11) a. *álŌ_i ò yĒ' [[e]_i fòtó'] yé lá
 who you saw picture PART WH
 'who did you see a picture of'
- b. [álŌ ní fòtó']_i ò yĒ' [e]_i yé lá
 who NI picture you saw PART WH
 'whose picture did you see'

The properties of nominalizations in Gbadi differ from those in Vata. First, NP complements of the nominalized verb *must* be marked with the prenominal marker *na*:

- (12) Gbadi: \dot{I} wà bányò ná kú wŪÛ-È
 I like Bagno NA PART look-NOM
 'I like to observe Bagno'

This provides us with a clear indication that the nominalized verb behaves like a noun. And second, complements of a nominalized verb may not be extracted (13a). Just as is the case when NP-complements are questioned, the entire constituent must be pied-piped (13b):

- (13) Gbadi: a. *nyṐ yí·Í wà -bṐ kú wŪÛ-È
 who WH you want-Q PART see-NOM
 b. nyṐ ná kú wŪÛ-È yí·Í wà -bṐ
 who NA PART see-NOM WH you want -Q
 'who do you want to observe'

Given these observations, we will assume the following internal structure for Gbadi's nominalizations:

- (14) Gbadi. [NP [N' [N V-NOM]]]

Thus, nominalizations have the same syntactic distribution as NPs, but their internal structure is clausal in Vata, and nominal in Gbadi.

2.2.4. Middle verbs

In the middle construction, a specific verbal morphology, which we will refer to as *passive* morphology, is suffixed to the base-form of the verb:

- (15) a. Vata

base form		base form + IO	
fí	'eat'	fíò	'be eaten'
lá	'call'	láo	'be called'
nyÉ	'give'	nyÉìò	'be given'

- b. Gbadi

base form		base form + O	
fí	'eat'	fíò	'be eaten'
lá	'call'	láo	'be called'
jí	'give'	jíò	'be given'

Passive morphology has the syntactic effect that the external argument of the verb disappears, and that one of the internal arguments appears in subject position.

- (16) Vata sáká lílò
 Gbadi síká líò
 rice eat-PAS-IMPERF
 'rice is being eaten'
 (compare French 'le riz se mange')

Vata	sáká	líò
Gbadi	síká	líò
	rice	eat-PAS-PERF
		'rice has been eaten'

As is generally the case in the middle construction, the suppressed external argument cannot be expressed with the equivalent of a *by*-phrase. In the interest of completeness, let us mention also that intransitive verbs cannot carry passive morphology, and that verbs with passive morphology cannot be nominalized.

2.2.5. Applied verbs

As in many African languages, there exists a morphological process in Vata and in Gbadi which, through the addition of a suffix on the verb, has the effect of adding one internal argument to the basic subcategorization frame of the verb⁴. The following types of arguments may be added:

- (17) a locative argument
 an instrumental argument
 a goal argument (limited to Gbadi)

Applied verbs are formed by suffixing *IE* (Vata) or *II* (Gbadi) to the base form of the verb.

- (18) a. Vata

Base form		Applied verb
fí	'eat'	fíè
ngŌnŪ	'sleep'	ngŌnŪíè
dí	'cut'	díè
ghlé	'steal'	ghléè

- b. Gbadi

Base form		
fí	'eat'	fíí
ngŌnŪ	'sleep'	ngŌnŪíí
dí	'cut'	díí

The added argument in Vata must be a PP, which may be interpreted either as locative or as instrumental:

- (19) a. ábà ngŌnŪĪĒ slé-é mlí
 Aba sleeps-APPL house-DEF in
 'Aba sleeps in the house'
 b. à bŭdŏlĒ sāmāná mlí
 we wash-APPL soap in
 'we wash ourselves with soap'

The presence of the suffix is obligatory with locative NPs (unless a verb already subcategorizes for a locative complement, e.g. *go*, *put*, etc.), and instrumental NPs. The suffix can only occur once, even if the sentence contains both a locative and an instrumental PP:

- (20) ǒ díĪĒ(*ĪĒ) nĪĒ dādíǒ mlí sū zò
 s/he cut-APPL meat knife in tree under
 's/he cuts the meat with a knife under the tree'

In Gbadi, the applied verbs demand either the presence of a PP (locative or instrumental), or of an NP (goal).

- (21) a. wá yī Bùdù kĪyī sū kú díĪ
 they FUT-A house behind tree PART cut-APPL
 'they will cut the tree behind the house'
 b. díĪ nĪmĪ gbĒĪĒ nù kú
 cut-APPL meat knife with PART
 'cut the meat with a knife'
 c. í yīl kŏkŭŭ mī ū
 I danced-APPL shoes in PART
 'I danced with shoes on'
 d. wá ßiĪĪ nyĪkpŏ
 they talk-APPL someone
 'they talked to someone'

The added NP in (21) may passivize; the PPs in (21a, b, c) may not. Contrary to Vata, the presence of the suffix is optional with PPs in Gbadi. We will see in 4.3. that the presence or absence of the suffix has syntactic consequences in the sense that it influences whether PPs may undergo PP extraposition.⁵

2.2.6. *Causative verbs*

Besides syntactic causatives like (22) in Vata,

- (22) ñ gbā lé yŏ-ŏ ĩ
 I speak and child-DEF eat
 'I make the child eat'

there also exist lexical causatives in Vata and in Gbadi. To start with the latter, Gbadi has a productive rule of causative formation, consisting in addition of the suffix *a* to the base form of the verb, and in internalizing the external argument.

- (23) Gbadi: wá ĩā yú síkà
 they eat-CAUS child rice
 'they make the child eat rice'

The rule of causative formation in Vata is more restricted in scope. It is of particular interest to us here, since it appears to be sensitive to the thematic structure of the verb it attaches to: as we shall see below, the causative suffix may only attach to intransitive verbs, but not to ergative verbs, in the sense of Burzio (1981), nor to transitive verbs.

Burzio (1981), following some ideas of Perlmutter (1978), provides evidence showing that the class of apparent intransitive verbs is not homogeneous. He argues that in Italian the apparent subject with verbs like *ventre* (verbs he calls "ergative"), is in fact in direct object position at D-structure. Ergative verbs differ from intransitive verbs by assigning a θ -role not to an external argument but rather to an internal argument; they differ from transitive verbs by not assigning Case to this complement. Movement of the NP in direct object position at D-structure then follows from the Case filter in the usual way. Leaving aside Case marking properties, the lexical representation of the three types of verbs may be represented as (24).

- (24) Lexical representation D-structure S-structure
- | | | |
|--------------------------------|--|-------------------------------|
| a. cough (<u>agent</u>) | [_S NP INFL [_{VP} V...] | idem |
| b. arrive (theme) | [_S NP INFL [_{VP} V NP] [_S NP _i INFL [_{VP} V | [_{e_i]]]} |
| c. eat (<u>agent</u> , theme) | [_S NP INFL [_{VP} V NP] idem | |

In Italian there exist many syntactic arguments in favour of distinguishing ergative verbs like (24b) from intransitive verbs like (24a) (*ne*-cliticization, auxiliary selection etc.)

The question arises of whether the representations in (24) are universally valid, or whether they may vary from language to language. This question arises particularly in Vata and Gbadi, for, as far as we have been

able to establish, syntactic processes which are sensitive to the distinction between intransitive and ergative verbs do not seem to occur. But although no syntactic evidence for representations like (24) can be found, it is interesting that the morphological process of causative formation in Vata turns out to be sensitive to this distinction. Consider the following data:

- (25) a. gblǎ : 'climb' gbláà : 'make someone climb'
 b. ngŌnŪ : 'sleep' ngwɪnlá : 'make someone sleep'
 c. zālĒ : 'be red' zālĀ : 'redden something'
 d. sī : 'laugh' siē : 'make someone laugh'
 e. nánĪ : 'walk' nánĪà : 'make someone walk'
 etc...
- f. ĩ : 'eat' *ĩλ : 'make someone eat something'
 g. ɓátĒ : 'search' *ɓátĪà : 'make someone search X'
 h. zŪ : 'put' *zŪà : 'make someone put X on Y'
 etc...
- i. mĪ : 'leave' *mĪà : 'make someone leave'
 j. yī : 'arrive' *yīλ : 'make someone arrive'
 k. wĪŪ : 'come from' *wĪá : 'make someone come from'
 etc...

Causatives may only be formed on intransitive verbs (25a); and ergative verbs (25i, j, k) pattern, not with intransitive verbs, but with transitive verbs. These data should be interpreted with some caution, however, since there seem to exist verbs which are clearly intransitive to which causative morphology may not be applied. The verb *kŌIU* 'to cough', for example cannot carry the causative suffix (**kŌIa* 'to make someone cough'). But this might very well be related to the fact that the causative rule would create a verb which is homophonous with an already existing verb (*kŌIa*, for instance, means 'to tend well to one's garden'). The interpretation of the data seems to be correct, though, inasmuch as it is possible to provide independent explanations for those intransitive verbs which may not be causativized, while similar explanations are not available for ergative verbs or transitive verbs. The data in (25) then constitute evidence for the existence of two types of intransitive verbs. While of course only a theoretical explanation can show that this difference can be put down to a difference in lexical representation, we will assume here that there is a class of ergative verbs in Vata. Since it would be difficult to see how the distinction between intransitive and ergative verbs in Vata could be learned, we will assume that the distinction holds universally.

2.2.7. Reciprocals

In the reciprocal construction, discussed in Sportiche (1982), a particular morphology applies to a predicate, consisting in the addition of the suffix *-LE* in Vata, and reduplication of the newly formed verb, and in the reduplication of the verb and the addition of the suffix *-l* in Gbadi:

- (26) a. Vata: yué-é ká lálĒlálĒ
 children-DET FUT-A call-LE-call-LE
 'the children will call each other'
 b. Gbadi: yuá yī lálàlĪ
 children FUT-A call-call-LI
 'the children will call each other'

Some NP complement which represents the reciprocal NP must be absent. The syntax of the reciprocal construction will be discussed in more detail in 3.1.4.

2.2.8. Summary

In this section, we have presented an overview of morphological processes affecting verbs, and discussed more specifically nominalizations and their internal structure, middle verbs, applied verbs, causative verbs, which allow us to establish the existence of ergative verbs in Vata, and the verbal morphology which gives raise to reciprocal interpretation. By virtue of the Projection Principle (cf. chapter 1 (5)), those morphological processes which affect the argument structure of a verb will have direct consequences for the syntactic representations. These will be discussed in due time.

2.3. Syntax

Let us now present some background information on the syntax of Vata and Gbadi. All examples below are drawn from Vata, unless specified otherwise.

2.3.1. Word order in tensed clauses

In the Kru languages, the respective order of the main verb and its complements in tensed clauses depends on certain tense, aspect and mood features of this clause. Thus the order is Subject Verb Complement (SVO) in Vata and Gbadi, if the aspect of the clause is imperfective (27a) or perfective (27b), and this in both main and embedded clauses alike.

- (27) a. n̄ lē bĭ sáká
 I eat now rice
 'I am eating rice right now'

- b. \acute{n} li sáká
 I eat-PERF rice
 'I ate rice'
 c. \acute{n} gbíl nā Ó lé sáká
 I know NA s/he eat rice
 'I know that s/he is eating rice'

In some tenses or moods, however, in which the clause contains an auxiliary (cf. also 3.3.3.), the main verb *follows* its complements:

- (28) a. wá lā mÓ dlá
 they PERF-A him kill
 'they have killed him'
 b. \acute{n} ká ná gòlí mlí pùtú sà
 I FUT-A my mounds in grass remove
 'I will clear the weed from my mounds'
 c. yÓ-Ó gūgū nā kòfí nÍ mÓ yé yÉ
 child-DET think NA Kofi NEG-A him PART see
 'the child is thinking that Kofi did not see him'

Abstracting away from inflectional particles, the word order in declarative sentences may be schematically represented as in (29), where PART stands for the particle which occurs in particle verb constructions (cf. 3.1.2), and S' [+ TENSE] indicates the position that tensed complement clauses (more specifically *na*-complements) appear in (cf. 4.2.)

- (29) a. NP V ADV X''* PART S'
 [+ TENSE]
 b. NP AUX ADV X''* PART V S'
 [+ TENSE]

It will be shown in chapter 3 that these data should be analyzed as follows:

(i) The constituents NP, INFL and VP are ordered in the following fashion:

- (30) S → NP INFL VP

(ii) The VP is head final (cf. 3.1). This is a subcase of the generalization that complements precede their lexical heads in Vata and in Gbadi (cf. 3.2.).

- (31) a. VP →V
 b. X' →X

(iii) The main verb moves into INFL if the latter does not contain an auxiliary. In other words, the surface order in (29a) derives from the D-structure order in (29b) by means of a rule of V-movement.

Vata and Gbadi are configurational languages, with fixed positions for [NP, S], INFL and the main verb. There is no overt Case marking on NPs in tensed clauses, although a reflex of the case system can be found in Vata's pronominal system, nor do there exist overt agreement phenomena between [NP, S] and INFL, a question to which we return in 3.3.1. As might be expected, tensed clauses must contain a lexical subject: Vata and Gbadi belong to the class of languages that are non-PRO-drop languages in Chomsky's (1981) terminology.

Although the respective order of some constituents is completely fixed, some other constituents may be freely ordered. This is the case, for example, with the NP or PP complements of the verb, i.e. X'' in (29). In (32), an example of this free word order is presented, with the main verb *nyÉ* 'give' which takes a double object construction:

- (32) a. \acute{n} ká [VP [NP yÓ-Ó] [pp slé-é mlí] [NP sáká]] nyÉ
 I FUT-A child-DEF house-DEF in rice give
 'I will give rice to the child in the house'
 b. \acute{n} ká slé-é mlí yÓ-Ó sáká nyÉ
 I FUT-A house-DEF in child-DEF rice give
 c. \acute{n} ká slé-é mlí sáká yÓ-Ó nyÉ
 I FUT-A house-DEF in rice child-DEF give
 d. \acute{n} ká sáká slé-é mlí yÓ-Ó nyÉ
 I FUT-A rice hous-DEF in child-DEF give
 e. \acute{n} ká yÓ-Ó sáká slé-é mlí nyÉ
 I FUT-A child-DEF rice house-DEF in give
 f. \acute{n} ká sáká yÓ-Ó slé-é mlí nyÉ
 I FUT-A rice child-DEF house-DEF in give

There does not appear to exist any 'pragmatic' difference between the sentences in (33). We will see in 3.1.2. however that this freedom in word order is not always possible: fixed word order, observed, for example, between the preverbal PART and the verb, results from the interaction with certain syntactic processes.

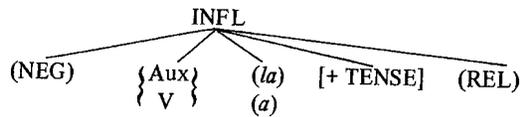
The canonical position of adverbs is indicated in (29). Adverbs may appear in other positions, as indicated in (33) (which also marks the positions from which adverbs are excluded).⁶

- (33) (Adv) NP (*Adv) INFL (Adv) X''(Adv)X''(Adv) PART
 (*Adv)V(Adv) S' (*Adv)

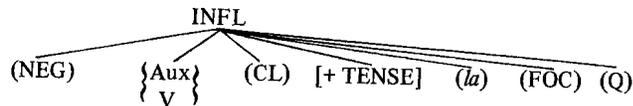
2.3.2. *The internal structure of INFL [+ TENSE]*

The internal structure of the [+ TENSE] INFL nodes in Vata and Gbadi may be represented as (34). (We return in 3.3. to the justification of this syntactic node).

(34) a. Vata



b. Gbadi



Tensed clauses contain minimally an auxiliary or the main verb and a tense indicator; the system of tense particles is given in (35):

(35) (i) Tense particles in Vata

- a. Reference point = moment of speech \emptyset
- b. Reference point is anterior to moment of speech:
 - same day -tà
 - one day or more -dā
 - remote -wà
- c. Reference point is posterior to moment of speech:
 - same day -wà
 - one day or more -kā
 - remote -kĒ/
kĪĒ

(ii) Tense particles in Gbadi

- a. Reference point = moment of speech: \emptyset
- b. Reference point is anterior to moment of speech:
 - nĒ
 - á
- c. Reference is posterior to moment of speech: \emptyset

The system of tense particles is much richer in Vata than it is in Gbadi. Note that these tense particles may be combined with either the main verb or the auxiliaries, which are presented in (36):⁷

(36)

	Auxiliaries in Vata	Auxiliaries in Gbadi
future	nĪ	yĪ
future/volitive	kā	ká/kĒ
perfect	dā/lā	yá
perfective negative	nĪ	nĪ
conditional/temporal	kā	kĒ
conditional negative	tĪ	nĪ
imperfective negative		nà
imperative negative		tĪ

The occurrence of NEG (negation) is limited to tensed clauses and to the position indicated in (34). There is no overt constituent negation, and a sentence like (37) is ambiguous:

(37) kŌ nĪ yi
 man NEG-A come
 'someone did not come' or 'nobody came'

The actual surface form of NEG which can be an auxiliary or a particle, depends on certain aspectual, tense and mood features of INFL, yielding a rather complex system. The negation system in Vata is presented in (38):

(38) *Negation in Vata*
Aspect, Tense or Mood

(i) imperfective/generic

Negation as Particle or as Auxiliary and Examples.

MH
 | = (particle)
 V

-base form of V in INFL
 Ō Ō gbā vātawĪ
 s/he NEG-P-speak Vata-tongue
 's/he does not speak Vata'

(ii) perfective

nĪ = (Aux)
 -V occurs in VP bearing perfective aspect
 Ō nĪ vātawĪ gbā
 s/he NEG-A Vata speak-PERF
 'she has not spoken Vata'

(iii) future

nà = (particle)
 -V occurs in INFL bearing imperfective aspect

- wá ná` - lē -kā sáká
they NEG-P-eat-FT rice
'they will not eat rice'
- (iv) subjunctive/imperative ná = (particle)
-base form of V in INFL
Ó ná-lī sáká
s/he NEG-P eat rice
's/he should not eat rice'
- (v) conditional/temporal MH
|
V = (particle) + tī (Aux)
V occurs in VP either in base form
or bearing perfective aspect
Ó Ó tī sáká lī
s/he NEG-P NEG-A rice eat
'if s/he had not eaten rice, ...'

La (and *a*) stand for particles which express adverbial notions like *still/yet* or *never*. The following examples illustrate the use of *la* and *a*:

- (39) a. à lē- lā sáká
we eat - *la* rice
'we are still eating rice'
- b. à nī-lā sáká lī
we NEG-A-*la* rice eat-PERF
'we have not yet eaten rice'
- c. à nī- à - wá sáká lī
we NEG-A *a* - PT rice eaten
'we have never eaten rice'

INFL in Vata and Gbadi furthermore contains certain positions in which particles indicating clause types appear. Such particles include the relative clause marker *βO* (REL) in Vata, and the Focus marker *IO* (FOC) and the interrogative marker *βO* in Gbadi:

- (40) Vata a. kÓ` (mŌmÓ`) ñ yÉ` dā-βÓ [e]_i zué, ...
man HIM-HIM you saw PT-REL yesterday
'the man you saw yesterday, ...'
- Gbadi b. glimŌ_i yí à wà-IO [e]_i kpānyī
agouti WH we like-FOC a lot
'it is agouti we like a lot'
- Gbadi c. à yú_i - βÓ zlgbé [e]_i lī à
we FUT-A+CL-Q tomorrow eat-Q
'will we eat it tomorrow?'

Finally, the INFL node of Gbadi, unlike that of Vata, contains a clitic node (CL). Whereas in Vata, pronouns and lexical NPs occur in the same syntactic positions, in Gbadi 3rd person pronouns occur in a position from which lexical NPs are excluded, namely in a position between the verb or the auxiliary in INFL, and tense particles, i.e. in INFL:

- (41) Gbadi a. à lī - nĒ kūòkú glimŌ
we ate - PAST yesterday agouti
'We have eaten agouti yesterday'
- b. à lū_i -nĒ [e]_i kūòkú
we ate+CL-PAST yesterday
'we ate it yesterday'
- c. à yú_i - βÓ zlgbé [e]_i lī à
we FUT-A+CL-Q tomorrow eat
'will we eat it tomorrow?'

The relation between a clitic and the corresponding empty category is subject to locality requirements, similar to the ones that exist in Romance languages (cf. Sportiche, 1982).

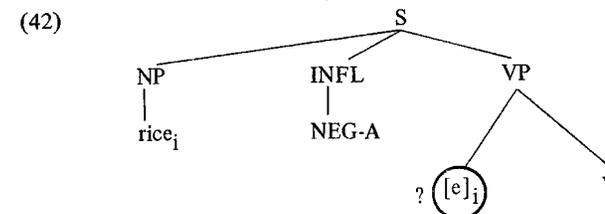
2.3.3. Movement rules

Vata and Gbadi have a wide array of movement rules involved in the middle construction, *wh*-constructions, and constructions in which ex-traposition occurred. We will restrict the discussion to the first two here, and leave the latter for later discussion (4.2. and 4.3.).

2.3.3.1. NP-movement

In 2.2.4., we have discussed the morphology involved in the middle construction, whose syntactic effect is the appearance of an internal argument in subject position, and the disappearance of the external argument.

What is the structural representation of the middle construction? Within EST there are basically two options available, that one might term the syntactic approach and the lexical approach respectively. The difference between the two reduces to whether or not the S-structure representation corresponding to an example like (42) contains a trace or not:



There is extensive literature on the same problem with respect to the passive construction (see, among others, Wasow (1972) Bresnan (1977), and Williams (1981)).

Since, by virtue of the Projection Principle (chapter 1(5)), syntactic representations are projected from θ -marking properties, the problem of (42) can be settled in one way or the other, if it can be shown either (i) that the middle verb assigns a θ -role directly to the external argument, or (ii) that a trace is needed in order to assign the appropriate θ -role to the NP which appears in subject position at surface structure. If no trace is present in (42), one would expect that the external argument could only be assigned the θ -role *theme* (cf. Williams, 1981, for discussion), if a trace is present one would expect the external argument to assume any of the θ -roles assigned to the trace.

That the middle construction in Vata and Gbadi is syntactic rather than lexical may be concluded from the following examples which show that, besides themes, goals (43a) and idiom chunks (43c) may also appear in subject position:

- (43) a. sáká nyÉ-ÌÒ yÓ-Ò
 rice give-PAS child-DEF
 'rice was given to the child'
 b. yÓ-Ò nyÉ-ÌÒ sáká
 child-DEF give-PAS rice
 'the child was given rice'
 c. wī pá-ÌÒ nā ...
 voice throw-PAS NA
 'It has been announced that ...'

Note however that, because of the absence of Exceptional Case marking verbs (*I believe John to be a fool, John was believed t to be a fool*), and small clauses of the type *I consider John to be a fool, John was considered t to be a fool*, the actual θ -roles the external argument may carry in the middle construction in Vata or Gbadi are more restricted in number than in the English passive construction.

The syntactic nature of the middle construction and the fact that either NP of a double object construction may move into subject position (43a, b), can be accounted for if one assumes following Chomsky (1981), that the passive morphology involved in the middle construction has the following consequences:

- (44) One [NP, VP] does not receive Case, and [NP, S] does not receive a θ -role

The [NP, VP] which has not been assigned Case is forced by the Case filter (ch. 1(11)) to move into the non-thematic subject position. This is in accordance with the θ -criterion, and respects the Subjacency Condition. The trace, being an anaphor, will be bound by its antecedent in subject position, thus satisfying Condition A of the Binding Theory. Moreover, it will be properly governed by virtue of being governed by the verb. It thus satisfies the ECP.

Although the discussion here has been restricted to the middle construction, it will be clear that, if we assume the lexical representation for ergative verbs discussed in 2.2.6., NP-movement is also involved in the derivation of surface forms like *a yi* ('we came'). In chapter 5, we will argue that the V-movement rule briefly discussed above has essentially the same properties as NP-movement.

2.3.3.2. *wh*-movement

Syntactic *wh*-movement underlies the formation of *wh*-questions, relative clauses and focus constructions. Examples of each of these constructions are presented in (45).

- (45) a. àlÓ_i Kòfí yÉ` [e]_i yé lá
 who Kofi saw PART WH
 'who did Kofi see'
 b. yÓ-Ò_i (mŌmŌ_i) Kòfí yÉ`-bŌ [e]_i yé, ...
 child-DEF (HIM-HIM) Kofi saw REL PART
 'the child Kofi saw, ...'
 c. yÓ-Ò_i mŌ_i kòfí yÉ` [e]_i yé
 child-DEF him Kofi see PART
 'it is the child Kofi saw'

Despite the superficial difference among the examples in (45) (the proposed pronouns and the clause type indicators differ according to type of construction) they act alike on a more abstract level. For example, the positions related to the proposed *wh*-phrase are empty and apparently, long *wh*-movement is possible in all three constructions:

- (46) a. àlÓ_i ñ gūgū nā Kòfí yÉ` [e]_i yé lá
 who you think NA Kofi see PART WH
 'who do you think Kofi saw'
 b. yÓ-Ò_i (mŌmŌ_i) ñ gūgū - bŌ nā Kòfí yÉ`-bŌ [e]_i
 child-DEF HIM-HIM you think-REL NA Kofi see REL
 yé
 PART, ...
 'the child you think that Kofi saw, ...'

- c. yÓ-Ó_i mÓ_i ñ gūgū nā Kòfí yÉ` [e]_i yé
 child-DEF him you think NA Kofi saw PART
 'it is the child you think that Kofi saw'

But most importantly, the relation between the preposed phrase and its trace obeys the Subjacency condition of Chomsky (1973), which imposes locality requirements on possible dependencies expressed by Move- α .

The relevant examples establishing that the three constructions in Vata obey Subjacency are presented in (47):

- (47) a. ñ gūgū nā Kòfí yÉ` yÓ-Ó mŌmŌ` à
 you think NA Kofi saw child-DEF HIM-HIM we
 nyÉ` - 6 Ó sáká yé é
 gave REL rice PART Q
- b. *y_i [ñ gūgū nā Kòfí yÉ` [yÓ-Ó_j [mŌmŌ_j]
 what you think NA Kofi saw child HIM-HIM
 à nyÉ` - 6 Ó [e]_j [e]_i]]] yé] là
 we gave REL PART
 rice IT-IT you think REL NA Kofi
 yÉ` [yÓ-Ó_j [mŌmŌ_j] [à nyÉ` - 6 Ó
 saw child-DEF HIM-HIM we gave REL
 [e]_j [e]_i]]] yé]]
 PART
- d. *sáká_i [má_i [ñ gūgū nā Kòfí yÉ`
 rice it you think NA Kofi saw
 [yÓ-Ó_j [mŌmŌ_j] [à nyÉ` - 6 Ó [e]_j [e]_i]]] yé
 child-DEF HIM-HIM we gave REL PART

The Complex Noun Phrase Constraint is thus respected, and at least S' and/or S, and NP are bounding nodes in Vata.

Evidence for the non-bounding nature of S can be drawn from the fact that a *wh*-phrase may be extracted from a *wh*-island:

- (48) a. Kòfí_i mÓ_i ñ ní [zÉ_j (mÉmÉ`)] à nyÉ` - 6 Ó [e]_i
 Kofi him you NEG-A thing we gave-REL
 [e]_j] yi
 know
 *'It is to Kofi you don't know what we have given'
- b. àlÓ_i ñ ní [zÉ_j [à nyÉ` - 6 Ó [e]_j [e]_i]]] yi là
 who you NEG-A thing we gave-REL know WH
 *'To whom don't you know what we have given?'

- c. kÓ` [mŌmŌ` [ñ ní - 6 Ó [zÉ` à
 man-DEF HIM-HIM you NEG-A-REL thing we
 nyÉ` - 6 Ó [e]] yi
 gave-REL know
 *'the man to whom you don't know what we have given'

Notice that the indirect question in (48a) has the formal properties of a relative clause, but behaves like an indirect question S': relative clauses are islands for *wh*-extraction, whereas indirect questions are not. We will treat indirect questions as being S', at least at D-structure, and leave the explanation of the fact that they are concealed questions in surface structure for future work. (cf. also Koopman, 1982a).

Although *wh*-constructions in Gbadi will not be discussed here in any detail, we might point out that examples like (46) and (48) are impossible in Gbadi: *wh*-movement is always clause bound, or to put it more correctly, *wh*-phrases may not be moved out of an embedded tensed complement. This provides an indication to the effect that Vata and Gbadi differ as far as their choice of bounding nodes are concerned: S' and NP in Vata, and S', S, and NP in Gbadi.⁸

Wh-movement reveals a subject-object asymmetry in both main and subordinate clauses, which we have discussed and analyzed in detail in Koopman (1982). When a subject is *wh*-moved, a resumptive pronoun *must* occur in subject position (49a). When non-subjects are moved, the occurrence of resumptive pronouns is excluded (49b).

- (49) a. àlÓ *(Ò) Ì sáká là
 who he-R eat rice WH
 'who is eating rice'
- b. yĪ Kòfí Ì (*mĪ) là
 what Kofi eat (*it-R) WH
 'what is Kofi eating'

We have proposed to explain the impossibility of a gap in subject position in terms of the ECP, by assuming that the trace in subject position is not properly governed, even if it is coindexed with an adjacent *wh*-phrase. We will return to subject-object asymmetries in chapter 6 in the light of the analysis that will be presented for COMP (3.4.2.)

2.3.4. Predicate cleft construction

In many Kru languages, a construction occurs that has sometimes been called the predicate cleft construction. In this construction focus is placed on a verb in clause initial position. The clause itself must contain a copy of the verb. Some examples of the predicate cleft construction are presented in (50) (where focus is indicated by capital letters in the glosses):

- (50) a. $\bar{l}\bar{e}$ à $\bar{l}\bar{e}$ $\acute{s}\acute{a}k\acute{a}$
 eat we eat rice
 'we are really EATING rice' or
 'we are EATING rice'
 b. $\bar{l}\bar{i}$ Ó $\bar{d}\bar{a}$ $\acute{s}\acute{a}k\acute{a}$ $\bar{l}\bar{i}$
 eat s/he PERF-AUX rice eat
 's/he has EATEN rice'
 c. $\bar{l}\bar{i}$ Ó $\bar{l}\bar{i}$ $\acute{s}\acute{a}k\acute{a}$
 eat s/he ate rice
 's/he ATE rice'

The focused verb is unmarked for tone and consequently always surfaces with mid tone. It can be inherently marked for aspect, as *le* in (50a) shows. Note, incidentally, that the imperfective aspect is the only aspect that may appear on the focused verb. The focused verb must be bare, in the sense that it cannot be accompanied by tense particles or by complements of the verb.

- (51) a. $\bar{l}\bar{i}$ à $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ $\acute{z}\acute{u}\acute{e}$ $\acute{s}\acute{a}k\acute{a}$
 eat we eat PAST yesterday rice
 'we ATE rice yesterday'
 b. * $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ à $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ $\acute{z}\acute{u}\acute{e}$ $\acute{s}\acute{a}k\acute{a}$
 eat PAST we eat PAST yesterday rice
- (52) a. $\bar{l}\bar{i}$ à $\bar{l}\bar{i}$ $\acute{s}\acute{a}k\acute{a}$
 eat we ate rice
 'we ATE rice'
 b. * $\bar{l}\bar{i}$ $\acute{s}\acute{a}k\acute{a}$ à $\bar{l}\bar{i}$ $\acute{s}\acute{a}k\acute{a}$
 eat rice we ate rice
 'we have EATEN rice'

We will discuss the properties of the predicate cleft construction more extensively in chapter 6, where we shall argue that a verb movement rule, parallel to *wh*-movement underlies this construction.

2.3.5. Some further remarks

We have presented a brief sketch of the phonological, morphological and syntactic components of Vata and Gbadi, providing the reader with some necessary background information, and familiarizing him with some of the constructions to which we will frequently refer in this study.

Certain constructions which play an important role in recent syntactic argumentation are absent from this study. This is due either to the fact that we have been unable to find any instantiations of such constructions,

or to the fact that such constructions simply do not occur in Vata or Gbadi. We have been unable, for example to find any small clauses or Exceptional Case Marking verbs. Furthermore, raising verbs like *seem* and existential constructions of the type *there arrived last night three men from London* are nonexistent.

Let us stress the fact, however, that this study represents work in progress by a non-native speaker of a language whose syntactic properties have not been described previously. Unavoidably, this study is incomplete. We discuss only those constructions whose properties we have studied in detail.

NOTES

1. Vata belongs to the so-called Dida-F dialect cluster (cf. Kaye, 1982a for details), and Gbadi, spoken to the north-east of Gagnoa, to the Bete cluster (which might be more appropriately called *Kru-kw*). It is not easy to present information on the precise number of speakers, but, considering the number of villages, we estimate the number of Vata speakers to be approximately 10,000, of Dida-F (very roughly) 60,000 and of Gbadi 40,000.
2. The aspect which we refer to as *perfective* has also been called *factative* (Marchese (1979) following Welmers (1973)), basically because of the different tense interpretations depending on whether this aspect is associated with a non-stative verb or with a stative verb.
3. See Charette (1982) for an analysis of some of the tone changes in the associative construction in Gbadi.
4. Note that this morphological process constitutes a counterexample to the theory of morphology developed in Williams (1981). Williams claims that morphological processes may affect the argument structure of a particular lexical item in two ways, either by internalizing X, or externalizing X. i.e. morphological rules may only affect the external argument. The applied suffix however has the effect of adding an *internal* argument.
5. Cf. Pinsonneault (forthcoming).
6. See also Kokora (1976). Marchese (1981) further shows that in some Kru languages, certain adverbs may not occur in preverbal position, while others may. We have not looked into the differential distribution according to type of adverbs.
7. Marchese (1979) argues that Kru auxiliaries derive historically from main verbs. While this is certainly plausible for some of the auxiliaries like, for example, *yi* ('come'), it is much less so for most of the other auxiliaries. It is interesting in this respect to compare the reconstructed Proto-Bantu verbal system (cf. Meeuwssen 1967), with the synchronic INFL nodes of Vata and Gbadi.

(i)	PR.SC	- NEG	- TP	- root	- X1	- X2	- TS	
		-tá	a-	(recent)			-a-	'neutral'
		-tí	á-	(remote)			-j de-	'perfective'
			ngá	(conditional)			-iite-	'present perfective'
					ka-	(future)	-e-	'subjunctive'
					da-	(disjunct)	-i-	'negative'

It is very suggestive that the synchronic INFL nodes of Vata and Gbadi have direct correlates in the Proto-Bantu system, not only formally, but also semantically, and this both in the system of tense particles (*a, á, ka*) and in the system of auxiliaries (*tí, yá, ka*). Note also that other Kru languages, such as (Southern) Dida-kw (Dida of Yocouboue, Koyo etc) have a negative auxiliary *tá*, which, incidentally, also functions as a particle. It is thus plausible that certain auxiliaries derive historically from inflectional particles, rather than from main verbs.

8. Two remarks are in order on Bounding theory. First in languages in which only NP and S' are Bounding nodes, like Italian or French, extraction is possible from NPs, which are governed by V:

(i) [De qui [connais tu [le frère [e]]]]

As noted earlier (cf. 2.2.3), no extraction is possible from NPs in Vata:

(ii) * àlÓ ñ yì [[e] noỳrè] lá
 who you know brother WH

This, I think, does not necessarily show that the conclusion that only S' and NP are Bounding nodes is incorrect. The difference might conceivably be explained otherwise. One possibility, for example, is to relate it to a difference in the internal structure of the NP, and to propose that only the immediate sisters of a lexical category are properly governed. If in (i), the trace is governed by N and hangs from N', it will be properly governed. However, if the trace in (ii) is governed by N' and hangs from N'' it would fail to be properly governed, and (ii) could be excluded as an ECP violation.

Secondly, one may wonder if the bounding nature of S', S and NP in Gbadi does not undermine our conclusion that nominalizations in Gbadi are NPs. (Extraction would be blocked by Subjacency.) Our conclusion can remain unaltered, however, since as we can show in English, although S', S and NP are bounding nodes, extraction from gerunds is still possible (*who did you approve of my seeing t*). In general, only the S' and S boundaries of tensed clauses count as bounding (cf. Chomsky, 1981, p. 304 for much relevant discussion).

Chapter 3

Verbs, Lexical Properties of Verbs and INFL

3.0. Introductory remarks

This chapter is concerned with the establishment of D- and S-structure representations for Vata and Gbadi. It is organized around the analysis of the two nodes of a clause in which a verb can appear: [V, VP] and [V, INFL]. The word order problem, presented in 2.3.1., constitutes the starting point for the discussion in this chapter. How can we account for the fact that the verb may appear in either of the two verbal positions? Section 3.1. is concerned with the establishment of the base rule for the VP. It contains the arguments showing that the base position of verbs is VP final. Thus, surface structures in which the verb precedes its complements are derived via a rule of V-movement, which moves the verb into INFL if INFL does not contain an auxiliary. The properties of this verb movement rule will be extensively discussed in chapter 5, where we will argue it has the same formal properties as NP movement, and in chapter 6.

The fact that Vata and Gbadi are verb final languages underlyingly, raises questions about the expansion rules of the other lexical categories: 3.2. presents the basic structure of NPs, and discusses the status of adjunctives and postpositions in some detail. Vata and Gbadi will be shown to be regular head final languages. In 3.3., we turn to the analysis of the INFL node. Particular attention will be paid to the status of AGR. More specifically, it will be argued that INFL in Vata lacks an AGR node, a hypothesis which will draw support from the distribution of pronouns and lexical anaphors. This section also contains a discussion of the properties of auxiliaries and how to account for these. Section 3.4. concentrates on lexical properties of verbs in Vata. After a preliminary discussion of the θ -properties of verbs in 3.4.1., section 3.4.2. focuses on the lexical properties that are involved in complementation in Vata. This requires an analysis of COMP and complementation, a subject that raises many analytical problems. The analysis we will propose will give insight not only into the nature of the lexical properties involved in complementation, but also into the problem of how these may vary crosslinguistically. This chapter concludes with a short discussion.

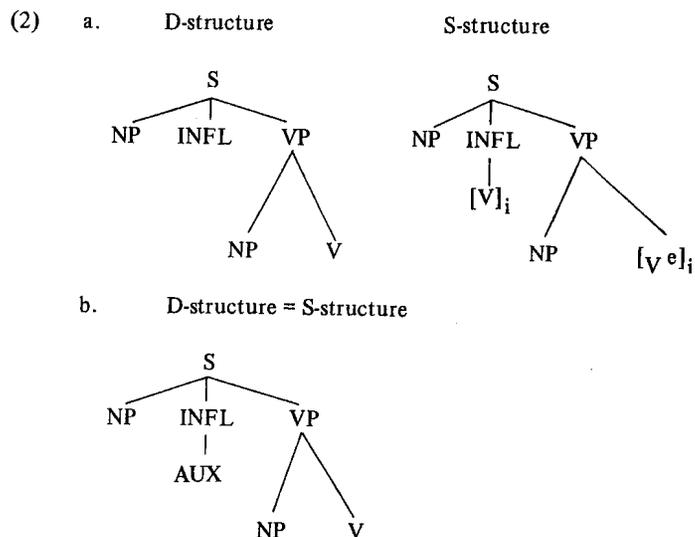
3.1. $VP \rightarrow \dots V$ 3.1.0. *The problem*

One of the striking facts about Kru languages is the alternation in word order which occurs in tensed sentences. (cf. 2.3.1.):

- (1) a. à li sáká
 we ate rice
 ‘we ate rice’
 b. à lā sáká lī
 we PERF-A rice eat
 ‘we have eaten rice’

How should these sentences be analyzed?

In this section we will motivate an analysis in which the surface order in (1a) is derived from a D-structure like (1b), by means of rule of verb movement, which, (roughly speaking), preposes the verb if no auxiliary is present. Since the finite verb and the auxiliary in examples like (1) are in complementary distribution and occupy the same syntactic position with respect to the particles which occur in INFL (cf. 3.3.1.), we will assume that the movement rule moves the verb into the verbal position in INFL. This analysis implies that the examples in (1a) and (1b) are assigned the following D- and S-structure representations: (cf. chapter 5 and 7 for discussion that V-movement applies between D- and S-structure, and that it leaves a verbal trace)



This section contains the evidence in favour of a D-structure representation like (2a), with the main verb occurring in VP final rather than in VP initial position. A first argument will be drawn from the fact that the word order alternations are limited to tensed clauses which do not contain an auxiliary: other structures containing VPs, like infinitival clauses or gerunds, are all verb final (3.1.1.). If we adopt the analysis above, the only fact which requires explanation is why tensed clauses not containing an auxiliary are ‘special’ and require the main verb to occur in INFL. Further arguments in favour of (2) are all conceptually alike: certain fixed word order phenomena, or configurations in which certain syntactic processes occur can be captured naturally if one assumes that a syntactic process requiring adjacency between the verb and a given element underlies them. Particle verb constructions and idiomatic expressions (3.1.2.), the phenomenon of P-stranding (3.1.3.), and restructuring constructions in Gbadi (3.1.4.), will be discussed in this respect.

Before we actually discuss these cases, some remarks about the constituent VP are in order. Is there a syntactic constituent VP in Vata and Gbadi at S- (and D-) structure or not? We assume that all human languages have a constituent VP at the LF level of representation (Chomsky, 1981). Languages, then, may differ in whether this constituent is configurationally or ‘virtually’ represented at S-structure (cf. Vergnaud and Zubizarreta (1981)). The question arises of whether there is any evidence for a configurationally represented constituent VP at S-structure in Vata or Gbadi. Apart from the fact that VP constitutes the domain in which constituents may be freely ordered, (cf. 2.3.1.), more ‘classical’ arguments for the constituency of VP, like VP-preposing or VP-deletion cannot be presented, since these processes are nonexistent.¹ (These processes, we think, may very well turn out to be extremely rare, cross-linguistically speaking). Note however that no arguments *against* assuming a VP constituent at S-structure exist either. Such arguments are often based on a certain mobility that ‘nominative’ NPs and other preverbal complements often manifest in surface structure in SOV languages, and on the non-adjacency of the verb and its complements in VSO languages (on these latter, see 7.3.3.). As mentioned before, ‘subject’ NPs in Vata and Gbadi invariably occur in [NP, S]. We will therefore assume what we consider to be the unmarked case: unless there are indications to the contrary, the VP is a configurationally represented constituent at all levels of representation, i.e. at D-structure, S-structure and LF.

3.1.1. *Gerunds and infinitival complements*

The word order alternations discussed in 2.3.1. all occur in tensed clauses. Given the assumption that clauses may be either finite [+ Tense] or non-finite [- Tense] (LGB, p. 52), the question arises of what the order of constituents in non-finite complements is.

One type of complement lacking a [+ TENSE] INFL has already been discussed in 2.2.3., where it was shown that nominalizations in Vata are gerunds with roughly the following structure (recall that nominalizations in Gbadi have the internal structure of NPs):

- (3) [NP NP GEN [VP V -II]] (Vata)

The verb in (3) must follow its complements, an order which would directly reflect the underlying order if the verb is in VP final position.

A second type of complement lacking a [+ TENSE] INFL is infinitival clauses. Infinitival complements occur in a wide range of contexts in Indo-European languages. The distribution of infinitival clauses in Vata and Gbadi turns out to be much more limited and in fact their existence is not very easily established. Many verbs which take infinitival complements as a lexical property in Indo-European languages, select what looks like a tensed complement clause in Vata or Gbadi. (We come back to the exact nature of these complements in 3.4.2., when discussing complementation).

- (4) a. \acute{O} n \acute{I} wà nā \acute{O} ká m \acute{I}
s/he NEG-A want NA s/he FUT-A leave
's/he does not want to leave'
b. \acute{O} tié y \acute{O} - \acute{O} k \acute{O} nā \acute{O} m \acute{I}
s/he let child-DEF PART NA he leave
's/he lets the child leave'
c. d \acute{a} l \acute{a} ' m \acute{I} n \acute{o} lé á w \acute{I} \acute{O} w \acute{I} í
money be-possible and it leaves hands in
'money can be lost'
d. à ny \acute{E} yu \acute{e} -é ny \acute{I} cè nā wá m \acute{I}
we give children-DEF road NA they leave
'we allow the children to leave'
e. \acute{O} ny \acute{E} ' m \acute{O} \acute{O} gb \acute{a} gb \acute{a} gb \acute{a} w \acute{I} nā \acute{O} m \acute{I}
's/he gave you his/her word NA s/he leaves
's/he promised you to leave'

The complement clause, introduced by *na* (Vata) or by *nOgbE* in Gbadi) is in alternation with NPs in lexical representations.

- (5) a. \acute{O} n \acute{I} s \acute{a} ká wà
s/he NEG-A rice want
's/he does not want rice'
b. \acute{O} n \acute{I} wà nā \acute{O} ká m \acute{I}
s/he NEG-A want NA s/he FUT-A leave
's/he does not want to leave'

Note, incidentally, that lexical NPs and S' complements do not occur in the same positions: tensed complement clauses occur in postverbal position, a position we will also refer to as the extraposed position. Why this should be so is a problem to which we return in chapter 4.

There is a class of complements which are potential candidates for the label infinitival clause. The core class of these complements, *ka*-complements, occurs with certain verbs of movement:

- (6) (i) Vata: y \acute{I} 'arrive', m \acute{I} 'leave', w \acute{I} U 'come from' f \acute{a} 'accompany',
l \acute{a} 'bring' l \acute{O} w \acute{o} 'send'
(ii) Gbadi: y \acute{I} 'arrive', m \acute{I} 'leave', b \acute{a} á 'come from' l \acute{I} ŋ 'send'...

These verbs include both subject and object control verbs.

What is the status of the *ka*-complements presented in (7)?

- (7) a. Vata \acute{I} n \acute{I} - k \acute{a} [y \acute{O} - \acute{O} s \acute{a} ká ny \acute{E} k \acute{a}] m \acute{I}
Gbadi \acute{I} y \acute{I} [y \acute{O} - \acute{O} s \acute{I} ká k \acute{O} j \acute{I} kà] m \acute{I}
I FUT-A(-TP) child-(DEF) rice (PART) give KA leave
'I will go give rice to the child'
b. Vata \acute{I} n \acute{I} - k \acute{a} [y \acute{O} - \acute{O} s \acute{a} ká f \acute{I} U k \acute{a}] l \acute{O} w \acute{o}
Gbadi \acute{I} y \acute{I} [y \acute{O} - \acute{O} s \acute{I} ká p \acute{I} à kà] l \acute{I} ŋ
I FUT-A(-TP) child (-DEF) rice buy KA send
'I will send the child buy rice'

In order to determine this, let us examine the syntactic and morphological properties of *ka*-complements. Looking at their internal structure, one notes the occurrence of the base form of the verb, which must follow its complements, and which is in turn followed by the particle *ka*. In 3.4., we will show that *ka* is best characterized as a complementizer. The appearance of 'bare' NP complements, indicates that the verb in the *ka*-complement assigns Case, and hence that it contains a projection of V, i.e. VP. The constituent α differs in two ways from gerunds. First, it can never contain a lexical subject, and, second, the verb and *ka* do not constitute a phonological word, as one would expect if *ka* was a nominalization suffix (as proposed, for example, in Marchese (1979)), comparable to the nominalization suffix discussed in 2.2.3. Despite the fact that the verb and *ka* are always adjacent in surface structure, their status as independent words can be illustrated in the predicate cleft construction (2.3.4.). Indeed, since only verbs may occur in this construction, it provides us with a test for establishing whether or not the verb and *ka* are two syntactically independent words or not. Consider now the Vata examples in (8):

in common the fact that they require adjacency between the relevant elements and the verb in VP final position. We will now review this evidence, discussing in turn particle verb constructions and idiomatic expressions (3.1.2.), constructions in which P-stranding occurs (3.1.3.), and finally constructions illustrating the process of restructuring in Gbadi (3.1.4.).

3.1.2. Particle Verb constructions and idiomatic expressions

Further evidence for a verb final base rule can be based on the distribution of the particle in the particle verb construction (cf. Koster (1975) for a similar argument in Dutch and German), and on the distribution of idiomatic expressions, more specifically on the distribution of NP-V and N-V idioms. The basic assumption underlying our argument is that certain phenomena like idiomatic expressions, are best treated at D-structure (cf. Chomsky (1981, p. 94), Vergnaud (1982) for some discussion).

Particle verb pairs consist of a verbal element and a particle which can be identified as a postposition or in some cases as a noun (often referring to a body part). The verbal element and the particle are discontinuous in tensed clauses which do not contain an auxiliary, i.e. in precisely those cases in which verb movement has applied. (All examples below are drawn from Vata).

- (14) a. \acute{O} $p\acute{E}$ $m\acute{a}m\acute{a}$ $m\acute{I}$
 s/he shout much in
 's/he shouts a lot'
 b. \acute{O} $\acute{b}I\acute{a}$ $s\acute{a}k\acute{a}$ $k\acute{O}$
 s/he ? rice PART
 's/he is taking rice'

Note that the particle does not form a constituent with the NP in (14b); rather the NP is the complement of *kO BIa* 'take'. This is shown in the examples in (15):

- (15) a. * $s\acute{a}k\acute{a}$ $k\acute{O}$ $\acute{b}E$ \acute{O} $\acute{b}I\acute{a}$
 rice PART there s/he takes
 b. $s\acute{a}k\acute{a}$ $m\acute{a}$ \acute{O} $\acute{b}I\acute{a}$ $k\acute{O}$
 rice IT s/he take PART
 'it is the rice s/he is taking'

In fact, (14) represents the only configuration in which the verbal element and the particle occur separately, the verb preceding the particle. The particle and the verbal element must be adjacent in all other cases, i.e. if: (i) INFL contains an auxiliary. In this case, even adverbs may not intervene, as the ungrammaticality of (16b) indicates:

- (16) a. \acute{a} $n\acute{I}$ $m\acute{a}m\acute{a}$ $m\acute{I}$ $p\acute{E}$
 we NEG-A much PART shout
 'we did not shout a lot'
 b. * \acute{a} $n\acute{I}$ $m\acute{I}$ $m\acute{a}m\acute{a}$ $p\acute{E}$
 we NEG-A PART much -shout
 c. \acute{a} $\bar{I}\acute{a}$ $s\acute{a}k\acute{a}$ $k\acute{O}$ $\acute{b}I\acute{a}$
 we PERF-A rice PART take
 'we have taken the rice'

(ii) The particle verb pair occurs in an infinitival clause:

- (17) a. \acute{O} $m\acute{I}E$ [$m\acute{I}$ $p\acute{E}$ $k\acute{a}$]
 He goes PART-shout KA
 'he goes in order to shout'
 b. \acute{O} $m\acute{I}E$ [$s\acute{a}k\acute{a}$ $k\acute{O}$ $\acute{b}I\acute{a}$ $k\acute{a}$]
 he go rice PART take KA
 'he is going in order to take rice'

(iii) The particle verb combination occurs in a nominalization:

- (18) a. $m\acute{I}-p\acute{E}-I\acute{I}$
 PART-shout-NOM
 'the shouting'
 b. $s\acute{a}k\acute{a}-k\acute{O}-\acute{b}I\acute{a}-I\acute{I}$
 rice PART take-NOM
 'the taking of rice'

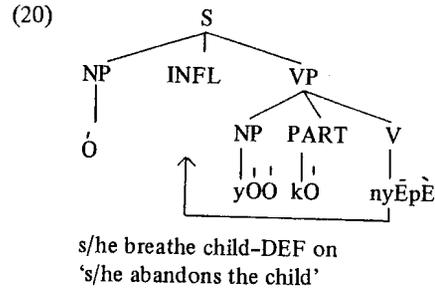
(iv) The particle verb pair occurs in a compound:

- (19) a. $m\acute{I}-p\acute{E}-ny\acute{O}$
 PART-shout-person
 'someone who shouts'
 b. $s\acute{a}k\acute{a}-k\acute{O}-\acute{b}I\acute{a}-ny\acute{O}$
 rice-PART-take-person
 'someone who takes rice'

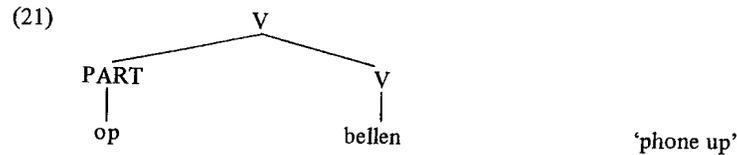
If the verb is (VP) final at D-structure, the distribution of the particle can easily be captured, since particle verb pairs can then be treated in a 'local' way, as 'lexical' items, in a sense. If the verb were not final at D-structure, particle verb combinations cannot be treated in a uniform fashion.

But what kind of lexical items are particle verb pairs and how should they be treated? Although particle verb pairs function as a single 'semantic' unit, they clearly consist of two phonologically and syntactically in-

dependent words: phonologically independent since the two elements each have their own characteristic tone pattern, syntactically independent because, if INFL does not contain an auxiliary, only the verbal part moves into INFL and not the entire particle verb complex.



Koster (1975) proposes to analyze similar particle verb construction in Dutch and German as compound verbs of the following type:



Such an analysis seems unacceptable to us, since particle verbs are not compounds in the usual sense of the word, that is, they do not constitute a phonological or syntactic word: as is the case in Vata or Gbadi, the verb second rule in Dutch only affects the verbal part of the compound.

Another analysis of particle verb constructions is presented in Stowell (1981), who proposes to treat particle verb constructions by some extended word formation rules, but seems to be unaware of the problem that only one part of this lexical item is subject to a movement rule, a possibility he explicitly rejects elsewhere:

"But if (2b) (*Kevin turned [on] [the light]*) is to be transformationally derived from (2a) (*Kevin turned [the light] [on]*), then the structure [V PART] (by which verb particle pairs form one single subcategorization frame) is impossible, unless one makes the otherwise unwarranted assumption that syntactic movement rules can apply to only subparts of a syntactic word" (Stowell, 1981, p. 302).

Of course, the above citation is meant to apply to English. But since it seems to be desirable to treat English verb particle constructions, Dutch

particle verb construction and Vata's particle verb constructions in the same fashion, the problem remains unsolved.

An alternative analysis, which we will tentatively adopt here, consists in treating particle verb pairs by idiom rules applying at the level of D-structure. Although the details of such an analysis will not be worked out here, it is sufficient for our purposes to interpret the fixed position of the particle, and the impossibility of any material intervening between the particle and the verb as an indication that such a rule requires strict adjacency of the particle and the verb at the level of D-structure.

If particle verb constructions are to be treated by idiom rules, one expects to find a resemblance between particle verb constructions and idiomatic expressions. This appears indeed to be the case: particle verb constructions and idiomatic expressions in Vata and Gbadi share formal properties, in the sense that idiomatic expressions also need to be strictly adjacent at the level of D-structure. Again, this property can only be expressed if the verb occurs in VP final position at D-structure. The following examples illustrate the different possibilities for the placement of adverbs:

- (22)
- a. ñ ká kòfí ɓŌgŪklā nā ó nyĒpÈ kŪ
I FUT-A Kofi leg seize NA he breathe on
'I will implore Kofi to give up'
 - b. ñ ká (fáfá) kòfí (fáfá) ɓŌgŪ (*fáfá)
I FUT-A (quickly)Kofi (quickly) leg (*quickly)
klā nā ó nyĒpÈ kŪ
seize NA he breathe on
'I will quickly implore Kofi to abandon'
 - c. wá ní wĪ pá nā áná ɓó ɓù
they NEG-A voice throw-PERF NA you all meet
yĒĪ dúó mlĪ
village-DEF in
'they did not announce that all of you should meet in the middle of the village'
 - d. wá ká (fáfá) wĪ (*fáfá) pá nā
they FUT-A(quickly) voice (*quickly) throw COMP...
 - e. wá pá (fáfá) wĪ (fáfá) nā
they throw (quickly) voice (quickly) COMP...

The subparts of the idioms ɓŌgŪklā 'implore' and wĪ pá 'announce' have to be adjacent (22b, c, d); verb movement (22e) does not alter the grammaticality judgements.³ Notice also that the otherwise possible freedom in word order, discussed in 2.3.1., is no longer possible.

The reader may wonder why we have decided to call the expressions

above idiomatic expressions rather than particle verb constructions. In fact, the difference reduces to the fact that particle verb constructions and the idiomatic expressions, like those cited, illustrate the existence of two different kinds of idioms:

- (23) a. P V
 b. {N } V
 {NP }

The difference between the two can be shown in the middle construction: the NP part of an idiomatic expression may occur in subject position if the verb carries passive morphology (24), whereas particles can never occur in subject position:

- (24) a. ɓ ŌgŪ klàlŌ mŌ nā Ō nyĒpĒ kŪ
 leg seize-PERF-PAS him NA he abandon PART
 'he has been implored to abandon'
 b. wĪ pàlŌ nā ...
 voice throw-PERF-PAS NA
 'it has been announced that...'
 c. *kŌ ɓ lalŌ sáká
 on take-PERF-PAS rice
 d. sáká ɓ lalŌ kŌ
 rice take-PERF-PAS PART

Predictably, it is not always easy to distinguish particle verb constructions from idiomatic expressions, especially if the latter are of the type that does not allow movement of the NP part of the idiom (cf. *kick the bucket* 'die', *the bucket was kicked* (*die)).⁴

- (25) a. yé yĒ` 'see'
 eye?
 b. *yé yĒ` lŌ nā ...
 eye see-PAS NA

Since in Vata or Gbadi particle verb constructions and idiomatic expressions are treated by the same mechanism, the difference between a particle verb construction and an idiomatic expression is simply non-existent, indicating the existence of two different types of idioms.

To sum up, the particle and the verb and the subparts of an idiomatic expression must be strictly adjacent at D-structure. The only superficial counterexamples to this claim are tensed clauses which do not contain an auxiliary, i.e. precisely those cases in which V-movement has occurred.

Of course, only if the verb occurs in VP final position at D-structure can these constructions be treated uniformly, and the adjacency requirement be expressed. The fixed order may then be viewed as a consequence of the idiom rule which requires strict adjacency at the level of D-structure. The fixed order, as opposed to the otherwise free order of complements in the VP, lends support to the hypothesis put forth in Chomsky (1981) and Stowell (1981) that the complements of a lexical category are unordered, and that fixed word order is not a property of X-bar theory, but results instead from interaction with other subtheories or principles of grammar, like, for example, idiom rules in Vata and Gbadi. We must stress that our description of idiomatic expressions in Vata is very rudimentary and incomplete. It was not our intention, however, to describe and analyze these exhaustively here. Rather, we have picked out one aspect to illustrate the adjacency requirement, since it provides evidence for the verb final character of Vata and Gbadi.⁵

3.1.3. P-stranding

The phenomenon of 'preposition' stranding, to which we will henceforth refer as P-stranding, is illustrated in the English examples in (26):

- (26) a. who_i did you talk to [e]_i
 b. John_i was talked to [e]_i

In (26a) the object of P has been extracted by *wh*-movement, in (26b) by NP movement, leaving the P 'stranded'.

P-stranding has been extensively discussed in the literature, among others by Van Riemsdijk (1978), Hornstein and Weinberg (1981), Kayne (1981a, 1981b), and Stowell (1981). The following preliminary remarks can be made concerning P-stranding. It is relatively rare crosslinguistically speaking (Van Riemsdijk, 1978). In Indo-European languages, for example, it seems to be attested only in English, in the Scandinavian languages, and in Dutch. Those languages which allow P-stranding appear to differ with respect to the context in which P-stranding may occur. In Dutch, for example, P-stranding occurs only under *wh*-movement and clitic movement (= *R*-movement, Van Riemsdijk, 1978) from preverbal PPs; Prepositions may not be stranded by NP movement. In English, however, stranding both by *wh*-movement and NP-movement occurs (cf. (26)). But P-stranding under *wh*-movement may occur in more configurations than P-stranding under NP-movement: the latter seems to require adjacency with the verb, whereas the former may take place, roughly speaking, if the PP is (θ -) governed by V (for discussion see Van Riemsdijk (1978), Hornstein and Weinberg (1981) Stowell (1981))⁶.

It is an interesting fact that P-stranding is also attested in many languages of the Kru family:

- (27) Gbadi a. [táβ1Ē̄ k1Ú]1 y1 wá kÉ - IÒ ñĪÈ [e]1 jĪĪÈ
 table on WH they FUT-A-FOC food put
 'it is on the table they will put the food'
- b. *P-stranding under wh-movement*
 táβ1Ē̄1 y1 wá kÉ -IÒ ñĪÈ [e]1 k1Ú jĪĪÈ
 table WH they FUT-A-FOC food on put
 'it is the table they will put the food on'
- c. *P-stranding under NP movement*
 táβ1Ē̄1 kÉ ñĪÈ [e]1 k1Ú jĪĪÒ
 table FUT-A food on put-PAS
 'the food will be put on the table'
- d. *P-stranding under clitic placement* (limited to Gbadi)
 wa yĒ - βÓ [e]1 k1Ú jĪĪÈ̄
 they PERF-A-CL-Q on put-Q
 'Have they put food on it?'

(27a) is intended to show the reader that a postposition may be pied-piped with its complement under *wh*-movement, which indicates the constituenthood of the PP. (27b) shows that a P may be stranded under *wh*-movement, (27c) that it may be stranded under NP-movement, and (27d), finally, that it may be stranded under clitic movement. (Since there are no syntactic clitics in Vata, this case is limited to Gbadi).

Under what circumstances may P-stranding occur? The following examples illustrate the restrictions on P-stranding:

- (28) Gbadi a.*táβ1Ē̄1 y1 wá kÉ -IÒ [e]1 k1Ú ñĪÈ jĪĪÈ (cf. 27b)
 table WH they FUT-A-FOC on food put
 'it is the table they will put the food on'
- b.*táβ1Ē̄ kÉ [[e]1 k1Ú ñĪÈ jĪĪÒ (cf. 27c)
 table FUT-A on food put-PAS
- c.*wá yĒ1 [[e]1 k1Ú ñĪÈ jĪĪÈ (cf. 27d)
 they FUT-A-CL on food put
 'they will put the food on it'

(28) shows that P-stranding in the Kru languages obeys similar constraints in all cases of stranding: it requires strict adjacency of the P and the verb. Thus, (28a, 28b, and 28c) are blocked since the direct object intervenes between the V and the P and (28c), in which the PP has been extraposed (4.3.) is also blocked because the adjacency requirement is not met, (or, alternatively, because of lack of government.) The canonical configuration in which P-stranding is possible can thus be summarized as in (29):

- (29) [pp NP P] V

That is, a P may be stranded iff it is adjacent to the predicate of which it is a complement.

Note that in the examples in (28), the verb actually occurs in what we have argued is its base position. (29) furthermore shows that stranding may occur if P and V are adjacent. Of course, there are many superficial counterexamples to this claim, all of which fall into the same class: (29) is apparently violated in sentences which contain a tensed INFL which is not realized as an auxiliary, i.e. in precisely those cases in which verb movement has applied. The following examples show that the surface position of the verb is irrelevant to the possibility to have P-stranding: ([V e] represents the trace left by V-movement, cf. chapter 5).

- (30) a. táβ1Ē̄1 y1 wá jĪĪÈ -IÒ ñĪÈ [e]1 k1Ú [V e]
 table WH they put - FOC food on
- b.*táβ1Ē̄1 y1 wá jĪĪÈ -IÒ [e]1 k1Ú ñĪÈ [V e]
 table WH they put - FOC on food
- c. táβ1Ē̄1 jĪĪÒ ñĪÈ [[e]1 k1Ú] [V e]
 table put-PAS food on
 'food was put on the table'
- d.*táβ1Ē̄1 jĪĪÒ [[e]1 k1Ú] ñĪÈ [V e]
 table put-PAS on food
 etc..

That is, what determines the possibility of P-stranding is adjacency of the P and the V at *D-structure* (or alternatively, at S-structure or, using the verbal trace, at LF). Thus, again, P-stranding provides us with an argument in favour of the assumption that the verb is final at D-structure, and that if the verb occurs in INFL, it occurs in a derived position.

What mechanism renders P-stranding possible? It is generally assumed that P-stranding under adjacency is made possible by the existence in the grammar of a rule called *reanalysis* (see, among others, Van Riemsdijk (1978), Kayne (1981a), Hornstein and Weinberg (1981), Stowell (1981)) a process which, informally speaking, turns a P and a V into a complex word, taking an NP complement. We will assume that reanalysis in Gbadi or in Vata is a syntactic process operating at D-structure, and moreover, that it is the process of extending the government domain of the verb assigning a θ -role to a complement PP down to the complement of P (cf. Kayne, 1981a). Let us assume, furthermore, that the PP becomes transparent for purposes of government when its head is cosuperscripted and adjacent to the verb as in (31):

- (31) [pp NP Pⁱ Vⁱ]_{VP}

has been shown to hold for other languages as well, and may in fact be a general condition on the process of restructuring.

The configuration in (37) is apparently violated in tensed clauses with no auxiliary, in which case the main verb and the infinitival complement are not adjacent in surface structure:

- (38) wá mUá₁ gŌdŪgŌdŪ pĪā kà
 they go-CL always buy ka
 'they always go to buy them'

However, (37) can be maintained if one assumes that the main verb occurs in VP final position, and has moved into INFL in (38), leaving behind a verbal trace. Then, once again, the fact that the verb occurs in INFL in some surface structures is simply not relevant when it comes to expressing the configuration in which restructuring occurs: only the verbal position in the VP plays a role in this respect.

Let us now turn to the nature of the process of restructuring. We will not propose any specific analysis here, but limit ourselves to a general discussion of roughly the two options for analyzing these constructions in the GB framework - one of which we may call the *government* option and the other the *Binding* option - and present some evidence in favour of the latter, based on Sportiche (1982). Under the government option, a clitic is assumed to appear on a verb that governs the empty category. The effect of restructuring would be to extend the government domain of the main verb (V + R) to the complement of the embedded verb, so that the clitic governs the empty category in the embedded clause, similarly to the way in which the process of reanalysis extends the government domain of the V to the complement of P. Under the Binding option, the relation between a clitic and its trace is assumed to be an antecedent anaphor relation, where the trace of the clitic is subject to the Binding condition for anaphors:

- (39) An anaphor A must be bound in the domain D which contains A and a governor of A and a subject accessible to A

Under the Binding option, two alternatives are possible. Either (i) restructuring consists of making V [+R], instead of V, the governor of the empty category which is the complement of V or (ii) restructuring consists of making the subject of V inaccessible to A, in which case the subject of V [+R] becomes the accessible subject.

While discussing these options, Sportiche (1982) argues on the basis of the reciprocal construction in Gbadi that government cannot exist between the restructuring verb and the trace of a clitic. Hence restructuring must be

a process which makes the embedded subject an inaccessible subject. His argument runs as follows:

The reciprocal construction in Gbadi (and also in Vata) involves the appearance of a particular morphology on a predicate (2.2.7.), consisting of the reduplication of the verb and the suffix -LI. An NP complement, which Sportiche calls the target NP, is obligatorily missing. This is illustrated in the following examples, drawn from Gbadi:

- (40) yuá yī lálálĪ
 children FUT-A call-call-LI
 'the children will call each other'

The antecedent NP is not necessarily a subject:

- (41) wá yī yuá sŪsŪĪĪ
 they FUT-A children show-show-LI-CAUS
 'they will show each other to the children'
 'they will show the children to each other'

And finally, the relation between the antecedent NP and the target NP is subject to locality requirements, i.e. they cannot be too far apart.

Sportiche argues in favour of a syntactic approach to the reciprocal construction: that is sentences like (41) contain an empty category which is subject to the Binding condition for anaphors (40), hence the fact that the antecedent NP may be a c-commanding NP, and the locality requirement. He then argues that the particular morphology on the predicate has the following effect:

- (42) The reciprocal morphology on a predicate signals that it marks one NP reciprocal instead of assigning it Case (Sportiche, 1982)

Since Case is assigned under Government, it implies that the target NP which receives the feature [reciprocal] instead of Case is *governed* by the predicate. Therefore, a predicate with reciprocal morphology governs the target NP. Note that independent support for this conclusion can be derived from the fact that the subject of an NP may not be marked [reciprocal], as the following example shows:⁸

- (43) * wá₁ ní [[e]₁ yúe] wáwáĪ
 they NEG-A children like-like-LI
 'they don't like each others children'

In short, then, the feature [reciprocal] may only be assigned under *govern-*

ment. If restructuring involved the extension of the government domain, i.e. if the restructuring verb governed inside the infinitival clause, we would expect the reciprocal morphology to be able to climb to the restructuring verb:

- (44) a. *wá_i yī [[e]_ilá k̄ā] mīmīlī
 they FUT-A call KA go-go-LI
 b. wá_i yī [[e]_ilálálī k̄ā] mīmī
 they FUT-A call-call-II KA go
 'they will go call each other'

Note that there is no intrinsic ban on having the reciprocal morphology on the verb *mI* as (45) shows:

- (45) wá_i yī [e]_i lú mīmīlī
 they FUT-A towards go-go-LI
 'they will visit each other'

The ungrammaticality of (44a) thus shows that restructuring cannot involve extension of the government domain of the restructuring verb, but must instead involve the inaccessibility of the PRO subject of the infinitival complement.

In conclusion, let us point out that preverbal complements may or may not restructure. Gbadi differs in this respect from Dutch or German, where preverbal (θ -assigned) infinitival complements (but not adverbial clauses) have to restructure (by means of V-raising), or otherwise must be extraposed. (cf. among others, Evers (1975), Reuland (1982)). The restructuring construction raises many questions, which are beyond the scope of this study. The class of restructuring verbs in Gbadi, for example, only includes subject control verbs: verbs like *IIḂIII* 'send' which take a *ka*-complement as a lexical property may not undergo restructuring. Why should this be so? What exactly is restructuring? It also remains to be determined whether *ka*-complements in Vata undergo restructuring or not. Leaving these matters for future investigation, let us now return to the basic point we set out to illustrate in this section. It is the verb final position which determines whether or not the restructuring process may occur: restructuring can only occur if the verb triggering restructuring, is adjacent to the infinitival complement, a property which Gbadi shares with many other languages with restructuring constructions.

3.1.5. Discussion

In this section, we have reviewed the evidence in favour of the base rule VP → ...V. Two types of arguments were presented; first, a distributional

argument, which showed that the order of constituents in different clause types is always COMPL V, except in tensed clauses which do not contain an auxiliary. In this case the verb occurs in INFL. A second type of argument can be based on the existence of several processes which require adjacency between certain elements and the verb final position, such as idiom rules, reanalysis and the process involved in restructuring constructions.

When confronting people with this analysis, I have often encountered a reluctance to accept that what are often considered to be the most 'simple' sentences (simple from the point of view of the linguist working with informants) like *ń lè sáká* = 'I am eating rice' are in fact derived by a rule which, moreover, does the unthinkable: moving the central element for θ -marking in a clause, the verb. A profound misunderstanding of what is simplicity or of what represents derivational complexity seems to underly this reluctance. Indeed, an analysis which reduces the word order alternations to simple general statements such as "the VP is head final" (which is true for all lexical categories, as we shall see in 3.2), "INFL follows the subject and precedes the VP", and "the verb must move in tensed clauses without an auxiliary", can hardly be called complex. And if, as is our contention here, these statements can be reduced to sub-systems or principles, then the task of the language learner acquiring Vata or Gbadi as a first language may in fact be limited to the acquisition of lexical items and their properties and fixing the parameters of the system.

It may be useful to consider briefly what the features of an alternative analysis would have to be. Such an alternative analysis would take simple sentences of the form NP V NP to reflect underlying order, and consider this as evidence that the base rule for the VP is head initial (VP → V...). However, a problem immediately arises, since, even in such structures, the verb does not occur in the VP: inflectional particles (cf. 3.3.1.) follow the main verb (or the auxiliary) and adverbs typically occur between the main verb (or auxiliary) and the complement of a verb (46).

- (46) kÓ` (mŌmÓ`) Ò ĩ -dā-ḂÓ zué sáká,...
 man HIM-HIM he-R eat-PT REL yesterday rice
 'the man who was eating rice yesterday....'

Thus, such an analysis would still have to assume a *leftward* verb movement rule in any case. In simple sentences, then, V-movement would have to apply in the absence of an auxiliary. It must be assumed furthermore that the verb moves to the *right* in gerunds, infinitival clauses and tensed clauses: three clausal complements, each with its own syntactic properties. It has sometimes been proposed that the auxiliaries are main verbs, and that all these word order problems would simply vanish. We will show in

3.3.3. that the issue of whether auxiliaries are main verbs or not is simply irrelevant to the problem of whether the verb phrase is head-initial or head-final.

The adjacency requirement, so easily expressed in our analysis, would have to be expressed differently, as, for example, either adjacency with the right bracket of the VP, or adjacency with the verb in VP final position. Finally, a most serious problem is encountered, concerning the fact that the projections of other lexical categories, NPs and PPs, are head-final, as we shall see in the next section. The question then arises of how the language learner could be led to assume that the VP is head initial, especially as the verb never occurs in this position at surface structure, and projections of other lexical categories are head final.

In short, such an analysis, which makes a hypothesis about D-structure order on the basis of certain superficial surface orders, – a D-structure which may never surface as such – should be rejected. The analysis we have proposed seems optimally simple: the verb occurs in many surface structures in its D-structure position; the adjacency requirement for particle verb constructions, idiomatic expressions, P-stranding and restructuring can be expressed in a simple manner; and, as we will see in the next section, the base components of Vata and Gbadi are unified. We therefore conclude that there is a process in Vata and Gbadi which derives superficial VO orders from underlying OV orders by means of verb movement, a rule which applies in both main and embedded clauses alike, unlike the very similar verb second rule in German and Dutch, which applies only in root environments.

What needs explanation, then, is the reason why the verb must move into INFL in tensed clauses with no auxiliary and can only move in these contexts. Questions also arise about what constitutes the difference between languages like Vata and Gbadi, and V-second languages. These problems will be addressed in part in chapter 6 and 7.

3.2. NPs, APs, and PPs

The establishment of the head final character of the VP of course raises questions about the projections of other lexical categories. Are their expansions head-final too? We will show below that those lexical categories which have maximal projections, NP and PP, are indeed head final, and that the base component of Vata and Gbadi conforms to the general X-bar schema: $X' \rightarrow \text{COMPL X}$.

3.2.1. NPs

In Vata and in Gbadi, genitives and complements of a noun must precede the head noun:

- (47) a. Vata: kòfí nǐ sléé
Gbadi: bànyò nĒ ß'ùdù
Kofi GEN house
- Gbadi: bànyò ná zūzù
bagnò NA shadow
'a picture of Banyo'
- Vata: sáká gà ná k'ò
rice for NA someone
'rice for someone'
- Gbadi: ß'ùdù kĪyi ná nyĭkpò
house behind NA someone
'someone behind the house'

Nominalizations have already been discussed in 2.2.3. Nominalizations in Vata were shown to be clausal, and nominalizations in Gbadi to be nominal. Since nominalizations in Gbadi are nominal, they confirm the fact that NPs exhibit complement head structure, in accordance with the general schema $X' \rightarrow \text{COMPL X}$.

Thus far, only the position of complements with respect to their lexical head has been discussed. What about the position of specifiers? On a purely observational level, languages turn out to vary in this respect. In some languages, specifiers occur in the position opposite complements, at the other side of the head, in others, they occur at the same side, and in still other languages, some occur at the same side while others occur at the opposite side. In Gbadi, all nominal specifiers follow the head noun (48a), and in Vata, some precede, and others follow (48b):

- (48) a. Gbadi: nyĭkpò nĪ man this
nyĭkpò wĒ man that
nyĭkpò cĭ man over there
- b. Vata: mĒnĪ k'ò this man
nánĪ k'ò that man
k'ò ß'ò/[k'òò] man the
k'ò mĒ man this

Note the interesting fact of the appearance of *nĪ* on the prenominal specifier and its absence on the postnominal ones in Vata.

Incorporating specifiers into X-bar theory, we will assume the following base schemata for Gbadi and Vata respectively:

- (49) Gbadi a. $X'' \rightarrow X' \text{ SPEC}$ Vata a. $X'' \rightarrow \text{SPEC } X' \text{ SPEC}$
b. $X' \rightarrow \text{COMPL X}$ b. $X' \rightarrow \text{COMPL X}$

Apart from the subject of NP, complements of nouns and some specifiers in Vata, all other categories, including quantifiers, adjectives, and relative clauses occur postnominally. Moreover, there do not appear to be any severe restrictions on what may occur on a left branch:

- (50) \acute{O} z \acute{U} m \acute{E} [tá δ l \bar{E}] (m \bar{U} m \bar{U}) [U
 s/he put it table (IT-IT) it-R
 k \bar{U} - \acute{O} slé-é ml \bar{I}] wlú]
 be-REL house-DEF in on top
 's/he put it on the table that is in the house'

Let us finally mention the curious fact that no nouns can take sentential complements of the type *the story that Bill left*.⁹

3.2.2. APs

In Vata and Gbadi, there are two formally distinct classes of adjectives, one of which occurs postnominally, whereas the other may only be used predicatively.

Some of the postnominal adjectives in Vata agree with their head noun in 'class' (51a), others only agree for singular or plural (51b). Only this latter property holds for postnominal adjectives in Gbadi:¹⁰

- (51) a. Vata: k \acute{a} d \bar{V} 'big'
 k \acute{O} k \acute{a} d \acute{O} 'a big man, an old man'
 k \acute{U} á k \acute{a} d \acute{U} á 'big men, old men'
 slí k \acute{a} dà 'a big house'
 cíc \bar{E} k \acute{a} d \bar{E} 'a big eagle'
 ny \bar{l} ú δ ÉI \bar{U} k \acute{a} d \bar{U} 'a big rooster' (lit.: 'chicken-male big')
 d \bar{o} l \bar{i} k \acute{a} d \bar{i} 'big axe'
- b. k \acute{O} gbl \bar{U} bÉI \bar{U} 'an enormous man, a thick man'
 k \acute{U} á gbl \bar{U} bÉI \bar{I} 'fat men'
 cíc \bar{E} gbl \bar{U} bÉI \bar{U} 'an enormous eagle'
 k \acute{O} k \acute{a} nzà δ lè 'a fat man'
 k \acute{U} á k \acute{a} nzà δ l \bar{i} 'fat men'
- c. Gbadi: ny \bar{l} kp \acute{O} gl \bar{E} gb \acute{O} 'a big/old man'
 man big
 ny \bar{l} kpà gl \bar{E} gb \acute{U} a 'big men'
 l \bar{O} gwili 'a big elephant'
 elephant big
 l \bar{O} gwilià 'big elephants'

This class of adjectives is not very informative about the existence of a maximal projection AP. Apart from the fact that they assign, in a way, an external θ -role to their head noun, they cannot be modified nor can they take any complements. How can one establish the X-bar structure of an AP in a particular language? Obviously, one has to look into the complement and specifier structure of adjectives. A maximal projection AP has to be assumed if certain adjectives can take a complement as a lexical property (*someone angry at Bill*), or if certain modifiers turn out to be sensitive to the nature of the lexical head, as is the case with modifiers like *very* in English, or *très* in French.

Many concepts expressed by predicative adjectives in Indo-European languages are expressed by verbs in Vata and Gbadi:

- (52) Vata a. \acute{O} t \acute{E} m \acute{a} m \acute{a}
 s/he strong much
 's/he is very strong'
 b. \acute{O} n \bar{I} m \acute{a} m \acute{a} t \acute{E}
 s/he NEG-A much strong
 's/he is not very strong'

That the underlined elements are verbs rather than adjectives may be concluded from the fact that, just like verbs, they undergo the rule of verb preposing in a tensed clause containing an INFL which is not realized as an auxiliary. Furthermore, (52) shows that there is no copula present in such sentences. Note however that, although *NP copula AP* constructions are nonexistent, *NP copula NP* constructions do exist:¹¹

- (53) a. *NP copula AP
 b. NP copula NP: w \acute{a} l \bar{E} k \acute{O} biny \bar{U} a
 they are hunters

Recall also that the middle construction does not involve a copula construction (2.2.4.). Nor do comparatives involve an adjectival construction.

The predicative adjectives like those in (52) may only occur in their 'bare' form in the perfective aspect, indicating present state. They constitute a special class, however, escaping for example the tone patterns for verbs, characteristic of this aspect (2.2.2.). All other adjectival verb forms require the suffix *ma* or *malI*. This is illustrated in (54):

- (54) a. n \bar{I} t \acute{E}
 I strong
 b. t \bar{E} m \bar{a} l \bar{I}
 strong-MALI
 'be strong'

- c. \dot{n} nĭ- k̄ā tĕmāĭĭ
 I FUT-A FT strong-MALI
 'I will be strong'
 d. \dot{n} ná` - tĕmāĭĭ-k̄ā
 I NEG-A-strong-MALI-FT
 'I won't be strong'

Quite generally, a class of adjectival roots can be distinguished which enter into word formation processes:

- (55) a. kpálĕ 'be beautiful'
 kpákpánŪ 'beauty'
 kpányŌ 'a handsome person'
 b. zālĕ 'be red'
 zāmā 'redden'
 zānyŌ 'someone with red hair'

Clearly then, there exists a category adjective available for the input of morphological rules. As for adjectival verbs, let us adopt the following structure:

- (56) $[_V [_A] \emptyset / \text{maII}]$

What are the lexical properties of this class of adjectives? Aside from assigning an external θ -role, they have no lexical properties, as we may conclude from the fact that there are no adjectives which take a complement as a lexical property. Furthermore, there is no class of specifiers which exclusively occurs with adjectives.

Thus, although a distinct class of adjectives can be distinguished, adjectives do not enter X-bar theory, in the sense that they never head a maximal projection AP.¹² We will interpret the inability of adjectives to project as indicating that Vata and Gbadi lack a major projecting lexical category adjective.

3.2.3. PPs

The discussion concerning the status of PPs in Vata and Gbadi is not simplified by the fact that the status and treatment of PPs in English, for example, is still not particularly clear in the adopted framework.¹³ (see Van Riemsdijk (1978) for an overview of the history of the category P in Transformational Generative Grammar). Before turning to PPs and Ps in Vata and Gbadi, it may be useful to restate our assumptions about the category P and its projection PP. First, as is standard practice within the EST, we assume that Ps are defined in terms of the syntactic feature

$[-N, -V]$. P, as a $[-N]$ category, assigns Case under government to its complement. Moreover, we assume that Ps assign a θ -role to their complement, and further that this θ -role is compositionally determined for objects of subcategorized PPs. Finally, P heads a maximal projection PP, which, if it functions as an argument of a predicate must be θ -marked, by virtue of the θ -criterion. (cf. Chomsky, 1981, p. 145 fn. 83).

The following discussion illustrates the behaviour of PPs in Vata and Gbadi, and tries to provide arguments for the existence of a distinct category P, with its own projection PP. We will show that this category P cannot be reduced to any other existing lexical category (e.g. N, as often proposed in the literature on West-African languages¹⁴), nor can they be equated to Case markers. This discussion is important for the discussion of X-bar theory, and restricts the possible theoretical explanations for the occurrence of the prenominal marker *na* on PPs and other prenominal categories.

As we have already illustrated several times, Vata and Gbadi are languages with postpositions, and postpositions with their complements comprise a constituent which may undergo *wh*-movement. But what is the structure of this constituent? The following hypotheses may be formulated:

- (57) a. $\begin{array}{c} \text{PP} \\ \swarrow \searrow \\ \text{NP} \quad \text{P} \end{array}$ b. $\begin{array}{c} \text{NP} \\ \swarrow \searrow \\ \text{N}^{n-1} \quad \text{Case} \\ | \\ \text{N}^0 \end{array}$ (or $\begin{array}{c} \text{NP} \\ \swarrow \searrow \\ \text{NP} \quad \text{Case} \end{array}$) c. $\begin{array}{c} \text{NP} \\ \swarrow \searrow \\ \text{NP} \quad \text{N} \\ \quad \quad [+CASE] \end{array}$

According to (57a), there exists a maximal projection PP, with P as its head, taking an NP complement. (57b) expresses the non-existence of a lexical category P. Rather Ps should be considered to be Case markers. (57c) finally embodies the hypothesis, often alluded to in the literature on West-African languages, that Ps are not only often historically related to nouns, but might even be indistinguishable from nouns from a synchronic point of view. According to (57c), then, Ps would constitute a special kind of noun which assigns Case to its complement.

We will establish that the structure in (57a) is the only one which is compatible with the data. Let us start examining the alleged similarity between Ps and Ns, first discussing Vata. The following data show that some Ps are indeed homophonous with nouns:

- (58)

<i>P</i>	<i>Noun</i>
mĭ : 'in'	mĭ : 'interior, inside'
wlú : 'on (top of)'	wlú : 'head'
kŌkŪ : 'behind'	kŌkŪ : 'behind'
klŪ : 'on'	klŪ : 'front'

This relation however, is not always transparent. In several cases the noun and the corresponding P (59) are phonologically differentiated:

- (59) gbŪ : 'reason' gbŪ : 'because of'
 n̄kŪ: 'mouth on' n̄kó : 'in front of'

And in many cases, no relation whatsoever exists between Ns and Ps:

- (60) kŪ : 'on' 'no corresponding N'
 dŭ : 'towards' "
 gbǎ : 'between' "
 gá : 'for' "
 jè : 'behind' "

It seems then that the existence of examples like (58) does not warrant the conclusion that Ps in Vata are nouns. Similarly, a theory which proposes to treat Ps in English as Ns on the basis of the existence of English prepositions like *behind* would not be considered very seriously. Also, one could not assume that the Ps in (58) are nouns, as opposed to those in (59) and (60), since the Ps in (58), (59) and (60) all display similar syntactic behaviour.

Returning to (58), one can conclude that the nouns and Ps enumerated in (58) have different Case marking properties:

- (61) a. àbà gbŪ c. àbà n̄l̄ gbŪ-Ō
 Aba cause Aba *ni* cause-DEF
 'because of Aba' 'Aba's reason'
 b. slé-é m̄l̄l̄ d. slé-é ná m̄l̄l̄
 house-DEF in house-DEF NA inside
 'in the house' 'the inside of the house'

The categories must therefore be distinguished at least as far as their Case marking properties are concerned. Notice however that this distinction could in principle be expressed by any of the structures in (57).

The main reason for assuming a separate category PP however is based on the existence of a number of syntactic processes which apply to NPs but not to PPs. Differences between NPs and PPs may be observed in coordinate structures, and in the middle construction; moreover pronouns and anaphors have a different distribution in NPs and PPs.

Projections of lexical categories may be conjoined by means of the coordination marker *le*:

- (62) a. *NP le NP.*
 àbà lé Ō yŌ-Ō
 Aba and her child-DEF
 'Aba and her child'
 b. *PP le PP*
 àbà gbŪ lé Ō yŌ-Ō gbŪ
 Aba cause and her child-DEF cause
 'because of Aba and because of her child'
 m̄Èn̄l̄ slé-é m̄l̄l̄ lé n̄án̄l̄ slé-é m̄l̄l̄
 this house-DEF in and that house-DEF in
 'in this house and in that house'
 c. *S' le S'*
 Ō lé sáká lé Ō ná gànŪ
 s/he eat rice and s/he drinks palmwine
 's/he is eating rice and drinking palmwine'

If PPs were hidden NPs (cf. 57b, 57c), one would expect PPs to coordinate with NPs. The following example shows that this is not the case:

- (63) * *PP le NP*
 * wá m̄l̄l̄ dúó kú lé b̄j̄à
 they went village on and Abidjan
 * 'They went to Abidjan and home'

We do not see any reason for this impossibility, other than the fact that NP and PP are different projections.

Apart from *le*-coordinations, which display all the syntactic properties of coordinate structures (for example, they obey the coordinate structure constraint), there exists an alternative coordinate construction, the *na*-construction, which only allows for coordination of NPs:

- (64) *NP na NP*
 a. àbà nà Ō yŌ-Ō m̄l̄l̄
 aba with her child-DEF leave
 'Aba and her child left'
 b. t̄ŌngŌb̄i m̄l̄l̄ b̄j̄à ná ḡagn̄òà
 cars leave Abidjan and Gagnoa
 'Cars left from Abidjan and Gagnoa'

If either (57b) or (57c) represented the correct structure for PPs, both NP and PPs should be able to occur in the *na*-construction. This prediction is not borne out, since, as the following examples show, PPs are excluded from the *na*-construction.

- (65) * zŭ mí mÈnÓ` mlí nà nánÓ` mlí
 put them this one in and that one in

So once again, it is clear that PPs and NPs behave like different projections. This difference, again, seems to be straightforwardly accounted for by the difference in categorial status.

Coordination also provides an argument against (57b). If (57b) were the appropriate structure, one would expect the non-occurrence of surface structures like *NP le NP P* (see Vergnaud (1974), and Jaeggli, (1980) for discussion). This prediction is not borne out:

- (66) [NP na NP] P: kòfí nà àbà gà
 Kofi and Aba for
 [NP le NP] P: kòfí lé àbà gà

The categorial distinction between NP and PP can also be brought out in the middle construction: only NPs may move into the non-thematic position; PPs may not:

- (67) a. *táβīŪ-Ō kŭ zŭlŌ` sáká
 table-DEF on put-PAS rice
 b. *sūŌ kŭ pālŌ`
 tree-DEF on throw-PAS
 (cf. French, *il a été tiré sur l'arbre*)
 c. Í pālŌ sūŌ kŭ
 it throw-PAS tree-DEF on
 'it was thrown onto the tree'

(67a) and (67b) establish that (57c) cannot be adopted; (67c) shows the same for (57b).

Finally, the distribution of pronouns and anaphors provides an argument that PPs and NPs are different projections. NPs constitute a Governing Category for pronouns and lexical anaphors like reflexives (68) (cf. 3.3.2.2 for further discussion), but PPs do not (69):

- (68) a. Ó_i wà Ó_{i/j} fòtó`
 he like his picture-DEF
 b. *Ó_i wà Óy_i fòtó`
 he like self picture

- (69) a. Ó_i yÉ` mÓ_j fū tīĒ yé
 he saw him near snake PART
 'he saw a snake near him'
 b. Ó_i yÉ` Óy_i fū tīĒ yé

- he saw himself near snake PART
 'he saw a snake near himself'

Since NPs and PPs behave as distinct syntactic categories, and neither (57b, or 57c) are descriptively adequate, we will assume that (57a) represents the appropriate representation for PPs in Vata.¹⁵

As a brief aside, we point out an additional argument for distinguishing Ns and Ps in Gbadi. This argument can be based on the existence of a tonological process which is sensitive to the categorial status of a particular lexical item. In the following examples,

- (70) Gbadi: *Noun* *Postposition*
 mlí 'interior' mí 'in'
 kŌlŪ 'face' kŌlŪ 'on'
 kŪyì 'back' kŪyī 'behind'
 etc...

one notes the phonological differences between Ns and Ps. The difference in tone which is of interest to us here is the alternation between Mid-High and High tone. In Gbadi, nouns never bear a High tone word finally. In this context an underlying High tone is lowered to a Mid High tone (cf. Charette, 1982):

- (71) H → MH / ##N]

This rule applies exclusively to nouns. Its failure to apply to Ps therefore provides evidence for the hypothesis that P is a distinct lexical category.

The establishment of P as a separate lexical category, makes it possible to conclude that its projection, PP, conforms to the general X-bar schema for Vata and Gbadi.

Let us finally mention that Ps only take NP complements or S' complements.¹⁶

- (72) [Ó yì -ŏÓ] gbŪ
 s/he came REL cause
 'because s/he came'

Moreover Ps cannot be modified. The internal structure of PPs is thus much less rich than in English (Jackendoff, 1973) or in Dutch (Van Riemsdijk, 1978) for example. Note, finally, that the representation of PPs as in (57a) implies that the appearance of the prenominal marker *na* on NP and PP complements of a noun cannot receive the same explanation in terms of Case theory as *of*-insertion in English. We return to this point in 4.1., while discussing other contexts in which *na* occurs.

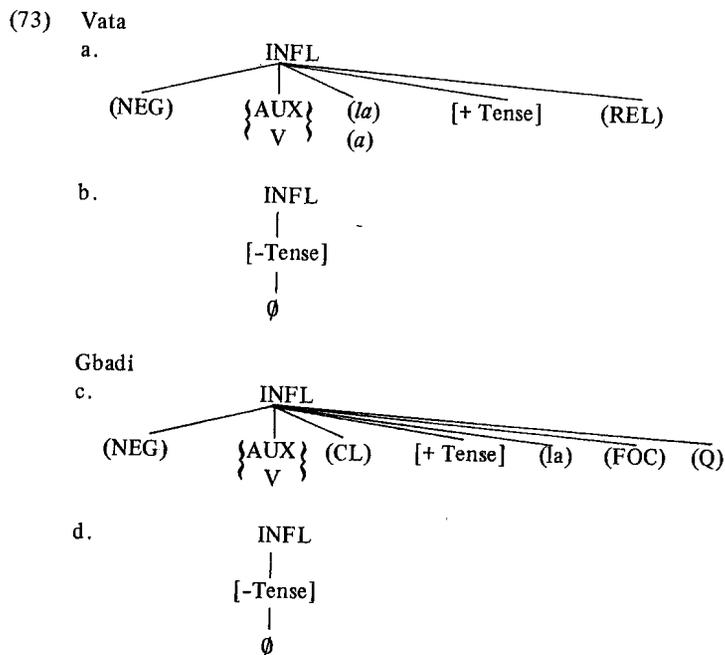
3.3. INFL

3.3.1. INFL

Having established the base rule for VP and the base rules for other lexical categories, let us now turn to the properties of the other clausal node in which the main verb may appear: INFL.

Chomsky (1981) assumes that the 'inflectional' element INFL may in principle be a collection of the features $[\pm \text{Tense}, (\text{AGR})]$. If INFL is $[\text{+ TENSE}]$, it will contain AGR, a node underlying subject verb agreement, consisting of the features person, gender and number.

The internal structure of the $[\text{+ Tense}]$ INFL node in Vata and Gbadi, briefly presented in 2.3.2., is repeated below in (73) which illustrates the complete INFL system of the two languages.



Why assume that the INFL node in (73a) and (73b) constitutes a syntactic constituent? Why assign the feature bundles in (73) to INFL, instead of, say, to S or VP? Although 'classical' constituency tests (Subject-AUX inversion, VP deletion...) are non-existent, the two criteria which follow justify this assumption. First, the nodes in (73a) and (73c) are strictly

limited to tensed clauses: infinitival complements cannot contain any of the particles in (73a) and (73c). And second, there are several cooccurrence restrictions between the elements in (73). These can now be treated in a local way. Note also that we consider CL (clitic) to be a characteristic property of the INFL node, rather than a property of the verb or auxiliary. Although this latter view is quite generally accepted, it may be incorrect in many cases. It is clear in the Kru languages for example that clitics are a property of INFL, since, like all nodes in INFL, clitics can only occur in tensed clauses.¹⁷

3.3.2. *The status of AGR*

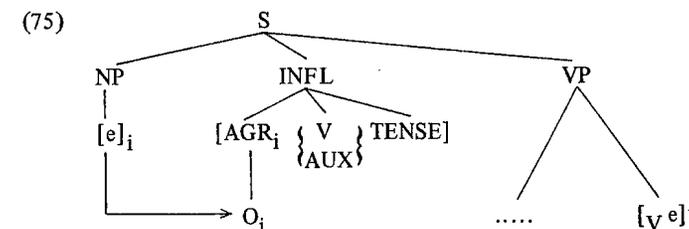
The tensed INFL nodes in (3.3.1.) lack an AGR node. Justifying this absence requires discussion of two distinct questions. First, the question if it is descriptively correct, and second, whether it is consistent with the theory, and the role AGR plays in it. We will argue that the answer to both of these questions is positive. Note that we will restrict our attention to Vata.

3.3.2.1. *Does INFL contain an overt AGR node?*

The verb (or the auxiliary) does not carry inflectional markings expressing subject verb agreement.

- (74) $\dot{n} / \dot{n} / \dot{O}, \dot{U}, \dot{E} \dots / \dot{a} / \dot{a} / w\dot{a} / gb\bar{a}$
 I you he, (3rd pers).. we you they speak

One might hypothesize, however, that the nominative subject pronouns in (74) are themselves the realization of AGR in tensed clauses. That is, the sentences in (74) should in fact be assigned the following S-structure representation (75):



If (75) were the correct representation, we would expect subject pronouns to be clitics which are inseparable from other elements in INFL. We will now show that although subject pronouns do exhibit some of the charac-

explaining thus the ungrammaticality of (78) and (85). If this is right, weak object pronouns and subject pronouns display similar behaviour, and may be treated in the same way.

Further evidence against the hypothesis that subject pronouns are a realization of INFL derives from the fact that subject pronouns may occur separately from INFL, provided they are assigned nominative Case, and cliticize onto an element capable of receiving clitics. One such element is the conjunction *na*:

- (86) a. \acute{O} $n\grave{a}$ $m\grave{O}$ $m\grave{l}\grave{l}$
 s/he and you left
 's/he left with you'
 b. \grave{n} $n\grave{O}$ \acute{O} $m\grave{l}\grave{l}$
 you and him left
 'you left with him'
 c. \grave{n} $y\acute{O}$ \acute{O} $n\grave{O}$ \acute{O} $y\acute{e}$
 I saw him and her PART
 'I saw him with her'

In sum, there does not seem to be any reason for assuming that nominative pronouns occupy a different syntactic position from lexical NPs: their clitic properties are instead phonological, in the sense that they need an appropriate host, just like weak object pronouns. If an appropriate host is present, subject pronouns may even occur separately from INFL, indicating that they are not part of INFL: we conclude therefore that subject pronouns are not a realization of INFL, and that consequently INFL in Vata does not contain any overt sign of AGR.

3.3.2.2. Binding Theory

This brings us to the next question. Does the absence of any overt mark of AGR imply the absence of AGR in INFL in Vata, or should an abstract AGR node nevertheless be assumed? Of course, the answer to this question is highly theory-bound, and depends directly on the role AGR plays in the adopted theoretical framework. In Chomsky (1981), AGR is the determining element for nominative Case assignment, and is implicated in the computation of the notion 'accessible SUBJECT' (cf. chapter 1). In chapter 7, we will review the evidence for the assumption that AGR is the determining element for nominative Case assignment; we will show there that this assumption is unmotivated. Here, we will restrict our attention to the importance of the notion accessible SUBJECT for Vata. As we have discussed in chapter 1, this notion comes into play in the determination of the Governing Category for lexical anaphors like *each other* in English, which is determined by AGR, if present, or the

syntactic subject [NP, NP] and [NP, S]. (cf. also the discussion in chapter 1).

Before examining the distribution of lexical anaphors in Vata, contrasting them with pronouns, let us first note that two kinds of lexical anaphors can be distinguished in Vata: reflexives, and a particular class of anaphors, called pronouns-*wh* in Koopman and Sportiche (1981).

The paradigm of reflexive pronouns, which, at least historically speaking, consist of a genitive pronoun and a noun meaning 'eyes' (*X's eyes*) is presented in (87).

- (87) $\acute{n}y\acute{i}$ myself $\grave{a}y\acute{i}$ ourselves
 $\acute{n}y\acute{i}$ yourself $\grave{a}y\acute{i}$ yourselves
 $\acute{O}y\acute{i}$, $\acute{E}y\acute{i}$...himself, itself $w\acute{a}y\acute{i}$ themselves

The anaphoric pronouns-*wh* will be discussed below.

The following examples show that lexical pronouns and reflexives are in perfect complementary distribution:

- (88) [NP, VP]:
 a. \acute{O}_i $y\acute{E}$ $m\acute{O}_j$ $y\acute{e}$
 he saw him PART
 'he saw him'
 b. \acute{O}_i $y\acute{E}$ $\acute{O}y\acute{i}_i$ $y\acute{e}$
 he saw himself PART
 'he saw himself'
- (89) *Object of P*
 a. \acute{O}_i $y\acute{E}$ $m\acute{O}_j$ $f\bar{u}$ $t\bar{I}\bar{E}$ $y\acute{e}$
 he saw him near snake PART
 'he saw a snake near him'
 b. \acute{O}_i $y\acute{E}$ $\acute{O}y\acute{i}_i$ $f\bar{u}$ $t\bar{I}\bar{E}$ $y\acute{e}$
 he saw himself near snake PART
 'he saw a snake near himself'
- (90) *Subject of a tensed clause*
 a. \acute{O}_i $g\bar{u}g\bar{u}$ $n\bar{a}$ $\acute{O}_{i/j}$ $n\acute{i}$ $y\acute{a}$
 he think NA he NEG-A healthy
 'he thinks that he is sick'
 b. * \acute{O} $g\bar{u}g\bar{u}$ $n\bar{a}$ $\acute{O}y\acute{i}$ $n\acute{i}$ $y\acute{a}$
 he think NA himself NEG-A healthy

- (91) *In NPs*
 a. \acute{O}_i $w\acute{a}$ [$\acute{O}_{i/j}$ $n\acute{O}$]
 he loves his mother

- 'he loves his mother'
- b. * \dot{O}_i wà [$\dot{O}y_i$ (n \dot{l})`n \dot{O}]]
 he loves himself's mother
- c. * wà $_i$ wà [$wáy_i$ fòtó`]
 they love themselves pictures

In those environments in which pronouns must be disjoint in reference, reflexives must be bound ((88) and (89)). In those environments in which pronouns are free, reflexives are excluded ((90) and (91)). Let us stress the fact, illustrated in (91), that reflexives may not occur in NPs. Moreover, reflexives need not be bound to a subject (91d). The domain in which pronouns and reflexives must be free or bound respectively, is thus correctly characterized by the notion Governing Category, i.e. the S or NP which contains the pronoun or the reflexive and a governor of the pronoun or the reflexive. Thus, in order to account for the distribution of pronouns and anaphors in Vata, no appeal should be made to the notion accessible SUBJECT, which would yield the wrong results for (89) and (91) at least. Note that similar remarks may be made about non-lexical anaphors (e.g. NP-trace in English).

In fact, the class of anaphoric pronouns-*wh* shows that AGR, unlike the syntactic subject, never defines an opaque domain in Vata. This class of anaphoric pronouns-*wh* only occurs in constructions in which *wh*-movement has taken place. They are, moreover, restricted to the subject position [NP, S]. This anaphoric pronoun must be bound to an A-position which in turn is A-bound. Some examples illustrating its behavior are presented in (92), (where the anaphoric pronoun-*wh* is italicized):

- (92) a. á \dot{O}_i \dot{O}_i gūgū nā \dot{O}_i / $*j$ n \dot{l} yà lá
 who he-R think NA he-*wh* NEG-A healthy WH
 'who thinks he is sick'
- b. á \dot{O}_i \dot{O}_i gūgū nā \dot{O}_i ylá` nā \dot{O}_i n \dot{l} yà lá
 who he-R think NA he-WH said NA he-WH NEG-A healthy WH
 'Who thinks that he said that he was sick'

The distribution of this anaphoric pronoun can be captured by the following statement (Koopman and Sportiche (1981)), which crucially refers to the syntactic subject [NP, S]:

- (93) an anaphoric pronoun-*wh* must be bound in the domain of an (accessible) subject.

That is, unlike reflexives which must be bound in their Governing Category, it must find an antecedent in the next clause up. But note that the

formulation of (93) is rather artificial. It must be so formulated as to let the anaphoric pronoun escape the effects of the opacity of AGR, i.e. the accessible SUBJECT. It has the result that the INFL node does not count as an opaque domain. In fact, the formulation of (93) can be entirely dispensed with if we assume the following: INFL in Vata does not contain AGR (for extensive discussion of the effects of the absence of AGR for Binding Theory in Chinese, see Huang (1982)); and the anaphoric pronoun-*wh*, as opposed to reflexives, falls under the Binding Condition, which is identical to the Binding Condition for lexical anaphors in English.

Thus, if AGR is absent in Vata, and if the anaphoric pronoun-*wh* must be bound in the domain of an accessible SUBJECT, it follows that the binding domain of an anaphoric pronoun in subject position is determined by the syntactic subject of the next clause up.²⁰ If an analysis along these lines is correct, AGR must be absent in Vata.

3.3.3. Auxiliaries

Thus far, we have assumed that auxiliaries are verbal elements, defined in terms of the syntactic features [+V, -N], mainly because auxiliaries and verbs are in complementary distribution. The auxiliaries in Vata, and in the Kru languages in general, exhibit the following morphological and syntactic characteristics (cf. also Marchese, 1979):

- (i) Auxiliaries are restricted to tensed clauses, and can only occur in the position indicated in (73).
 (ii) There can be no more than one auxiliary per sentence.
 (iii) Auxiliaries cannot serve as the input for morphological rules, neither can they carry any of the aspectual morphology which may appear on full verbs.
 (iv) Auxiliaries are excluded from the predicate cleft construction:

- a. m \bar{l} h n \dot{l} -kā l \bar{l} k \bar{a} m \bar{l}
 go I FUT-A-TP eat ka go
 'I will GO eat'
- b. * n \bar{l} h n \dot{l} -kā l \bar{l} k \bar{a} m \bar{l}
 FUT-A I FUT-A TP eat ka go
 'I WILL go eat'

- (v) Auxiliaries are necessarily followed by a VP; they do not assign a θ -role to [NP, S]; nor do they impose selectional restrictions on [NP, S]. The θ -role for the external argument and the selectional restrictions imposed on it are determined by the verb in the VP.

Auxiliaries in the Kru languages thus share the same basic syntactic properties with English modals, a subject on which extensive literature

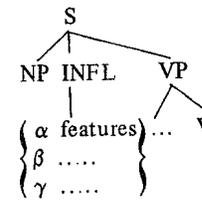
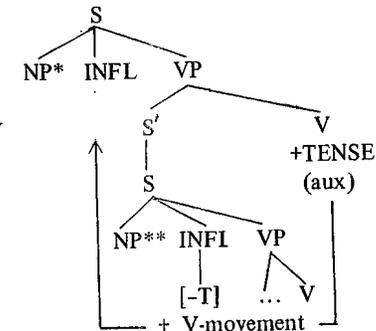
exists (see amongst others, Akmajian, Steele and Wasow (1979), Ross (1979) ...). One of the main issues in the literature seems to be the question of whether modals and auxiliaries should be considered as main verbs or not.

What does it imply in GB terms to treat auxiliaries as main verbs? We will examine this problem now and we will reach the conclusion that the difference between the two accounts is very slight. The preference will be for a treatment of Vata's auxiliaries as not being main verbs, mainly for reasons of simplicity.

Let us start by discussing an analysis in which auxiliaries are not treated as main verbs and show how the properties (i) - (v) can be made to follow. Suppose that auxiliaries are not main verbs, where we understand by this that no lexical properties have to be associated with them, but instead the spelling out of certain features of a [+Tense] INFL, bearing the syntactic features [+V, -N]. The properties (i), (ii), (iii) and (v) follow without stipulation. Auxiliaries are restricted to tensed clauses and only one auxiliary may occur per clause, since only tensed clauses contain the appropriate feature bundles, and clauses only contain one INFL node. They cannot serve as the input for morphological rules, given the reasonable assumption that only full lexical items, i.e. lexical items with a base form, may serve as the input for morphological rules. Such an hypothesis would also account for the exclusion of the occurrence of auxiliaries in the predicate cleft construction. Auxiliaries are necessarily followed by a VP as a consequence of the base rule $S \rightarrow NP\ INFL\ VP$; they do not assign a θ -role to [NP, S], nor do they impose selectional restrictions, since they are not lexical items in the appropriate sense, i.e. they are not specified for lexical properties such as θ -marking properties. In short, then, aside from listing the auxiliaries as the realization of some particular feature bundle, nothing needs to be said.

Suppose alternatively that auxiliaries are main verbs. This implies that the following characteristics must be associated to them: being basically defective verbs, they must be specified as inherently tensed, yielding the characteristics (i), (ii), and (iii). The particular lexical properties that would have to be associated with them are stated in (v); they would be verbs subcategorizing for a bare non-finite S' complement, and they would not assign a θ -role to their subject. The same hypothesis as the one proposed above would account for the impossibility of morphology attaching to auxiliaries and their exclusion from the predicate cleft construction.

The basic difference between the two accounts reduces thus to the question of whether lexical properties are associated to auxiliaries, and at what cost. Given the Projection Principle, the spelling-out analysis and the main verb analysis would result in the following syntactic representations:

(94) a. *Spelling out*b. *Auxiliary as main verb*

Note, incidentally, that neither analysis affects the argument that Kru languages are verb final, nor do they affect the discussion of the internal structure of INFL. The D-structure in (94a) is identical to its S- and LF representations and nothing more needs to be said. The S-structure in (94b) is derived via verb movement of the auxiliary in INFL. Furthermore, since the auxiliaries do not assign a θ -role to their subject, no Case is assigned to their complement (Burzio (1981), Chomsky (1981)). The subject of the infinitival clause, receiving no Case, must move into a Case position, in accordance with the Case filter. It can only move into NP*, because of the θ -criterion. Finally, the intermediate S' must become transparent (S'-deletion), in accordance with the Binding Theory (a trace of NP movement is an anaphor and must be bound in its Governing Category) and the ECP (a trace must be properly governed). In other words, auxiliaries would have essentially the same lexical properties as raising verbs like *seem*, and differ from them in only selecting a bare infinitival complement.

We will opt here for the simplicity of the spelling-out analysis. It is clear however that the difference between the two alternatives is very slight. It is also clear that whether one treats auxiliaries as main verbs or not does not change our conclusion that the verb occurs in VP-final position.

3.4. *Lexical properties of verbs*

Let us now concentrate on the lexical properties of verbs, discussing in turn θ -marking properties and lexical properties involved in complementation.

3.4.1. *θ*-marking properties

Although at this point we are unable to present an exhaustive overview of the *θ*-marking properties of verbs, it may be useful to present a preliminary discussion of some of its aspects. Considering the characteristics of assigning an external, an internal or a combination of *θ*-roles, the following type of verbs could, in principle, be expected to exist (where + indicates the assignment of a particular *θ*-role to an external or an internal argument, and only positive values are assigned):

(95)	External <i>θ</i> -role	Internal <i>θ</i> -role
a. no <i>θ</i> -role	* ₁	*
b. 1 <i>θ</i> -role		
(i)	+	
(ii)		+
c. 2 <i>θ</i> -roles		
(iii)	+	+
(iv)		+
(v)		+
d. 3 <i>θ</i> -roles		
(v)	+	+
(vi)		+
		+

Cases represented in (95a) are non-existent in Vata or Gbadi: no verbs without any *θ*-marking properties seem to exist.

It has sometimes been proposed that (95a) constitutes the structure of *weather* verbs in English, in which the pronoun *it* appears (i.e. *it is raining*). *Weather it* however, appears to have quite different properties from non-argument *it* appearing for example in raising constructions (*it seems that S*). Unlike non-argument *it*, and like real arguments, *weather it* can be a controller for PRO:²¹

- (96) a. It is always raining [after [PRO snowing]]
 b. *It is certain that Bill is sick [without [PRO seeming that...]]

But *weather-it* also differs from real arguments. It cannot be questioned for example (*who t came* versus **what t rains*). On the basis of these facts, Chomsky (1981) proposes to treat *weather-it* as a *quasi-argument*, which, unlike non-arguments, is assigned a particular *θ*-role, # This same type of *θ*-role is assigned to subparts of an idiomatic expression, such as *advantage* in *take advantage of*. Given this analysis, then, *weather* verbs constitute a particular type of subject verb idiom.

What does the *θ*-role # mean? Let us assume that it is an abbreviation for the specific selectional features of a particular lexical item. In this way, the verb *rain* selects for an external argument which is a particular lexical item *it*. Similarly *take* selects for a particular NP, *advantage*. Since a particular lexical item is selected, it cannot be questioned; a specific lexical item lacks the possibility of ranging over some value. Assuming, moreover, that selection is intimately related to *θ*-role assignment, English *weather* verbs represent case (95b(i)).

In Vata or Gbadi, *weather* verbs translate into subject verb idioms:²²

(97)	Vata	Gbadi
	lāgÒ IUā ~ lāgÒ yē	nyù IĒ6Ō
	rain weaves rain arrives	water weaves 'it is raining'
	zŌlì ɓlē	zìlì ɓlì
	stars fall	star fall 'it is hailing'
		gbāgbádĒ kpā
		thunder ? 'it is thundering'
	wŌtìÙ pŌ	wŪtrŪ yī
	cold blows	cold comes 'it is cold'

Superficially speaking, then, *weather* verbs of the English type do not exist in Vata or Gbadi. However, in the light of the discussion above, the difference between Vata and Gbadi on the one hand, and English on the other, reduces to the following: in Vata or in Gbadi *weather* verbs select for a particular lexical item, whereas they select for *it* in English.

In fact, the question arises of whether (95a) exists in any language at all. Sportiche (1983) argues that (95a) is observed in Dutch and German. Sportiche links the possibility of the occurrence of intransitive passives in these languages (in which a verb is completely stripped of its arguments) to the fact that, quite independently, verbs without any arguments seem to exist. Thus for example, *weather* verbs in Dutch, contrary to those in English, appear to represent verbs without any *θ*-marking properties. This conclusion, Sportiche argues, can be drawn from the fact that *weather-het* in Dutch does not behave as a quasi-argument, but as a non-argument: it cannot be a possible controller (nor can it be controlled):

- (98) a. wij hebben [na PRO gegeten te hebben] gedanst
 We have after PRO eaten to have danced
 'We danced after eating'
 b. *Het regent hier altijd [na PRO gesneeuwd te hebben]

- It rains here always after snowed to have
 'It is always raining here after snowing'
 c.*Het schijnt dat Jan ziek is na PRO gebleken te zijn dat ...
 'It seems that John sick is after appearing to be that ...'

From (98b) it can be concluded that *weather* verbs in Dutch do not assign a θ -role, and therefore represent a case of (95a).

(95b) represents the possibilities for verbs which assign one θ -role: intransitive verbs (95b(i)) and ergative verbs (95b(ii)). If a θ -role is assigned to a clause then (95b(i)) represents verbs taking subject sentences, (95b(ii)) raising verbs like *seem*.

A class of raising verbs like *seem* does not appear to exist in Vata. Nevertheless, there is a particular type of 'raising' verb, which involves raising of an argument out of a subjunctive embedded tensed clause into the non-thematic subject position of the verb *IE* (to be). Raising is only observed with this specific verb and cannot occur with any other verb with a dummy subject. The specific characteristics of this construction are illustrated in (99).

- (99) a. \dot{I} IÈ nā kòfí lĩ sáká
 it is NA Kofi eat rice
 'Kofi has to eat rice'
 b. Kòfí IÈ nā Ó lĩ sáká
 Kofi is NA he eat rice
 'Kofi has to eat rice'
 c. sáká IÈ nā Kòfí lĩ má
 rice is NA Kofi eat it
 'Kofi has to eat rice'
 d. \dot{I} IÈ nā wĩ páiÒ nā...
 It is NA voice throw-PAS NA
 'It has to be announced that...'
 e.*wĩ IÈ nā I páiÒ nā...
 voice is NA it throw-PAS NA

The ungrammaticality of (99e) shows that idiom chunks are excluded from the non-thematic subject position of *IE*. It is quite possible, however, that the ungrammaticality of (99e) is independent of the raising construction (as was pointed out to me by Ken Hale) but is due to the pronominal copy which must occur in the embedded clause: in general a sub-part of an idiomatic expression, cannot be referred to by a pronoun. Pending further research, we consider *IÈ nā* to be an instance of (95b).

(95c) and (95d) represent the two possibilities for verbs marked for two and three θ -roles respectively, i.e. transitive verbs with an external

(agent) argument. The discussion of (95c (iv)) and (95d (vi)) would go well beyond the scope of this study. We will simply mention that possible examples could include verbs with non-agentive subjects, like *receive* if we assume a particular strong theory of θ -role assignment in which only the θ -role *agent* can be assigned to an external argument. As far as we have been able to tell, such verbs are non-existent in Vata and Gbadi.

3.4.2. COMP and complementation

Let us now discuss the lexical properties involved in complementation, and start by identifying the specific problems that concern COMP and complementation in Vata.

Up until this point, it has been striking how much Vata and Gbadi resemble certain well-studied completely unrelated languages. Apparent problems arise, however, if one addresses questions about the COMP node and the way sentential complementation is organized in Vata. These seem to resemble complementation in a language like English, but, at the same time, diverge rather drastically. The analysis of COMP and complementation in Vata which will be developed below however, using once again the powerful analytical tools of the GB framework, gives some insight into the problem. It will also allow us to express the similarities with a language like English and reduce important surface differences to minimal differences, where the most important one can be reduced to the way a certain type of complementation is encoded in the lexicon.

This section is structured as follows. In 3.4.2.1. we will identify the problems which one encounters when trying to establish the position of COMP in Vata. We will then discuss the two basic types of complementation – *na*-complementation and *ka*-complementation (see also 3.1.1.) – and show that *na*-complementation displays properties quite distinct from those of what would be their literal translation in English, i.e. tensed complement clauses. *Ka*-complements, however, behave in a 'regular' fashion. In 3.2.1.3., we will propose an analysis for *na*-complementation, arguing that it represents a case of *indirect complementation*, that is, verbs which take *na*-complements select for a clause headed by the semantically empty verb 'to say' (*na/na/IO*). This hypothesis will allow us to account for the observed characteristics in quite a simple way. Given a better understanding of complementation in Vata, we will finally briefly address some of the implications for the problem of the scope of variation in complementation across languages (3.4.2.4.).

3.4.2.1. The position of COMP

In 3.1.1., the clause-final particle *ka*, introducing infinitival complements, was called complementizer, suggesting the base rule (100).

(100) $S' \rightarrow S \text{ COMP}$

Notice that given the X-bar schema for Vata and Gbadi, this is exactly the position in which one would expect COMP to occur, regardless of the issue of the precise status of COMP. Indeed, if, as some have proposed, COMP were the head of S', one would expect COMP to be final. If, as others have argued, COMP is a specifier of S', then we would also expect it to be final, since all specifiers in Gbadi and most specifiers in Vata follow their head.

Immediate problems for (100) are constituted by the surface position in which *wh*-phrases occur, and by tensed complement clauses introduced by *na*, (*na*-complementation). *Wh*-phrases, which are generally assumed either to occur in COMP or to be adjoined to COMP, occur in clause initial position (101a), and tensed complements are introduced by the clause initial particle *na* (101b),

- (101) a. yĪ ñ nŪ lá
 what you do WH
 'what did you do?'
 b. ñ gùgù nā ñ nŪ lŌbĒ
 I thought NA you do work
 'I thought that you were working'

which suggests instead the alternative base rule (102).

- (102) S' → COMP S

Or, maybe, combining (100) and (102), a base rule should be adopted which contains two COMP nodes in rather the same way as the NP in Vata contains two possible positions for specifiers (103):

- (103) S' → COMP S COMP

We will argue below that (100) should be adopted. Alternative analyses for (101a) and (101b) must therefore be proposed. But before doing so, let us start by presenting an overview of COMP-like elements. Although further discussion will be restricted to Vata, (104) contains data from both Vata and Gbadi, giving in this way a more representative sample of the COMP-like elements one is likely to find in the Kru languages.

- (104) *Overview of COMP-like elements in Vata and Gbadi*
- | | <i>Initial</i> | <i>INFL</i> | <i>Final</i> |
|--|----------------|-------------|--------------|
|--|----------------|-------------|--------------|

subordination	nā (Vata)		
tensed clauses	nŪgbĒ (Gbadi)		

subordination		kā (Vata)
infinitival clauses		kā (Gbadi)
temporal subordination	kā/tī (Vata)	kĒ (Gbadi)
causal subordination	kā/tī (Vata)	V+ŋO kĒ (Gbadi)
yes/no questions	ŋŌ (Gbadi)	ā̄ (Vata) ā̄ (Gbadi)
wh-questions	wh-phrase (Vata)	lá (Vata)
	wh-phrase (Gbadi)	ŋŌ (Gbadi)
relative clauses	Rel pron (Vata)	ŋŌ (Vata)
	Rel pron (Gbadi)	wĒ (Gbadi)
focus constructions	pronoun (Vata)	
	yĪ (Gbadi)	lŌ (Gbadi)

Note first the occurrence of certain COMP-like particles in INFL. Given the headlike character of INFL, and the close relation between COMP and INFL, this does not come as a surprise. Note furthermore the co-occurrence of elements in initial position and INFL and in final position and INFL. As (104) shows, *wh*-phrases and the particle *na* introducing tensed clauses typically occur in clause initial position. The final position typically contains particles which indicate clause type.

But which of the two nodes is the COMP node? It is clear that only an examination of the properties of the elements in (104) will allow us to choose between the different options. Let us start then by examining the characteristics of complementation, contrasting *na*-complements with *ka*-complements.

3.4.2.2. *The properties of complementation*

We have already seen in 3.1.1. that *ka*-complements are selected by certain verbs. Similarly, the possible appearance of a *na*-complement seems to depend on the selectional features of a particular verb. This can be concluded from the following examples which illustrate that not all verbs that take a complement clause can take a complement clause introduced by *na*:

- (105) a. ñ bò kÚ lé/*nā ñ ní àzígì káfÉ` mlí zÚ`
 I forgot PART and I NEG-A sugar coffee in put
 'I forgot to put sugar in the coffee'

The verb *kU bo* 'to forget' takes a tensed complement clause which is introduced by the coordination particle *le*. A brief aside on (105) is in order. Does it represent a coordinate structure? If violation of the Coordinate Structure Constraint (cf. Ross (1967)) is taken to indicate that a particular structure is not a coordination, (105) would instead have to be assigned a subordinate structure. Structures like (105) do indeed violate the Coordinate Structure Constraint:

- (106) yĪ ñ bò kÚ lé ñ ní káfÉ` mlí zú` lá
 what you forgot PART and you NEG-A coffee in put WH
 'what did you forget to put in the coffee?'

Note incidentally that 'normal' coordinations with *le* do respect the Coordinate Structure Constraint:

- (107) a. à lē sáká lé à nlá gānŪ
 we eat rice and we drink palmwine
 'we are eating rice and drinking palmwine'
 b. *yĪ à lē sáká lé à nlá lá
 what we eat rice and we drink WH

Although we have as yet a poor understanding of the distribution of *le* and *na*, a subject which merits further investigation, the interpretation of these data as indicating that *na*-complements are selected seems uncontroversial.

Na may occur *only* if selected by a certain verb: it differs in this respect from complementizers in languages like English or French. *Na* may never occur in initial position of a relative clause or a focus construction.

- (108) a. slé-é (*nā)mámá` (*nā) ñ slÓ` -Ò, ...
 house-DEF IT-IT you built-REL
 'the house you built, ...'
 b. slé-é(*nā) má ñ slá`
 house-DEF IT you built

Recall also that *na*-complements cannot occur as complement clauses of nouns or nominalizations:

- (109) a. *dí nā/mĪmlí` ñ yì -6Ó
 story that/IT-IT you left -REL

- b. *gūgūli nā Ó ní yà
 thinking NA he NEG-A healthy

Let us further explore the subject of selectional features of verbs in Vata. Apart from selecting for a [+Tense] clause, it is generally assumed that the COMP node may be specified for the feature [\pm WH], where [-WH] stands for non-interrogative (*that* in English for example), and [+WH] for the abstract element which dominates interrogative clauses (*whether*, *wh-phrase*...). In general, languages seem to have verbs which select for these features. It is, then, a curious fact that there seem to be no verbs in Vata which select for the feature [+WH]. The following examples show that *na* occurs in both declarative *and* interrogative sentences, and that there are no indirect *wh*-questions (110b, 110c). Instead, these latter correspond formally to headed relative clauses in surface structure.

- (110) a. ñ gūgū nā Ó yì
 I thought NA he came
 'I thought he came'
 b. Ó ylá` nyli nā Ó yì
 he asked mouth NA he came
 'he asked whether he had arrived'
 c. ñ ní gbli nā Ó yì
 I NEG-A know NA he came
 'I did not know that he arrived' *or*
 'I did not know whether he arrived'
- (111) a. àlÓ ñ yÉ` yé lá
 who you saw PART WH
 'who did you see'
 b. *ñ ní yì [àlÓ ñ yÉ` yé lá]
 I NEG-A know who you saw PART WH
 c. *ñ ní [àlÓ ñ yÉ` yé lá] yì
 I NEG-A who you saw PART WH know
 d. ñ ní [nyŌ [mŌmŌ` [ñ yÉ` -6Ó
 I NEG-A someone HIM-HIM you saw REL
 yé]]] yì
 PART know
 'I do not know who you saw'

Thus, although semantically speaking the sentences above correspond to indirect questions, their surface structures do not. And, although verbs may select for a *ka* or *na*-complement as a lexical property, selection of the feature [+WH], a feature which is (overtly) realized in the language (cf. (73)), is apparently absent. Below, we will discuss why this may be so.

Let us next consider the properties of the complements that are introduced by *ka* and *na*. Since the characteristics of complements introduced by *ka* have already been discussed in 3.1.1., we will concentrate here on the properties of *na*-complementation. *Na* can introduce a range of sentential complements, that can be characterized as 'regular' complements, (*indirect discourse*) and as complements representing direct speech (*direct discourse*):

- (112) a. \acute{O} ylá` (*nā) ñ ní yà
s/he said NA I NEG healthy
's/he said: I am feeling sick'
b. \acute{O} ylá` nā \acute{O} ní yà
s/he said NA s/he NEG-A healthy
's/he said that s/he was sick'

Despite parallel surface structure, there are many differences between direct and indirect discourse complements. The former, for instance, functions as an island with respect to grammatical processes such as extraction, pronominal reference etc...

- (113) a. \acute{O} ylá` nā ñ ní kòfí yé yÉ`
s/he said NA I NEG-A Kofi PART see
's/he said that I had not seen Kofi'
's/he said: I have not seen Kofi'
b. $\acute{a}l\acute{O}_i$ \acute{O} ylá` nā ñ ní [e]_i yé yÉ` lá
who s/he said NA I NEG-A PART see WH
'who did s/he say that I had not seen'
'*who did s/he say: I saw'

Whereas the embedded pronoun in (113a) may be interpreted, in discourse, as referring to the same person as *s/he*, this reading is no longer available in (113b).

The fact that *na* introduces both direct and indirect discourse poses problems for the analysis of the following examples, in which *na* is followed by sentences that can occur as independent clauses:

- (114) a. \acute{O} ylá nyí nā $\acute{a}l\acute{O}$ ñ yÉ` yé lá
s/he ask mouth NA who you saw PART WH (*wh*-question)
b. \acute{O} ylá nyí nā ñ yí ēē
s/he ask mouth NA you arrive-Q (Yes-no question)
c. \acute{O} ylá nā kòfí ñ yÉ` mÓ yé
s/he say NA Kofi I saw him PART (left dislocation)
d. \acute{O} ylá nā Kòfí mÓ ñ yÉ` yé

- s/he say NA Kofi HIM you saw PART (focus construction)
e. \acute{O} ylá nā mĒ ñ mĒ
s/he say NA leave you leave (predicate cleft)

Should these be translated as *s/he asked who you saw* or *s/he asked: who did you see?* The absence of root phenomena notwithstanding, it can be established that the examples in (114) should be analyzed as cases of direct discourse. First, in examples like (114), pronouns in the embedded clause can be interpreted as referring to the person who is speaking (*I* in (114c) can refer to *O* 's/he'). This interpretation is not available in indirect discourse. The examples in (114) also constitute islands with respect to extraction:

- (115) a. * $\acute{a}l\acute{O}_j$ \acute{O} ylá` kòfí nā yĪ_j ñ nyÉ` [e]_i [e]_j lá
who s/he said Kofi NA what you gave WH
b. * $k\acute{O}$ mĒmÓ` \acute{O} ylá` $\acute{b}O$ Kòfí nā \acute{O} yÉ` yé ē`
man HIM-HIM s/he asked Kofi NA s/he saw PART-Q
etc...

While one could try to explain the ungrammaticality of (115a) by Subjacency, this attempt seems fruitless in the light of (115b). Recall, incidentally, that *wh*-island violations *are* possible in Vata. Thus, in contrast to (115a), the following examples are well-formed:

- (116) a. $\acute{a}l\acute{O}$ ñ ylá` Kòfí [zĒ [mĒmÉ` [ñ nyÉ` - $\acute{b}O$]]] lá
who you said Kofi thing IT-IT you gave-REL WH
'*to who did you tell Kofi what you gave'
b. $k\acute{O}$ mĒmÓ` \acute{O} ylá` - $\acute{b}O$ kòfí nā ñ yÉ` - $\acute{b}O$ yé
man HIM-HIM s/he asked-REL Kofi NA you saw REL PART
'*the man, s/he asked Kofi whether you saw'

Note in particular the minimal difference between (115b) and (116b): the absence of the final question particle. The conclusion we may draw then is that the data in (114) do not force one to admit selection for the feature +WH - and one may, therefore, maintain that selection for the feature +WH is absent - or to analyze *na* in (114) as being part of doubly or even triply filled COMP nodes. Further support for a difference between direct and indirect discourse complements derives from the impossibility of preposing *na* with the following constituent in structures like (114), although *na* heading indirect discourse may be preposed:

- (117) a. *nā ñ yĪ-ē` mÍ \acute{O} ylá`
NA you come-Q (IT) he asked

- b. *nā àlÓ ñ yĒ` yé lá mí Ó ylà`
 NA who you saw PART WH (IT) he asked
- c. nā ñ yī mí Ó ylà`
 NA you come (IT) s/he asked

In conclusion, then, at least in the case of a direct discourse complement like the examples in (114) *na* does not form a constituent with this complement.

This, in fact, holds more generally: even if *na* introduces a sentential complement, it is not contained in the *S'* system of the embedded complement (we will return to the apparent problem of (117c) below). This can be shown in coordinated structures. Complementizers like *que* in French or *dat* in Dutch *must* be repeated if two *S*'s are coordinated,²³ indicating thereby that they are part of the expansion system of this *S'*:

- (118) a. Jean pense qu'il mange et *(qu') il boit
 John thinks that he is eating and that he is drinking
- b. Ik geloof dat hij eet en *(dat) hij drinkt
 I believe that he eats and that he drinks

Na however may not be repeated in contrast to *ka* which behaves like *que* in French or *dat* in Dutch:

- (119) a. ñ gūgū nā Ó lé lé (*nā) Ó nlá
 I think NA he eat and he drink
- b. Ó mlĒ sáká ĩ *(kā) lé gānŪ nlá kā
 he leaves rice eat KA and palmwine drink KA
 'he goes to eat rice and drink palmwine'

Let us interpret these facts as indicating that *na* is not part of the expansion of the embedded complement, but is rather an element selecting or introducing a tensed complement, which may be either indirect or direct discourse. This tensed complement clause itself lacks an overt complementizer.

Leaving the analysis of *na* to 3.4.2.3., we may now return to the problem we address in this section. Establishing that *na* is not part of the embedded clause implies that it cannot be an instance of an initial COMP node.

Na can thus be barred from the list of possible motivations for an initial COMP node. The only remaining motivation, then, is *wh*-phrases. But how strong is the evidence that overt (as opposed to non-lexical) *wh*-phrases, which have been subject to *wh*-movement are always in or adjoined to COMP? The evidence is, in fact, not very strong. In many

languages *wh*-phrases do not form a syntactic constituent with the position that the lexical complementizer occurs in. Lefebvre and Muysken (1978) for example show that *wh*-phrases in Quechua occur in clause initial position, whereas complementizers occur in clause final position. In Hungarian (Horvath, 1981), question words seem to land in INFL²⁴, whereas complementizers occur in clause initial position. In Haitian, there is good reason to assume that overt *wh*-phrases (i.e. question words) occur in Topic rather than in clause initial COMP (cf. Koopman, 1982d).²⁵ It can thus be assumed quite easily that *wh*-phrases in Vata do not land in COMP, but occur instead in an S-initial WH-landing site position (120a), or, alternatively, are adjoined to *S'* by *wh*-movement (120b). The choice between these alternatives need not concern us here.

- (120) a. *S'* → WH S COMP
 b. *S'* → S COMP + *Wh*-movement is adjunction to *S'*

That *wh*-phrases are not in COMP has consequences elsewhere in the grammar of Vata, though, as we will show in 7.5.

One may wonder whether *wh*-phrases ever occur in COMP: we will argue in 7.5. that in some languages, like English, *wh*-phrases crucially occur in COMP.

Given this discussion, and pending an analysis of *na*-complementation, we can now adopt the base rule (100) repeated here as (121), and consider briefly what the properties of the final COMP node are.

- (121) *S'* → S COMP

Except that it does not serve as a landing site for *wh*-movement, which seems to be generally true for COMP-final languages, the COMP node in Vata does not appear to differ very much from COMP in English. It encodes quite similar notions, which can be represented as (122):

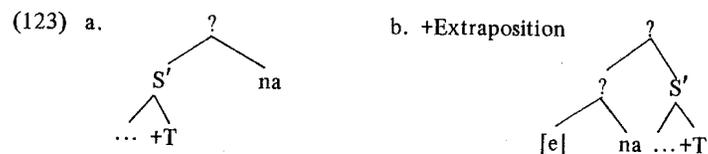
- (122) COMP → [±Tense] [+Tense] → ∅
 [-Tense] → ka
 [±WH] [+WH] → la
 [+Q] → a
 etc.

Of course, an adequate account of complementation in Vata has to explain why only the COMP feature realized as *ka* is available for direct selection by verbs.

3.4.2.3. *The status of na*

Let us now account for the distributional and syntactic properties of *na*. As we have shown, *na* is not part of the maximal projection of the following complement clause. Instead it functions as a head-like element, followed by a tensed complement clause, which represents either direct or indirect discourse. But if *na* is a head-like element, questions arise as to what its syntactic features are, and why the tensed complement follows *na*, instead of preceding it, as one would expect, given the generalization that complements precede their heads in Vata. Let us consider the last question first.

As was mentioned before, tensed clauses are special, in the sense that they are excluded from prehead position and must occur postverbally instead. Assuming that the theory will provide an explanation for why tensed clauses must be extraposed (see 4.2.), the D-structure in (123) can be adopted, in accordance with the general schema $X' \rightarrow \text{COMP } X$. After S' -extraposition has occurred, the S-structure (123b) is obtained.



The question of what the syntactic features of *na* are is more difficult to answer. We will now motivate the proposal that *na* has the features of a verb. More precisely, we will motivate an analysis in which *na* is treated as a verb which shares the lexical properties of the main verb *na/la/lo* 'to say', but which differs from it in lacking semantic content.

As is the case in many languages (cf. Lord, 1976), the sentence introducing *na* is homophonous with the verb *na/la/lo* 'to say' which has the following characteristics: (i) *na/la* is an irregular verb with a defective paradigm, lacking for instance a base form. (cf. 2.2.1.). Its paradigm is presented in (124).²⁶

(124)	\dot{n}	$\dot{n}\dot{a}$	}	Kòfí ní yà Kofi NEG-A healthy
	I	say		
	\dot{n}	$\dot{n}\dot{a}$		
	you	say		
	\acute{O}	la/ \acute{O} $\acute{I}\acute{O}$		
	s/he	says		
	\grave{a}	$\dot{n}\dot{a}$		
	we	say		
	\grave{a}	$\dot{n}\dot{a}$		
	you	say		
	wl \acute{a}			
	they	say		

(ii) It is a unique verb in the language: it is the only verb which may (and in fact must) be followed by a bare tensed S' . The latter may be either a direct or an indirect discourse complement:

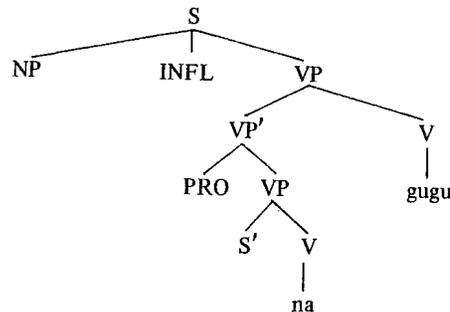
(125)	a.	\acute{O}	l \acute{a}	\acute{O}	ní	yà
		s/he	says	s/he	NEG-A	healthy
		's/he says that s/he is sick'				
	b.	\acute{O}	l \acute{a}	\dot{n}	ní	yà
		s/he	says	I	NEG-A	healthy
		's/he says: I am sick'				

Let us stress the fact that the tensed complement clause must be bare, i.e. it cannot be introduced by *na*:

(126)	*	\acute{O}	l \acute{a}	nā	\dot{n}	ní	yà
		s/he	says	NA	I	NEG-A	healthy

The resemblance between the sentence introducing *na* and the irregular verb 'to say' extends beyond homophony to identical syntactic properties; both must be followed by a bare tensed complement which may be direct or indirect discourse. Let us exploit this resemblance and suppose that the sentence introducing *na* has the syntactic features of the verb *na/la/lo*, sharing its lexical properties, but differing from it in being semantically 'empty' (i.e. it does not mean 'to say'). This implies that those verbs which select for a *na-complement* select for the specific verbal form *na*, which, in turn, as a lexical property, selects for a tensed S' .

(127)

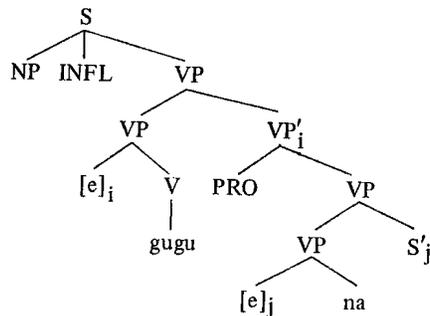


The relation between the higher verb and the embedded complement is thus direct, but mediated through an intermediate clause. We will refer to this kind of complementation as *indirect complementation*. The existence of selection between *V* and *na* further implies that there must be government between both elements. Following the proposal of Belletti and Rizzi (1981) that only heads are accessible for government from the outside, we will assume that the constituent containing *na* lacks INFL, making government between *V* and *na*, the head of the VP, possible.

For the sake of completeness, let us mention that we assume that the projection of the *na*-complement is a kind of small clause (*VP'*) complement. Whether this complement actually contains a subject position and if so, what kind of empty category occurs in it, is a problem which will not be addressed here.²⁷

The D-structure in (127) does not correspond to a well-formed surface structure. Both the *S'* complement of *na* and the clausal complement containing *na* must be extraposed, yielding the structure (128):²⁸

(128)



This analysis of indirect complementation yields an account for many of the particular properties of *na*-complementation, quite apart from those

already mentioned. First, the apparent absence of verbs selecting for the feature [+WH] may be related to the fact that these verbs select for the verb *na* as a lexical property. This implies that they do not govern the COMP node or the INFL node of the most embedded complement. Therefore given this property the verb cannot select for the feature [-WH]. Moreover, *na* itself cannot select for [+WH], since it only takes a tensed clause as a lexical property. Second, the fact that *na* may introduce both direct discourse and indirect discourse complements is a consequence of the particular lexical properties of the verb *na/la/lo* 'to say', which may be followed by direct or indirect discourse. And third, *na* only introduces sentential complements of verbs, and never occurs in COMP of a relative clause or of a focus construction, because it is a verb, and not an instance of COMP. Finally, let us briefly discuss the problem of (117c), repeated here as (129a), which resides in the fact that *na* is pied-piped along with its complement under topicalization. (129b) shows that *na* may not be stranded:

- (129) a. *nā wá mlì mí ñ gūgū*
 NA they left IT I think
 'that they left that is what I am thinking'
 b. **wá mlì mí ñ gūgū nā*
 they left IT I think NA

Why should this be so? Although we have no satisfactory explanation to offer, note that this may be directly related to the fact that the *S'* complement of the verb *na/la/lo* cannot be topicalized either:²⁹

- (130) * *wá mlì (mí) ó lá*
 they left (that) he said

3.4.2.3. Cross-linguistic variation

The better comprehension of complementation in Vata seems to be a first step leading to a better comprehension of the lexical properties involved in complementation universally. Given the analysis of COMP and complementation in English, we can now briefly consider the problem of crosslinguistic variation of COMP and complementation, contrasting English and Vata. In fact, differences seem to be minimal and can be summarized as follows. First, COMP occupies a different structural position in each language; this is in complete accordance with the respective X-bar schemas of English and Vata. COMP itself however encodes quite similar notions. Second, COMP does not appear to serve as a landing site for *wh*-movement in Vata, whereas it does in English (see also 7.5.). Languages may therefore vary with respect to the specification of the

landing site for *wh*-movement: it is interesting to note that, as far as we know, lexical *wh*-phrases never occur in a COMP final node. Third, an additional lexical property seems to be involved in complementation in Vata, the property of indirect complementation. Certain verbs select for a particular verb *na* which shares the lexical properties of the main verb *na/la/IO* 'to say' but differs from it in being semantically empty. This analysis, we have shown, yields a descriptively adequate account of the properties and distribution of *na*-complements. Thus (leaving aside gerunds) verbs in Vata may select for *na*-complements and (infinitival) *ka*-complements. The latter property, i.e. selection for a particular COMP or INFL node (direct complementation), is commonly observed in English. Vata and English appear to differ, then, with respect to the feature of INFL that can be directly selected. Thus, in Vata, a curious gap exists: apart from the verb *la/na* there are no verbs which select for a particular [+Tense] COMP, or [+Tense] INFL. In precisely these cases the language has recourse to *na*-complementation (or *le*-complementation, a subject we have only briefly touched on).

3.5. Discussion

In this chapter, we have established that the basic position of the verb is VP-final, and that those surface structures in which a verb precedes its complements are derived via a rule of verb movement which places the verb in the INFL node of a tensed clause. Three types of arguments have been presented in support of this analysis. The first argument, a distributional argument, shows that the word order in tensed clauses with no auxiliary is, so to speak 'exceptional': all other clause types exhibit complement verb order. A second class of arguments was based on the existence of processes requiring adjacency between certain elements and the basic position of the verb in the VP. These include processes underlying the treatment of verb particle constructions and idiomatic constructions, P-stranding and restructuring. The third argument was based on the projections of the other lexical categories, N and P (Adjectives were argued to be a non-projecting lexical category). Nouns and Postpositions both exhibit complement head order. We have also dealt with the internal structure of the INFL node, the node which contains the main verb in tensed sentences without an auxiliary. Special attention has been paid to the question of whether or not INFL in Vata contains a node AGR, and to the treatment of auxiliaries. We have argued that AGR is absent, a conclusion which draws further support from the distribution of pronouns and anaphors in Vata. Vata's auxiliaries, we argued, are best treated as the spelling out of certain features of the INFL node. Finally, the lexical properties of verbs have been briefly discussed, and an analysis

has been proposed for the apparent problems which concern the COMP node in Vata.

The arguments presented in favour of the verb final position provide strong evidence for the theoretical assumption that there exists at least one level of representation which is more abstract than surface structure: indeed, only in such a model can one express the fact that the fundamental position of the verb is VP final and the role the verb (in VP) plays in all kinds of processes, whereas the surface position of the verb in INFL is of no direct importance.

We went through the examples at some length, not in order to show how to bend the language to the theory, but to illustrate the powerful analytic tools the theory provides and to lay the basis for the questions which will be addressed in the following chapters, viz., (i) how to explain those cases in which surface orders deviate from the X-bar schema, and whether the X-bar schema itself may be further derived (chapter 4), and (ii) how to account for the characteristics of the V-movement rule which applies in both main and embedded clauses and explain the crosslinguistic variation surrounding this rule (chapter 5 and 7).

The problems treated in this chapter bear to some extent on a problem of historical syntax, the problem of word order change. The word order alternations discussed here have not gone unnoticed in the literature on West African languages, and the Kru languages have been cited in this respect on several occasions. However, mainly because of the view that of the two possible word orders, S AUX O V and SVO, the SVO order is more 'basic', and because of the non-discrimination between the position of specifiers and complements, one finds a general consensus on the 'unstable' state of languages like the Kru languages. Even considering the obvious fact that all languages are 'unstable', i.e. changing, the Kru languages have been considered to be particularly unstable, presenting, in a way, a paradigm case of a language in the midst of word order change. This view has led to numerous speculations about the word order of the ancestral language, as well as about the nature of the mechanisms involved in the ongoing change. But given the analysis of word order alternations in terms of X-bar theory and a rule of verb movement, this 'claim' seems to be completely unfounded. Consider, for example, whether it could be the case that Vata or Gbadi are particular unstable languages. Of course, 'unstable' is a relative notion, defined with respect to a particular theory. From a theory internal point of view, Vata and Gbadi seem to be highly regular languages, at least insofar as their D-structure word order is concerned. One could object to this, however, by claiming that a language could be unmarked from a theoretical point of view, while still posing particular learning problems, because of the opacity of surface structures, which, in turn, might induce the language learner to postulate

faulty hypotheses. I do not think that this is the case though. Surface structures seem to me to be transparent, containing many indications about the underlying order, as the data presented in this chapter show. It can be easily imagined that only a very small sample of the language would allow the child to fix the particular parameters underlying surface word order (cf. also chapter 4).

Let us end this chapter with a brief remark about language typology. Typologically speaking Vata and Gbadi are OV languages. They differ, though, in two ways from (surface) SOV languages in the sense of Greenberg (1966). In surface SOV languages INFL generally follows the main verb (so that, even if verb movement did occur, it would not lead to a change in surface order), and specifiers precede their head. The difference between surface SOV languages and Vata and Gbadi may be linked to the hypothesis put forth in Hale (1981), according to which languages differ insofar as the 'depth' of their projections is concerned. If surface SOV languages are non-configurational, using just the one-bar level, specifiers occur on the same side as complements. If Vata and Gbadi are configurational languages, using the two bar level, then specifiers may occur in a position opposite complements.

NOTES

1. A further argument in favour of a VP can be based on Condition C of the Binding Theory, which states that *R*-expressions must be free. Consider now the following examples:

- (i) a. * \acute{O}_i wà kòfíj/* \acute{O}_i ó có
 he like Kofi his father
 'He likes Kofi's father'
 b. Kòfíj/ó có wà m \acute{O}_i /j
 Kofi his father like him
 'Kofi's father likes him'

The *R*-expression *Kofi* in (ia) is c-commanded by the pronoun: *Kofi* must therefore be disjoint in reference. In (ib) however, *Kofi* is free, indicating that the pronoun does not c-command it, because of the intervening VP.

2. Marchese (1979) cites some examples of Kru languages in which certain verbs selecting a *ka*-complement do not impose selectional restrictions on the subject NP.

3. Adverbs may occur between the verb and the *na*-complement:

- (i) \acute{n} ká wī pá fáfá nā...
 I FUT-A voice throw quickly na

The grammaticality of (22e) may then be explained if the adverb follows the verbal trace.

4. There is an asymmetry between the NP subparts of an idiomatic expression and

the verbal part. Whereas some NPs may never undergo movement (for example *kick the bucket (die)* but not **the bucket was kicked (*die)*), the verbal part can always move.

5. This account does not, however, apply straightforwardly to Dutch. In Dutch, particles must be adjacent to the verb, but the NP part of an idiomatic expression need not be adjacent. Idiomatic PPs, however, do seem to require adjacency with the verb. The exceptional behaviour of the NP part of an idiom is probably due to the interaction with Case assignment in Dutch (cf. 7.3.2.).

6. The generalization that PPs that are assigned a θ -role by the verb may be stranded covers most but not all cases of P-stranding, as the following example pointed out by Van Riemsdijk (1978) shows:

- (i) How many hours were you gone for?

7. Restructuring is also observed in the progressive construction illustrated in (i) below:

- (i) a. \acute{I} \acute{I} bányò \acute{I} Étrī kú kÉlī dī kú
 I am Bagno letter PART write place PART
 'I am writing a letter to Bagno'
 b. \acute{I} \acute{I} Ū \acute{I} - \acute{O} [[e] \acute{I} Étrī kú kÉlī] dī kú ā`
 you are+CL-Q letter PART write place PART Q
 'Are you writing him a letter?'

Furthermore, the particle verb pairs *kó* \acute{B} i \acute{E} and *kú* *cl* are restructuring verbs in Gbadi, *only* if the particle (probably reanalyzed as a complementizer) bears *low tone*:

- (ii) a. à \acute{B} i \acute{E} [\acute{N} P s \acute{I} ká ná \acute{I} līÈ] kó
 we start \acute{N} P rice NA eat-eat-NOM PART
 'We start eating rice'
 b. à \acute{B} i \acute{E} [\acute{E} nĒ \acute{I} līÈ] kó
 we start it GEN eat-eat-NOM PART
 'We start eating it'
 c. *à \acute{B} i \acute{E} \acute{I} [[e] \acute{I} \acute{I} līÈ] kó
 we start+it eat-eat-NOM PART

- (iii) a. à \acute{B} i \acute{E} [\acute{S} ' s \acute{I} ká \acute{I} kó] [e] \acute{V}
 we start rice eat COMP
 b. à \acute{B} i \acute{E} \acute{I} [[e] \acute{I} \acute{I} kó] [e] \acute{V}
 we start+CL eat COMP

This phenomenon is, as far as we can tell, restricted to Gbadi.

8. Examples like (43) are also excluded by condition A of the Binding Theory: anaphors may not occur in NPs in Vata or Gbadi (see also 3.3.2.2. for more discussion).

9. Examples of the type *the story that he left* translate as follows:

- (i) \acute{O} m \acute{I} m \acute{I} dī (Vata)
 his leave-leave story

10. Cases which may seem to involve prenominal adjectives actually involve compounding, witness the tonal behavior:

- (i) mĩ zÈ
eat-eat thing
'something eatable'

For a discussion of adjectives in Koyo (South-West Kru-kw) see also Kokora (1976).
11. *NP copula AP* constructions are non-existent. Nevertheless, in the following adjectival verbs, one can distinguish an adjectival root and the copula *lÈ*, suggesting that *NP A copula* constructions may have existed at one stage:

- (i) a. wá [v̄kpá-lÈ] b. wá ní kpá-lÈ
they beautiful they NEG-A beautiful
'They are beautiful' 'They are ugly'
- (ii) a. É zā-lÈ b. É ní zālÈ
It red it NEG-A red
'It is red' 'It is not red'

12. This property can be easily expressed in the feature system of projections proposed in Muysken (1982a). Adjectives in Vata and Gbadi would be non-projecting minor categories (e.g. [-projection, +maximal]), whereas, say in English, two types of adjectives can be distinguished: [-projection, +maximal] (i.e. prenominal adjectives), and [-projection, -maximal] (i.e. predicative adjectives).

13. Chomsky (1981) proposes for example that prepositions are not lexical categories (LGB, p. 48), mainly because it allows one to restrict the class of proper governors to lexical categories.

14. Among others, Greenberg (1966), Givón (1976), and Heine (1980).

15. Further considerations would include the possibility of P-stranding under adjacency with V (cf. 3.1.3.), and the impossibility of N-stranding:

- (i) yĩ ò nĩ-kā sáká kIÚ zÚ là
what you FUT-A-FT rice on put Q
'Where will you put the rice on?'
- (ii) a. * [àlÓ_i (nĩ)] ò nĩ-kā [[e_i nóy(È)] bátÉ lá
who (GEN) you FUT-A-FT brother search WH
'Whose brother are you looking for?'
- b. * [pp yĩ kIÚ]_i (ná) ò nĩ-kā [[pp^e]_i slé-è] bátÉ lá
what on (NA) you FUT-A-FT house-DEF search WH

This might be explained, however, following Kayne (1980), by the fact that reanalysis is only possible if the items which undergo reanalysis assign Case in a similar fashion. (iia) and (iib) are then ungrammatical, since Ns and Ps assign different Cases.

16. Note, however, the occurrence of the relative marker δO .

17. The interesting question, then, is why clitics so often tend to occur on INFL, the head of a clause.

18. The fact that clitics cliticize in different directions may be due to the tendency to cliticize onto heads.

19. The question mark on this example is due to the awkwardness which arises if *le* instead of *na* is used to coordinate two pronouns. The intuition about the impossibility of the weak forms occurring as the second element is still very strong, though.

20. Cf. also Huang (1982).

21. Chomsky (1981) proposes to relate the ungrammaticality of (96b) to the fact that the *that*-clause must be related to a Case position in order to satisfy the θ -criterion. Note however that this cannot be true, taking into consideration intransitive passives in Dutch as Sportiche (1983) argues. The following example shows that the expletive pronoun *er* cannot act as a possible controller (or be controlled (cf. Sportiche (1983)):

- (i) * Er werd muziek gespeeld [om PRO gedanst te worden]
There was music played for danced to be

22. In this view, it is not true that in a language with a VP, subject verb idioms would not exist, as claimed in Marantz (1981).

23. This is not true for English, though:

- (i) I believe that Mary will be there but Bill will not

This can be directly related to the fact that English, unlike French or Dutch, allows the deletion of *that*.

24. Although Horvath (1981) argues that *wh*-phrases land in a pre-V position, we think that the data she presents may very well be analyzed in the following way:

- (i) *wh*-phrases land in INFL, and
(ii) there is a rule of V-movement in Hungarian, which moves the verb into INFL. This rule is 'triggered' by certain features of INFL, such as the *wh*-phrases it contains, sentence negation, the imperative-subjunctive and progressive interpretation.

25. See also Schaubert's (1979) discussion of Navajo.

27. Notice also the tonal difference between the sentence introducing particle *nā* and the main verb *nā/la/lo*. Given the status of the mid tone as the unmarked tone (cf. 2.1.), the tonal difference can be accounted for by assuming that the sentence introducing *na* has no lexically associated tone. This is not implausible; the main verb *na/la/lo* is not only irregular, morphologically and syntactically speaking, but also tonologically: thus, some verb forms (2nd person singular and 1st person plural) allow for the spreading of a preceding low tone, a property which is not observed in any other verb.

28. Let us just mention that if the *na*-complement is a kind of small clause, its exclusion from NPs could be due to the same mechanism that has the effect of excluding other types of small clauses from NPs (**The consideration of Bill ill...*), whatever this may be.

29. We include a brief aside on a possible alternative analysis of (127). In German or Dutch, structures exhibiting the configuration in (127) must undergo a process of Verb-raising (cf. Evers, 1975). The reason for not assuming a similar analysis for (127) is derived from the fact that (i) certain elements may occur between both verbs (adverbs for example), and (ii), *na* and the following clause act as a constituent. Alternatively, one could explore the fact that in head final languages no elements may occur after the head noun, within the NP, or after the nominalized verb.

28. Complements clauses usually alternate with lexical NPs. The complement of

na constitutes the exception to this rule, since *na* can only be followed by a tensed complement clause:

- (i) a. Ó lá Ó ní yà
 s/he says s/he NEG-A healthy
 's/he says she is sick'
 b. *Ó lá mí
 s/he says that

The impossibility of topicalizing the complement clause of *la* may be related to this fact.

Note, incidentally, the existence of what we might call a pronominal form referring to a clause. This form happens to be identical to the English and Japanese ones:

- (ii) Ó lá sÓ
 s/he says so

Chapter 4

Towards a Minimal Base Component

4.0. Introduction

The study of non-configurational languages and the formulation of the Projection Principle have led to a considerable reduction of the base component. In earlier accounts (Chomsky (1965), (1970), Emonds (1976), Jackendoff (1977)) the base rules specified, in a particular order, a class of syntactic frames (phrase markers) in which lexical items could appear. While the incorporation of a specific order in the base rules might yield the desired result for languages with a relatively fixed word order, like English, it does not extend to languages with relatively free word order, (the so-called 'non-configurational' languages).

The study of such languages, by, among others Farmer (1980), Hale (1979), (1980) and (1982), has largely contributed to the now generally accepted view that complements of a lexical head are always unordered, and that a particular order results from the interaction with other sub-systems or principles, like Case theory, for example (Chomsky (1981) and Stowell (1981)). To give an example: the fact that object NPs in English must be strictly adjacent to the verb (*Mary reads (*often) novels*) is viewed as a consequence of Case theory, which incorporates - for English, at least - the additional requirement that NPs must be strictly adjacent to their Case assigner (the so-called *Adjacency condition* on Case assignment (cf. Chomsky (1981), Stowell (1981))).

Moreover, the categorial status and the number of complements of a particular verb is a consequence of the Projection Principle, as pointed out in Chomsky (1981). What remains of the base rules, then, are minimal statements like (abstracting away from the position of specifiers) language specific specifications for the position of a lexical head and the relative order of the set { [NP,S], INFL, VP }.

The base components of Vata and Gbadi, as established in chapter 3, consist minimally of the following specifications:

- (1) (i) Lexical heads occur in final position, and
 (ii) NP INFL VP order.

In this chapter, we will investigate what independent explanations can be presented for surface structures that are not consistent with (1). This will lead us to discuss in turn the differences between the internal structure of NPs and VPs (4.1.), and the processes of S'-extraposition (4.2.) and PP-extraposition (4.3.). The discussion of PP-extraposition will provide evidence for the fact that θ -role assignment by a lexical head is a unidirectional process. θ -theory must thus contain a specification for a parameter which fixes the direction in which lexical categories assign their θ -roles, parameter, which subsumes part of the head initial/head final parameter of X-bar theory (4.3.). In 4.4., it will be argued that Case theory incorporates a similar parameter. Although in many languages the specifications for the two parameters coincide, in some languages they may take opposite values. This, we will show in 4.4., leads to an elegant account of certain word order problems in Chinese and in Mande languages. 4.5., finally, contains a preliminary discussion of the subsystems that are responsible for the respective order of NP, INFL and VP.

4.1. The prenominal markers *na* and *ni*

As a first approximation, the following assignment rules can be formulated in order to capture the distribution of the prenominal markers in Vata:²

- (2) a. NP is marked with *ni* if governed by N'
b. [-V]" is marked with *na* if governed by N

Although these particles appear to have a lot in common with English 's or *of* (note however that *na*, unlike *of*, is not an independent P), there are also quite important differences between them. An explanatory account, then, should ideally account for the similarities of *of*-insertion and *ni/na* insertion, and relate the differences to independent differences. In the absence of such an account, however, we will restrict ourselves to simply stating the problem, and to showing that the explanation of *of*-insertion in terms of Case or θ -theory (Chomsky, 1981) does not carry over to *ni/na*-insertion.

Let us start reviewing the two alternative explanations for *of*-insertion presented in Chomsky (1981). Assuming that lexical categories have the same complement structure in the unmarked case, Chomsky proposes to derive the differences in surface structure between complement structures of Vs and Ps on the one hand, and As and Ns, on the other, from the requirement that lexical NPs be Case marked. This requirement follows either from the Case filter or, if the Case filter can be reduced to the θ -criterion, from the θ -criterion (LGB, chapter 6).

Under the Case filter explanation, the S-structures corresponding to

the D-structures *N NP* and *A NP* violate the Case filter (which requires that lexical NPs be Case marked (cf. chapter 1 (11)) because N and A do not assign (objective) Case. *Of*-insertion applies to satisfy the Case filter. The D-structures *V NP* and *P NP* satisfy the Case filter, since [-N] categories assign Case to their complement. Under the θ -criterion explanation, *of*-insertion no longer follows directly from the Case filter but from the θ -criterion. In the light of certain redundancies between Case and θ -theory, Chomsky (1981, Chapter 6) proposes to derive the Case filter from the θ -criterion. This is achieved by the assumption that θ -roles may only be assigned to chains which are "visible" for θ -role assignment, i.e. informally speaking to chains which are Case-marked or headed by PRO (see LGB, p. 334 for a precise formulation). *Of*-insertion, then, must apply because of the θ -criterion: lexical NPs need to be Case marked in order to be visible for θ -role assignment. The two explanations have in common that *of* is considered to be a Case marker.

Are *na* and *ni* also Case markers? The answer to this question seems positive if only NP complements of Ns are considered, but runs into problems if other prenominal elements are taken into account². As we have mentioned in 3.2.3., prenominal PPs must also be marked with *na*. This is shown in the examples in (3):

- (3) Vata. a. àmǐ jè ná yué-é
me behind NA children-DEF
'the children behind me'
b. yÓ-Ó gá ná sáká-á
child-DEF for NA rice-DEF
'the rice for the child'

The Case filter requires that NPs be Case marked, but says nothing about PPs. (Recall also that PPs cannot be considered to be some kind of 'disguised' NPs, as we have shown in 3.2.3.). Furthermore, not only prenominal NPs, PPs and adverbial nouns (cf. footnote 2) must be marked with *na*: the particular structure of nominalizations in Gbadi (cf. 2.2.3.) reveals that even manner adverbs must be marked with *na*:

- (4) Gbadi. kpānyī ná ńńě
quickly NA eating
'eating quickly, ...'

Such adverbs are in no sense nominal, nor are they in any sense arguments of the head noun. In fact, then, the distribution of *na* more closely resembles that of Chinese *DE* or Japanese *NO*, than of English *of*.

The distribution of *na* seems to be adequately captured by the descriptive

statement that it has to occur on all prenominal categories that are governed by and to the left of N. A similar statement holds for *nl* in Vata, which not only occurs on subject of NPs, (with the exception of the genitive pronoun on which it may optionally occur), but also (obligatorily) on specifiers occurring in prenominal position. Indeed, as has been pointed out in 3.2.1., some specifiers may occur prenominally or postnominally. But if they occur in prenominal position, they must be marked with *nl*:

- (5) mÈnì` kÓ` ~ kÓ` mÈ
 this-NI man man this

The distribution of *na* and *nl* can thus be captured by the following rules:

- (6) a. X is marked with *nl* if governed by [_____ N']
 b. X is marked with *na* if governed by [_____ N]

Although an explanation for *na/nl*-insertion remains to be proposed, it seems clear that *na* has nothing to do with Case, and should not be analyzed as a Case marker.³

4.2. *Extraposition of complement clauses*

The generalization that Vata and Gbadi are head final languages is violated in surface structures by *na*-complement clauses. As we have seen in 2.3.1., and 3.4.2.1., complement clauses headed by *na* must occur in postverbal position. The question arises of whether the surface position of these complement clauses reflect their D-structure position, or whether they occur instead in preverbal position at D-structure, and their surface position results from a rule of *S'*-extraposition. Given our theoretical assumptions, only the latter alternative seems to be available. It seems reasonable to assume that heads can only appear at the periphery of their projections; a base rule in which some complements occur to the left and others to the right would then be excluded. But suppose this is not the case; given that D-structure is a pure representation of GF- θ , *na*-complements should be able to occur in a θ -position at this level since they are arguments of a particular verb. Even an alternative analysis, which would propose to treat *na*-complements as being base generated in an \bar{A} -position, and consequently mapped onto an A-position, - in the same way as dislocated elements map onto A-positions - must account for the fact that *na*-complements although functioning as arguments, are excluded from preverbal position⁴.

Given the discussion and analysis of *na*-complementation presented in 3.4.1., the theory has to provide an account for the following distribution of complement clauses:

- (7) (i) A tensed complement of the verb *na/la/lo* 'say' occurs in postverbal position:

ó íó [e] [V e] [S' wá yé]
 s/he says they come
 's/he is saying that they are coming'

This accounts equally for the initial position of *na* in *na*-complements.

- (ii) *na*-complements themselves must occur in postverbal position:

ń ní gùgù nā wá ní yí
 I NEG-A believe NA they FUT-A come
 'I did not believe that they were coming'

- (iii) *ka*-complements (cf. 3.1.1.) occur in preverbal position:

wá ní [PRO fí kā] mlí
 they NEG-A eat KA go
 'they did not go eat'

The fact that certain complement clauses must occur in extraposed position is by no means an isolated phenomenon, but can be observed in many languages. Tensed complement clauses in Dutch or German, for example, must always undergo extraposition, as is clear from their appearance in postverbal position. And, according to the analysis presented in Stowell (1981), - an analysis which incorporates the observations of Emonds (1970) that NP and *S'* never occur in the same syntactic position, and the results of Koster (1978) - complement clauses also occur in extraposed position in English.

Stowell (1981) develops an account for the following descriptive statements⁵:

- (8) (i) complement clauses may never occur in a position to which Case is assigned. and
 (ii) complement clauses must form a chain with a Case marked empty category, in order to be visible for θ -role assignment. (Clauses, if arguments, must be θ -marked by virtue of the θ -criterion).

The reason why complement clauses may not appear in a Case position, Stowell proposes, derives from a principle that is part of Case theory, the Case Resistance Principle:

shown that this complementizer has nominal features, since *ka*-complements can be coordinated by the marker *na*, which may only be used to coordinate NPs:

- (13) à nī-kā sáká fī kā nà gānŪ nlá kā mlī
 we FUT-A FT rice eat KA NA palmwine drink KA leave
 'we will go eat rice and drink palmwine'

But then, if *ka* has nominal features and is the head of the infinitival clause, percolation of the θ -role assigned to the infinitival clause is in accordance with (12), and, consequently, *ka*-complements may appear in θ -positions.

In this section, some possible ways of accounting for the distribution of complement clauses in Vata have been explored. And, although the discussion here clearly does not suffice to settle all the problems surrounding the distribution of complement clauses,⁸ it seems clear that one can be reasonably confident that it can be accounted for by theoretical principles, and need not be stated as such in the base rules of a particular language.

4.3. PP extraposition

4.3.1. Postverbal PPs in Vata and Gbadi

As well as *na*-complements which must occur in postverbal position, PPs may also be found in that position. We will refer to this phenomenon, which also occurs in languages like Dutch and German, as *PP extraposition*⁹:

- (14) Vata. à nī-kā [vpyué sáká nyÉ] [ppslé-é mlí]
 we FUT-A FT children rice give house-DEF in
 'we will give rice to the children, in the house'

Let us first determine which categories, besides *S'*, may and which categories may not occur in postverbal position. In Vata and Gbadi, NPs may never occur in postverbal position:

- (15) a. à nī-kā [vpyué sáká slé-é mlí nyÉ]
 we FUT-A FT children rice house-DEF in give
 'we will give rice to the children in the house'
 b.*à nī-kā [vpyué slé-é mlí nyÉ] [NP sáká]
 we FUT-A FT children house in give rice
 c. à nī [vpsáká li]
 we NEG-A rice eat
 'we have not eaten rice'

- d.*à nī [VP li] [NPsáká]
 we NEG-A eat rice

But, as mentioned above, PPs may occur in postverbal position. There are restrictions however on which type of PPs may be extraposed. These restrictions are exemplified in (16) and (17) below. (16) shows that subcategorized PPs may not be extraposed¹⁰:

(16) Subcategorized PPs

- a. à nī [[dŪdŪ kŪ] sáká zŪ]
 we NEG-A floor on rice put
 'we have not put rice on the floor'
 b.*à nī [vpsáká zŪ] [ppdŪdŪ kŪ]
 we NEG-A rice put floor on
 c. *à nī [dúÓ kŪ mlí]
 we NEG-A village on go
 'we have not gone to the village'
 d.*[à nī [mlí] [dúÓ kŪ]
 we NEG-A go village on

and (17) that only PPs which are not subcategorized for by a verb may appear in postverbal position.

- (17) a. à nī-kā [yué sáká nyÉ] [slé-é mlí]
 we FUT-A-FT children rice give house-DEF in
 'we will give rice to the children in the house'
 b. à nī-kā [sáká dŪdŪ kŪ zŪ] [slé-é mlí]
 we FUT-A-FT rice floor on put house-DEF in
 'we will put the rice on the floor in the house'
 c. à nī-kā [slé-é mlí sáká zŪ] [dŪdŪ kŪ]
 we FUT-A-FT house-DEF in rice put floor on
 'we will put rice on the floor in the house'
 d.*à nī-kā [sáká zŪ] [slé-é mlí]
 we FUT-A-FT rice put house-DEF in

Of the PPs in (17b, 17c), one is selected by the verb *zU* 'to put'. As long as one PP appears in preverbal position, lexical properties of the verb are fulfilled. However, as the ungrammaticality of (17d) (and (16b), (16d)) shows, one PP must appear in preverbal position in order to satisfy the lexical properties of the verb that subcategorizes for it.

In 2.2.5., the formation of the so-called applied verbs was discussed. Suffixation of *IE* (Vata) or *II* (Gbadi) to a particular verb has the syntactic effect of adding one internal θ -role to the θ -grid of this verb. If this added θ -role is assigned to a PP, this PP behaves as a subcategorized complement, i.e. it acts like the PPs whose behaviour is illustrated in (16), in the sense that it cannot occur in postverbal position:

- (18) Vata a. \acute{O} n \acute{I} -k \bar{a} d \acute{a} d \acute{I} \acute{O} m \acute{I} n \bar{a} *d \acute{I} /d \acute{I} \acute{I} \acute{E}
 s/he FUT-A FT knife in meat *cut/cut-APPL
 's/he will cut the meat with a knife'
 b. * \acute{O} n \acute{I} -k \bar{a} [n \bar{a} d \acute{I} \acute{I} \acute{E}] d \acute{a} d \acute{I} \acute{O} m \acute{I}
 s/he FUT-A-FT meat cut-APPL knife with

Interestingly, the applied suffix is optional in certain cases in Gbadi where it obligatory occurs in Vata. Thus, in the Gbadi examples corresponding to (18), the applied suffix is optional:

- (19) Gbadi a. \acute{O} y \bar{I} [gb \acute{E} \acute{I} \acute{E} nu] n \bar{E} m \bar{E} k \acute{u} d \acute{I}
 s/he FUT knife with meat PART cut
 b. \acute{O} y \bar{I} [gb \acute{E} \acute{I} \acute{E} n \acute{u}] n \bar{E} m \bar{E} k \acute{u} d \acute{I} \bar{I}
 s/he FUT-A knife with meat PART cut-APPL
 's/he will cut the meat with a knife'

This optionality has syntactic repercussions: the PP in (19a) acts like a subcategorized PP, and may not undergo extraposition (20b). The PP in (19b), however, patterns with non-subcategorized PPs, and may be extraposed:

- (20) Gbadi a. \acute{O} y \bar{I} [n \bar{E} m \bar{E} k \acute{u} d \acute{I}] [gb \acute{E} \acute{I} \acute{E} n \acute{u}]
 s/he FUT-A meat PART cut knife with
 's/he will cut meat with the knife'
 b. * \acute{O} y \bar{I} [n \bar{E} m \bar{E} k \acute{u} d \acute{I} \bar{I}] [gb \acute{E} \acute{I} \acute{E} n \acute{u}]
 s/he FUT-A meat cut-APPL knife with

The distribution of preverbal and postverbal complements can thus be summarized as follows:

- (21) (i) Subcategorized NPs and PPs must occur in preverbal position;
 (ii) Non-subcategorized PPs may appear pre- or postverbally;
 (iii) *Na*-complements must appear in postverbal position.

Since the presence of the NP complements in (21a) is always a consequence of lexical properties, the class of elements which do not undergo extraposition can be restated as (22):

- (22) NP or PP complements (internal arguments) whose presence is required because of lexical properties must occur in preverbal position.

Or, restating (22) in terms of θ -properties (23):

- (23) NP or PP complements that are θ -marked by the verb must occur in preverbal position.

Thus, only PPs which are not assigned a θ -role by the verb itself may occur in postverbal position. Note however that it is not the case that elements which are assigned a θ -role by the verb may never occur in this position. (cf. 21(iii)).

Let us assume that the distribution of PPs is captured by the following statements:

- (24) In Vata (and Gbadi) verbs assign their θ -roles to the left.

We will see in 4.4. that (24) is a subcase of the more general statement that all lexical categories assign their θ -roles to the left in Vata, which accounts for their head final character. In addition to (24), the impossibility of PPs (or NPs) occurring in extraposed position has also to be accounted for. Let us assume some principle that has the effect of the descriptive statement in (25):

- (25) Postverbal NPs and PPs cannot form a chain with a θ -marked empty category in preverbal position.

Note again that (25) only applies to NPs and PPs, but not to *na*-complements which are headed by V. *Na*-complements, as we have assumed *must* form a chain with an empty category in preverbal position.

A brief remark on (25) is in order. It could be objected that (25) does not constitute the right generalization, but that a statement like (26) should be adopted instead:

- (26) (i) NPs and PPs must occur in Case-positions
 (ii) Case is assigned to the left in Vata.

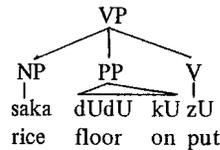
(see Reuland (1981) for a similar proposal to explain why NPs in Dutch may not occur in postverbal position). PPs, then, contrary to what we have established (cf. 3.2.3.) would be some kind of disguised NPs which have to be Case marked, and the prenominal marker *na* contrary to what we have argued in 4.1., should be analyzed as a Case marker. Even granting these assumptions, this account is not sufficient. NPs or PPs may occur in the initial WH-position or in Topic, which are not Case positions: this shows incidentally an asymmetry between *wh*-movement and extraposition:

- (27) a. $y\bar{I}$ \grave{n} $n\bar{I}$ $-k\bar{a}$ $[[e] \bar{f}\bar{I}] l\bar{a}$
 what you FUT-A-FT eat WH
 'what will you eat'
 b. $t\acute{a}\delta i\bar{U}\bar{O}$ $k\bar{I}\bar{U}$ $[\delta E]$ $[\acute{n} \bar{t}\bar{a}]$ $[[e]s\acute{a}k\acute{a} z\bar{U}]]$
 table on (THERE)I PERF-A rice put
 'it is on the table that I have put the rice'

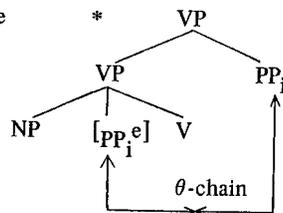
Furthermore, the question arises of why non-subcategorized PPs may occur in postverbal position. How would these satisfy (26)? These non-subcategorized PPs, when contained in NPs must be marked with *na*, and behave in the same way as strictly subcategorized PPs do. We will therefore not pursue this alternative.

Let us now turn to the effects of (24) and (25) which can be illustrated in the following examples, where (24) determines the D-structure representation in (28):

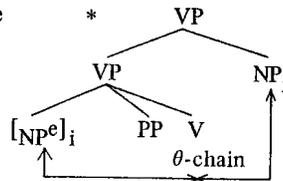
- (28) a. D-structure



- b. S-structure



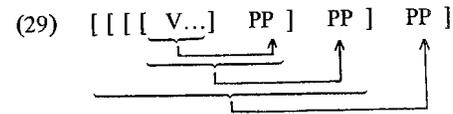
- c. S-structure



The S-structures in (28) may be said to be excluded by whatever principle has the effect of (25), since the empty categories, whose existence follows from the Projection Principle, are unbound in (28b) or (28c). These examples are ungrammatical for exactly the same reasons that **I put the book* [e], or **I like* [e] are ungrammatical. Moreover, because of (24), the PP and NP in (28b) and (28c) cannot be assigned their θ -role directly.

These assumptions also account for the behaviour of PPs with applied verbs that has been illustrated in (18) and (19). Since the applied suffix has the property of adding an internal θ -role to the verb it is suffixed to, the PP which is added depends on θ -role assignment by the verb, just like subcategorized PPs, and must thus satisfy (24) and (25). However, when the applied suffix is absent, the PP does not fall under (25), and behaves like a non-subcategorized PP.

This brings us to the next question. Why may non-subcategorized PPs appear in postverbal position? (24) tells us something about how subcategorized PPs are related to the verb, but says nothing about non-subcategorized PPs. Are non-subcategorized PPs arguments, and should they be θ -marked? If so, how are they assigned their θ -role? Can they, contrary to (25) form a chain with an empty preverbal PP? Let us assume that at least some of these PPs (locatives, instrumentals) are arguments of the verb, by virtue of which they must be θ -marked. Let us also assume that they, unlike subcategorized PPs, are not directly θ -marked by a verb, but are marked indirectly, maybe 'compositionally', in a fashion comparable to the θ -marking of the external argument. To illustrate what we have in mind, consider the following schema for indirect θ -marking of PPs:



Note that such an assumption is in fact not implausible and may express the fact that PPs tend to occur in a certain order, with the PP most related to the verb the closest etc. Indeed, if English for example, uses hierarchical structure for θ -role assignment, such ordering could in fact be a reflection of compositional θ -marking. So, how then do postverbal PPs satisfy compositional θ -marking? A first possibility would be to assume that they are somehow immune to the restriction expressed by (25). Postverbal PP may constitute a chain with an empty preverbal category. Although this view is consistent with our assumption that the grammars of Vata and Gbadi incorporate a rule of PP extraposition, i.e. because of a strict interpretation of the head final parameter, non-subcategorized PPs occur in preverbal position at D-structure, one cannot help but wonder why it should be the case that indirectly θ -marked PPs and directly θ -marked PPs would differ with respect to whether they are allowed to form a chain with a preverbal category or not.

Alternatively, assuming a less constrained X-bar schema, one might propose that postverbal PPs are θ -marked in place and that indirect θ -marking does not obey (23). Under this view, postverbal PPs would be

base generated there, and the grammars of Vata and Gbadi would not incorporate a rule of PP extraposition, i.e. a postverbal PP would not have to form a chain with a preverbal empty category in order to be θ -marked.

Note, however, that either alternative requires both (24) and some principle(s) yielding the effect of (25): subcategorized PPs may not appear in postverbal position.

4.3.2. PP-extraposition in Dutch

As we have mentioned above, PPs may also occur in postverbal position in Dutch. Dutch shares with Vata and Gbadi the fact that NPs are excluded from postverbal position,

- (30) a. , dat zij dat boek gelezen hebben
that they that book read have
'that they have read that book'
b.*, dat zij gelezen hebben dat boek
that they read have that book

but it differs from Vata and Gbadi in that both non-subcategorized PPs and subcategorized PPs may occur in postverbal position¹¹:

- (31) a. , dat ik voor vijf uur een baan gereserveerd heb
that I for five o'clock a court reserved have
'that I reserved a court for five o'clock'
b. , dat ik een baan gereserveerd heb voor vijf uur
that I a court reserved have for five o'clock
c. , dat zij een boek aan haar zusje gegeven heeft
that she a book to her sister given has
'that she gave a book to her sister'
d. , dat zij een boek gegeven heeft aan haar zusje
that she a book given has to her sister

In the light of the discussion in 4.3.1., two analytical options are available: either (i) all PPs occur in preverbal position at D-structure, and postverbal PPs form a θ -chain with a θ -marked trace in preverbal position (i.e. PPs are extraposed), or (ii), PPs can freely occur to the right or the left of a verb, and be θ -marked in that position, under government by V. If (i) were correct, θ -marking would be basically a directional process, and one would expect asymmetrical distribution and behavior of PPs either to the right or to the left of the verb; If (ii) were correct, θ -marking would be basically non-directional and one would expect similar distribution and behavior of PPs, regardless of the surface position of a particular PP.

The evidence which we will now present establishes that (i) must be adopted.

Although subcategorized PPs may occur in postverbal position, PPs which are part of an idiomatic expression may not. This is shown in the examples below. (Note that (32b) is grammatical under a non-idiomatic reading):

- (32) a. , dat zij eindelijk met dat geld over de brug
that they finally with that money across the bridge
gekomen zijn
came
'that they finally came across with the money'
b.*, dat zij eindelijk met dat geld gekomen zijn
that they finally with that money came be
over de brug
across the bridge
c. , dat mij dit levendig voor ogen staat
that me this vividly for eyes stands
'that I have a very clear image of it'
d.*, dat mij dit levendig staat voor ogen
that me this vividly stands for eyes

How can we explain the impossibility of (32b) and (32d)? It has been assumed all along in this study that in idiomatic expressions, a verb assigns a particular θ -role to the content of a particular lexical item. Suppose now that θ -roles could be assigned either to the left or to the right of a verb. One would then expect (32b) to be able to have the same interpretation as (32a). This is not the case, though. But, if one assumes that in (32b) and (32d) the PP is not directly θ -marked by the verb, then their ungrammaticality follows in a simple fashion. In these examples, the idiomatic PP would be represented by a preverbal trace. But, by virtue of the θ -criterion, a particular θ -role has to be assigned to the specific content of a PP. If we assume that this particular content is not recoverable from a PP trace, the examples are straightforwardly excluded by the θ -criterion.

Thus this analysis strongly favors the view that θ -role assignment by the verb in Dutch is left-oriented. If it were not, one would expect (32b) and (32d) to be grammatical.

Further evidence in favor of the directionality of θ -role assignment can be based upon the fact that the P of a θ -assigned preverbal PP may be stranded by R-movement, whereas stranding of a postverbal P is completely excluded.

The difference between Vata and Dutch with respect to PP extraposition reduces, then, to the possibility of subcategorized PPs occurring in postverbal position.

In terms of (25), this implies that preverbal PPs can form a chain with

a θ -marked (preverbal) empty category (recall, however, that NPs may not). Whether this difference can be further reduced to other, more basic, differences is a question which will have to be answered in future research. Let us just point out that the observed difference might possibly be related to a further difference between PPs in the two languages (cf. 4.1.). In NPs, PPs in Vata and Gbadi must be marked by the prenominal marker *na*, whereas no such markers may appear on PPs in Dutch. Let us also point out that, in general, the class of elements which may 'leak' in Dutch, (i.e. occur in postverbal position) is larger than that in Vata. Relative clauses for example, and PPs contained in NPs may be extraposed in Dutch, but not in Vata or Gbadi.

To sum up, we have discussed in this section the circumstances under which PPs may occur in postverbal position in Vata or Gbadi. It has been shown that only non-subcategorized PPs, i.e. PPs that are not θ -marked by virtue of the inherent lexical properties of a verb may occur in postverbal position. The distribution of PPs in Vata and Gbadi is accounted for by (24), (the fact that θ -roles are assigned to the left), and by (25), (prohibition of chain formation for extraposed NPs and PPs with a preverbal trace). As was mentioned before, (25) is for the time being, hardly more than a descriptive statement.

4.4. Directionality of θ -role and Case assignment

4.4.0. Preliminary remarks

The statement in (24) specifies that verbs in Vata and Gbadi assign their θ -roles to the left. It is easy to see that (24) holds more generally, and extends to θ -role assignment by all lexical categories. The specification of the directionality for θ -role assignment thus - redundantly - coincides with the specification that Vata and Gbadi are head final languages. One may wonder whether these two specifications need to be independently specified, or whether in fact one reduces to the other. Since the discussion in 4.3. makes it clear that directionality of θ -role assignment needs to be stipulated anyway, we will attempt to show below that directionality of θ -role assignment represents the core case of the head initial/head final parameter. Moreover, we will argue that actual surface orders in a particular language are also determined by a parameter which specifies the direction in which Case is assigned.

In this section, we will be primarily concerned with the independence of the directionality of θ -role and Case assignment by lexical categories. Discussion of the way in which the subject predicate relation is established, or of the problem of nominative Case assignment to the subject by INFL will be postponed until 4.5. and chapter 5 and 7.

Let us begin with some preliminary remarks. In head initial languages,

lexical categories assign their θ -role to the right, in head final languages they assign their θ -role to the left. Furthermore it is generally assumed that, in the unmarked case, complements of all lexical categories occupy the same position with respect to their head, i.e. all lexical categories assign θ -roles in the same direction. We will adopt this view here, in opposition to what would be the stronger claim that complements of lexical categories must occur in the same position with respect to their head, and we suppose accordingly that in marked cases lexical categories may assign θ -roles in different directions. Below, (and in chapter 7), we will discuss languages like Mahou (a northern Mande language) and Dutch in which nouns and verbs assign a θ -role in opposite directions.

Thus, θ -theory, which incorporates the parameter setting the direction in which θ -roles are assigned, determines the order of D-structure representations.

As we have already mentioned, actual surface orders are determined in part by Case theory. The question arises of whether Case assignment, like θ -role assignment, is a directional process, and, if so, whether the directionality of Case assignment coincides with that of θ -role assignment, or whether the two should be specified independently.

Suppose that Case assignment were also a directional process. Then, in head initial languages, Case would be assigned to the right, in head final languages to the left. In many languages, the directionality for θ -role assignment and Case assignment coincide for all lexical categories, yielding type I languages (SVO and VSO languages (on these latter see 7.3.3.)), and type II languages (SOV languages, and languages like Vata and Gbadi):

(33)	Type I	Type II
Case Direction	R	L
θ -role Direction	R	L

In these languages the independent status of the two parameters cannot be argued for directly. More interesting in this respect would be languages in which the specifications for the directionality of Case and θ -role assignment do not coincide. This would predict the existence of type III and type IV languages (34):

(34)	Type III	Type IV
Case Direction	R	L
θ -role Direction	L	R

Do such languages exist and what would their surface structures look like? We will now show that such languages do exist. First we will discuss Chinese as an example of a type III language (4.4.1.). In 4.4.2., we will

discuss Mahou, a northern Mande language, as an example of a type IV language.

4.4.1. Chinese

The following discussion of Chinese relies heavily on the extensive discussion and analysis of the base component of Chinese presented in Huang (1982). In Chinese, the surface order of constituents can be roughly represented as in (35):

- (35) a. $S \rightarrow NP \text{ ADV PP V NP}$
 b. Zhangsan zuotian zai xuexiao kanjian-le Lisi
 Zhangsan yesterday at school see -ASP Lisi
 'Zhangsan saw Lisi at school yesterday'
 (Huang, (1), p. 26)

(Bare) direct object NPs *follow* the verb, whereas all other complements and modifiers precede it. Although we will not discuss tensed complement clauses directly let us point out that they appear to occur in postverbal position, as far as we have been able to determine:

- (36) ni renwei ta weisheme bu lai
 you think he why not come
 'why do you think that he will not come?'
 (Huang (253), p. 288)

Chinese is prepositional:

- (37) a. $PP \rightarrow P NP$
 b. dui zhejian shiqing
 towards this matter

But NPs are strictly head final:

- (38) a. $NP \rightarrow \dots N$
 b. ta dui zhejian shiqing de liaojie
 his towards this matter *DE* understanding
 'his understanding of this matter'
 (Huang (12), p. 29)

(Note, incidentally, that Chinese is like Vata and Gbadi (and Japanese) in having a prenominal marker *DE* occurring on prenominal categories in general.) Adjectives pattern with verbs. Since it is not clear whether adjectives should be considered a major projecting lexical category (cf. Huang, p. 93), they will not be discussed here.

Huang interprets these data as indicating that Chinese uses the head initial rule *only* for the lowest level expansion, but requires the head final rule for all higher levels. Noun phrases, he further argues, escape this schema, and never involve the head initial rule. He then proposes the following characterization of the X-bar structure of Chinese:

- (39) The X-bar structure of Chinese is of the form:
- a. $[X^n X^{n-1} YP^*]$ iff $n=1$ and $X \neq N$
 b. $[X^n YP^* X^{n-1}]$ otherwise (Huang (20), p. 41)

Huang also demonstrated that a number of phenomena, indicating that bare lexical NPs must occur postverbally, and that only one NP may occur in postverbal position, support (39).

The X-bar structure in (39) appears to be rather complex, and implies that it must be specified for each level whether it is head initial or head final. Moreover complements would occur at different levels, with bare lexical NPs (direct objects) occurring at the lowest level, whereas direct NPs in the *ba*-construction (see (44) below) and subcategorized PPs occur at a higher level. And why, furthermore, should NPs escape (39a)? In fact, what seems to be the case is that bare lexical NP complements of Vs and Ps occur in a different position from *ba*-objects or subcategorized PP complements. That this occurs precisely with V and P, Case assigners *par excellence*, suggests that the generalization in (39) incorporates the effects of Case theory.

Indeed, as we will now show, (39) can be derived from two independent parameters; one setting the directionality of θ -role assignment, the other the directionality of Case assignment.¹²

Let us assume that Chinese is head final at D-structure, i.e. that (40) holds:

- (40) θ -roles in Chinese are assigned to the left

(40) yields the following expansion rules for N and V:

- (41) a. $NP \rightarrow \dots N$
 b. $VP \rightarrow \dots V$

Nothing special needs to be said about the head final character of NPs, which, rather than being exceptional, represent the core case of the D-structure order in Chinese. Similarly, no special statements are required for preverbal complements. What needs explanation, however, is the

obligatory occurrence of bare lexical NPs in postverbal position. Let us assume that this follows from Case theory, more specifically from the following parameter, which is independently supported by the fact that Chinese is prepositional:

(42) In Chinese, Case is assigned to the right

The exceptional position of bare NPs with what may be called the 'classical' Case markers V and P, would be a consequence of (42) applying at S-structure.

Given (40) and (42) as parameters of Chinese grammar, let us now consider the case in which the two enter into conflict. Conflicts arise for NPs, since NPs usually require both θ -role and Case, and, according to (40) and (42), NPs are never in both a θ -marked *and* a Case marked position at any level of representation. Such a case is presented by the D-structure in (43), which is determined by (40):

(43) [_{VP} NP V]

The NP complement in (43) is assigned a θ -role by the verb. But how does the NP satisfy the Case filter? Chinese surface structures indicate that the Case filter may be satisfied in two basic ways: either by means of the so-called *ba*-construction, or by a process which results in the appearance of the NP to the right of the verb.

In the *ba*-construction, a thematic object may occur in preverbal position, provided it is marked by the preposition *ba*:

(44) ta *ba* Lisi pian-le
he BA Lisi cheat-ASP
'he cheated Lisi

(Huang (4), p. 27)

(40) and (42) provide a simple account for this construction. The thematic object NP may remain in preverbal position at S-structure, providing it respects the Case filter. Since Case assignment is right directional, the NP cannot be directly Case marked by the verb. Insertion of the preposition *ba* however allows Case marking of the direct object NP, whence the grammaticality of (44).

The appearance of the NP to the right of the verb, where it can be assigned Case by this verb, constitutes another way of solving the conflict. We will assume that it lands in this position by means of NP-movement, which would thus move an NP from a θ -position into a position in which it can be assigned Case. (We will return in (4.4.3.) to a brief discussion of possible alternative analyses.) Consequently, the following S-structure would then correspond to the D-structure in (43):

(45) [_{VP} [<sub>NP^e]_i [[V] NP_i]]
tai-le Lisi</sub>

To be more precise, we will assume that this NP movement represents movement to a $\bar{\theta}$ -position (since θ -roles are assigned to the left), that the NP is adjoined to the verb, and that the general characteristics of this rule are identical to those of clitic movement in the Romance languages.

Up to this point, the discussion has been centered around the two major lexical categories N and V. But what about PPs? As mentioned above, Chinese is prepositional. Moreover, as Huang (1982) points out, Chinese prepositions can only be followed by an NP. The question then arises of what the base rule for PPs is. For those P's that assign a θ -role to their complement, two alternatives present themselves (P's that do not assign a θ -role, like *ba* of the *ba*-construction for example, can be treated as Case markers).

First, one could assume the base rule (46):

(46) PP \rightarrow P NP

This implies, however, that the more general (40) can be abandoned in favour of the more specific (47):

(47) (i) In Chinese Ns and Vs assign their θ -role to the left
(ii) P's assign their θ -role to the right

It seems to us though that such a move is not necessary. The more general (40) can be maintained, which would imply that Chinese is underlyingly postpositional, (let us repeat again that this would only be true as far as projections of P's which assign a θ -role are concerned), Chinese would be prepositional in surface structure because of (42). Pending further research, we will tentatively assume the latter analysis.

In sum, then, the X-bar structure in (39) reduces to two independent parameters, (40) and (42). D-structures are determined by (39) which states that θ -roles are assigned to the left. This underlying order cannot be directly recovered from actual surface structures if bare lexical NP complements are present, because of the interaction with (42), which specifies that Case is assigned to the right. This forces either *ba*-insertion, or NP-movement to a position in which the NP can be assigned Case, i.e. the postverbal position. Underlying order can be recovered from surface structures, however, if PPs are present or the *ba*-construction is used. This analysis thus accounts for the exceptional surface structure position of NPs in terms of Case theory, and provides support for the existence of two independent parameters: the parameter for the directionality of

θ -role assignment, and the parameter for the directionality of Case assignment¹³.

4.4.2. Mahou

Let us now turn to a discussion of Mahou, a northern Mande language spoken in the Ivory Coast. The discussion is based on work by Bamba (1982).

The surface order of constituents in Mahou is presented in (48):

- (48) a. NP INFL NP V PP S'
 b. cĕó wĕĕ jí mí ðó ná
 man-DEF INFL water drink cabin in
 'the man drank water in the cabin'
 c. mǎrí yé (á) fŏ [sékù yĕ] [kó à à
 Mary INFL (it) tell Sekou to KO he INFL
 ná lú mà]
 come house to
 'Mary is telling Sekou to come home'

The direct object NP of a verb must precede it, whereas all other complements must follow it. It is important to note that *only* direct object NPs may appear in preverbal position.

Mahou is postpositional (49a), and the structure of NPs is presented in (49b):

- (49) a. PP → NP P
 b. (i) NP → N' SPEC
 (ii) N' → COMPL N

- (50) a. [NP [[pp tà kà] [gú]] ò]
 fire on yam DEF
 'the yam on the fire'
 b. mùsòó yaàò
 woman-DEF image-DEF
 'the picture of the woman'

What is the specification for the directionality of θ -role assignment in Mahou? There are again basically two alternatives, depending on whether we assume that the directionality for θ -role assignment is fixed once and for all across lexical categories, or that the specifications may vary according to lexical categories.

Since NP and PP are head final, and since verbs follow the direct object NP, let us first assume a unified D-structure, determined by (51):

- (51) Lexical categories assign their θ -role to the left

Thus, Mahou would have the following base rules:

- (52) a. NP → ... N
 b. VP → ... V
 c. PP → ... P

Furthermore, since bare lexical NPs precede the verb and the language is postpositional, let us assume the following parameter for Case assignment:

- (53) In Mahou, Case is assigned to the left

Given (51) and (53), the NP in (48a) occurs in its D-structure position. But since PPs and S' must occur postverbally, an obligatory extraposition rule for PP and S' must be postulated. A possible explanation of such an obligatory PP extraposition rule in Mahou seems problematic, however. Why would all PPs, including idiomatic ones have to occur in postverbal position? I think that there is little hope of an explanatory account. Instead, the occurrence of all PPs in postverbal position, and the fact that *only* NPs may occur in preverbal position, suggest another option, which would involve adopting (54) as a consequence of the restatement of (51) as (55).

- (54) VP → V...

- (55) (i) verbs assign their θ -role to the right
 (ii) nouns assign their θ -role to the left

In other words, Mahou would represent a Type IV language (see (34)), with verbs assigning a θ -role to the right, but Case to the left. Moreover, Mahou, and the Mande languages in general, would represent languages in which nouns and verbs assign their θ -role in different directions.

Let us now consider the following D-structures, which will cause a conflict for direct object NPs. Again, such a conflict arises because of the fact that these NPs must be both θ -marked *and* Case marked, and no position is both a θ -position and a Case position at any level of syntactic representation.

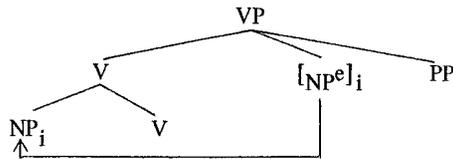
- (56) VP → V NP

How then is the Case filter satisfied in (56)? Again, as in Chinese, the NP

will satisfy the Case filter by moving into preverbal position, in which it can be assigned Case, under adjacency with a Case assigner. Such an analysis then accounts for the exceptional position of direct object NPs, by means of Case theory.

We will assume again, as for Chinese, that this movement process is movement to a $\bar{\theta}$ -position, and that the general characteristics of this rule are identical to those of clitic movement in the Romance languages. Given these assumptions, then, the following S-structure is obtained after NP movement.

(57)



Let us point out that this analysis is further corroborated by phonological evidence in Mahou which shows that the relation between a direct object NP and a verb is similar to that of a clitic and a verb, in the sense that they constitute a phonological domain for certain phonological processes, such as nasalisation or foot formation for tone/accent (cf. Bamba (1982a)).

The analysis we propose accounts for the surface structures in Mahou on the basis of two very general statements: (53) and (55i). The exceptional surface position of NPs, under this analysis, is a consequence of Case theory, and Mahou represents the mirror image of a language like Chinese. This situation is in fact expected to arise if UG comprises parameters for the directionality of θ -role assignment and Case assignment. The cost of adopting the more specific (55) over the more general (51) seems to be largely compensated for by the simple analysis it allows of actual surface orders. Moreover, as noted above, different specifications for the direction of θ -role assignment must be allowed anyway, given the existence of languages like Dutch in which complements precede the verb but follow the noun.

Both θ -role and Case assignment are directional processes. Moreover, as we have argued, categorial specifications for the direction of θ -role assignment must be allowed. The question arises of whether the specification for Case assignment may also vary with categorial specifications. We return to this problem in chapter 7, where we shall argue that, superficial counter-examples notwithstanding, Case in a particular language is always assigned in the same direction (in the unmarked case).

4.4.3. *Alternative accounts*

At least two alternative accounts to the analysis we have proposed for

Chinese and Mahou, i.e. NP movement of the direct object NP into a Case position, come to mind.

The first one shares the theoretical assumptions of our analysis, but would assume 'local' movement of the verb into a position from which it can assign Case, rather than movement of the NP into the Case position. Given this alternative, direct object NPs would be in both a Case and a θ -position.

The second alternative, pointed out to me by N. Chomsky, differs from the accounts above in one important respect: θ -role assignment would not be a directional process. Basically, then, D-structure would be unordered, and a specific order would only arise at S-structure in the following way:

- (i) The order of Case assigner and Case assignee is determined by the Case parameter
- (ii) The order of the other elements is set by default as either left or right oriented

Given such an account, the direct object NP in Chinese and Mahou could be respectively θ - and Case marked in place, and the need for an empty category would not arise.

Quite apart from the fact that, as we have shown above, it has to be assumed that θ -marking is a directional process, it seems to me that the assumption that D-structure is basically unordered leads to a further undermining of the existence of D-structure as an independent level of representation.

We will not pursue these alternatives here, and restrict ourselves to noting that, although it is unclear what kind of empirical evidence would distinguish between the two alternative accounts above, it is clear what kind of empirical evidence one would need to find in order to distinguish between our account and the two alternative accounts discussed in this section. Indeed, if NP-movement is involved, one would expect to find an asymmetry between the types of NPs which (in Chinese) may occur in preverbal and postverbal position: also, for both Mahou and Chinese, one would expect the absence of certain V-NP idioms, basically those types of which the NP subpart may not be subject to passivization.

These and related questions remain to be addressed in future work. We will continue to assume here that θ -theory comprises a parameter setting the directionality of θ -role assignment, that D-structure is a projection of θ -theory, and that certain phenomena, such as idiomatic expressions, are best treated at D-structure.

4.5. *Discussion*

Let us briefly recapitulate the main findings of this chapter, and investigate some consequences. In this chapter we have been concerned with the problem of how the base component of Vata and Gbadi could be characterized by minimal statements, and what these statements represent in terms of the theory.

This has led us in the first place to a discussion of those surface structures that are not consistent with the minimal statements that lexical categories follow their complements, and that NP INFL and VP are ordered in that fashion. In this context, we have discussed the differences between the internal structure of NPs and VPs (4.1.) and the processes of S'-extrapolation (4.2.), and PP-extrapolation (4.3.).

In 4.1., we have outlined the problem posed by the obligatory occurrence of a prenominal marker on all prenominal elements. We have shown that, although these markers resemble similar markers in English, their presence cannot be accounted for in terms of Case theory, nor in terms of θ -theory.

In 4.2., we have discussed the problems which arise if one tries to account for the distribution of several clause types in Vata. Some possible analyses have been explored.

In 4.3., we have discussed the problem of the distribution of PPs, more specifically, the problem of why certain non-subcategorized PPs may occur in post- as well as preverbal position, whereas subcategorized PPs are confined to preverbal positions. The analysis of the process of PP extrapolation, i.e. the possibility that certain PPs may occur in postverbal position, presents evidence that θ -theory contains a parameter that specifies the direction in which lexical categories assign their θ -roles. In 4.4., we have argued that, so far as lexical categories are concerned, UG not only contains a parameter for the directionality of θ -role assignment, but it also contains a parameter for the directionality of Case assignment. These parameters, as we have shown, have opposite values in Chinese and Mahou, forcing either movement of the direct object NP into a Case position, or a process unique to Chinese, *ba*-insertion. The discussion of Dutch phrase structure in chapter 7 will make it clear that a language can have recourse to still other devices in case of conflicting values between the two parameters.

Let us briefly return to the relation between the parameter for directional θ -role assignment, and the head initial/head final parameter.

We have - implicitly - assumed that the head initial/head final parameter could be derived from other parameters, like the parameter for directionality of θ -role and Case assignment. Of course, these parameters have nothing to say about the order of non- θ or non-Case marked cate-

gories, which, at least insofar as projections of V are concerned, often seem to occur in the same position as θ -marked categories. We will assume for these cases that their order is 'parasitic' upon the general directionality for θ -role assignment. But clearly, such an account would be barely distinguishable from an approach in which all these phenomena are accounted for by the head initial/head final parameter, especially if, as proposed in Huang (1982), one allows the position of the head or its projection to be specified at each bar level.

We are unable to settle these questions here, (but for further discussion see 7.5.). We will pursue our strategy however, which consists in the decomposition of the head initial/head final parameter into several independent parameters.

So far, we have restricted the discussion to the mechanism involved in the ordering between a lexical category and its complements. Not much attention, however, has been paid to the ordering of other elements, like INFL and the VP for instance, or INFL and the subject NP, or to the question how subject predicate order arises.

Let us start with the latter. As far as I know, the overwhelming majority of human languages exhibit NP VP order. Although it is clear that generalizations based on unanalyzed surface structures are highly unreliable, I will simply assume here that some principle accounts for NP VP order universally.

In the different treatments of X-bar theory, the incorporation of INFL has never, in my opinion, received a satisfactory account. The role INFL plays makes it clear why this is so. INFL, on the one hand, behaves as a head: INFL, containing certain feature specifications, is a Case assigner and a governor, and is available for outside government in case of selection of a complement clause. On the other hand, however, INFL differs from lexical categories in an important way. Whereas the ordering relation of a lexical head and its complements is determined by θ -theory, the relation between INFL and [NP,S], or INFL and the VP is not. INFL does not appear to participate in any way in θ -role assignment. Thus, the relation between INFL and [NP,S], or INFL and the VP, differs fundamentally from that which holds between a lexical head and its complement.

If D-structure representations are determined by θ -theory, several questions concerning INFL arise. First, if INFL does not participate in θ -marking, should it be present at D-structure? Secondly, if base rules are derivative, how then is the position of INFL determined?

The first question recalls similar problems surrounding the subject NP, [NP,S]. The presence of [NP,S] only follows from the θ -criterion and the Projection Principle if a predicate assigns an external θ -role, but not if no external θ -role is assigned. Nevertheless, the subject NP seems to be obligatory in clauses (cf. Chomsky, 1981). Chomsky proposes to in-

corporate this requirement into the Projection Principle, by stipulation, which is then called the Extended Projection Principle.

Similarly, the presence of INFL at D-structure follows if it is a consequence of lexical properties, i.e. if INFL is selected by a higher verb. It does not seem to follow however, if INFL is not selected. But, if we assume that LF requires clauses to have a mood indicator of some sort (cf. Chomsky, (1981) p. 27), the presence of INFL could also be made to follow by the Extended Projection Principle, which would thus require that a clause consists of a set of three elements {[NP,S], INFL, VP}.

How the position of INFL is determined is a problem which will be addressed in chapter 7, where it will be argued that in many languages at least, the position of INFL is determined by Case theory, more specifically by the value of the parameter for Case directionality.

Let us finish this chapter with a brief assessment of our analysis with respect to the Projection Principle. Our analysis may be quite simple, but of course the interesting - and complex - question arises with respect to what data base permits the language learner to recover the values of the proposed parameters from surface structures. The following discussion, which is necessarily preliminary, will be restricted to the parameter for the directionality of θ -role assignment by the lexical categories N and V, leaving the establishment of the subject predicate relation, θ -role assignment by the VP (which, we have suggested, is always left directional) and θ -role assignment by P (cf. discussion in 4.4.1.), out of consideration. Discussion of the same question with respect to the directionality of Case assignment will be postponed until 7.4., when further internal structure of Case theory will have been motivated.

Several cases should be considered. Let us start with the "unmarked" case, i.e. regular "rigid" head final-head initial languages. These languages are without interest for our present discussion, since each surface structure with complements will contain evidence and no possible ambiguity can arise. Cases which are more interesting are less "rigidly" head final or head initial languages. Since we have argued that the value of the parameter for θ -role directionality may vary categorially, projections of V and N need to be considered individually.

Consider first (non-rigid) head final languages. Languages belonging to this class are generally called non-configurational. In these languages, the value for θ -role assignment by N can be established without problems, since, generally speaking, complements of a N may only appear at one side of the head, even if, in clauses, complements may appear to the left or to the right. Interestingly, then, "extraposition" rules for NPs do not seem to exist, a generalization which, if true, demands a principled explanation. Assuming that such a principled explanation does exist, it would be sufficient for the language learner to determine the position of the N with respect to the categories it assigns a θ -role to.

The question of how θ -role assignment by verbs may be retrieved in non-configurational languages (if they exist) is less clear since in many of them, complements may either precede or follow the verb. We will return to this question below. (Note, however, that, if such a language has nominalized clauses, the problem can be solved, since nominalized clauses seem to require complements to occur on one side of the head (see Muysken (1982) for discussion of this property in Quechua).

Next consider languages in which certain arguments in NPs occur pre-nominally, whereas others occur postnominally, e.g. NPs in English and Dutch. In fact, in these cases, the surface position of PPs seems to be crucial for determining the directionality of θ -role assignment by Ns: PPs always occur at only one side of the head. Quite generally the surface position of PP's appears to play an important role in establishing the directionality of θ -role assignment. Indeed, as the discussion of Chinese and Mahou shows, the surface position of NPs does not always constitute a reliable indicator for the value of this parameter. We have also shown that - in Dutch - even when PPs may occur at either side of the head, some PPs such as idiomatic PPs may not. The distribution of idiomatic PPs then constitutes a very important clue for determining the directionality of θ -role assignment. It would be very interesting in this context to consider the behavior of idiomatic expressions, corresponding to the category PP in non-configurational languages like Warlpiri.

In sum, then, it seems that the distribution of PPs may play a crucial role to help the language learner determine the directionality of θ -roles assignment both by nouns and by verbs.

NOTES

1. Although there seems to be a proliferation of *na*'s in Vata and Gbadi, it should be kept in mind that they all carry different tones. Thus *na* of *na*-complementation bears a mid tone, *na* of the *na*-construction, which serves to coordinate two NPs (cf. 3.2.3.) bears a low tone, and the pronominal marker *na* carries a high tone in Vata and a mid-high tone in Gbadi.
2. *Na*, for example, also occurs on adverbial nouns.

- (i) zĭkā` ná sáká-á
today NA rice-DEF
'today's rice'

The same remarks also apply to English however (cf. *today's rice* and the *rice of today*). Now, if we assume that these adverbs have nominal features, *na*-, or *of*-insertion would follow from the Case filter. (But note that this implies that this adverbial noun is assigned Case by the verb when governed by the latter.) It is not clear how a θ -criterion explanation would apply, since it is unclear why these adverbial nouns need a θ -role, or what θ -role is assigned to them.

3. We might, however, speculate about a possible avenue which could be explored.

The NP-Type of V-Movement

5.0. Introductory remarks

In the preceding chapter, the characteristics of D- and S-structure representations of Vata and Gbadi have been established. These are a function of the following parameters:

- (1) (i) θ -roles are assigned to the left
- (ii) Case is assigned to the left
- (iii) NP INFL VP order

We have also discussed how several surface structures with different order can be accounted for as resulting from the interaction with other sub-theories. Those surface structures in which the verb precedes its complements have not yet been accounted for, however. These surface structures, we have established in chapter 3.1., are derived via a rule of V-movement: the verb is preposed into a tensed INFL node, if this node does not already contain a verbal element, such as an auxiliary (3.3.3.). The questions which arise about this V-movement rule and its formal properties will be addressed in this chapter.

Let us start by recalling the characteristics of the V-movement rule. This rule derives surface orders, in which the verb immediately follows the subject NP, from the D-structure order in (2):



This V-movement rule applies in both main and subordinate clauses, but only in those clauses which are [+Tense]: it never occurs in other clause types like gerunds or infinitival complements. Moreover, the main verb does not always have to move. It only moves in those tensed clauses that do not contain an INFL node spelled out as an auxiliary (cf. 3.3.3.).

In this case, however, V-movement is obligatory. Finally, V-movement is a "local" process, in the sense that it is clause bound.

These characteristic properties of V-movement are summarized in (3):

- (3) (i) V-movement is a characteristic of tensed clauses,
 (ii) V-movement is obligatory in tensed clauses that do not contain an auxiliary,
 (iii) V-movement is clause bound.

In this chapter, we will try to account for the characteristics stated in (3i) and (3ii). (3iii) will be taken up again in chapter 6.

The account which will be developed here, primarily for Vata and Gbadi, is based on the idea that V-movement is forced by the Case filter: V-movement must apply in order to allow nominative Case to be assigned to the subject NP. Thus the obligatoriness of V-movement would follow in the same way as the obligatoriness of NP-movement in raising and passive constructions.

This chapter is structured in the following way: the basic idea underlying the obligatoriness of V-movement will be outlined in 5.1.1. and 5.1.2. It will also be shown there that V-movement displays in essence the same formal properties as NP-movement, which allows us to conclude that NP-movement and V-movement are reflections of the same process, viz. the formal process of movement to the equivalent of an A-position for verbs, which we call a *V-position*. Given this parallelism, we will also refer to this V-movement rule as the *NP type of V-movement*.

In 5.1.3., we address the question of which levels of representation V-movement applies between. It will be argued that it has to apply, just like NP-movement, between D- and S-structure. 5.1.4. contains a preliminary discussion of the properties of the verbal trace; in 5.1.5. we discuss why V-movement cannot be applied in certain contexts such as infinitival clauses.

Although NP-movement and V-movement display the same formal properties, there is also a fundamental asymmetry between the two with respect to the rule component *move- α* : whereas in NP-movement constructions it is NP, a maximal projection, that moves, it is a verb, a non-maximal projection that undergoes V-movement. Our account will be shown to yield a simple explanation for this asymmetry (5.1.6.). Finally, in 5.1.7., we will consider two alternative accounts, and show that the Case filter account is superior.

5.1. *Verb movement in Vata and Gbadi*

5.1.1. *Case theory and V-movement*

Let us start by developing the idea that the obligatoriness of V-movement follows from Case theory in the same way as the obligatoriness of NP-movement in passive and raising constructions does.

It may be useful to recall briefly how the latter is explained. Consider the D-structure in (4):

- (4) a. [NP] was killed John
 b. [NP] seems [John to be ill]

The verb in (4a) carries passive morphology, with the effect that no Case is assigned to an NP it governs, and no θ -role to the [NP,S]. The verb *seem* in (4b) has the same property as passive verbs, this time as a consequence of lexical properties: no θ -role is assigned to [NP,S], and no Case to the internal argument. However, by virtue of the Case filter (or the Visibility Condition of Chomsky (1981), chapter 6), lexical NPs must occur in a position in which they can be assigned Case. This explains movement of the lexical NP *John* (an empty category (PRO) in (4b) would be excluded, since it would be governed), into the non-thematic subject position which is assigned nominative Case, under government, by INFL.

Thus, in NP-movement constructions, an overt NP, base generated in a Caseless position, must move into a Case position, in order to satisfy the Case filter. However, if the logic of such an explanation stands, one would expect that the Case Filter can be respected through other means: indeed movement of an NP is not the only conceivable way of saving such a base generated structure. One would expect, for example, to find a parallel situation in which some Case assigner moves into a position in which it may assign Case to a Caseless NP. This, we claim, is exactly what explains the obligatoriness of V-movement in tensed clauses: the Case assigner, V, moves into INFL in order to allow nominative Case to be assigned to [NP,S].

Consider now the D-structure configuration of a tensed clause in Vata and Gbadi:

- (5) NP [INFL+Tense] [vp ... V]

Assuming that [+Tense] is a governor, it follows that the subject position in (5) is governed. PRO, therefore, cannot occur in subject position, regardless of the particular theory one adopts for accounting for the

distribution of PRO. In the theory of Chomsky (1981), PRO, because of its status as a pronominal anaphor, can only occur in ungoverned positions. PRO is therefore barred from configurations like (5). In a theory according to which PRO can be governed (cf. Koster (1981), Bouchard (1982) and Sportiche (1983)) and governed PRO is an anaphor, PRO is excluded in contexts like (5), because it is not bound in its governing category.

Furthermore, as pointed out in 2.3.1., Vata and Gbadi do not allow for "null-subjects", i.e. *small pro*, the empty Case marked category that has exactly the same referential possibilities as overt lexical pronouns. The only element which may appear in subject position in (5) is therefore a lexical NP, and lexical NPs must be Case marked by virtue of the Case filter.

The question which arises then is how nominative Case is assigned to the subject NP in (5). In surface order, lexical NPs in subject position must always be immediately followed by a verbal INFL, i.e. by an INFL which contains either an auxiliary or the main verb. Let us interpret this as indicating that nominative Case is assigned by a verbal INFL, under government, and that a non-verbal INFL like that in (5), is not "strong" enough to assign nominative Case. From the impossibility of adverbs intervening (cf. 2.3.1.), it may further be concluded that nominative Case assignment requires adjacency between INFL and [NP,S].

In sum, we may conclude that nominative Case, in Vata and Gbadi at least, is assigned in the following configuration:

- (6) NP is nominative if governed and adjacent to $[_{INFL}V]$

Thus, if INFL contains the features which are spelled out as an auxiliary, a verbal element, the configuration for nominative Case assignment is fulfilled. If not, the main verb has to move in INFL. V-movement thus behaves in a fashion parallel to NP-movement, so far as Case theory is concerned. Leaving further questions concerning (6) for discussion in chapter 7 - most notably that of how it extends to other languages - let us first show how the parallelism between NP-movement and V-movement extends beyond Case theory.

5.1.2. Further symmetries between NP and V-movement

The parallelism between NP and V-movement extends beyond the fact that both processes are forced by the Case filter.

Consider NP-movement, for example. NP-movement is a structure preserving movement rule in the sense of Emonds (1976): an NP moves from one obligatory base position into another one. Or, translated into GB terminology, NP-movement is movement from one A-position into another A-position.

This terminology may in fact be extended to V-movement. It is clear that the position of the verb in the VP corresponds to an obligatory base position, which, analogously to an A-position, we will call a *V-position*. But what is the status of the position the verb moves into? Is it the equivalent of an A-position or of an \bar{A} -position? The verb moves into a tensed INFL, which must contain a verbal element, i.e. either an auxiliary or the main verb. Since all tensed clauses thus contain a verbal INFL, it seems reasonable to consider this position to be a V-position. Granting this assumption, V-movement is a structure preserving movement rule, just like NP-movement, in the sense that it represents movement from one V-position into another V-position.

The NP/V symmetry extends equally to θ -theory. It follows from the θ -criterion that NP-movement always represents movement to a $\bar{\theta}$ -position. Of course, one cannot directly apply the terminology of θ -positions or $\bar{\theta}$ -positions to verbs, since verbs are θ -role assigners, not θ -role bearers. However, the analogy still seems to be valid. If we consider the two V-positions, [V,INFL], and [V,VP], it is clear that the former ([V,INFL]) does not participate in any way in θ -role assignment. θ -role assignment is entirely determined by the V-position in the VP. Let us assume accordingly that the V-position in the VP is a θ -assigning position, whereas the V-position in INFL is a $\bar{\theta}$ -assigning position. V-movement, then, is symmetric with NP-movement in that it is movement from a θ -assigning position to a $\bar{\theta}$ -assigning position. We will discuss below how the fact that the verb must move into a $\bar{\theta}$ -assigning position follows from the θ -criterion in exactly the same way as movement of an NP into an \bar{A} -position.

The parallelism between NP- and V-movement can be summarized as follows.

- (7) NP-movement:
- (i) movement forced by the Case filter
 - (ii) movement from an A-position to an \bar{A} -position
 - (iii) movement from a θ -position to an $\bar{\theta}$ -position
- V-movement:
- (i) movement forced by the Case filter
 - (ii) movement from a V-position to a V-position
 - (iii) movement from a θ -assigning position to a $\bar{\theta}$ -assigning position

This parallelism leads us to refer to the V-movement rule under discussion as the *NP-type of V-movement*.

5.1.3. Where does the NP-type of V-movement apply?

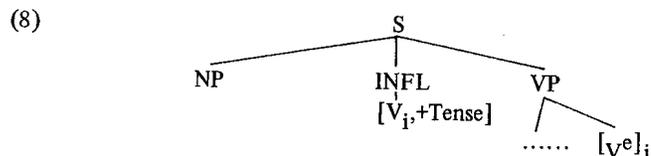
Consider next the question of which level the NP-type of V-movement

applies at. Given the organization of the grammar, two possibilities are, in principle, available. Either (i) V-movement applies between D- and S-structure, or (ii) V-movement applies after S-structure, at the left side of the grammar. (The latter is often assumed for the similar rule of V-movement (i.e. V-second) in Germanic languages (see, among others, Evers (1981), (1982). We will return to V-second languages in 7.2. below).

We will assume here that the NP-type of V-movement is a syntactic rule, applying between the level of D- and S-structure, just like NP-movement. Indeed, if Case assignment must occur no later than S-structure, and if V-movement is forced by Case theory, it follows that V-movement must take place prior to S-structure.¹ A further reason for assuming that V-movement applies in the syntax derives from Dutch: it can be shown that the characteristics of the rule of V-second in Dutch are identical to those of V-movement in Vata and Gbadi, and moreover that V-second *must* apply prior to S-structure, because it crucially interacts with other principles like the ECP (cf. Chapter 7).

5.1.4. Properties of verbal trace

If V-movement must take place between D- and S-structure, the following S-structure representations correspond to the D-structure representations in (2):



As indicated in (8), these S-structure representations contain a verbal trace.

It can easily be shown that the existence of such a verbal trace follows from the same considerations which allow one to establish the existence of NP traces: that is it follows from Case and θ -theory, in conjunction with the Projection Principle. It is also consistent with the parameters for the directionality of Case and θ -role assignment, discussed in chapter 4.

In order to see this, let us first consider Case theory. Since Case is assigned under government, one may wonder how it is assigned to an NP in the VP in configurations like (8), in which the verb in INFL does not govern the NP, given our assumption that the verb in INFL only governs the head of the VP, i.e. its trace². The simplest assumption, then, is that Case is assigned by the verbal trace in the VP, which, in this respect acts like a lexical verb, assigning Case to an NP under government. Note also that, given left directionality of Case assignment in Vata and Gbadi, it

follows that a [NP,VP] in contexts like (8) is assigned Case by an element to its right, i.e. by a verbal trace.

Consider θ -theory next. By virtue of the Projection Principle, the θ -criterion holds at all levels of syntactic representation. The existence of a verbal trace in (8) follows doubly from the θ -criterion, both from the requirement that each θ -role be assigned, and from the requirement that each argument must be assigned a θ -role.

In (8), a θ -assigning category occurs in a $\bar{\theta}$ -assigning position. So the question arises of how that part of the θ -criterion, which requires each θ -role to be assigned to an argument is fulfilled. The proposal for the similar problem which obtains for moved NPs can be extended directly to moved verbs also. An argument NP occurring in a $\bar{\theta}$ -position, satisfies the θ -criterion by forming a chain with an empty category in a θ -position. In the same way, it may be assumed that a verb in INFL, a θ -assigner in a $\bar{\theta}$ -assigning position, must form a chain with the θ -assigning V-position in the VP. This is of course only possible, if there is an empty category in the θ -assigning position in the VP, i.e., if the structure contains a verbal trace (see also 6.2.6. for discussion).

Note, incidentally, that it now also follows that verbs *must* move to a $\bar{\theta}$ -assigning position. Suppose, for instance, that a verb was moved into a θ -position. Then, either recoverability is violated, or, if this V-position is in the same clause, the θ -criterion is violated, since the clause would contain one θ -assigner too many. Since chain formation requires identity of features, the familiar fact that a moved category is coindexed with its trace follows. Of course, given chain formation, the θ -criterion must be reformulated in the obvious way in terms of chains and their members (cf. Chomsky (1981)). In sum, then, a verbal trace must be assumed in a structure like (8), since the θ -roles of the θ -assigning verb in INFL must be assigned by virtue of the θ -criterion.

The existence of a verbal trace in (8) also follows from that part of the θ -criterion which requires that arguments must be θ -marked by the verb, (we leave θ -marking of the external argument out of consideration, for convenience), a process which is generally assumed to require government. Suppose now that, if the verb has moved into INFL, it does not govern its internal arguments any longer (but see footnote 2). It must therefore be assumed that the internal arguments are θ -marked by the verbal trace, hence that there must be a verbal trace. Let us point out that this conclusion is consistent with, and, in fact, follows from the parameter that specifies that θ -roles are assigned to the left in Vata and Gbadi.

In sum, then, the existence of a verbal trace coindexed with the moved verb follows for configurations such as the one illustrated in (8) from Case and θ -theory and from the Projection Principle, in fact, from every possible angle the problem can be looked at.

Having motivated the existence of the verbal trace, which acts as a Case and θ -role assigner, let us next consider what further properties verbal traces have. Pursuing the analogy with NP-movement, it will again be useful to consider first what the characteristic properties of NP-trace are.

Chomsky (1981) enumerates the following properties of traces (including *wh*-traces, NP-traces and traces of extraposition):

- (9) (i) trace is governed
 (ii) the antecedent of trace is not in a θ -position
 (iii) the antecedent-trace relation satisfies the Subjacency Condition

(Chomsky, LGB, p. 56)

In (9i) a strong notion of government is intended: traces must be properly governed. Note, however, that, as far as (9iii) is concerned, it is still unclear whether the antecedent-trace relation in NP-movement constructions obeys the Subjacency Condition or not: it is difficult to construct cases that are excluded only because they yield a Subjacency violation.³ Indeed, we could say that NP-movement constructions are consistent with the Subjacency Condition.

What are the properties of verbal trace with respect to (9)? In chapter 6, we will present an argument to the effect that verbal trace is subject to the ECP, and needs to be properly governed. Thus, (9i) holds for verbal traces. In a structure like (8), the verbal trace will be properly governed by its antecedent in INFL, by virtue of the government relation holding between the two and of their being coindexed.

We have already seen that the moved verb occurs in the equivalent of a $\bar{\theta}$ -position, a $\bar{\theta}$ -assigning position, and thus respects (9ii).

(9iii) poses some problems, though: again, as is the case for NP-movement, it is difficult to tell whether the NP-type of V-movement obeys the Subjacency Condition, since the verb and its trace always turn out to be clause mates. The relation antecedent verb and verbal trace is thus always consistent with Subjacency. We may therefore simply assume that (9iii) also holds for the antecedent verb-verbal trace relation. In chapter 6, we will show that the clause boundedness of V-movement may possibly be due to the equivalent of Binding theory for verbal trace (verbal trace, like NP-trace, could be considered to be an anaphor, and as such must satisfy Condition A of the Binding theory) or, alternatively, to a general condition on chain formation.

Let us end this section, anticipating on the discussion in 7.4., by pointing out that, contrary to what is claimed in Torrego (1981) for Spanish V-movement, preposing the verb in INFL does not lead to proper

government of the subject NP. Indeed, although the verbal INFL governs the subject position, it does not properly govern it, as can be concluded from the obligatory presence of a resumptive pronoun in subject position in case of *wh*-extraction of the subject (cf. 2.3.3.2., and chapter 6 below):

- (10) a. àlÓ *(Ò) yÉ` mÒ yé lá
 who he-R saw you PART WH
 'who saw you'
 b. àlÓ *(Ò) nĪ-kā mÒ yé yÉ` lá
 who he-R FUT-A TP you PART see WH
 'who will see you'

Verbal traces, then, act like lexical verbs with respect to both Case and θ -role-assignment, and can be assumed to have exactly the same general properties as NP-traces.

5.1.5. *When does V-movement apply?*

Up to this point, only the obligatoriness of V-movement in tensed clauses without an auxiliary has been accounted for. We have not yet discussed why V-movement is inapplicable if INFL contains an auxiliary or in [-Tensed] clauses.

If one assumes that movement to an A-position or a V-position only applies when it has to, V-movement need not apply in the presence of an auxiliary, as nominative Case can be assigned under (7). Similarly, in infinitival clauses, the INFL node contains no governor, PRO can surface, and there would be no need for V-movement.

Or, alternatively, the inapplicability of V-movement in tensed clauses containing an INFL with an auxiliary may very well be related to the fact that V-movement is a structure preserving rule: the position to which the verb would move is already filled.⁴

Consider next the inapplicability of V-movement in infinitival clauses. The INFL node in infinitival clauses in Vata and Gbadi does not contain a governor: the subject position is therefore ungoverned, and can only contain PRO. Suppose that V-movement did apply nevertheless: the subject position would then be governed, and, granting that PRO must be ungoverned (Chomsky (1981)), PRO would be excluded. Furthermore, it seems reasonable to assume that no Case would be assigned to the subject, because nominative Case assignment appears to be related to a "strong" verbal INFL (i.e. one which is also [+Tense]). Lexical NPs, which must be Case marked, would also be excluded. Thus, no possible category could appear in subject position, whence the impossibility of V-movement in infinitival clauses.

Or, adopting a theory in which PRO can be governed, and in which

governed PRO is an anaphor (cf. Koster (1981), Bouchard (1982), Sportiche (1983)), the impossibility of V-movement could be related to Binding theory.

Suppose that V-movement were to apply in an infinitival clause. PRO in subject position would then be governed by a verbal INFL. However, if governed PRO is an anaphor, it must be bound in its Governing Category. But, since it would be governed by INFL in its clause, and since it is reasonable to assume that the infinitival clause would count as a Governing Category in this case and there is no possible antecedent around, condition A of the Binding theory would be violated, hence the impossibility of V-movement in infinitival clauses.

Thus, depending on which theory is adopted to account for the distribution of PRO, different explanations can be offered for the impossibility of V-movement's occurring in infinitival complements.

5.1.6. *The NP/V asymmetry*

Although, as was shown above, NP and V-movement are symmetric in many respects, they are also asymmetric with respect to the transformational component. The characteristics of this component have been established primarily on the basis of the behavior of movement rules affecting the category NP. On the basis of the behaviour of NP's, it is generally assumed that movement rules may only affect maximal projections. But the V-movement rule under discussion moves a verb - a non-maximal projection - and not a VP.

Our analysis in terms of Case theory offers quite a simple explanation for this asymmetry. In NP-movement constructions, a NP must move to a Case marked position. Since the Case filter requires that NP, a maximal projection, be Case marked, it follows that it is NP that must undergo movement.

As we have argued above, V-movement is also forced by the Case filter. However, since in this case, a Case assigner must move in order to assure the Case marking of some Caseless NP, it follows that a non-maximal projection, V, moves, precisely because of its status as a Case assigner. The asymmetry between NP and V may thus be viewed as a consequence of their different functions with respect to Case theory. We will discuss further problems concerning the asymmetry between NP and V, this time with respect to *wh*-movement, i.e. movement to an \bar{A}/\bar{V} position, in chapter 6.

5.1.7. *Alternative accounts*

Although the account for V-movement in terms of Case theory developed above is certainly attractive, it is not obviously right. On the basis of the literature on V-movement, including that on Subject-Aux inversion in

English, and the English auxiliary system, at least two alternative accounts may be formulated.

The first account would differ from our account in assuming that (i) INFL is not in second position, but occurs rather in final position at D-structure, (ii) the V-movement rule in Vata and Gbadi is a local rule which moves the verb from VP final position into the adjacent INFL node, and (iii) INFL moves into second position (see also Safir (1981) on INFL movement). Movement of INFL could be explained in exactly the same way as V-movement: it would be forced by the Case filter.

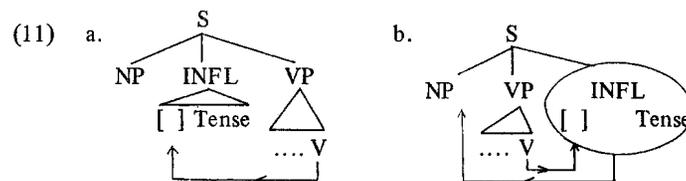
The second account would differ from our account in considering that the obligatoriness of V-movement has nothing to do with Case theory, but would instead be forced by a general morphological principle. Such a general morphological principle has been proposed by, among others, Lasnik (1981), Safir (1981) and Reuland (1982).

Let us now discuss these alternatives, and show why the analysis we have proposed above should be considered superior.

5.1.7.1. *Movement of INFL*

It has been assumed until now that INFL always immediately follows the subject NP, at all levels of syntactic representation. It could be argued however that this assumption is incorrect, and that, instead INFL in Vata and Gbadi occurs in final position at D-structure, S-structures in which INFL follows the subject NP would then be derived via INFL movement.

The two analyses can be represented schematically as in (11):



The analysis in (11b) implies that two processes are involved in the derivation of S-structure representations: merging of the verb with INFL, and movement of INFL into second position. (11b) is compatible with the Case filter explanation, although it incorporates some arbitrariness: why could nominative Case not be assigned by a final INFL node? Why should nominative Case assignment require adjacency, where no such requirement holds within the VP?

The choice between the two analyses is intimately related to the way in which the D-structure position of INFL is determined. What reason would there be to assume that INFL occurs in a different position at D-structure? The main reason would derive of course from the head initial/head final parameter of X-bar theory. Indeed, if it can be shown that the

grammars of Vata and Gbadi incorporate a head final specification, then (11b) would follow, assuming both that INFL is a head, and - the more controversial hypothesis, in my opinion - that the VP is its complement.

However, the assumption we have adopted is that of the non-existence of the head initial/head final parameter as an independent parameter. Instead, the order of complements with respect to their head is determined by parameters which set the directionality for θ -role assignment at D-structure, and the directionality for Case assignment at S-structure. Since INFL has no θ -properties, the parameter for directionality of θ -role assignment at D-structure has nothing to say about the D-structure position of INFL. In fact, the presence of INFL at D-structure does not even follow from the θ -criterion and the Projection Principle, unless, of course, a particular INFL node is selected by a higher verb. The presence of INFL at D-structure seems rather to be a consequence of the Extended Projection Principle, following in the same way as the presence of non-thematic subjects does, i.e. for the time being by stipulation.

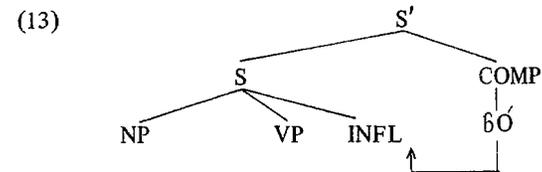
But if the position of INFL is not determined by θ -theory, how, then, is it determined? We will return to this problem in Chapter 7, after showing that at least in some languages, the position of INFL is correlated with the parameter for Case directionality.

In conclusion, there do not seem to be any theoretical reasons to assume analysis (11b). We will therefore continue to adopt (11a) as the appropriate analysis for Vata and Gbadi.

Let us end this section by mentioning that, although (11a) describes the synchronic data in Vata and Gbadi, we have argued in Koopman (1979) that (11b) may have been the appropriate analysis for an earlier stage of these languages. The assumption that (11b) was true at an earlier stage, yields an interesting explanation for the occurrence of certain COMP-like elements in INFL. During the discussion on the INFL node in 3.3., certain clause type indicators were shown to occur in final position in INFL. One such element is the relative clause marker $\beta\acute{O}$.

- (12) $k\acute{O}$ $m\bar{O}m\acute{O}$ \acute{O} $y\acute{i}$ - $\beta\acute{O}$ $\beta\acute{E}$,...
 man HIMHIM he-R came- REL there
 'the man who came there,...

Koopman (1979) addresses the question why these markers occur in INFL rather than in the final COMP node, and proposes to explain this through the following scenario. Suppose that at an earlier stage INFL occurred in S-final position, and that certain particles, like $\beta\acute{O}$, cliticized onto the INFL node:



If, after cliticization, such particles were carried along by INFL movement⁵, their present day surface structure can be accounted for quite easily. Note, however, that, although such an analysis would be not implausible historically, there seems to be no reason to assume that it holds synchronically, as we have shown above.

5.1.7.2. *The No-free-affix Principle*

Instead of assuming that V-movement is forced by the Case filter, it could alternatively be proposed that V-movement has nothing to do with Case theory, but follows from a morphological principle proposed in Lasnik (1981)⁶:

- (14) A morphologically realized affix must be realized as a syntactic dependent at surface structure

(Lasnik, 1981, p. 162)

As Lasnik points out, the term surface structure is loosely used in (14). This principle, to which we will henceforth refer as the *No-free-Affix-principle* (NFAP), ensures, among other things, the obligatoriness of rules like affix hopping.

Indeed, if one assumes (i) that the tensed INFL node in Vata and Gbadi contains a tense morpheme which must be realized as a syntactic dependent at surface structure, and, furthermore, (ii) that this tense morpheme must be realized on a verbal basis, V-movement would follow when INFL does not already contain a verbal element. It has been assumed all along that the INFL node of tensed clauses contains an abstract element [+Tense], and probably also some aspectual and mood features. But, although some of the aspectual and mood features are realized as (tonological or) morphological affixes (cf. 2.2.), some of these features are not overtly realized at all. This is the case with the subjunctive for example. And the abstract Tense node is often morphologically realized as a tense particle in Vata (cf. 2.3.2., where the particularly rich system of tense particles in Vata has been discussed), but rarely so in Gbadi, and never in some other Kru languages.

Adopting the NFAP as the explanation for the obligatoriness of V-movement would force us to postulate abstract tense morphemes, with no morphological reflex; these morphemes, however, could still force V-

movement to occur. This solution seems unacceptable to us, since it empties (14) of its content: if (14) were the motivation for V-movement, one would expect V-movement not to apply if INFL does not contain a morphologically realized affix. This is not the case, though.

Let us also point out that, even if a tense particle *is* morphologically realized, it is not clear that it functions as a bound morpheme at S-structure, rather than as an independent word. First, the word boundary between a verb and a tense particle is rather strong – at least #, – as can be concluded from the fact that tense particles do not undergo dominant [ATR] harmony, which typically applies in the domain #...# (see Kaye (1982) for details). Moreover, the tense particles display none of the tonological characteristics of bound morphemes, nor are they involved in compounding. Finally, the verb does not appear to constitute a syntactic word with the tense particles at this level, a conclusion which may be drawn from the behavior of verbs in the predicate cleft construction. The following examples establish this latter property: tense particles may not be preposed with the verb in predicate cleft constructions:

- (15) a. $\bar{l}\bar{i}$ ñ $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ zué é
 eat you eat-PT yesterday Q
 'Did you EAT yesterday?'
 b. * $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ ñ $\bar{l}\bar{i}$ - $\bar{d}\bar{a}$ zué é
 eat-PT you eat- PT yesterday Q

In sum, then, adoption of (14) for explaining V-movement in Vata or Gbadi empties the notion "morphologically realized affix" of its content. Furthermore, and quite independently, it does not seem to be the case that overt tense particles should be considered as bound morphemes.

Quite apart from these problems, (14) incorporates some arbitrariness. For example, why should the tense morpheme need to be realized on a verbal basis? Why could not it simply cliticize to the subject NP? Of course, the Case filter account contains the ingredients to explain this: INFL needs to contain a verbal element so as to allow nominative Case to be assigned. In Chapter 7, we will argue that nominative Case assignment by a verbal INFL is not limited to Vata or Gbadi, but, in fact, extends to many other languages. But, before showing this, it is worthwhile to point out the existence of languages which have no verbal INFL, but which have a particle complex containing information about the structure of a clause. This particle complex generally occurs in second position in surface order, either following the first word or the first constituent. Examples of such languages include Warlpiri (Hale (1973, 1983), and Luiseño (Steele et al (1981)). Note that these languages display properties which are often attributed to so-called non-configurational languages. On

a purely speculative level, it would be interesting to see whether the presence or absence of a verbal INFL correlates with the way in which Case is assigned in a particular language.

5.1.8. Summary

In this chapter, we have motivated the analysis underlying V-movement in Vata and Gbadi. This analysis has the following features: V-movement into INFL is forced by the Case filter, and must be applied in order to allow nominative Case to be assigned. Its obligatoriness in those environments in which it applies is explained by Case theory; the only possible element appearing in subject position in these contexts being a lexical NP, which of course must be Case marked. V-movement is excluded from applying in other clausal complements: the actual explanation for this varies, depending on which particular theory one adopts for the distribution of PRO. V-movement and NP-movement display a fundamental symmetry; both represent movement between obligatory positions (the A- and V-system); in both cases the antecedent category and its trace constitute a θ -chain; and verbal trace is subject to the ECP (chapter 6), just like NP-trace. It may also be assumed that V-movement, just like NP-movement obeys Subjacency, and that verbal trace, just like NP trace, is an anaphor, obeying condition A of the Binding Theory. Finally, the asymmetry between the categories which move (NP or V) can be simply explained in terms of Case theory.

In Vata and Gbadi, nominative Case is assigned, under government, by an adjacent verbal INFL node. Thus the directionality of Case assignment by INFL coincides with the directionality of Case assignment by lexical categories (cf. (1iii)).

Of course, our account raises further questions; some, e.g. whether verbal trace is subject to the ECP, or the clause boundedness of verb movement, will be taken up again in chapter 6; others, concerning nominative Case assignment and crosslinguistic variation of the NP-type of verb movement, will be addressed in chapter 7.

NOTES

1. This argument hinges on the assumption that Case is assigned rather than checked (cf. Jaeggli (1980), Chomsky (1981), chapter 6). Indeed, if Case is checked rather than assigned, and lexical NPs are inserted with Case (as must be the case if the Visibility Condition on θ -role assignment is correct), there does not seem to be any compelling reason for the assumption that Case checking must occur at S-structure, rather than post-S-structure.
2. Contrary to Reuland (1982), who has proposed that a maximal projection does not constitute a barrier for government to a category previously contained in it.

This assumption also contrasts with the Head constraint (cf. Van Riemsdijk, 1978), which, reformulated in terms of government, states that the complements of a maximal projection are available for outside government, if their head is non-lexical.

3. Chomsky (1981) proposes that examples of the following kind:

- (i) * John seems [that it is certain [t to like ice cream]]

are excluded *only* by Subjacency, citing in support unpublished work by Longobardi. We will continue to assume, though, that it is unclear whether such examples violate condition A of the Binding Theory, Aoun's (1981) condition on chain formation (i.e. S' breaks a chain), or Subjacency.

4. This fact could be derived as follows:

A verbal trace must be properly governed (cf. chapter 6); it will be properly governed by INFL if they are coindexed. The index of INFL results from the upward percolation of the index of the head INFL, i.e. the verb. If INFL already contains an auxiliary, it will inherit the index of this auxiliary. Movement of the verb would result in the verbal trace not being properly governed, i.e. to an ECP violation.

5. In Koopman (1979), we speculated further that, during the stage described in (13), INFL movement was probably not a property of all tensed clauses. More specifically, we have suggested that INFL movement could very well have started in negative environments, whence it generalized to all tensed clauses, leading to a reanalysis of the base position of INFL.

6. Similar principles have been proposed in Reuland (1982) as in (i) and in Safir (1981) as in (ii):

- (i) Bound morphemes may not be stranded at S-structure
 (ii) Tense features must be spelled out on a verbal phonological basis.

The WH-Type of V-Movement

6.0. Introductory remarks

The existence of the symmetric case of NP-movement, i.e. the NP-type of V-movement, discussed in chapter 5, raises the question of whether there also is a rule of V-movement which has the same characteristics as *wh*-movement of NP. We will argue in this chapter that this is indeed the case. More specifically, we will argue that, in order to account for the syntactic properties of the so-called *predicate cleft construction* in Vata (cf. 2.3.4. for a preliminary discussion of this construction), it has to be assumed that a rule of V-movement, with basically the same properties as *wh*-movement of NP, underlies this construction. Once the existence of the *wh*-type of V-movement established, to which we will also refer as *Focus-V-movement* or *movement to a \bar{V} -position*, this chapter will focus on the problem of how to account for the actual surface structure of the predicate cleft construction. These, we will show, can be accounted for in a minimal way and no special principles need to be added to the theory. Existing rule components such as *move- α* , theories such as Bounding theory, and principles like the ECP, which have been developed to account for the distribution and behavior of NP-types, directly extend to the predicate cleft construction. Furthermore, the ECP and Binding theory also yield an account for those properties of the NP-type of V-movement, which have not yet been accounted for in chapter 5. Thus, we will argue for a symmetric theory, and explain asymmetries, where they obtain otherwise.

This chapter is structured in the following way: the morphological and syntactic characteristics of the predicate cleft construction are established in 6.1., and an account for these is presented in 6.2. It will be argued that the equivalent of *move- α* to an \bar{A} -position, which underlies *wh*-movement constructions (Chomsky, 1977), also underlies the predicate cleft construction. Special attention will be paid in this respect to Bounding theory and the parameters associated to it (cf. 6.2.1.). In 6.2.3., it will be shown that the ECP plays a crucial role in accounting for the actual surface structures of predicate cleft constructions.

Once we will have motivated the analysis for the predicate cleft construction, it will be extended to the NP-type of V-movement construction.

The properties of this construction can be accounted for by the θ -criterion, the ECP (6.2.5.) and presumably also Binding Theory (6.2.6.). In 6.2.7., we will briefly discuss the NP/V asymmetry with respect to the rule component move- α , that is, movement of a maximal projection versus movement of a head. Section 6.3. recapitulates the findings of this chapter, and investigates some of the implications of the particular proposals.

6.1. The data

A preliminary description of the predicate cleft construction has been presented in 2.3.4. In this construction, which occurs in many African languages, and also in many of the Caribbean creoles (cf. Haitian, Sranan, Papiamentu, to mention but a few),¹ a focused verb occurs in sentence initial position, indicating focus or contrastive focus. (Focus will be represented by upper case letters in the glosses). A copy of the verb occurs in the clause, in one of the two V-positions, i.e., either in INFL or in the VP:

- (1) a. $ng\bar{O}n\bar{O}$ \bar{n} $ng\acute{O}n\acute{O}-\bar{O}$?
 sleep you sleep-Q
 'Are you SLEEPING?'
 b. $ng\bar{O}n\bar{U}$ \bar{n} $k\acute{a}$ $b\bar{i}$ $ng\acute{O}n\acute{U}$ \acute{a} ?
 sleep you FUT-A now sleep - Q
 'Are you going to SLEEP now?'

The verbal focusing, which we will also call predicate clefting, differs from the focusing of nominal elements in basically two ways. First, the focused element is morphologically identical to a verb,² not to an NP, and second, the focused verb binds an identical lexical verb, in contrast with a focused NP, which binds an empty category except, of course, if an empty category is prohibited by an independent principle, such as the ECP. (This is the case for example in Vata: the subject position is never properly governed, and in case of extraction, a resumptive pronoun must occur (cf. 2.3.3.2., and 6.3. below for discussion). The examples in (2) illustrate the difference between focusing of NP and V:

- (2) a. Predicate cleft:
 $ng\bar{O}n\bar{U}$ \bar{n} $w\acute{a}$ $n\bar{a}$ \bar{n} $k\acute{a}$ $ng\acute{O}n\acute{U}$ \acute{a}
 sleep you want NA you FUT-A sleep-Q
 'Do you want to SLEEP?'
 b. Focus of NP:
 $ng\acute{O}n\acute{U}_i$ $m\acute{i}_i$ \bar{n} $w\acute{a}$ $[NP_e]_i$ \acute{a}
 sleep-NOM IT you want Q
 'Is it sleeping you want?'

Here, we will turn to a more careful description of the predicate cleft construction in Vata, organizing it around the following questions:

- (3) (i) What are the morphological characteristics of the focused verb, and what elements can accompany it;
 (ii) What kind of verbs can undergo predicate clefting;
 (iii) What syntactic dependencies exist between the focused verb and its copy in S.

6.1.1. Characteristics of the focused verb

Phonologically speaking, the focused verb merely consists of the segmental specifications of the verb, without its tonal specifications. Since elements with no associated tone surface carrying mid tone (cf. 2.1.), the focused verb invariably surfaces with mid tone. Some examples illustrating this are presented in (4):

- (4) a. $p\bar{a}$ \bar{n} $k\acute{a}$ $m\acute{E}$ $p\acute{a}$ \bar{a} ?
 throw you FUT-A it throw-Q
 'Are you going to THROW it?'
 b. $\bar{l}\bar{a}$ \bar{n} $k\bar{a}$ $m\acute{O}$ $\bar{l}\acute{a}$ \bar{a}
 call you FUT-A him call Q
 'Are you going to CALL him?'
 c. $\bar{l}\bar{i}$ \bar{n} $k\acute{a}$ $m\acute{a}$ $\bar{l}\bar{i}$ \bar{a} ?
 eat you FUT-A it eat -Q
 'Are you going to EAT it?'
 d. $s\bar{a}$ \bar{n} $k\acute{a}$ $m\acute{E}$ $s\acute{a}$ \bar{a}
 gather you FUT-A it gather Q
 'Are you going to GATHER it?'

The focused verb may be marked for imperfective aspect. This is shown in the following example, where the imperfective suffix causes the lowering of a high vowel ($li \rightarrow le$, cf. 2.2.2.).

- (5) $\bar{l}\bar{e}$ \bar{n} $\bar{l}\bar{e}$ \bar{e}
 eat you eat Q
 'Are you EATING?'

In other words, the focused verb is a segmental copy of a verb in a V-position.

The focused verb cannot be accompanied by any of its complements, indicating that the focused verb is somehow exempt from the θ -criterion:

- (6) (*ma) $\bar{l}\bar{i}$ \bar{n} $k\acute{a}$ $m\acute{a}$ $\bar{l}\bar{i}$
 (*it) eat I FUT-A it eat

The only elements that may accompany the focused verb are certain adverbs:

- (7) *yē* *kpē`* *lágò* *yē*
 come really rain comes
 'It is really RAINING, isn't it'

(Notice that this constitutes additional evidence for the verbal status of the preposed verb). Finally, none of the particles which occur in INFL (cf. 2.3.2.) may appear on the preposed verb, be it negation (8a), the adverbial particle *la* (8b), or any of the tense particles (8c):

- (8) a. (*ná`) *tē* *wá* *ná`-tē-kā*
 (*NEG) eat they NEG-eat-FT
 'They will not EAT'
 b. *tē* (**la*) *wá* *lé-lá*
 eat (*again) they eat-again
 'They are EATING again'
 c. *lí* (**wa*) *wá* *lí-wá* *zúé*
 eat(*TP) they eat-TP yesterday
 'They ATE yesterday'

Besides the predicate cleft construction described above, there exists another construction in Vata, in which a verb occurs in sentence initial position, and its copy occurs in S. Some examples of this construction are presented in (9) and (10):³

- (9) *kòfí* *ní* *yí* *ò* *yí-wá-ḃò* *jàà,* *wá* *lā*
 Kofi GEN arrive he arrive-PT-REL just they PERF-A
kò *jiò*
 PART stand
 'Hardly did John arrive, or they were standing up'
- (10) *nàní* *fítòìè* *n* *fítòìè-wá-ḃò* *jàà,* *wá* *nà* *gluguè*
 my appear I appear-PT-REL hardly they with flight
 'As soon as I arrived, they fled'

In this construction, which has a quite different meaning than the predicate cleft construction, the preposed verb is obligatorily accompanied by a genitive 'subject' NP.

The discussion here will be restricted to the predicate cleft construction, and the properties of the construction in (10), which, witness the appearance of the relative clause marker *ḃò* maybe represents the equivalent of a 'verbal' relative, remain to be investigated in future work.

6.1.2. What kind of Vs may be focused?

As far as we have been able to determine, any verb which has a base form, i.e. which may serve as the input for morphological processes affecting verbs (2.2.), may be focused, and this independently from its argument structure.

Verbs that can be clefted thus include intransitive verbs (1), ergative verbs in the sense of Burzio (1981) ((11a)), transitive verbs (4), verbs which take a double object construction (11b),⁴ particle verb constructions (11c), verbs which are part of an idiomatic expression (11d, 11e), 'adjectival' verbs (11f), and verbs whose argument structure has been modified by verbal morphology, such as causative verbs (11g), reciprocal verbs (11h), applied verbs (11i), and passive verbs (11j):

- (11) a. *mī* *wá* *mī*
 leave they leave
 'They LEFT'
 b. *nyē* *à* *nyé`* *à* *nò* *dàlá`*
 give we give our mother money
 'We GAVE money to our mother'
 c. *gā* *wá* *gá* *mí*
 shout they shout PART
 'They SHOUTED'
 d. *pā* *wá* *pà* *wī* *nā...*
 throw they throw voice NA...
 'They ANNOUNCED that...'
 e. *yē* *kpē`* *lágò* *yē*
 come really rain come
 'It is really RAINING'
 f. *zālē* *è* *zàlē* *dùù*
 red it red 'like blood'
 'It is very RED'
 g. *zālā* *h* *zàllā* *zàmú*
 redden I redden sauce
 'I really REDDENED the sauce'
 g. *lālē* *lālē* *wá* *lālē* *lālē* *-ē*
 call-LE-call-LE they call-LE-call-LE-Q
 'Do they CALL each other?'
 h. *bīdōtē* *n* *ká* *sámáná`* *mí* *bīdòlè*
 wash-APPL you FUT-A soap in wash-APPL
 'You are going to WASH yourself with SOAP'
 i. *dālō* *wá* *dālō*
 beat-PAS they beat-PAS
 'They have been KILLED'

Verbs which may not be clefted include the auxiliaries enumerated in 2.3.2., the defective verb *nà/lá/IO* 'to say', and the verbs *lĒ* 'to be' and *ká* 'to have', which just have a verbal form corresponding to perfective aspect. None of these verbs can be the input for morphological processes which apply to other verbs.

In conclusion then, any verb with a base form may occur in the predicate cleft construction.

6.1.3. Syntactic properties of the predicate cleft construction

Let us now turn to the determination of the syntactic dependencies which hold between the preposed verb and its copy. We will proceed by contrasting the predicate cleft construction with (NP)-*wh*-movement constructions.

A first observation: a focused verb and a *wh*-phrase cannot occur in clause initial position. This is illustrated by the ungrammaticality of the examples in (12) – where the respective order of the focused verb and the *wh*-phrase is irrelevant –:

- (12) a. *sáká má_i lí kòfí ká [e]_i lí
 rice IT eat Kofi FUT-A eat
 b. *lí sáká má kòfí ká [e] lí
 eat rice IT Kofi FUT-A eat
 c. *àlÓ lĒ Ò lĒ lá
 who eat he-R eat WH
 etc...

The only cases discussed so far correspond to *wh*-movement constructions in which short movement has taken place. Recall, however, that long *wh*-movement in Vata is possible (although it is not in Gbadi) (cf. 2.3.3.2.). Consider now the following examples of long *wh*-movement:

- (13) a. [[àlÓ ní^h yúe_i] [n̄ lā [[PRO [NP_e]_i lá k̄ā]]]
 who GEN children you PERF-A call KA
 m̄l̄ lá
 go WH
 'Whose children did you go call?'
 b. àlÓ_i n̄ gūgū nā àbà pà w̄l̄ nā n̄ yĒ^h
 who you think NA Aba throw voice NA you see
 [e]_i yé lá
 PART WH
 'Who do you think that Aba announced that you saw'

- c. yĪ_i n̄ bò kÚ lé n̄ ní [e]_i káfĒ
 what you forgot PART and you NEG-A coffee
 m̄l̄ zŪ lá
 in put WH
 'What did you forget to put in the coffee?'

In these contexts, predicate clefting may also occur:

- (14) a. lā n̄ dā yué-é lá k̄ā m̄l̄ ā^h
 go you PERF-A children-DEF call KA go Q
 'Have you gone to CALL the children?'
 b. yĒ^h n̄ gūgū nā àbà pà w̄l̄ nā n̄ yĒ^h
 see you think NA Aba throw voice NA you saw
 ngŪa yé é
 them PART Q
 'Do you think that Aba announced that you SAW them?'
 c. zŪ^h n̄ bò kÚ lé n̄ ní m̄l̄ káfĒ^h
 put you forgot PART and you NEG-A it coffee
 m̄l̄ zŪ à^h
 in put Q
 'Did you forget to PUT it in you coffee?'
 d. yĪ^h Ó wà nā à yĪ^h
 come s/he want NA we come
 'S/he wants us to COME'

Both *wh*-movement and the predicate cleft construction obey the Complex Noun Phrase Constraint, i.e. a *wh*-phrase cannot be extracted from a complex NP (15a), nor can a focused verb be related to an identical verb inside a complex NP (15b):

- (15) a. *àbà [S^h m̄Ó_i [S n̄ wà [NP fòtó^h] [S^h m̄ŪmŪ^h]
 Aba HER you like picture ITIT
 [S^h n̄ tàkà f̄Ó [e]_i [e]_j]]]]
 you show REL
 b. *tākā [S n̄ wà [NP fòtó^h] [S^h m̄ŪmŪ^h] [S n̄ tàkà f̄Ó^h
 show you like picture ITIT you showed-REL
 àbà [NP_e]_i]]]]
 Aba

But, although *wh*-movement and predicate cleft constructions display a perfect parallelism in the cases discussed so far, there are also contexts in which the two diverge. We will discuss these contexts now.

It has been shown in 2.3.3. that a *wh*-phrase may be extracted out of a *wh*-island:⁵

- (16) Kòfí [S'mÓ; [S; à nÍ [S' zĒj mĒmĒj] à ká 6'Ó
 Kofi HIM we NEG-A thing ITIT we FUT-A REL
 [e]_i [e]_j nyĒ] yì]
 give know

'*It is Kofi to whom we don't know what to give'

This has been interpreted as evidence for the non-bounding nature of S in Vata. The hypothesis that S' and NP are Bounding nodes predicts that any verb which selects a sentential complement should allow long *wh*-movement, since in a structure like (17), *wh*-movement may move a *wh*-phrase with one jump into a higher *wh*-position:

- (17) *wh*-phrase_i [S V [S' [VP ... [e]_i V]]]

This prediction is, indeed, borne out: we have not been able to find any non-bridge verb for *wh*-movement, and all of the following examples are grammatical.

- (18) a. àlÓ_i kòfí ngúnguè nā ò yĒ` [e]_i yé là
 Who Kofi whisper NA you saw PART WH
 '*Who did Kofi whisper that you saw?'
 b. àlÓ_i kòfí sálĒ mÒ d'Úd'Úk'Ú dí nā ò yĒ` [e]_i
 Who Kofi tell you softly PART NA you saw
 yé là
 PART WH
 '*Who did Kofi whisper to you that he saw?'
 c. àlÓ_i kòfí pĒ` mlí nā ò yĒ` [e]_i yé là
 who Kofi shout PART NA you saw PART WH
 '*Who did Kofi shout that you saw?'
 etc...

The predicate cleft construction differs in this respect from *wh*-movement of NP. First, it is impossible to relate a preposed verb to a verb contained in a *wh*-island:

- (19) a. *nyĒ` à nÍ [S' zĒ à ká - 6'Ó kòfí nyĒ] yì
 give we NEG-A thing we FUT-A REL Kofi give know
 'We don't know what to GIVE to Kofi'
 b. *nŪ à nÍ [zĒ à nĪ- tà nŪ] yì
 do we NEG thing we FUT-A FT do know
 'We don't know what to do'

And secondly, although there are verbs which allow for 'long' predicate clefting (cf. the examples in (13)) – specifically all verbs selecting an infinitival complement, and verbs like *gugu* 'think', *yla* 'say', *na/la/lo* 'say', *ku bo* 'forget', some verbs do not allow for long predicate clefting. This is illustrated in the examples in (20):

- (20) a. *yĒ kòfí ngúnguè nā ò yĒ
 come Kofi whisper NA you come
 'Kofi whispered that you were COMING'
 b. *yĒ kòfí sálĒ ngUá d'Úd'Úk'Ú dí nā ò yĒ`
 see Kofi told them softly PART NA he saw
 mÓ yé
 you PART
 'Kofi told them softly that he SAW you'
 c. *yĒ kòfí pĒ` mlí nā wá yĒ` mÓ yé
 see Kofi shout PART NA they saw him PART
 'Kofi shouted that they SAW him'

Of course, it is always possible in the examples in (20) to focus the matrix verb:

- (21) a. ngūnguē kòfí ngúnguè nā ò yĒ
 whisper Kofi whisper NA you come
 'Kofi WHISPERED that you were coming'
 etc...

Thus, although *wh*-movement and predicate clefting clearly display parallel syntactic behavior in many respects, they also differ: whereas all verbs seem to be 'bridge' verbs for *wh*-movement and a *wh*-phrase can be extracted out of a *wh*-island, not all verbs are bridge verbs for the predicate cleft construction and the *wh*-island constraint is observed.

6.2. Focus-V-movement

6.2.0. Preliminary remarks

Let us start by enumerating the characteristics which must be accounted for:

- (22) (i) predicate clefting of the matrix verb is always possible, providing the verb has a base form and no *wh*-phrase occurs in sentence initial position;
 (ii) the clause must contain a copy of the focused verb;
 (iii) when there is a bridge verb, long predicate clefting is possible;

- (iv) a focused verb may not be related to an (identical) verb inside a *wh*-island;
- (v) a focused verb may not be related to an (identical) verb inside a Complex Noun Phrase.

The predicate cleft construction differs from *wh*-movement of NP with respect to the characteristics in (21ii), (21iii) and (21iv).

Indeed, in predicate cleft constructions, the preposed verb must be related to an identical verb in a V-position, and cannot be related to an empty category:

- (23) a. * \bar{I}_i kòfí dā sáká [_V e]_i
eat kofi PERF-A rice
- b. * \bar{I}_i kòfí [_V e]_i [sáká [_V e]_i]
'eat kofi rice

In constructions involving *wh*-movement of NP, however, the *wh*-phrase generally locally binds an empty category, unless an empty category is ruled out for independent reasons, such as lack of proper government. This is the case, for example, if the subject NP is extracted in Vata (cf. Koopman (1982)), or if a genitive NP or an object of a preposition is relativized in Haitian (cf. Koopman (1982c)). In these cases, a locally \bar{A} -bound resumptive pronoun must appear. Let us stress the fact that these resumptive pronouns display the same syntactic behavior as *wh*-traces: they need to be subjacent to their \bar{A} -binder, and differ from resumptive pronouns found in Arabic for example, which freely violate the constraints.

Wh-movement of NP and predicate clefting differ, moreover, with respect to (22iii) and (22iv). All verbs are bridge verbs for long *wh*-movement of NP, and the *Wh*-island condition can be freely violated. But only some verbs act as bridge verbs for long predicate clefting, and the *Wh*-island condition is respected. In sum, then, as well as clear similarities, *wh*-movement and predicate clefting also display differences. This remark is not merely valid for Vata alone. It also extends to some other languages, insofar as the predicate cleft construction and *wh*-movement constructions have been studied at all. In a paper in which data from West-African languages are linked to those of certain Caribbean Creoles, Bynoe-Andriolo and Sorie Yillah (1975) claim that the predicate clefting is always clause-bound, (the example they present to show this is drawn from Krio), but that this is not true for ordinary (NP) clefts.

In Papiamentu, (Muysken (1978) and p.c.), a focused verb may be related to a verbal copy in an infinitival clause but not to a verb in an embedded tensed complement.

In Haitian, however, as Piou (1982), in her careful study of the syntactic properties of the predicate cleft construction shows, *wh*-movement of NP and predicate clefting display a perfect syntactic parallelism: the two processes may apparently be unbounded in the presence of a bridge verb, and the *Wh*-island condition is respected.

6.2.1. *The wh-type of V-movement and Bounding Theory*

Let us now motivate the analysis of the predicate cleft construction as being derived by *wh*-movement of V, i.e. V-movement to the equivalent of an \bar{A} -position, which we will call a \bar{V} -position. This analysis will yield an account for the similarities of *wh*-movement of NP and the predicate cleft construction. Differences between the two constructions with respect to (22iii) and (22v) reduce, we will argue below, to the fact that each construction has a different set of Bounding nodes associated to it.

The characteristics enumerated in (22iii) and (22v) are typical diagnostic criteria for constructions derived by move- α in a language like English for example, in which S', S and NP are bounding nodes for Subjacency repeated here as (24):

- (24) The antecedent-trace relation satisfies the Subjacency Condition, i.e. at most one Bounding node may intervene between the antecedent and its trace

The choice of the Bounding nodes for Subjacency has been argued to represent a parameter of UG (cf. among others, Rizzi (1982), Sportiche (1981)...), allowing one to account for observed variation between languages with respect to (22iv) in a minimal fashion. Apparent long movement, which is in fact successive cyclic movement, satisfies the Subjacency Condition, if it is assumed that bridge verbs somehow have the property of cancelling the Bounding nature of their S' complement:

- (25) a. Who do you believe that Mary saw
b. [_{wh}-phrase]_i [_S ... V [_{S'} t (that) [_S ... [_{VP} V [e]_i]]]]
[bridge]

Nothing needs to be said about the impossibility of long *wh*-movement with non-bridge verbs, since Subjacency would be violated:

- (26) a. *Who did you quip that Mary saw
b. [_{wh}-phrase]_i [_S ... V [_{S'} [_S ... [_{VP} V [e]_i]]]]

Subjacency and Bounding Theory also account for the island character of WH-complements:

- (27) a. *To whom did you wonder what Mary gave
 b. $wh\text{-phrase}_i [S \dots V [S' wh\text{-phrase}_j [S \dots [VP V [e]_j [e]_i]]]]$

Finally, Subjacency allows us to derive the Complex Noun Phrase Constraint:

- (28) a. *What did you tell the story that Mary found
 b. $wh\text{-phrase}_i [S \dots V [NP [S' S \dots [VP V [e]_i]]]]]$

As was pointed out above, examples corresponding to (26) and (27) are expected to be grammatical in a language with S' and NP as Bounding nodes.

The characteristics of the predicate cleft construction (22iii), (22iv) and (21v) can be straightforwardly accounted for in exactly the same way as the characteristics of *wh*-movement in English, if the predicate cleft construction is also constrained by the Subjacency Condition, and if S' , S and NP are Bounding nodes. Let us therefore assume (29):

- (29) The antecedent verb-verb relation satisfies the Subjacency Condition, with S' , S, and NP as Bounding nodes.

The fact that Subjacency is involved constitutes a clear indication as to the rule system which underlies the predicate cleft construction.

Subjacency is a property of antecedent-trace relations established by movement, and does not hold of other antecedent anaphor relations (see Chomsky (1981) for much relevant discussion). A movement rule must, therefore, underly the predicate cleft construction, and the possibility that a construal rule, relating the antecedent verb and its copy, is involved can be discarded. Since Focus, a property of the LF level of representation, is involved, this movement rule could apply either in the syntax, i.e. relating D- and S-structure, or at LF. The question then arises of whether LF movement rules, like syntactic movement rules, obey Subjacency. Although the answer to this question is not obvious, it has been argued in Chomsky (1981), Huang (1982), and Sportiche (1983), that LF rules do not obey Subjacency. Apparent locality requirements of certain LF processes can and must be otherwise explained (cf. Huang (1982), Sportiche (1983)). Accepting these conclusions, we assume accordingly that Subjacency is a characteristic property of syntactic movement rules alone. It then follows that the syntactic rule component $move-\alpha$ must be involved in the establishment of the relation of the antecedent verb-verbal copy, where x does not equal a maximal projection like NP, but a lexical category, V. We will return to this asymmetry in 6.2.6. Let us refer to this instance of $move-\alpha$, as *Focus-V-movement*, or

as V-movement to a \bar{V} -position. Focus-V-movement represents the counterpart of *wh*-movement for NP, i.e. movement to an \bar{A} -position.

Possible dependencies of Focus-V-movement can be straightforwardly accounted for by Subjacency, but only if S' , S, and NP are Bounding nodes for this rule. However, on the basis of *wh*-movement constructions, the conclusion has been reached that S is not a Bounding node in Vata. Putting these two together, we are then led to conclude (30):

- (30) The set of Bounding nodes may vary language internally, along with the type of construction.

Although the Bounding nature of S varies from language to language - quite arbitrarily since two closely related languages like Vata and Gbadi, or French and English, differ with respect to the Bounding nature of S - it may seem undesirable to allow variation of the bounding nature of S within a particular language: this typically seems to be a property which one would like to derive. Note, however, that it is an empirical question of whether different constructions may or may not have different Bounding nodes associated to them. And, in fact, the predicate cleft construction seems to provide strong evidence in favour of (30), in as much as it accounts for the data in a minimal fashion.⁶

6.2.2. *Focus-V-movement as movement to a \bar{V} -position*

We will now focus on the formal characteristics of the Focus-V-movement rule, and develop some of the terminology that will be needed in the following sections. The focused verb occurs in clause initial position, a position in which either a *wh*-phrase or a focused verb can occur, but not both (see (12), repeated here as (31) for convenience):

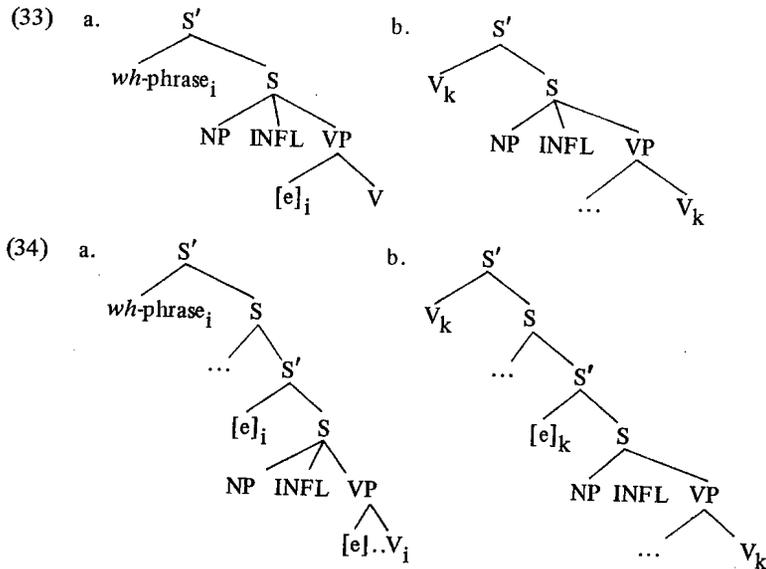
- (31) * $\dot{a}l\acute{o} \quad \bar{e} \quad \acute{o} \quad \bar{e} \quad l\acute{a}$
 who eat he-R eat WH
 'Who is EATING' (= 12c)

The ungrammaticality of (31) can be directly related to a fairly general characteristic of syntactic movement, namely that, for whatever reason it may be, double application of movement to the same position is prohibited. This is illustrated again by the following Vata examples, where the respective order of the preposed *wh*-phrases is irrelevant:

- (32) a. * $\dot{a}l\acute{o}_i \quad y\bar{i}_j \quad \grave{n} \quad k\acute{a} \quad [e]_i [e]_j \quad ny\acute{E} \quad l\acute{a}$
 who what you FUT-A give WH
 b. * $k\acute{O}_i \quad m\bar{O}m\acute{O}_i \quad s\acute{a}k\acute{a}j \quad m\acute{a}j \quad \grave{n} \quad ny\acute{E}_k - \acute{b}\acute{O}$
 man HIMHIM rice IT you gave REL
 $[e]_i [e]_j [v^e]_k \dots$

Thus, we will simply assume that *wh*-phrases and the focused verb move into the same syntactic position. This position, which is distinct from COMP - COMP occurs in clause final position (3.4.1) - has been labeled WH in 3.4.1. Let us now interpret WH as indicating the landing site of *wh*-moved NPs and Vs. (Alternatively, it could be assumed that Focus-V-movement and *wh*-movement are adjunctions to S'). Once this initial position is filled, further syntactic movement to it is prohibited.

Given Focus-V-movement as movement to the initial WH-position, then, consider next the examples in (33), which illustrate some derived S-structure representations of *wh*-movement of NP and V. (33) represents short movement and (34) successive cyclic movement (irrelevant details omitted):



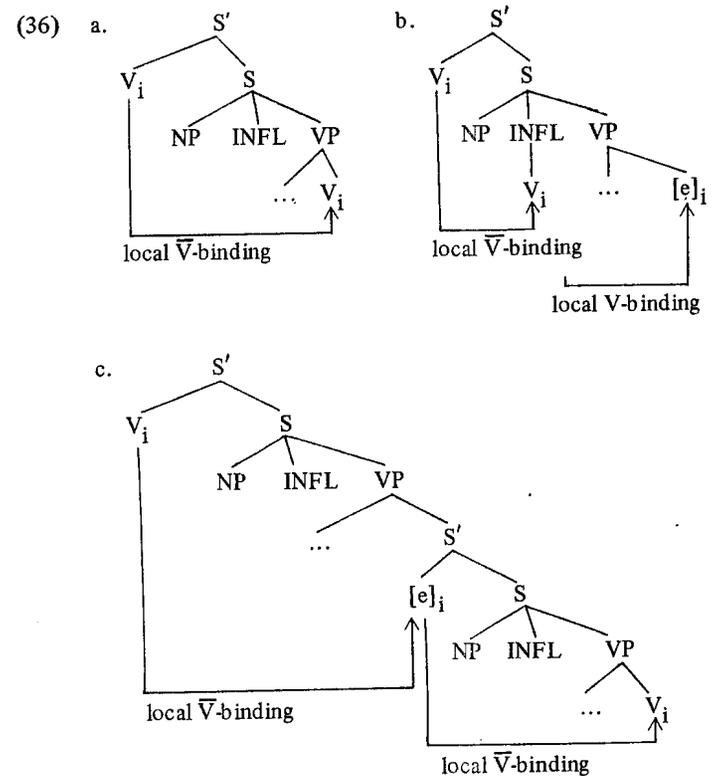
The *wh*-phrase lands in an \bar{A} -position and locally binds a trace in an A-position (or, in some languages, a resumptive pronoun in an A-position). This terminology can be directly extended to Focus-V-movement. The landing site position of the focused verb is clearly not a V-position, and can be thought of quite naturally as the equivalent of an \bar{A} -position for verbs. Let us therefore call this position a \bar{V} -position. An \bar{A} -position must bind an A-position by virtue of the Map principle (Sportiche (1983), see also Chapter 1 of this study). We will assume, by the same reasoning, that a \bar{V} -position must also bind a V-position, and reformulate the Map principle as (35):

(35) Map Principle

An \bar{A} - or \bar{V} -position must bind an A-, or V-position, respectively

In sum, Focus-V-movement represents movement to a \bar{V} -position, and *wh*-movement of NP represents movement to an \bar{A} -position.

It has been shown in chapter 5 that there are two V-positions in Vata: the verbal position in the VP, and the verbal position in INFL. The examples in (36) illustrate several possible binding relations between verbs:



(36a,b and c) illustrate local \bar{V} -binding; (36b) also illustrates local V-binding. Moreover, in (36c), a \bar{V} - \bar{V} binding relationship can be observed.

Given this terminology, the properties of *wh*-movement of NP and predicate clefting discussed so far can be summarized as follows:

In case of extraction from a non-properly governed position in Vata, however, an empty category is excluded and a resumptive pronoun must occur. (cf. 2.3.3.2.):

- (44) àlÓ_i Ó_i / * [e] yÉ_i mÒ yé -l_a
 who he/R saw you PART WH
 'Who saw you?'

It is important to note that this resumptive pronoun behaves exactly like a trace of *wh*-movement with respect to Subjacency, and as a variable with respect to Weak Crossover (Koopman & Sportiche (1983)). We have argued in Koopman (1982) that the subject position in (44) must contain lexical material, because the empty category fails to be properly governed. In order to satisfy the ECP, then, the features of the trace in subject position are spelled out as a resumptive pronoun.

Unlike a locally \bar{A} -bound A-position, a locally \bar{V} -bound V-position can never contain an empty verbal category, as the examples in (45) indicate once again:

- (45) a. \bar{e}_i Ó le_i /* [e]_i sáká [e]_i
 eat s/he eat rice
 b. \bar{l}_i Ó ká sáká li_i /* [e]_i
 eat s/he FUT-A rice eat

Why must the locally \bar{V} -bound V-position contain a lexical verb? Why can it not contain an empty verbal category, as is the case in a locally V-bound V-position? And why must the locally V-bound position be empty and is the occurrence of lexical material excluded?

A quite natural approach to this problem consists of extending to verbal trace a principle that regulates the appearance of *wh*-traces. One such principle is the ECP, which restricts NP trace and *wh*-trace to properly governed configurations. Suppose, then, that the possible appearance of an empty verbal category is also regulated by the ECP, i.e. (46):

- (46) An empty verbal category is subject to the ECP

Local control, imposed by the ECP, implies either lexical government or government by a non-lexical category containing a coindexed antecedent. Examples of the latter mechanism have been discussed in chapter 1. COMP in English, for example, becomes a proper governor for a trace in subject position if it exhaustively contains a coindexed antecedent.

Now, neither of the V-positions in (45) is lexically governed. The only way in which proper government can thus be satisfied is by government of

the category containing the antecedent of the empty category, i.e. the preposed verb in the \bar{V} -position, schematically (47):⁸

- (47) a. * [V_i [NP [INFL] [VP ... [V e_i]]]
 b. * [V_i [NP [INFL V]_i [... [e]_i]]

But now note that the configurations in (47) are exactly parallel to those in (44) (whose configuration we repeat here as (48)), and which are excluded by the ECP:

- (48) * [wh-phrase_i [[e]_i]]

Thus, Vata does not allow for proper government from clause initial position anyway, and consequently, nothing special needs to be said about the fact that there is no proper government in (47): the extension of the ECP to include verbal trace yields the desired result straightforwardly. (We will return to the problem of why there is no proper government from clause initial position in 6.3.).

In sum, the configurations in (42) are excluded by the ECP, since an empty category fails to be properly governed. Therefore, the locally \bar{V} -bound position must contain phonetic material. Henceforth we will refer to the verb in S as a *resumptive verb*, analogically to *wh*-constructions containing resumptive pronouns.

The next question which arises is why this resumptive verb must be identical to the preposed verb. Why can it not be some kind of dummy verb? We must point out that this question arises independently of the issue of what the exact mechanisms involved in movement are. In earlier work, movement was assumed to consist of two processes, copying of a category and deletion of this category. Recent arguments in favour of movement as copying and deletion have been presented in Van Riemsdijk and Williams (1981). The movement as copying and deletion hypothesis yields an immediate account for the surface structures of the predicate cleft construction: since an empty category is excluded by the ECP, the deletion part of movement is blocked, and the clause therefore contains a copy of an identical verb. But this hypothesis causes problems if one wishes to treat resumptive pronouns obeying Subjacency as the spelling out of an empty category. Indeed, given copying and deletion, one would actually expect an identical NP to appear in the locally \bar{A} -bound position in such cases. This never seems to happen, though: resumptive pronouns typically appear in this context. In order to incorporate this phenomenon in the copying/deletion analysis, one would need to introduce a notion of partial deletion, or something of that kind, and the question would still arise of why there are resumptive pronouns but no resumptive nouns, and

resumptive verbs but no resumptive "pro-verbs". Given these considerations, we will not in this study enter any further into the debate concerning movement as copying and deletion, versus movement as a process which moves a category and leaves behind an empty category. We will simply continue to assume the latter hypothesis. We may just mention that the two hypotheses must eventually account for the same questions.

Let us return to our initial problem: why must the V-position contain a verb that is identical to the focused verb? Suppose first that the presence of this verb results from the same mechanism that accounts for the occurrence of resumptive pronouns, i.e. (49):

(49) Spell out features

The verbal trace, containing the specific features of a particular verb (e.g. θ -assignment features comprising selectional features), is spelled out as a resumptive verb, which is identical to the preposed verb.

Why, then, is this resumptive verb not some kind of a dummy verb? This may very well be related to the fact that there appears to be no 'appropriate' verbal category available. Indeed, although, in addition to lexical NPs, a class of pronominals defined in terms of ϕ -features exists, no such verbal category (e.g. 'pro-verb') exists in addition to verbs. Moreover, in resumptive pronoun constructions, a particular language always seems to have recourse to a class of pronominals that exists independently. There are no languages, to my knowledge, which use a particular pronominal form, that occurs *exclusively* in the equivalent of resumptive pronoun constructions. It seems to be the case that, in the case of conflict arising from the ECP for example, a language has recourse to an already existing class of lexical items. It is therefore not implausible to assume that, given the absence of a class of pro-verbs, the only candidate for a phonetically realized category in the predicate cleft construction is a full lexical verb, with the same lexical characteristics as the focused verb, in other words a copy of the focused verb.

One might also wonder why this resumptive verb is not a verb like *do*, especially as in certain languages *do* seems to act as a kind of 'placeholder'. I do not think, though, that *do* ever functions as a placeholder in the same way as a resumptive verb does. In English, for example, the dummy verb *do* must appear in INFL, but never acts as a locally \bar{V} -bound resumptive verb. Moreover, examples of the following type (drawn from Dutch):

- (50) a. [_{TOP} [_{S'}veel eten] [_{S'}[_{dat}_k doet_i] [_{hij} [_e]_k niet meer. [_e]_i]]]
 a lot eat that does he no longer
 'Eat a lot, he doesn't any longer'

- b. [_{TOP} [_{S'}eens lekkeritrusten] [_{S'}[_{dat}_k doet_i] hij niet [_e]_i]]]
 once nice rest that does he not
 'Take a nice rest, he doesn't'

do not seem to illustrate the use of the dummy verb *doen*, related to a preposed verb, but seem instead to involve a base generated infinitival complement, which is related, through *wh*-movement, to the thematic object *dat* of the main verb *doen*.

In sum, then, the locally \bar{V} -bound V-position in the predicate cleft construction must contain a resumptive verb for the same reason that a locally \bar{A} -bound subject position must contain a resumptive pronoun: given the absence of Control-from-COMP, the preposed verb does not yield a proper government configuration, just as preposed *wh*-phrases do not. Since the appearance of a resumptive verb is thus essentially due to the ECP, a principle which applies at the LF level of representation, the mechanism which ensures the appearance of the lexical verb, i.e. the spell-out convention, must take place no later than S-structure. The features of the verb are spelled out as the verb they define, i.e. as a verb identical to the preposed verb. The absence of a dummy resumptive verb is probably related to the absence of a pro-verbal category.

In sum, then, the surface structures of the predicate cleft construction can be accounted for in quite a simple way, given the hypotheses that the predicate cleft construction is derived by syntactic movement (move-V) to a \bar{V} -position; that this movement rule obeys the Subjacency Condition with S, S' and NP as Bounding nodes; and that the ECP extends to empty verbal categories. Because of this latter assumption the locally \bar{V} -bound V-position must contain a copy of the preposed verb.⁹

6.2.5. *V-binding and the ECP*

Unlike the predicate cleft construction, in which a verbal trace is excluded by the ECP, constructions in which the NP-type of V-movement has applied not only can but must contain an empty verbal category. This verbal trace is locally V-bound to its antecedent in INFL, and forms a θ -chain with it:

- (51) [_S [_{NP}] [_{INFL} V_i] [_{VP} ... [_e]_i / *V_i]]

(51) raises two questions. First, if verbal traces must be properly governed (by virtue of (47)), it must be the case that the verbal trace in (51) is properly governed. The first question, then, concerns the way proper government is satisfied in (51). A second question arises concerning the spell-out option. If a verbal trace can be spelled out, why then is this not possible in configurations like (51)?

Let us first consider how proper government is satisfied in (51). Proper government in (51) cannot be considered to be achieved through *lexical* government of the verb in INFL. Indeed, if this were the case, the verb in INFL would also properly govern the subject position, which would be a wrong result. Proper government, then, must be due to government by a coindexed category, i.e. through the coindexed verb in INFL. Suppose, to exploit the parallelism with proper government by a COMP containing a coindexed *wh*-phrase, that proper government in (51) is achieved in exactly the same way, i.e. by means of an INFL indexing rule applying at S-structure. This rule may be formulated as follows:

- (52) INFL-indexing
 $[_{\text{INFL}} \dots V_i \dots] \rightarrow [_{\text{INFL}_i} \dots V_i \dots]$

It should be pointed out however that it is highly improbable that (52) needs to be formulated as a rule. Instead, its effects should follow from general percolation conventions, when properly formulated, by virtue of which the index of a head percolates up to its maximal projection. Given (52) then, the verbal trace in (53) is governed by INFL, and coindexed with it.

- (53) NP $[_{\text{INFL}_i} V_i]$ $[_{\text{VP}} \dots [e]_i]$

It is therefore properly governed.

It is easy to see how this account carries over to other languages with V-movement to a V-position, such as Dutch. Given our assumptions concerning Dutch phrase structure (cf. 7.3.1.), V-movement yields the following S-structure:

- (54) Dutch
-
- ```

graph TD
 S_prime[S'] --- INFL[INFL]
 S_prime --- S[S]
 INFL --- V_i[V_i]
 S --- NP[NP]
 S --- VP[VP]
 VP --- trace["[v e]_i"]

```

INFL indexing by means of (52) allows INFL to become a proper governor of the verbal trace.<sup>10</sup>

Let us next consider why the verbal trace in (50) may not be spelled out, yielding surface structures of the following type:

- (55) a. \*NP  $[_{\text{INFL}} V_i]$   $[ \dots V_i]$   
 b. \**h* *lī* *sākā* *lī*  
 I ate rice eat

As we have argued above, the V-position in the VP is properly governed, and an empty category may therefore appear. An analysis could be based on this fact. It has been noted that a phonologically realized category is excluded from appearing in a position in which an empty category can occur. This has led Chomsky (1981) to propose the Avoid Pronoun Principle, a principle which states that an overt pronoun should be avoided, in those contexts in which an empty category may occur. Chomsky's proposal can be generalized quite easily to extend beyond pronouns to (56):

- (56) Avoid Phonetics

The existence of such a principle would account for the impossibility of a verbal trace in (55). Note, however, that (56) is not a very deep principle, which provides particular new insight into the structure of UG. Of course, if alternative explanations fail to apply, one can always have recourse to (56).

Instead of (56), an alternative account could be developed, based on the intuitive idea that, in (55), the clause contains one  $\theta$ -assigner too many. As we have shown above, chain formation is forced by the  $\theta$ -criterion: if a verb in a non- $\theta$ -assigning position fails to assign a  $\theta$ -role, the  $\theta$ -criterion is violated in the same way as the S-structure in (57):

- (57) \* *h* *pī* *nā* *dlā*  
 I prepare meat kill

Suppose, then, that chain formation in (55) is blocked by, say, the principle in (58), a generalization of the principle in (59), proposed in Sportiche (1983) in order to capture the fact that NP-trace appears in non-Case marked positions:<sup>11</sup>

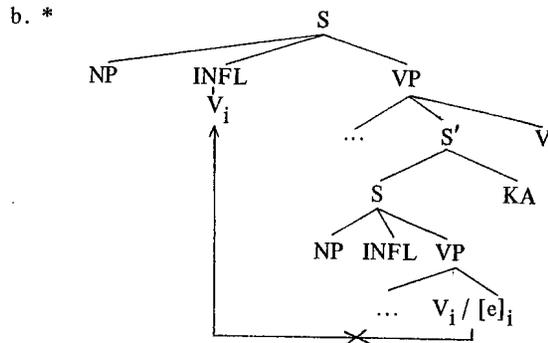
- (58) Only the head of a ( $\theta$ -)chain can be phonologically realized

- (59) Only the head of a chain can be Case marked

Because of (58), no chain can be formed in (57). Consequently, spelling out the verbal trace would lead to a  $\theta$ -criterion violation at S-structure, since the  $\theta$ -roles of the verb in INFL cannot be assigned.

The principle in (58), together with the ECP accounts exactly for the configurations in which movement to a V-position may occur. Consider, for example, how it accounts for the ungrammaticality of (60a), with the corresponding derivation in (60b):

- (60) a. \*h̄ là yué \*[e]/\*l̄a k̄ā m̄l̄  
 I call children call KA leave



The example in (60a) illustrates the clause-boundedness of V-movement. Moreover, such examples, with the structure in (60) are the only type of examples that need to be considered, since the derivation in (60b) is not independently ruled out by Subjacency: even if S' is a Bounding node in Vata, an S' boundary of an infinitival complement never counts as such.

Suppose first that the infinitival complement in (60) contains a verbal trace. This case is ruled out by the ECP, since the verbal trace fails to be properly governed. Suppose next, that the verbal trace is spelled out as a resumptive verb. Chain formation, then, would be blocked by (58), and consequently, the  $\theta$ -criterion would be violated since the  $\theta$ -assigning category in INFL cannot assign its  $\theta$ -roles.

In sum, then, a locally V-bound trace is properly governed by an INFL containing its antecedent. Moreover, a locally V-bound trace cannot be spelled out, either because of (55), or because of (58). Note however that, if (58) holds, the ECP and (58) have exactly the same effect. Let us point out, however, that the accuracy of (58) depends in large part on how raising out of tensed clauses is to be treated. (cf. also footnote (11)). Clearly, then, more discussion is necessary in order to settle these problems. What seems important to me, however, is that principles developed to account for the properties of  $\bar{A}$ - and A-chains can be directly and successfully extended to V-chains.

#### 6.2.6. Verbal trace and Binding Theory

The ECP and (58) presented in the preceding section, account for the distribution of verbal traces, resumptive verbs, and the fact that V-movement to a V-position is local. Note that this account also correctly characterizes the distribution of NP-traces, which occur in Caseless positions – and are therefore necessarily empty – and which occur in properly governed positions.

Such an account differs substantially from the account presented in LGB, which rests upon the following hypotheses:

- (61) (i) NP-trace must be properly governed (ECP)  
 (ii) NP-trace is in a chain ( $\theta$ -criterion)  
 (iii) NP-trace is an anaphor (Binding Theory)

(61iii) is not determined on semantic or formal grounds – NP-trace is a non-argument, and does not refer –, but on functional grounds: NP-trace is locally A-bound in its Governing Category. Condition (58) and (61iii) apparently have the same result. However, since all NP types are subject to the Binding Theory, something like (61iii) is needed for NP-trace in any case.

Pursuing the parallelism between movement to an A-position and movement to a V-position, the account for NP-trace can in fact be directly extended to include locally V-bound trace, by assuming the contextual definition in (62):

- (62) A non-head member of a A/V chain is an anaphor

The locality of V-movement would then follow from condition A of the Binding Theory, where, as before, S is a Governing Category in Vata. Let us, without argument, assume that (62) is correct, and that it follows from functional criteria that a locally V-bound trace is an anaphor. Although both (62) and (58) account for the clause boundedness of V-movement, we will continue to assume that (58) should be maintained, and accounts for the impossibility of spelling out a verbal trace in simple clauses.<sup>12</sup> In sum, then, we propose, mainly because of the parallelism between NP trace and verbal trace, that verbal trace is also subject to condition A of the Binding Theory. It should be pointed out however, that no positive arguments have been presented showing that this *must* be the case. The extension of Binding Theory to include verbal trace, then, is in fact comparable in status to the hypothesis that movement to an A- or a V-position obeys Subjacency.

The conclusion that verbal trace is an anaphor should be considered with some caution, though. As was pointed out before, in addition to the parallelism there is also a fundamental asymmetry between types of NPs and types of verbs: NPs consist of a class of lexical NPs, pronominals, and (lexical) anaphors. No such overt verbal classes exist, though. Therefore the parallelism between A-bound and V-bound traces does not suffice for us to conclude that a theory which applies to NP types in general also applies to a category whose basic properties are quite different.

6.2.7. *The NP/V asymmetry*

In addition to the clear symmetry between movement to an  $\bar{A}/\bar{V}$  position, the two processes are asymmetric with respect to the rule component *move- $\alpha$* , for example. Whereas it is NP, a maximal projection that moves to an  $\bar{A}$ -position, it is V, a head and a non-maximal projection that moves to a  $\bar{V}$ -position.

The same asymmetry with respect to movement to a V-position was discussed in 5.1.5. In that case, the asymmetry could be accounted for quite easily. NP-movement is forced by the Case filter: NPs, not Ns move, since NPs must satisfy the Case filter. Given our hypothesis that movement to a V-position is also forced by the Case filter, but that now it is movement of a Case assigner that is necessary, it follows that a non-maximal projection V moves, precisely because of its status as a Case assigner.

Such an explanation does not, however, carry over to explain the NP/V asymmetry with respect to movement to a  $\bar{V}$ -position. And, as yet, we have no satisfactory explanation to offer. But possible explanations could be explored along the following lines. First, since not all languages have overt *wh*-movement or V-movement to a  $\bar{V}$ -position, it must be specified in the grammar of a particular language whether this option is realized or not. That is, if the transformational component can be reduced to the single rule *move- $\alpha$* , parameters must be associated to it, fixing the choice of  $\alpha$ . Suppose now that the category undergoing movement is fixed once and for all in a particular language. Then, given the existence of NP-movement, *wh*-movement must move NPs, and may not move non-maximal projections, i.e. Ns. Similarly, the existence of the NP-type of V-movement in a particular language, would make it, in principle, possible for the *wh*-type of V-movement to exist.<sup>13</sup>

Alternatively, an account could be developed which would result in excluding configurations in which the VP has moved (recall that in Vata rules like VP preposing do not exist), leaving the language no choice other than movement of the verb. Movement of a particular category, then, would not need to be specified: whether a maximal projection moves or not follows from independent principles. Of course, such an account would also demand an explanation for the impossibility of moving Ns.<sup>14</sup>

6.3. *Discussion*

In this chapter, the counterpart of movement of an NP to an  $\bar{A}$ -position, i.e. movement of a V to a  $\bar{V}$ -position, has been shown to exist. This process, which we have also referred to as Focus-V-movement, underlies the predicate cleft construction in Vata. An account has been developed for the surface structures of this construction, where special attention

has been paid to the parallelisms and asymmetries which obtain compared to movement of an NP to an  $\bar{A}$ -position. Moreover, the implications of these particular proposals for locally V-bound traces have been investigated.

Let us summarize the particular proposals we have made and discuss some of their consequences.

The dependency between the preposed verb and the locally  $\bar{V}$ -bound verb was shown to obey Subjacency, with S' (of a tensed clause), S, and NP as Bounding nodes. Differences with respect to the distribution of locally  $\bar{A}$ -bound traces reduce to the fact that S' and NP are Bounding nodes for movement to an  $\bar{A}$ -position. This analysis provides evidence for the fact that the set of Bounding nodes may differ according to construction type, within the same language. This account seems to extend naturally to other languages with the predicate cleft construction: in Haitian, *wh*-movement and predicate clefting would have the same set of Bounding nodes associated both to movement to an  $\bar{A}$ -position, and to movement to a  $\bar{V}$ -position, which explains the similar behavior of *wh*-movement constructions and predicate cleft constructions (Piou, 1982). Differences between the sets of Bounding nodes may possibly account for the different distribution of *wh*-construction and the predicate cleft construction in Papiamentu (cf. p. 162). However, any conclusions as to the scope of variation seem premature, given the fact that the predicate cleft construction has been subject to so few investigations.

Extension of the ECP to apply to verbal trace accounts directly for the obligatory occurrence of a resumptive verb in the predicate cleft construction. Failure of a verbal trace to be properly governed excludes the occurrence of an empty verbal category and forces the appearance of an overt category. This overt category, a resumptive verb, is a copy of the preposed verb. The predicate cleft construction thus differs from resumptive pronoun constructions. In the latter constructions, a copy of an element occurring in an  $\bar{A}$ -position is excluded and a resumptive pronoun must occur instead. This difference, we have suggested, may be related to the fundamental difference between NP-types and V-types: the former includes lexical NPs, pronominals and anaphors as distinct overt categories, whereas no such overt categories exist for verbs. The fact that the resumptive verb is a copy of the verb in  $\bar{V}$ -position can probably be related to the fact that no other verbal category is available.

The existence of resumptive verbs has interesting implications for the ongoing debate about the nature of resumptive pronouns. This debate turns around the question of whether resumptive pronouns can ever be the result of syntactic movement, i.e. whether resumptive pronouns can behave syntactically in the same way as *wh*-traces. Chomsky (1982) claims that the relation between an operator and a resumptive pronoun is always established at LF, and - implicitly - rules out the possibility

that resumptive pronouns that behave in the same way as *wh*-traces, exist. Whether this is true or not is of course an empirical question.

It has been shown (cf. Zaenen, Engdahl, and Maling (1981), Koopman (1980, 1982c)) that, as well as resumptive pronouns that do not obey Subjacency, there are cases of resumptive pronouns that behave syntactically in exactly the same way as *wh*-traces. In particular, these resumptive pronouns generally occur in non-properly governed positions (i.e. subject of a tensed clause (resumptive pronouns in subject position in Vata in all *wh*-constructions (Koopman, 1980)), or as genitive or object of a preposition in Haitian relatives (Koopman (1982c)), and must be subjacent to their local binder. Moreover, the resumptive pronoun in Vata behaves in all respects like a *wh*-trace, triggering Weak Crossover effects (Koopman and Sportiche (1983), and licensing parasitic gaps (Sportiche (1983)).

Given the existing of resumptive verbs then, the occurrence of resumptive pronouns is not only attested, but also expected theoretically: indeed, it would be surprising if resumptive pronouns could not be syntactically bound, because syntactic movement must necessarily leave an empty category, although the same would not hold for resumptive verbs.

That the focused verb in preposed position does not properly govern its trace in Vata correlates, we have argued, with the lack of proper government from clause initial position. This correlation is repeated again in (63):

- (63) \*  $V_i$  [ NP [INFL [e]<sub>i</sub>] [ ... [e]<sub>i</sub> ]  
 \*  $WH_i$  [ [e]<sub>i</sub> ...

Two questions arise with respect to (63). First, why is there no proper government from initial position in Vata, and are there other properties associated with lack of proper government, and second, does the correlation in (63) extend to other languages?

In Koopman (1982), we proposed relating the absence of proper government from clause initial position, to the absence of a COMP indexing rule in Vata. Given the absence of this rule, a preposed *wh*-phrase can never lead to a configuration in which the subject trace is properly governed, i.e. governed by a head and coindexed with it. The presence or absence of a COMP indexing rule in a particular language, we further argued, represents a parameter of UG. We have called this parameter the *Control from COMP* parameter. I now believe, however, that it is possible to derive the existence of this parameter from the reasonable assumptions that (i) proper governors are a subset of governors, (ii) only heads are governors, and (iii), percolation of indices to heads is a property of heads. The absence of Control from COMP would simply follow from

the fact that *wh*-phrases do not occur in a head position: COMP is final (3.4.1.) but *wh*-phrases occur initially. Thus, there is no way for COMP to acquire the index of a *wh*-phrase. In English, on the other hand, the existence of Control from COMP would follow from the fact that *wh*-phrases occur in a head position, i.e. COMP. Note that if this is true, *wh*-phrases in English must crucially occur in COMP.

Independent support for these hypotheses can be drawn from the form of free relatives in Vata and English.

Since *wh*-phrases in Vata are in a non-head position, they cannot enter into government relations. They are therefore not accessible for government from the outside. But, if *wh*-phrases in English *are* in a head position, they may, in principle, enter into government relations. In particular, they are available for government by an outside governor. Let us now proceed to show how this distinction may yield an elegant account for the form of 'free' relatives in the two types of languages.

Two types of 'free' relatives, (also called headless relatives) are generally distinguished in the literature on the subject (see, among others Bresnan and Grimshaw (1978), Hirschbühler (1978), Groos and Van Riemsdijk (1981)). The so-called *matching* type of free relatives occurs in English, French, Dutch etc, whereas the so-called *non-matching* type can be found in classical Greek for example. The example in (64) illustrates the form of the two types of relatives:

- |      |                                                                                       | English | Cl | Greek |
|------|---------------------------------------------------------------------------------------|---------|----|-------|
| (64) | a. I like [ <sub>NP</sub> [what <sub>i</sub> [you prepared [e] <sub>i</sub> ]]]       | ok      |    | ok    |
|      | b. I like [ <sub>NP</sub> [to whom <sub>i</sub> [you are talking [e] <sub>i</sub> ]]] | *       |    | ok    |

Arguments showing that the *wh*-phrase does not occur in the head position, but must occur in COMP instead, as indicated in (64), are presented in Groos and Van Riemsdijk (1981) and Koopman (1982a). The matching effect is illustrated in (64): the categorial features of the *wh*-pronoun must correspond to the categorial status of the entire free relative. In order to express the matching effect, Groos and Van Riemsdijk argue that COMP must be accessible for rules of subcategorization and Case checking in structures like (64). Since rules of subcategorization or Case checking require government, COMP in (64a) must, therefore, be accessible for government from the outside. Note that, if, as we have assumed all along, only heads are available for government from the outside (Belletti and Rizzi (1981)), COMP in English must be a head.

Given these assumptions, then, the English type of free relative can exist precisely because *wh*-phrases occur in COMP, which, by virtue of its status as a head, is accessible for outside government. But now consider Vata. *Wh*-phrases do not occur in a head position, and can therefore not enter into government relations. Therefore, the non-existence of free

relatives of the type in (64a) is predicted. This predication is borne out since, indeed, sentences, which semantically speaking correspond to free relatives are headed, and 'real' headless relatives are unattested:

- (65) a.  $\dot{n}$  wà [zE<sub>i</sub> [mEmE<sub>i</sub> [  $\dot{n}$  pi-  $\delta$ O [e<sub>i</sub> ]]]  
 I like 'thing' ITIT you prepare-REL  
 'I like what you have prepared'  
 b. \* $\dot{n}$  wà [yI<sub>i</sub> [  $\dot{n}$  pi-  $\delta$ O<sub>i</sub> [e] ]]  
 I like what you prepare-REL  
 c.  $\dot{n}$  wà [nyO<sub>i</sub> [mOmO<sub>i</sub> [  $\dot{n}$  wà-  $\delta$ O [e<sub>i</sub> ]]]  $\bar{O}$   
 you like person HIMHIM you like-REL Q  
 'Do you like who I like?'  
 d. \* $\dot{n}$  wà àlO  $\dot{n}$  wà -  $\delta$ O  $\bar{O}$   
 you like who I like-REL Q

The assumptions concerning the fact that *wh*-phrases occur in head or non-head position nicely correlates with the form of free relatives: this allows to explain a gap which would otherwise be merely accidental.

Let us now return to the problem of how accurate the correlation in (63) is. Is Control from COMP always absent in a language in which the predicate cleft construction exists? Or, if Control from COMP exists, can the locally  $\bar{V}$ -bound position contain an empty category?

Let us first discuss how the correlation can be maintained in a language like Haitian, with the minor adjustment that focused verbs occur in TOP, rather than in COMP.

In Haitian *wh*-constructions, a preposed *wh*-phrase or clefted NP cannot govern a trace in subject position, nor can an intermediate trace in COMP do so.<sup>15</sup> In these cases, the special complementizer *ki* must appear (cf. Koopman, 1980a, 1982d) for discussion:

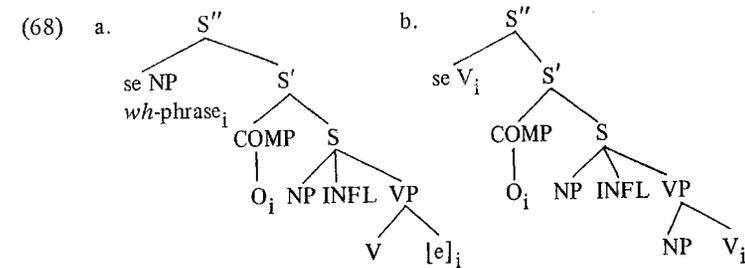
- (66) Haitian  
 a. *ki mún \*(ki) [e] te wè Mari a*  
*wh-person KI PT see Mary DET*  
 'Who saw Mary'  
 b. *sè ti-Pòl \*(ki) [e] te wè Mari*  
*it-is Paul KI PT see Mary*  
 'It is Paul who saw Mary'  
 c. *ki mún u kwè \*(ki) [e] te wè Mari*  
*wh-person you believe KI PT see Mary*  
 'Who do you believe saw Mary'

Thus, although neither preposed *wh*-phrases nor focused NPs yield a configuration of proper government, proper government from COMP does exist, witness *ki*.

As we pointed out before, the predicate cleft construction is part of Haitian grammar (see Piou (1982) for a careful description):

- (67) *se aște Mari vle pu mămă - I aște flè*  
*it-is buy Mary want for mother her buy flower*  
 'Mary wants for her mother to BUY flowers'  
 (Piou, 1982 (11))

As Piou shows, the focused verb and its copy obey Subjacency. It is argued in Koopman (1982d) and Piou (1982) that *wh*-phrases, clefted NPs and focused verbs all occupy the syntactic position TOP. They can thus be assumed to be derived in the same way as English cleft sentences (Chomsky, 1977), i.e. by movement of an empty operator *O* (cf. Chomsky, 1982):



But if this is true the correlation in (63) can be maintained: an empty operator in COMP (68a) does not constitute proper government for the subject trace (hence the appearance of *ki*), just as an empty verbal operator does not constitute proper government of a verbal trace (68b).

In other words, then, there may be Control from COMP in a given language, but the crucial fact is that the category 'comparable' to a focused verb does *not* trigger Control from COMP. Since the element most comparable to a focused verb (a  $\theta$ -assigner), is an argument, one would not expect to find a language in which focusing of the subject would yield proper government, but focusing of a verb would not.<sup>16</sup>

An important conclusion we have reached in this chapter is that the ECP applies to verbal trace. This implies that, in the case of movement to a V-position, a verbal trace *is* properly governed. The mechanism that accounts for the proper government of a subject trace, i.e., percolation of an index to a governing head, can be directly extended to these cases. The index of the preposed verb in INFL percolates up to INFL, which allows INFL to properly govern the verbal trace. This hypothesis has implications

for the discussion on whether the notion government is also parametrized for directionality, like  $\theta$ -role assignment and Case assignment.<sup>17</sup> If, indeed INFL properly governs the verbal trace, government in Vata is both left-directional and right-directional. Therefore it cannot be parametrized for directionality.<sup>18</sup>

We have also discussed whether or not a locally V-bound trace should be considered to be an anaphor with respect to the Binding theory. Mainly for reasons of parallelism, we have assumed this to be the case. Finally, some possible directions which could lead to an explanation of the V/NP asymmetry with respect to the rule component  $\text{move-}\alpha$  have been discussed. In sum, then, we have shown in this study that the two main movement processes, viz. movement to an A-position and movement to an  $\bar{A}$ -position, also exist for the category V. Principles and subtheories dealing with A-A relations and  $\bar{A}$ -A relations extend to V-V relations and  $\bar{V}$ -V relations. Thus, no specific principles or subtheories need be constructed in order to account for the properties of V-movement rules and for the distribution of verbal traces and resumptive verbs.

We should finally mention that the discussion in this chapter has been somewhat exploratory. Clearly, a lot of questions remain to be addressed, such as for example, the question what the LF representation of the predicate cleft construction looks like, and what syntactic behaviour would bear on this question. Other questions, pertaining for example to further properties of the preposed verb and verbal trace will be discussed in chapter 7.

## NOTES

1. Similar constructions possibly occur in Italian (Cinque, personal communication and Belletti p.c.), and maybe also in Hungarian (Szabolcsi (p.c.)).
2. In some languages such as Yoruba the focused verb appears with nominal morphology. This does not appear to alter anything about the syntactic behavior of the predicate cleft construction, however. We will assume that, in these cases, the particular morphology is imposed by the initial position the verb appears in.
3. Piou (1982a) discusses the characteristics of a similar construction in Haitian:

- (i) *limě l limě lăp lă papiyõ ã vole*  
 turn-on s/he turn-on light-DET butterfly DET fly-away  
 'When she turned the light on, the butterfly flew away'

(Piou, 1982a, 1b)

4. According to Piou (1982), the verb *bay* in Haitian may not undergo predicate clefting. This seems to be generally true of verbs which take a double object construction. The example in (11b) shows that no such restriction holds in Vata. Although we have no account for the restriction in Haitian, nor for the difference between Vata and Haitian, an analysis might explore the fact that this is only true

for double object constructions, and that these behave differently in Haitian and Vata (fixed versus free order).

5. Recall that, despite the fact that these *wh*-islands are relative clauses in surface structure, their syntactic behavior is really that of indirect questions. Correspondingly, we treat these clauses as being S's syntactically speaking.
6. Comparable situations obtain in other languages, though. In Italian for example, *wh*-islands can be freely violated by 'relative' pronouns, but less freely by interrogative pronouns (cf. Rizzi, 1982):

- (i) a.?? A chi non sai che detto  
 'To whom don't you know what I said?'  
 b. Tuo fratello, a chi mi domando che storie abbiano  
 raccontato, era molto preoccupato  
 'Your brother, to whom I wonder which stories they told, was very troubled'

(Rizzi, p. 51 (7c) and p. 50 (6b))

Rizzi suggests relating the difference in status between (ia) and (ib) to an independent property of the interrogative construction in Italian. In Dutch, topicalization is clause bound (Van Riemsdijk, 1978a), but interrogative pronouns may move successive-cyclically in the presence of a bridge verb. Thus, the same verb may or may not function as a bridge verb, depending on the type of construction.

7. Chomsky (1982), however, assumes that arguments in  $\bar{A}$ -positions can head a  $\theta$ -chain. This, he proposes, is the case for the relation between a clitic and its trace for example. For arguments against such an assumption, see Sportiche (1983).
8. Note that (47a) violates the ECP given the hypothesis of Belletti and Rizzi (1981) that only heads are available for outside government. In (47a), the preposed verb only governs INFL, and not the trace in the VP. Thus, only (47b) needs to be excluded.
9. Contrary to Jaeggli (1980), who has proposed that the ECP should be restricted to apply only to empty NP categories. For arguments in favour of the extension of the ECP to all categories, including adjuncts, see Huang (1982).
10. It is interesting to point out in this respect that INFL in Dutch will be doubly filled quite generally (with the exception of yes-no questions and imperatives). This does not prevent INFL from acquiring the index of a preposed verb. Similarly, as we will see in 7.2.2.2., INFL may also acquire the index of the preposed *wh*-phrase, in order to properly govern the subject position. Thus, percolation up to INFL is symmetric.
11. Or rather, what is usually considered NP-trace occurs in a Caseless position. If the examples (99) of chapter 3 contain A-chains, then (58) cannot of course be maintained. For discussion of these matters see also Sportiche (1983).
12. Or, alternatively, it could be proposed that, given the absence of a verbal category corresponding to anaphors, the only way in which a verb can become an anaphor, is by virtue of being an empty category. Note, however, that it would then also follow that a locally  $\bar{V}$ -bound category is not anaphoric. This, then, could provide an argument against treatment of a *wh*-trace as anaphoric.
13. But what would then be impossible in a particular language is the existence of the NP or *wh*-type of V-movement, and a rule like VP preposing. This is true for example in Vata, Dutch and Hungarian (recollect that we have suggested that the NP-type of V-movement is also observed in Hungarian (cf. chapter 3, footnote 23)). It does not extend however to a language like English, if Subject AUX Inversion represents a case of the NP-type of V-movement.

14. Cases of N movement may exist, however. Sproat (1983) proposes for example that N movement has occurred in NPs of the type *NNP(subject) NP(object)* in VSO languages.
15. Haitian belongs to that class of languages in which proper government can only be fulfilled if a *lexical* category appears in COMP.
16. That is, one would not expect to find a language with the following properties:

- (i) a. (it is) NP<sub>i</sub> [<sub>S'</sub> [<sub>COMP</sub> O<sub>i</sub> [<sub>S</sub> [e]<sub>i</sub> VP]]]  
It is John came
- b. (it is) V<sub>i</sub> [<sub>COMP</sub> O<sub>i</sub> [<sub>S</sub>... \* [e]<sub>i</sub> / V<sub>i</sub>]]  
It is come John came

Such languages may exist. Papiamentu for example exhibits surface structures like (i). (cf. Muysken, 1978). Of course, a detailed analysis of such cases will be important to show whether or not they constitute problems for our analysis.

17. Proposals as to directionality of government have been made by Stowell (1983) and Sproat (1983). Stowell proposes that government in English is directional, Sproat, that in English at least verbs and Ps govern directionally, whereas all heads would govern to the right in VSO languages.

18. We should point out however that this argument is not very strong, since we have also proposed that UG contains a general condition on  $\theta$ -chain formation, which prohibits a locally V-bound trace from being lexically realized. As far as V-bound traces are thus concerned, this condition has the same effect as the ECP.

## Verb Second

### 7.0. Preliminary remarks

The account of V-movement in Vata and Gbadi presented in Chapter 5 makes crucial use of Case theory; V-movement was argued to occur in order to make Case assignment to the subject possible. This account raises further questions, concerning the way in which nominative Case is assigned more generally, and the way it extends to other languages with similar V-movement rules. These questions will be addressed in this chapter.

7.1.1. discusses nominative Case assignment more generally. Special attention will be paid to the alleged role of AGR in the assignment of nominative Case; examination of several languages will be shown to give support to the view that nominative Case is not assigned by AGR, but instead, generally speaking, by a verbal INFL.

In 7.2., we will extend the analysis of Vata and Gbadi to other languages with V-movement rules, in particular to so-called verb second (V-second) languages. First we establish that the rule of V-second has the same formal properties as the NP-type of V-movement, i.e. it represents movement to a V-position. Arguments will be presented in favour of analyzing V-second as movement into COMP (cf. Den Besten (1978)). Furthermore, it will be shown, on the basis of Dutch data, that V-second must be a syntactic movement rule, since it interacts with the possibility for extraction of the subject NP. Given these results, then, the apparent difference between V-movement in Vata and Dutch can be located, descriptively speaking, in the landing site position of the verb: INFL in Vata, and COMP (or the S' level in Dutch).

In 7.3., we will address the question of what this difference represents in theoretical terms. In fact, we shall argue that the difference is minimal, and reduces to a different positioning of INFL, which, we will show, may in turn be related to the respective values that are assigned to the parameter setting the directionality for Case assignment in each language. Finally, some of the implications for the analysis of VSO and SVO languages will be examined, and the differences between V-second, VSO and SVO languages will be discussed.

In 7.4., properties of the preposed verb and verbal trace in Vata and

Dutch will be discussed and contrasted with the properties which have been isolated for Spanish in Torrego (1981).

Section 7.5., finally, contains a summary: some of the implications of the analysis proposed in this chapter are discussed more generally.

### 7.1. Nominative Case assignment

We have argued in Chapter 5 that nominative Case is assigned in the following configuration:

- (1) NP is nominative if governed by and adjacent to [<sub>INFL</sub> V]

V-movement is forced by (1) if INFL does not already contain a verbal element. Moreover, because of (1), we argued that INFL must always contain a verbal element.

But the configuration for nominative Case assignment, presented in (1), differs from current assumptions concerning the element responsible for nominative Case assignment. It is assumed in Chomsky (1981), for example, and in many more recent works, that AGR is the element that assigns nominative Case. Recall that AGR in Chomsky (1981) plays two distinct roles: that of assigning nominative Case, under government, and that of determining the Governing Category for certain overt anaphors, through the notion accessible SUBJECT. As argued in 3.3.1., INFL in Vata does not contain an (abstract) node AGR. This assumption was corroborated by the functioning of the Binding theory in Vata. Given its absence then, nominative Case in Vata cannot be assigned by AGR, and it has to be assumed that it is assigned by other means, i.e. by a verbal INFL.

The configuration in (1) raises many questions, though. Is it language-specific? And, if so, what variations can be observed in the configurations in which nominative Case is assigned? What constitutes the core case for nominative Case assignment?

Since, for familiar reasons, one wants to limit language specific definitions as much as possible, we will try to show that (1) holds far more generally, and may even represent the core case of nominative Case assignment.

A first step in achieving this consists of examining those cases which have led Chomsky (1981) to propose that AGR is the relevant element for nominative Case assignment. This will permit us to show that, while it is far from obvious that they constitute evidence for the AGR-assigns-nominative-Case-hypothesis, they fall in nicely with (1).

Before turning to this discussion, let us first clarify what we mean by the term 'nominative Case'.

The notion Case is an abstract formal notion, and the relation between

this notion and the actual morphological realization can be conceived of in basically two ways. Either abstract Case determines a configuration in which lexical NPs may appear, and there is no (or no necessary) one-to-one relation between abstract Case and morphological Case. Or, alternatively, there does indeed exist an identity relation between the nature of abstract Case and its morphological realization. The following discussion on nominative Case rests on the latter premise: the appearance of (morphological) nominative Case will be considered to indicate that (abstract) nominative Case is assigned, and vice versa, the appearance of non-nominative NP implies that no nominative Case has been assigned.

Several assumptions can be found in the literature concerning the nature of nominative Case assignment. Up to Chomsky (1980) *On Binding*, it has been assumed that the feature [+Tense] constitutes the element assigning nominative Case, under government:

- (2) NP is nominative if governed by [+Tense]

In LGB however, this assumption is abandoned, and replaced by the hypothesis that nominative Case is assigned by AGR:

- (3) NP is nominative if governed by AGR. (LGB, p. 170)

To these hypotheses, we may add (1), arrived at for Vata: nominative Case is assigned by a verbal INFL.

The choice between (1), (2) and (3) is not obvious. This is particularly so because in most languages AGR correlated in a one to one fashion with Tense, and both AGR and Tense show up on verbal morphology in surface structures.

The justification for (3) is derived from languages in which AGR and Tense may be dissociated. It is claimed that, in such languages, lexical NPs in subject position are assigned nominative Case in complements containing AGR but not Tense. Closer examination of these languages, however, to which we will now turn, reveals problems with (3), and brings support to (1), instead.

In the following discussion, we will consider Portuguese and Turkish, two languages that possess certain clause types with AGR but without Tense, and Italian, a language which, under certain conditions, allows nominative NPs in infinitival clauses which contain neither AGR nor Tense.

In Portuguese, infinitival complements exist in which the verb is inflected for person marking (AGR). This is illustrated in the examples in (4), drawn from Rouveret (1980):

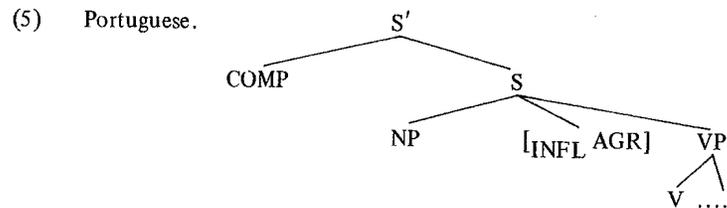
- (4) a. Emprestou-me dinheiro para [eu comprar um casáco]  
 Lent-3 me money for I buy-AGR a coat  
 'He lent me money to buy a coat'  
 b. E difícil [as raparigas lerem este livro]  
 Is difficult the girls read-AGR this book  
 'It is difficult for the girls to read this book'  
 (Rouveret, 1980, (1a) and (1d))

These inflected infinitives contain a lexical subject NP, marked for nominative Case. Non-inflected infinitives do not allow lexical NPs in subject position.

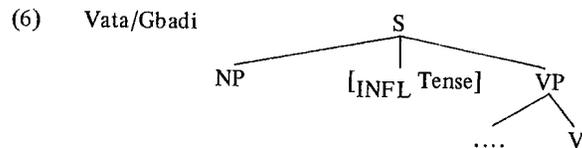
Obviously, then, nominative Case in the examples in (4) is a commitment of the presence of AGR in INFL. And, given the absence of [+Tense] these examples also show that the hypothesis (2) cannot be adopted.

It does not seem clear to me, however, that the only possible conclusion which can be drawn from these data is that AGR assigns nominative Case. Given the analysis of Vata and Gbadi presented above, an alternative analysis in terms of V-movement can be easily constructed.

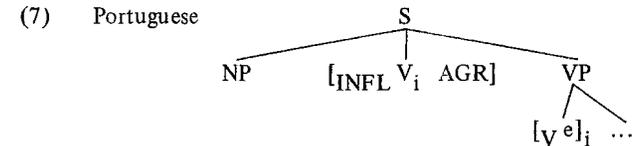
It seems to be a language specific property of Portuguese that it allows for the possibility of AGR in non-tensed clauses, i.e. Portuguese allows D-structures like (5):



Presumably AGR, like Tense, is a governor: the subject position in (5) is therefore governed, and PRO is consequently barred from this position. But note now that this configuration exactly parallels the one in Vata and Gbadi, repeated in (6), with the languages differing in that INFL contains a different governor, and that, whereas the verb assigns its  $\theta$ -roles to the right in Portuguese, it does so to the left in Vata.



Given this configuration, then, it seems entirely natural to extend the analysis in terms of V-movement to Portuguese, and to propose accordingly that in (4) the verb has moved into INFL in order to make nominative Case assignment possible. In other words, the following S-structure representation (7) would correspond to the D-structure (5).



Of course, given the head initial character of Portuguese, surface structures are much more opaque in Portuguese than in Vata. The effect of V-movement cannot be directly read off surface structures. We are confident that, if (7) is the correct S-structure representation, further empirical evidence will be found to support it.

Not only does this analysis in terms of V-movement constitute a reasonable alternative to the AGR-assigns-nominative-Case analysis, but also there seems no way of preventing V-movement from applying, given the analysis of Vata and Gbadi. Thus, AGR would not assign Case by itself, just as Tense cannot assign Case by itself. Instead, the presence of AGR in INFL forces V-movement and yields the configuration for nominative Case assignment in (1). Under this analysis, Portuguese no longer contains evidence for (3), but rather supports (1).

The analysis of Portuguese in terms of V-movement becomes all the more attractive, since, as far as we know, Portuguese represents the only case of a language in which AGR may be dissociated from Tense, and in which nominative Case is assigned. Although this same property is often attributed to Turkish, it is worthwhile to point out that the Turkish data do not bear on the problem of nominative Case assignment.

As discussed in George and Kornfilt (1981), Turkish gerunds may contain AGR without containing Tense. However, contrary to what one would expect if it was AGR that assigned nominative Case, these gerunds do not contain a nominative NP. Instead the subject NP is *genitive*. This is illustrated in the following example, drawn from George and Kornfilt (1981):

- (8) herkes [yazar-lar-in viski-yi ic-tik-lerin] i  
 everybody author-PL-GEN whisky-ACC drink-GER-AGR ACC  
 bil-iyor  
 know-PRES  
 'Everybody knows that the authors drank the whisky'  
 (George and Kornfilt (1981), (23))

Thus, in Turkish, AGR has no relation to nominative Case assignment.

Italian constitutes a final example of a language that is problematical for the hypothesis that AGR assigns nominative Case. Rizzi (1982) discusses a (stylistically marked) construction in Italian, which allows lexical subjects in infinitival complements. These lexical NPs, which carry nominative Case, occur in infinitival complements containing *neither AGR nor Tense*. They occur instead if an auxiliary verb has moved into clause initial position (the AUX-to-COMP rule of Rizzi (1982)). This is illustrated in the following example:

- (9) Ritengo [S' esser [S loro in grado di pagare il riscatto]]  
 believe-I be they able to pay the ransom  
 'I believe them to be able to pay the ransom'  
 (Rizzi, (35b))

In (9), the auxiliary *esser* has been preposed into COMP, and the subject of the infinitival clause contains a lexical NP, marked with nominative Case. Moreover, since the infinitival complement in (9) contains neither AGR nor Tense, nominative Case is rather determined by the occurrence of an auxiliary in COMP. But note now, that, if the AUX-to-COMP rule consists of preposing the INFL node into COMP, yielding a structure like (10):<sup>1</sup>

- (10) [S' [INFL esser] [NP [INFL e] VP]]

then the configuration for nominative Case assignment in (1) is fulfilled.

In conclusion, then, the Turkish and Italian data illustrate the problems with the assumption that AGR assigns nominative Case. First, in Turkish gerunds which only contain AGR, genitive Case is assigned, and secondly, in certain infinitival clauses in Italian, nominative Case may be assigned in the absence of AGR and Tense. Furthermore, the analysis proposed for Vata and Gbadi seems to carry over straightforwardly to Portuguese, where the language specific property of Portuguese consists of allowing for an INFL with AGR in certain infinitival (i.e. non-tensed) complements. This forces V-movement into INFL, a process which, in a way, mirrors affix-hopping. Then both Italian and Portuguese are consistent with (1) and may even contain evidence for nominative Case assignment under (1). Accordingly, it seems reasonable to assume that (1) is not specific to Vata and Gbadi but holds more generally. We return to this question in 7.4.

Finally, let us point out that, although AGR does not assign nominative Case, it determines an opaque domain for the Binding conditions. In all the cases discussed above, the clausal complements containing a lexical subject NP constitute an opaque domain for the Binding conditions. In

Portuguese and Turkish, this domain is determined by AGR (i.e. through the notion accessible SUBJECT); in Italian, the opaque domain is rather the S' containing the governor of [NP,S], and [NP,S]. (For discussion of this matter, see Rizzi (1982)).

## 7.2. *Verb second*

### 7.2.0. *Introduction*

The appearance of the finite verb in second position in root sentences is one of the characteristic properties of many of the Germanic languages. It is generally assumed that the finite verb is moved into this position by a verb movement rule, which, because of the surface position of the verb, is often referred to as the rule of *V-second*.<sup>2</sup>

In this section, we will establish that the rule of verb second displays the same properties as the NP-type of V-movement in Vata and Gbadi, thus paving the way for a discussion of the differences between the two types of languages (cf. 7.3.). Moreover, arguments will be presented, based on English and Dutch data, which bring support to our hypothesis that this type of V-movement must be a syntactic movement rule, applying between D- and S-structure.

### 7.2.1. *V-second as V-movement into COMP*

V-second is generally observed in the Germanic languages; we will illustrate its functioning, and motivate our analysis of it in Dutch. We will presume however that this analysis extends to other V-second languages as well.

A striking fact about Dutch word order, is the alternation between the word order in main clauses and subordinate clauses.

- (11) a. Marie *heeft* gisteren een boek aan Jan gegeven  
 Mary has yesterday a book to John given  
 'Mary has given a book to John yesterday'  
 b. dat Marie gisteren een boek aan Jan gegeven *heeft*  
 that Mary yesterday a book to John given has  
 'that Mary has given a book to John yesterday'

The difference between the order in main and embedded clauses lies in the position the finite verb occurs in.

There exists strong and uncontroversial evidence that the word order in the subordinate clause represents the underlying word order (cf. Koster (1975), and the references cited therein; see also 4.3. of this study for an argument that the VP is verb final). The order in main clauses, then, is derived by means of a V-movement rule which preposes the finite verb into first or second position. This V-movement rule only applies in so-

called 'root-environments' (Emonds (1976)), and is commonly called the rule of V-second.

Den Besten (1977) and Evers (1981) argue quite convincingly that V-second represents movement of the finite verb into COMP. Since this analysis does not yet seem to be generally accepted (see for instance Safir (1981)), or is simply not known, we will present the arguments underlying this proposal.

The motivation for the analysis as movement of the verb into COMP is based on the following two observations: first, the finite verb and the lexical complementizer are in complementary distribution, and second, 'weak' nominative pronouns cliticize either onto the finite verb, or onto the lexical complementizer. Let us discuss these arguments in turn.

The finite verb and a lexical complementizer alternate in main clauses and their embedded variants:

- (12) a. *Is hij ziek?*  
Is he sick?  
b. *Ik vraag me af (\*is) of (\*is) hij ziek is*  
I ask me whether he sick is  
'I wonder whether he is sick'
- (13) a. *Wie heeft dat gedaan?*  
Who has that done  
'Who has done that?'  
b. *Ik weet niet (\*heeft) wie (\*heeft) of dat gedaan heeft*  
I know not who whether that done has  
'I don't know who has done that'

Alternation of the finite verb and a lexical complementizer is not just restricted to these contexts. As Den Besten points out, the alternation is also observed in certain non-root constructions, like *as-if* clauses (14a,b), or in root environments like exclamatives (14c,d):

- (14) a. *als zou hij dat niet begrepen hebben*  
as would he that not understood have  
'as if he had not understood it'  
b. *als of hij dat niet begrepen zou hebben*  
as if he that not understood would have  
c. *Aardige mensen zijn dat!*  
Nice people are that  
'Nice people they are'  
d. *Aardige mensen dat dat zijn!*  
'Nice people they are'

A brief remark about the complementary distribution of the lexical complementizer and the finite verb is in order. In the examples above, the lexical complementizer is always phonetically realized. This is not always the case, though. In examples like (13b), and relative clauses, the lexical complementizer - in standard Dutch - need not be present. V-movement, however is still excluded:

- (15) a. *Ik weet niet wie (\*heeft) dat gedaan heeft*  
I know not who that done has  
'I don't know who did that'  
b. *de jongen die (\*heeft) dat gedaan heeft*  
the boy who that done has  
'The boy, who did that, ...'

And, in contrast with relative clauses, V-movement must apply if an element has been topicalized:

- c. *die jongen die heeft dat gedaan*  
that boy who has that done  
'It is that boy who did that'

We will assume that (15a) and (15b) are treated as containing a lexical complementizer underlyingly, which will be subsequently deleted, but that (15c) does not contain a complementizer.

The reader will immediately note the parallelism between the Dutch data and the data from Vata discussed earlier. In Dutch the finite verb may not be preposed if COMP contains a lexical complementizer,<sup>3</sup> in Vata and Gbadi the verb may not be preposed if INFL contains an auxiliary.

Den Besten also shows that certain elements behave in the same way with respect to the finite verb and the lexical complementizer, as if these were, in fact, the realization of one and the same abstract element. This is the case, for example, with 'weak' nominative pronouns in Dutch, which have to be adjacent to either the finite verb (in root sentences) or the lexical complementizer:

- (16) a. *Heeft gisteren Piet/\*ie die film nog kunnen zien?*  
Has yesterday Peter that movie still be-able see  
'Has Peter still been able to see that movie?'  
b. *dat gisteren Piet/\*ie die film nog heeft kunnen zien*  
that yesterday Peter that movie still has be-able see  
'that Peter has still been able to see that movie yesterday'  
c. *Heeft ie gisteren die film nog kunnen zien?*  
Has he yesterday that movie still be-able see

- d. dat ie gisteren die film nog heeft kunnen zien  
that he yesterday that movie still has be-able see

Thus, weak nominative pronouns cliticize onto the preposed verb or the lexical complementizer. If the finite verb has moved into COMP as in (16a), and (16c), this can simply be stated as the fact that these nominative clitic pronouns cliticize onto COMP. We will return in 7.3.2. to the analysis of this descriptive statement in terms of Case theory.

Given these facts, we will assume that V-second is movement of the finite verb into COMP, more precisely, into the position Den Besten defines as [+Tense].

If the rule of V-second preposes the finite verb into COMP if this COMP does not already contain an overt complementizer, it implies that subjects in Dutch main clauses of the following type do not occur in the structural subject position:

- (17) Marie heeft deze mensen in Parijs ontmoet  
Mary has these people in Paris met  
'Mary has met these people in Paris'

Instead, the subject in (17) must be assumed to be topicalized, representing a S-structure representation of the following type:

- (18) [<sub>S'</sub> Marie<sub>i</sub> [<sub>S'</sub> [<sub>COMP</sub> pro<sub>i</sub> heeft<sub>k</sub>]]] [<sub>S</sub> [<sub>NP</sub> e<sub>i</sub>] ... ontmoet [e]<sub>k</sub>]]

Such an analysis is indeed entirely justified, since a *wh*-movement analysis for examples like (17) can be easily motivated, as we will now show.

Parallel to sentences like (17), there are surface structures with a so-called D-word (i.e. demonstrative pronoun) in COMP:

- (19) [<sub>S'</sub> Jan [<sub>S'</sub> [<sub>COMP</sub> die<sub>i</sub> heeft<sub>k</sub>]]] [<sub>S</sub> [<sub>NP</sub> e<sub>i</sub>] hem ontmoet [<sub>V</sub> e]<sub>k</sub>]]

Such topicalization structures are only possible in main clauses. Following Koster (1978), (1978a), we will assume that (19) is derived by *wh*-movement, and that (17) derives from (19) by non-lexicalization (or, to use an older term, deletion) of the D-word in COMP. Now, in general, a D-word in COMP may or may not be lexicalized, as the following examples show:

- (20) a. Marie (die) ken ik niet  
Mary *that*-one know I not  
'Mary I don't know'

- b. (Dat) geloof ik niet  
That believe I not  
'I don't believe that'

It is important to note that only D-words in COMP may be deleted, even if TOP contains no overt category as in (20b). Thus, omission of the D-word in (21) leads to an illformed sentence:

- (21) Ik geloof \*(dat) niet  
I believe that not  
'I don't believe that'

Given the optional phonetic realization of the D-word in COMP, then, the assignment of the same structure to (17) and (19) is fully justified, and the simple analysis of V-second as movement of the finite verb into the COMP position can be adopted.

The question then arises why subjects in Dutch – and in other V-second languages – must be topicalized in root sentences, and may only remain in subject position if another element has been preposed.

We will assume that this is a consequence of an independent constraint which requires the Topic position to be filled.<sup>4</sup>

In sum, then, V-second represents V-movement of the finite verb into COMP if COMP does not contain an overt complementizer. Moreover, the root character of this rule can be related to the fact that the verb can only move into COMP in the absence of an overt complementizer.

The characteristic properties of V-second in Dutch can be summarized as in (22):

- (22) (i) V-movement is a characteristic of tensed clauses  
(ii) V-movement is obligatory in the absence of a complementizer  
(iii) V-movement is clause bound

These properties correspond to those of V-movement in Vata and Gbadi, with the following differences: (i) in Vata and Gbadi, the verb lands in INFL, whereas it lands in what is commonly called COMP in Dutch, and (ii) the main verb alternates with a verbal element in Vata and Gbadi, but with a lexical complementizer in Dutch.

We will return below to the demonstration of how the analysis of V-movement as forced by Case theory extends to V-second in Dutch.

Den Besten proposes to extend the analysis for Dutch to the English rule of Subject-AUX-Inversion (henceforth SAI), which, then would also represent movement of an (auxiliary) verb contained in INFL into COMP.<sup>5</sup> The root character of SAI is related to the fact that a verb cannot be preposed in the presence of a lexical complementizer.



- (27) [S' [COMP who
- <sub>i</sub>
- ] [S [NP e]
- <sub>i</sub>
- must leave]]

Under the assumption that SAI moves the verb from INFL into COMP, the asymmetry discussed above follows from the theoretical framework as is. To see this, suppose that SAI had applied in the case of subject extraction, yielding the following structure:

- (28) [S' [COMP who
- <sub>i</sub>
- did
- <sub>k</sub>
- ] [S [NP e]
- <sub>i</sub>
- || [INFL e]
- <sub>k</sub>
- leave]]

Now, by virtue of the ECP, the trace in subject position must be properly governed. But note that in (28), the COMP contains both a *wh*-phrase and *do*: the structure is therefore exactly parallel to that in (23a) which is known to be ruled out by the ECP. Note also that the ungrammaticality of (28) cannot be explained by having recourse to the doubly filled COMP filter (Chomsky & Lasnik (1977)), given the grammaticality of (29):

- (29) [S' [COMP who
- <sub>i</sub>
- did
- <sub>k</sub>
- ] [S John [INFL e]
- <sub>k</sub>
- see [NP e]
- <sub>i</sub>
- ]]

If we extend the account developed for (23a) to the structurally identical (28), an explanation of the impossibility of SAI is immediately available. If SAI were to apply, the resulting structure would lead to a ECP violation, since the subject position would fail to be properly governed, in exactly the same way as the presence of the lexical complementizer in case of long subject extraction leads to an ECP violation.

We therefore propose that the inapplicability of SAI with subjects is explained by the ECP, and that the ECP effects in embedded clauses are observed in exactly the same way in main clauses: the treatment of the inverted AUX and the lexical complementizer as occupying the same syntactic position allows a uniform explanation of the obligatory absence of *that* in structures like (23a), and of the impossibility of SAI with subjects.

An important result, then - if we accept the arguments that the ECP, whatever its correct formulation, is a principle that applies at the LF level of representation (cf. Kayne (1981c), Rizzi (1982), Koopman (1982)) - is the fact that *the V-movement rule of SAI must occur prior to S-structure*, precisely because of its interaction with the ECP.

#### 7.2.2.2. *V-second and COMP-trace phenomena in Dutch*

As was originally pointed out by Perlmutter (1971), violations of the *that-t* filter occur in Dutch. Chomsky and Lasnik (1977) suggest that these *that-t* violations might be restricted to certain dialects, for which alternative analyses might be presented. The dialects in question have subsequently been called Dutch A and Dutch B by Maling & Zaenen (1978), and Belgian (= Dutch A) and Dutch (= Dutch B) by Bennis (1980).

The alleged behavior of Dutch A allowing *that-t* violations, and Dutch B, disallowing them is generally illustrated by the following examples:

- (30) a. Wie denk je dat (er) gekomen is (Dutch A)  
 Who think you that (there) come is  
 'Who do you think came'  
 b. Wie denk je dat \*(er) gekomen is (Dutch B)  
 Who think you that there come is  
 'Who do you think came'

Dutch A would allow for *that-t* violations, while Dutch B would respect the *that-t* filter. Maling and Zaenen (1978) develop an account for Dutch A, based on the possibility of dropping the dummy subject *er* in Dutch A, but not in Dutch B. Bennis (1980) proposes instead to locate the difference between the two dialects in the configurations in which proper government from COMP is possible: Dutch A would allow proper government from COMP, even if COMP is doubly filled, whereas Dutch B would be like English.

Here, we will argue against these views, and show instead that (i) *that-t* violations occur in all Dutch dialects, even in Dutch B, which is supposedly the more conservative dialect with respect to subject extraction; (ii) *that-t* violations occur in both matrix *and* subordinate clauses, and (iii) the possibility of *that-t* violations in Dutch, rather than being problematic, is, in fact, to be expected, and is intimately related to the functioning of the rule of verb second.

Our discussion will, unfortunately, have to be limited to the rather opaque behavior of subject extraction in *wh*-questions. This is, because the 'topicalization' construction discussed above is, for reasons that are still unclear, bounded (cf. Van Riemsdijk, 1978b). Therefore, this construction cannot help us establish that V-movement is a syntactic movement rule, or that main and embedded clauses act alike with respect to subject extraction. Furthermore, the relative clause construction cannot be used to illustrate our point either, since the rule of V-second, as pointed out above, never applies in relative clauses.<sup>8</sup>

In fact, the data concerning subject extraction in *wh*-questions do not seem to be very well established, and it is unclear where dialectal variation intervenes, and where it does not. We will try to determine this here. Although the data raise many interesting questions, we are concerned here only with establishing, first, that even in dialects which are 'conservative' with respect to subject extraction, extraction from subject position may take place in some restricted environments, and secondly, that main clauses and embedded clauses show parallel behaviour insofar as the possibility of extraction of subjects is concerned.

The 'classical' example, illustrating dialectal variation with respect to extraction out of the subject position is presented in (31):

- (31) Conservative:
- a. Wie<sub>i</sub> is ?\*(er) t<sub>i</sub> gekomen  
Who is there come  
'Who came'
- b. Wie<sub>i</sub> denk je dat ?\*(er) t<sub>i</sub> gekomen is  
Who think you that there come is  
'Who do you think came'

Liberal:

- a. Wie<sub>i</sub> is t<sub>i</sub> gekomen  
Who is come  
'Who has come'
- b. Wie<sub>i</sub> denk je [ t<sub>i</sub> dat ] t<sub>i</sub> gekomen is  
Who think you that come is  
'Who do you think has come'

Although the examples in the literature are only of the (b) type, it is important to note that main clauses and embedded clauses in the two 'dialects' display the same characteristics.

In the more conservative dialect, extraction seems to have taken place from a properly governed position in the VP. This conclusion can be drawn from the obligatory presence of *er*. In less conservative dialects, extraction may take place from subject position (or, alternatively, *er* may be dropped).

Dialectal variation seems to be restricted, however, to examples of the type illustrated, to wit, extraction from the subject position of ergative verbs (with an auxiliary),<sup>9</sup> and passive verbs, since different dialects seem to coincide for the need for *er* to appear in the following contexts:

- (32) a. Wat is \*(er) gebeurd  
What is there happened  
'What happened?'
- b. Wat denk je dat \*(er) gebeurd is  
What think you that there happened is  
'What do you think happened?'
- (33) a. Wie heeft \*(er) gezwommen  
Who has there swam  
'Who has been swimming'

- b. Wie denk je dat \*(er) gezwommen heeft  
Who think you that there swam has  
'Who do you think has been swimming?'
- (34) a. Wat hebben \*(er) voor mensen opgebeld  
What have there for people up phoned  
'What kind of people have phoned?'
- b. Wat denk je dat \*(er) voor mensen opgebeld hebben  
What think you that there for people up phoned have  
'What kind of people do you think phoned?'
- (35) a. Wie heeft \*(er) iets gegeten  
Who has there something eaten  
'Who has eaten something?'
- b. Wie denk je dat \*(er) iets gegeten heeft  
Who think you that there something eaten has  
'Who do you think has eaten something?'

The obligatory presence of *er* in all these cases, i.e. ergative verbs with inanimate subjects, intransitive verbs, the *wat voor* NP construction (cf. Den Besten (1981)), and transitive verbs with an indefinite object NP,<sup>10</sup> shows that extraction must have taken place from a properly governed position in the VP.

These cases seem to indicate, (wrongly, as we will show below) that one can never extract from subject position in Dutch, regardless whether long or short movement is involved. Recollect in addition that this restriction on subject extraction would only hold for *wh*-questions (cf. footnote 8).

There are cases, however, in which extraction from subject position seems to be possible (as indicated by the absence of *er*). This seems to hold of all Dutch dialects. Extraction of a subject is possible with transitive verbs with a *definite object*. This is illustrated in (36) and (37).

- (36) a. [Wie<sub>i</sub> heeft ] t<sub>i</sub> hem/Jan gisteren gezien [V e]  
Who has him/John yesterday seen  
'Who has seen him/John yesterday?'
- b. Wie<sub>i</sub> denk je [ t<sub>i</sub> dat ] t<sub>i</sub> hem/Jan gisteren gezien heeft  
Who think you that him/John yesterday seen has  
'Who do you think saw him yesterday?'
- (37) a. [Wie<sub>i</sub> heeft ] t<sub>i</sub> dat broodje opgegeten  
Who has that sandwich up eaten  
'Who ate that sandwich?'

- b. Wie<sub>i</sub> denk je [t<sub>i</sub> dat] t<sub>i</sub> dat broodje opgegeten heeft  
 Who think you that that sandwich up eaten has  
 'Who do you think ate that sandwich?'

It is again important to stress the fact that main clauses and embedded clauses behave in the same way.

This set of data, besides raising some intriguing questions, which will not be addressed here, shows, however, taken in conjunction with subject extraction in relative clauses and topicalization constructions, that subjects can be extracted in *wh*-questions, albeit in restricted environments. Moreover, main and embedded clauses act alike insofar as the possibility for subject extraction is concerned. If the subject of a main clause may not be questioned, *that-t* violations are observed in the embedded clause ((36) and (37)). If the subject may not be extracted in a main clause, then no *that-t* violations are possible in the embedded clause either.

Let us now turn to the analysis of these data. According to the analysis of V-second presented in 7.2., the examples in (36) and (37) must be assigned the following S-structures:

- (38) a. [S' [COMP wie<sub>i</sub> heeft<sub>k</sub>] [S [NP e]<sub>i</sub> Marie gezien [V e]<sub>k</sub>]]  
 'Who saw Mary'  
 b. ... [S' [COMP t<sub>i</sub> dat] [S [NP e]<sub>i</sub> Marie gezien heeft ]]

Obviously, V-movement does not yield an ECP violation as it does in English. Let us assume, accordingly, that proper government from COMP is possible in a configuration like (38a), yielding an apparent violation of *that-t* in Dutch main clauses. But if this analysis is correct, it provides an immediate account for the possibility of having *that-t* violations in embedded contexts like (38b): the presence of a lexical complementizer, or of the finite verb does not prevent proper government by the trace in COMP. It is interesting to point out in this respect that INFL in Dutch will be doubly filled quite generally (with the exception of yes-no questions and imperatives). This does not prevent INFL from acquiring the index of a preposed verb. Similarly, as we will see in 7.3.2.2., INFL may also acquire the index of the preposed *wh*-phrase, in order to properly govern the subject position. Thus, percolation up to INFL is symmetric.

This we think, is an important result, and, although the possibility of *that-t* violations in Dutch has been considered problematic, this would no longer be true. On the contrary, the possibility of *that-t* violations in Dutch embedded clauses is a direct consequence of the functioning of V-second: proper government is possible, even if COMP is doubly filled. Then, rather than being exceptional, they are, in fact, expected to occur.

Given the assumption that the *wh*-phrase in COMP leads to proper government of the subject trace in (39):

- (39) [COMP Wie<sub>i</sub> heeft<sub>k</sub>] [S [NP e]<sub>i</sub> hem gezien [V e]<sub>k</sub>]]

and the possibility of having doubly filled COMP nodes in Dutch, we expect to find grammatical sentences in indirect questions in which the subject is questioned, and which have a doubly filled COMP node. The following examples show that this is indeed the case:<sup>11</sup>

- (40) a. Ik vraag me af [S' [COMP wie<sub>i</sub> of] [S [e]<sub>i</sub> hem gezien heeft]]]  
 I ask me off who if him seen has  
 'I wonder who saw him'  
 b. Ik vraag me af [S' [COMP wie<sub>i</sub> of] [S [e]<sub>i</sub> dat boek  
 I ask me off who if that book  
 gelezen heeft ]]  
 read has  
 'I wonder who has read that book'

In conclusion, the possibility of *that-t* violations in Dutch embedded clauses is a direct consequence of the functioning of V-second, which leads to COMP-t violations in main clauses.

Of course, our analysis rests on the assumption that a COMP node in a matrix clause is doubly filled at S-structure: i.e., it implies necessarily that V-second is a syntactic movement rule, applying prior to S-structure. Our analysis thus constitutes evidence that the NP-type of V-movement is a syntactic movement rule.

### 7.2.2.3. Some conclusions

*That-t* violations are systematically possible in Dutch, in both matrix and embedded clauses, whereas they are systematically impossible in English in both matrix and embedded clauses. According to the account we have proposed, it would be sufficient for the English language learner to be presented with the asymmetric behavior of SAI (*who came* versus *who did you see*) to deduce that proper government from COMP requires the absence of a finite verb in COMP, and, by extension, the absence of a complementizer as well. *That-t* effects will be consistently observed. In Dutch however, the COMP node in the matrix clause is always doubly filled, given the functioning of V-second. Thus, the Dutch language learner is forced to adopt a more liberal rule of COMP-indexing, i.e. COMP may be indexed, even if it contains a *wh*-phrase and a finite verb, or a *wh*-phrase and a complementizer. In other words, the symmetric behavior of V-second forces the language learner to assume proper government in cases

like (38), yielding *that-t* violations in main and embedded clauses alike. The appeal of this scenario lies in its ability to make complex grammatical behavior with respect to *that-t* phenomena easily deducible upon presentation of simple clauses. Of course, these remarks are only valid if V-second applies between D- and S-structure. This analysis also makes (strong) predictions for other verb second languages. We will return to this point in 7.5.

### 7.3. Cross-linguistic variation

#### 7.3.0. Introduction

Having established that V-movement in Vata, and V-second in Dutch have basically the same properties, let us now concentrate on the differences between the two, and try to determine how these can be accounted for.

Recollect that, besides the fact that in Dutch root sentences, the first position must be filled, the difference between Vata and Dutch lies in the landing site of the verb: INFL in Vata, and what is generally called COMP in Dutch. The question arises of whether this difference must simply be stated, or it may be related to other differences between the two types of languages.

We will propose here that the difference between the two can eventually be linked to one independent difference, to wit, the position of INFL, which correlates with the different values that are assigned to the parameter setting the directionality for Case assignment in the two languages.

The organization of this section, which, as before, concentrates in first instance on Vata and Dutch - other V-second languages will be taken into account later - (7.5) - is as follows: in 7.3.1., we will develop the 'null' hypothesis: the analysis of V-movement in Vata, as forced by the Case filter, extends *in toto* to Dutch. The implications and predictions of this hypothesis will be indicated. We then proceed to motivate this analysis, in several stages. First, it is necessary to propose an analysis of Dutch surface structures, in terms of the parameters for  $\theta$ -role and Case directionality (7.3.2.). It will be argued that, the verb final character of Dutch notwithstanding, Case in Dutch is assigned to the *right* in the unmarked case. Since a verb assigns its  $\theta$ -role to the *left*, a conflict arises, which, we will show is solved in a different way from Mahou or Chinese (see the discussion in 4.4.). Support for rightward Case assignment also derives from the fact that it yields a simple account for the distribution of weak pronouns, also called clitics, in Dutch.

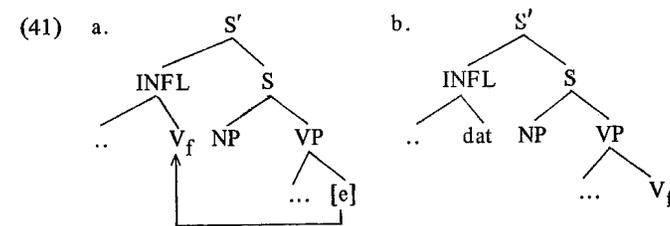
Having motivated the analysis of V-second as forced by the Case filter,\* we will next address the question of whether the landing site of the finite verb in Dutch should be called COMP or INFL. We will present evidence

for the latter point of view and show that the positions of INFL in Dutch and Vata correlate with Case directionality (7.3.3.). This will lead us finally to discuss surface VSO, SOV and SVO languages, and language typology, in terms of the theoretical mechanisms developed in this study.

#### 7.3.1. V-second and Case theory

Let us, following the logic of the parametric approach, simply extend the analysis for Vata to Dutch, and consider its implications and the particular problems which arise.

Since the verb moves into INFL in Vata to allow nominative Case assignment, let us suppose that the finite verb also moves into INFL in Dutch, for exactly the same reasons. This hypothesis has the following consequences. Since it has been shown in 7.2. that the finite verb moves into COMP in Dutch, what is called COMP in Dutch should in fact be called INFL. The following S-structure representations should then be assigned to Dutch finite clauses, where we assume that finite verbs may be inserted directly under the VP (41b):



Moreover, since V-movement is forced by the Case filter, Case assignment is parametrized for directionality, and INFL occurs to the *left* of the subject NP, nominative Case must be assigned to the *right*, either by a verbal INFL (41a) or by means of a special clause, i.e. by an INFL which contains a lexical complementizer (41b). The difference between Vata and Dutch with respect to V-movement would then reduce to the different positions that INFL occupies. These different positions, in turn, would not be arbitrary, but can be related, as we will suggest below, to the different directions in which nominative Case, or Case in general, is assigned: to the right in Dutch, and to the left in Vata.

The representations in (41) raise many questions, though. Can it be demonstrated for example that nominative Case is assigned to the right in Dutch? What is the general directionality of Case assignment in Dutch? On what grounds can an initial INFL node, as opposed to the standard final INFL node for Dutch, be justified? And, if INFL is outside S, what then is the head of S? How is the position of INFL determined? We will try to provide some answers to these questions below.

7.3.2. *Directionality of  $\theta$ -role and Case assignment in Dutch*

The extension of the proposed analysis for V-movement in Vata to Dutch implies (42):

- (42) Nominative Case is assigned to the right

We will now show not only that independent motivation can be presented for (42), but also that it conforms to the value which must be assigned to the parameter for Case directionality in Dutch.

Let us start with a discussion of the directionality of Case assignment in Dutch. This discussion necessitates an analysis of Dutch surface structures in terms of the two parameters discussed in chapter 4: the parameter for the directionality of  $\theta$ -role assignment, and the parameter for the directionality of Case assignment, determining the surface position of lexical NPs.

Complements in Dutch occur in different positions, according to whether they are complements of a verb or of a noun, (the two major categories). Dutch is verb final, but noun initial. D-structures, then, are determined by the following  $\theta$ -properties:

- (43) a. Vs assign their  $\theta$ -role to the left  
b. Ns assign their  $\theta$ -role to the right

Adjectives reflect the bifurcation shown in (43). Some adjectives are verbal, in the sense that they require their complements to occur in pre-head position (for discussion see Van Riemsdijk, 1981). Others are noun-like and require their complements to occur in posthead position:

- (44) a. een [<sub>AP</sub> mij bekend] gezicht  
a me familiar face  
'A face that is familiar to me'  
b. een kind [bang voor honden]  
a child afraid for dogs  
'a child afraid of dogs'

Dutch, furthermore, has both pre- and postpositions. However, given the exceptional syntactic behavior of Dutch postpositions (see Van Riemsdijk (1978) for discussion), we will not discuss these here. (For example, postpositions do not appear to form a constituent with their complements, as we may conclude from the impossibility of postpositions undergoing *wh*-movement.)

The establishment of the directionality of Case assignment may appear trivial, given Dutch surface structures. That this may not be the case, will be shown below.

Since Dutch is prepositional, or, more importantly, since lexical NPs follow the prepositional head, it can be deduced that Ps assign Case to the right:

- (45) Ps assign Case to the right

Two other Case-assigning categories, however, verbs and Case-assigning adjectives, are preceded by lexical NPs suggesting (46):

- (46) verbs and certain adjectives assign Case to the left

Thus, not only the parameter for  $\theta$ -role directionality would differ according to categorial specifications (cf.(41)); the same would also hold of the parameter for the directionality of Case assignment.

A closer look at the position of lexical NPs in VPs and APs with a Case assigning head, indicates, however, that (44) is not as obvious as it seems.

Although the surface position of NPs seems to constitute a fairly reliable indicator for the parameter of Case directionality, lexical NPs occupy a somewhat unexpected position in the VP or AP. They occur, in the unmarked case, at the beginning of the VP.<sup>12</sup> Moreover, they are *non-adjacent* to their Case assigner:

- (47) a. [<sub>VP</sub> NP....V  
b. ...., dat Marie dat boek aan Jan aangeraden heeft  
that Mary that book to John recommended has  
'that Mary recommended that book to John'

The question arises of why NP complements occur in VP initial position, and not in preverbal position, adjacent to the verb.

Stowell (1981) addresses this problem and proposes a double headed structure for the VP in Dutch, with the head simultaneously occupying VP initial and VP final position. The initial position of the NP complements can then be explained as a consequence of the Adjacency condition on Case assignment. The direct object NP has to occur in VP initial position since it is assigned Case by the verb in VP initial position, under Adjacency. Note, however, (see also the discussion in 3.1.2.), that Stowell's adoption of a VP initial V-position seems to stem from a misunderstanding of the rule of V-second: a verb may *never* occur in this position. Moreover, in Stowell's proposal, the VP initial V-position only plays a role in Case assignment.<sup>13</sup>

Stowell's proposal can quite easily be reformulated, with its attractiveness preserved, by assuming that it is not the *verb* itself that occurs in VP initial position, but, instead, its *Case* features. In this way, the VP

would contain an abstract Case position in VP initial position, according to the schema presented in (48), or probably, more appropriately, one may think of (48) as arising by movement of the Case features of the verbs, i.e. by *move Case*.<sup>14</sup>

## (48) [VP Case .... V]

Although NP complements occur to the *left* of the verb, they can now be considered to occur to the *right* of the Case assigning feature. Case, then, is assigned to the right: this explains the position of lexical NPs in the VP, and the non-adjacency in surface structure between the verb and its NP complements. In other words, the non-adjacency between a NP and its Case assigner would constitute an important indication that Case is not *directly* assigned by a lexical category, but indirectly, through an abstract Case position. But surely it is undesirable to have a proliferation of such abstract Case positions. We will propose below that these may only be assumed if forced by the parameter for Case directionality. We will return to abstract Case positions in 7.5.3. below, when discussing nominative Case assignment in English.

The same remarks apply to Case-assigning adjectives. Again, NP complements are non-adjacent to the adjective. This is illustrated in the following examples:

- (49) a. een [mij bekend] boek  
           a me familiar book  
       b. een [mij nog niet zo lang bekend] boek  
           a me yet not so long familiar book  
           'A book I didn't know about until recently'

Thus, it can simply be assumed that the NP in (49) is assigned Case in the same way as an NP in a VP is assigned Case, namely, by means of (48).

If this analysis is correct, (45) should be abandoned. Instead, the more general statement (50) would hold, of which both (42) and (45) are sub-cases:

## (50) Case is assigned to the right

That (46) does not hold is an interesting and also important conclusion. And, in fact, we may take this as evidence that there is strong internal pressure to set the parameter for Case directionality uniformly across categories. Let us assume accordingly the following strong statement:

- (51) The case directionality parameter holds uniformly in a particular language

In the case of conflict between  $\theta$ -role directionality and Case directionality, the language has to resort to escape mechanisms. In Dutch, this consists of the dissociation of the Case features from the Case assigner, which can be thought of as *move Case*, in Chinese and Mahou (cf. 4.4.), this is achieved, not by *move Case*, but by moving an NP into a position in which it can be assigned Case directly, under government and adjacency with a Case assigner.

The property that Case is assigned to the right in Dutch provides us with a justification for (42). Assignment of nominative Case to the right is simply a subcase of the more general (50). (Moreover, if (51) is correct, this must be the case).

The fact that nominative Case is assigned to the right is not only justified by (50) and (51), but also finds empirical support, in that it allows a simple account of the distribution of weak nominative pronouns, discussed above in 7.2.1. This account, we will show below, extends to account for the distribution of weak (clitic) pronouns in general.

Recollect that the distribution of weak nominative pronouns differs from that of lexical NPs, in that they may not be preceded by an adverb, and lexical NPs may. This is illustrated in (52):

- (52) a. omdat ie/Piet gisteren dat boek aan Jan  
           because he/Peter yesterday that book to John  
           gegeven heeft  
           given has  
           'because he/Peter gave that book to John yesterday'  
       b. omdat gisteren \*ie/Piet...  
           because yesterday \*he/Peter...

Weak nominative pronouns, which we will call clitic pronouns from now on, must be strictly adjacent to either the finite verb or to the lexical complementizer.

It has been proposed several times in the literature (see, for example, Aoun (1979), Jaeggli (1980)) that there is an intimate relation between Case and clitics. One of the particular expressions of this idea can be found in Aoun (1979), where it is proposed that clitics *are* the spelling out of Case features.

Suppose that we adopt this hypothesis. It is easy to see that it yields an immediate account for the distribution of nominative clitics (and, also as we will see below, of non-nominative clitics). Assuming that the finite verb in COMP or the lexical complementizer assigns nominative Case, nominative clitics need to be strictly adjacent to them, because they are the lexicalization of this Case feature. The difference in the distribution of clitics and lexical NPs may then further be related to the fact that clitics are a

lexicalization of the Case features themselves, whereas nominative Case is assigned to lexical NPs, under government and adjacency. In order to account for the different distribution of lexical NPs and clitic pronouns, it must also be assumed that certain adverbs in Dutch, such as *gisteren* for example, do not count for the purposes of the Adjacency condition. This hypothesis seems very reasonable, since, as we will see below, this is not only true of nominative Case assignment, but must be assumed in other cases as well. Much relevant discussion regarding the Adjacency condition and the problem of what counts as blocking adjacency in a particular language can be found in Stowell (1981).

The same hypothesis accounts directly for the distribution of non-nominative clitic pronouns in Dutch. (We will leave clitics corresponding to PP (i.e. *er*) out of the discussion). The distribution of non-nominative clitic pronouns differs from that of lexical NPs in that the former may not be preceded by an adverb, unlike lexical NPs. Interestingly, then, the situation exactly parallels that of nominative pronouns discussed above. The following examples illustrate the difference in distribution between clitic pronouns and lexical NPs:

- (53) a. omdat Marie dat boek gisteren aan Jan gegeven heeft  
because Mary that book yesterday to John given has  
'because Mary has given that book to John yesterday'
- b. omdat Marie gisteren dat boek aan Jan gegeven heeft  
yesterday that book
- c. omdat Marie 't gisteren aan Jan gegeven heeft  
it yesterday
- d. \*omdat Marie gisteren 't aan Jan gegeven heeft  
yesterday it

There is some discussion in the Dutch literature on the question of whether or not these clitic pronouns are of the same type as the clitics in the Romance languages. The question reduces, in fact, to the problem of how to know if the VP does or does not contain an empty category associated with the clitic pronoun. If not, the difference in distribution of lexical NPs and clitic pronouns must be characterized in some other way. Koster (1978a) defends the latter option - he argues that these pronouns are not clitics - and proposes to account for the impossibility of (53d) (and incidentally also of (52b)) by means of the following filter:

- (54) \* [Adv CL] (Koster, (1978b, p.15)

The following discussion will make it clear that the clitic pronouns in (53) need not be considered to be of the same type as the clitics in the

Romance languages, at least not in simple sentences (leaving clitic climbing in restructuring constructions out of consideration). Moreover, the filter in (54) follows from the hypothesis that these clitics are also a spelling out of Case features.

Suppose first that the position of the clitics in (53) is adequately characterized by the following statement:

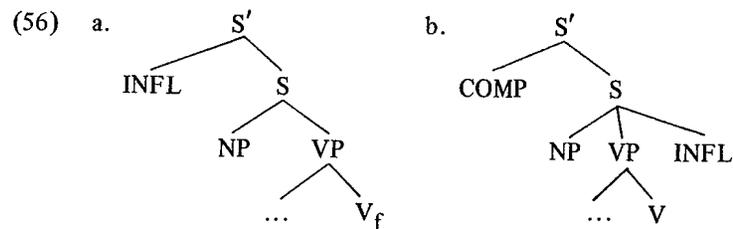
- (55) Non-nominative clitic pronouns in Dutch occur in VP initial position

Thus, we do not follow Van Riemsdijk (1978), who proposes that clitics occur in second position under S, outside the VP. We know of no independent justification for this assumption, whereas (55) allows a simple account in terms of Case theory. Indeed, if these clitic pronouns, like nominative clitic pronouns are the lexicalization of Case, the descriptive statement in (55) follows from (48): the abstract Case feature of which clitic pronouns are the lexicalization occurs in VP initial position. If the VP initial Case position is governed by, and to the left of, the verb, a  $\theta$ -role can be directly assigned to this position: therefore, no empty category in the VP, linked to the clitic pronoun, need be assumed, in contrast with clitics in the Romance languages. These do not occur in a position to which a  $\theta$ -role may be assigned, hence the postulation of an empty category.

In short, the hypothesis that Case is assigned to the right in Dutch allows a simple account of the distribution of lexical NPs. Moreover, the hypothesis that clitic pronouns in Dutch are a lexicalization of Case features yields a straightforward account for their distributional properties. Finally, let us point out that, if this account is correct, it provides evidence for the existence of a configurationally represented VP node in Dutch.

So far, it has been established that Case is uniformly assigned to the right in Dutch, and that the subject NP receives Case from the node containing either the finite verb or the lexical complementizer. V-second can thus be considered to be related to Case theory, just as it is in Vata.

Let us now turn to the question of what the nature of the node that assigns nominative Case is. Is it COMP, containing either a finite verb or a lexical complementizer, or is it INFL?<sup>15</sup> Both options are schematically represented in (56):



In (56), the finite verb is generated directly under the VP. A similar situation is observed in languages like Warlpiri (Hale, 1973), or Luiseño (Steele et al., 1981), where a finite sentence contains, besides Tense and possibly other particles in INFL, also a fully inflected verb separate from INFL. In (56b), the V would be generated under the VP, and subsequently 'hop' into INFL, where it would move into COMP, in the absence of a complementizer. According to (56a), the sole difference between Vata and Gbadi would be the position of INFL (which, as we will show below, could in turn be related to the different values assigned to the parameter for Case directionality). According to (56b), nominative Case in Dutch would be assigned by COMP, not by INFL, also because of Case directionality.

Although (56b) is traditionally adopted for Dutch, it should be noted that, in addition to the fact that in certain other languages S contains an INFL node (cf. English and Vata for example), I know of no independent arguments for this analysis in Dutch. Moreover, quite apart from the fact that (56a) minimizes the difference between Vata and Dutch, there may be empirical evidence supporting it. This evidence concerns agreeing complementizers in Dutch dialects, and the placement of non-nominative clitic pronouns in certain Flemish dialects.

In certain Southern Dutch dialects, the lexical complementizer may actually carry AGR marking, more specifically, plural marking (cf. Den Besten, 1979):

- (57) a. *date Jan en Kees morgen zullen komen*  
 that+PL John and Bill tomorrow shall+PL come  
 'that John and Bill will come tomorrow'
- b. *dat(\*e) Jan morgen zal komen*  
 that(\*+PL) John tomorrow will come  
 'that John will come tomorrow'

This same phenomenon is also observed in Flemish dialects, as shown in work by Haegeman:

- (58) a. *da Pol zat is*  
 that Paul drunk is
- b. *dan Pol en Valerie zat zijn*  
 that+PL Paul and Valerie drunk are  
 'that Paul and Valerie are drunk'

Since AGR is typically a property of INFL, the appearance of AGR on the initial element (i.e. the lexical complementizer) may be taken as support in favour of (56a).

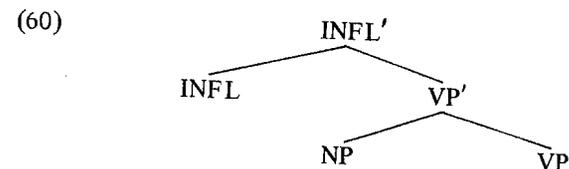
A second indication for (56a) derives from certain Flemish dialects, more specifically from the positioning of non-nominative clitic pronouns. It has been stressed more than once in this study that clitics are often a characteristic property of INFL. It is highly suggestive in this respect that in certain Flemish dialects non-nominative clitics appear in VP initial position (like in Dutch), or *cliticized onto COMP*.<sup>16</sup> This is illustrated by the following examples drawn from Haegeman and Bennis (1983):

- (59) a. *Ik peinzen danze-t-ze zunder gezeid heen*  
 I think that+PL.3 pers-it-her they said have  
 'I think that they said it to her'
- b. *Gisteren heet-t-ze Jan gegeven*  
 Yesterday has-it-her John given  
 'Yesterday, John has given it to her'

This same phenomenon, i.e. object clitics appearing on the complementizer or the preposed verb, is frequently observed in middle Dutch and also occurs in German.

Thus, we find that these phenomena support (56a). And in fact, such phenomena are to be expected in languages with the structure (56), or with an initial INFL node under S. What is more, one expects the occurrence of such phenomena to be restricted to just those types of languages. It is difficult to say, given the present state of research, whether these predictions are borne out.

(56a) raises further questions, though. If INFL occurs at the S' level in Dutch, what then is the head of the projection we have called S? An obvious proposal consists of considering S to be a projection of V, which implies that the correct representation of (56a) is (60):



The structure in (58) would be valid for other V-second languages with the same V-second rule as Dutch, such as the Scandinavian languages. Note now that this structure fits in nicely with the proposals of Taraldsen (1981), who has argued that UG must contain a parameter which establishes whether the head of S in a particular language is V or INFL.

According to his arguments, V must be the head of S in the Scandinavian languages, and in V-second languages in general, whereas the head of S must be INFL in the Romance languages. But if structure (60) should be assigned to V-second languages, and Romance languages indeed have NP INFL VP order, as I shall assume below, then Taraldsen's parameter need not be part of UG, but follows automatically from (60).

As a final remark, let us point out that discussion of the choice between (56) and (60) may very well turn out to be premature. It rests, for example, on the assumption that the correlation between the position of INFL and Case directionality represents a valid generalization. However, as we will see in the next section, this can only be partly true: more needs to be said about the position of INFL, if it is correct, for example, that in Romance languages INFL follows the subject. In these languages, Case is generally assigned to the right, although INFL occurs to the right of the subject NP. A similar problem arises with head final languages with an initial INFL node (Luiseño, Warlpiri, etc.). It should therefore be kept in mind that we adopt (60) for the reasons indicated, but that (56b) can be made to function with only minor adjustments.

Note, however, that the main conclusion of this section remains unaffected, independently of the question whether we adopt (56b) or (60): the difference between V-second in Dutch and V-movement in Vata is minimal and reduces, ultimately, to the different values assigned to the parameter setting the directionality of Case assignment. In Dutch (and other V-second languages), Case is assigned to the right, whereas in Vata, Case is assigned to the left.

In sum, then, we have argued that the analysis proposed for Vata applies straightforwardly to Dutch and to other V-second languages. The surface difference between Vata and Dutch reduces to the different position of INFL. In both languages, however, the finite verb moves into INFL in the absence of an auxiliary or a lexical complementizer so that nominative Case assignment to the subject can proceed. Moreover, the position of INFL is determined in accordance with the value assigned to the parameter that establishes in which direction Case is assigned. Case is assigned to the left in Vata, but to the right in V-second languages like Dutch or the Scandinavian languages. Similarly, INFL occurs to the right of the subject NP in Vata, and to the left of the subject NP in Dutch and in the Scandinavian languages.

### 7.3.3. VSO, V-second and SVO languages

In the preceding section, the following correlation has been noted between the directionality of Case assignment and the position of INFL in Vata and V-second languages like Dutch:

- (61) The position of INFL correlates with the value assigned to the parameter for Case directionality

We have also argued that Case directionality in a particular language is fixed, and that no categorial specifications are allowed: in this respect it differs from  $\theta$ -role assignment.

We will now briefly discuss surface VSO languages and show how these fit in with the hypotheses developed so far. Then we will turn to surface SVO languages, which pose a problem for (61), but which, we will argue, may be consistent with the hypothesis that the parameter for Case directionality is category independent (51).

Greenberg (1966) states the following universals for VSO languages, based on surface word order.

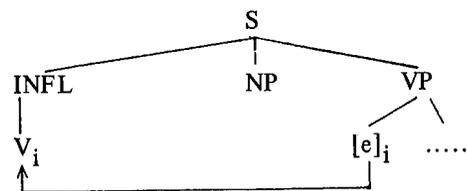
- (62) (i) Languages with dominant VSO order are always prepositional. (= Universal 3)  
 (ii) In languages with prepositions, the genitive almost always follows the governing noun, while in languages with postpositions, it almost always precedes. (= Universal 2)

In the VSO languages we are familiar with, lexical NPs always follow the head noun. In terms of the parameters developed in chapter 4, the following properties characterize VSO languages:

- (63) (i) Lexical categories assign a  $\theta$ -role to the right  
 (ii) Case is assigned to the right  
 (iii) Subject-predicate order

How is nominative Case assigned? If (63i) holds for all instances of Case assignment, the subject must be assigned Case by a Case assigner to its left. Now, in surface order, the finite verb occurs to the left of the subject (unless the subject has been topicalized). If one assumes that the finite verb is in INFL, then the analysis proposed for Vata applies straightforwardly to VSO languages. Surface orders would be derived by means of a V-movement rule, which is obligatory in tensed clauses that do not contain an auxiliary. This analysis is illustrated in (64):

(64)



The obligatoriness of V-movement can be related to Case theory, in the same way as in Vata: INFL must contain a verbal element so as to allow nominative Case assignment to proceed.

Such an analysis implies that in VSO languages, Case is uniformly assigned to the right.

This analysis directly extends to a language like Welsh. In Welsh, the rule of V-movement is a characteristic of tensed clauses. It does not apply in infinitives:

- (65) a. disgwyliais i [S' yr [ennillai John]]  
 expected I that would-win John  
 'I expected that John would win'  
 b. disgwyliais i [S' i [John ennill]]  
 expected I for John to-win  
 'I expected for John to win'

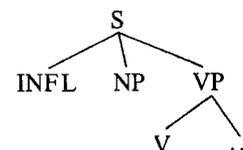
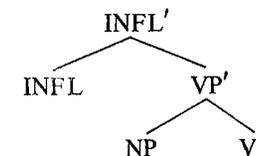
(Harlow, 1981 (35))

As is the case in Vata and Dutch, not all clauses exhibit V-movement. Welsh has the equivalent of English *do*-support. The insertion of this dummy verb prohibits V-movement:

- (66) gwnaeth John ennill  
 'did' John win  
 'John won'

Let us point out that the analysis for VSO languages in terms of V-movement is not new. The literature contains several proposals to this effect (cf. Emonds (1979), Jones and Thomas (1977), Harlow (1981), and Sproat (1983)). However, the motivation of V-movement as forced by the Case filter provides a new and simple explanation for the characteristics of this rule.<sup>17</sup>

According to this account, the difference between a VSO language and a V-second language is really very small, reducing to a different surface position of INFL, which in turn correlates with the parameter for Case directionality:

(67) a. *VSO languages*b. *V-second languages*

But on what basis can a language learner decide whether his language is a VSO or a V-second language? It will be clear that the root character of the V-movement rule in V-second languages, and the non-root character of this rule in VSO languages provides ample indication of this.<sup>18</sup>

Let us turn next to surface SVO languages. As we have pointed out before, surface SVO languages pose a serious problem for the hypothesis that, in languages in which nominative Case is dependent on a verbal INFL, the position of INFL is *only* determined by the parameter for Case directionality. Take English for example. It is considered uncontroversial that the (surface) structure of an English sentence is something like (68):<sup>19</sup>

- (68) S → NP INFL VP

While we could try to analyze (68) differently, in accordance with (61), we will not try to do so here, and we presume that (68) is correct.

The following properties characterize SVO languages (where we leave out of consideration  $\theta$ -role assignment to [NP,S] and to [NP,NP]):

- (69) a. Lexical categories assign a  $\theta$ -role to the right  
 b. Lexical categories assign Case to the right

How, then, is nominative Case assigned? Again, as a starting point, let us assume that nominative Case is assigned by a verbal INFL under (1). But, if Case directionality is uniform across categories, nominative Case cannot be assigned directly to a subject NP to the left of INFL. We will now show that surface orders do in fact contain evidence that INFL assigns Case indirectly. Recall that Dutch surface structures provided evidence for the need to distinguish (at least) the two different mechanisms for Case assignment stated in (70):

- (70) (i) Direct Case assignment, by a Case assigning category under government and adjacency,  
 (ii) Indirect Case assignment, by means of an abstract Case feature, which occurs in a different position from the Case assigning category

We might add to (68) the following statement, which can be found in the literature (see, among others, Koopman (1980b), Rizzi (1982), Stowell (1981)):

- (70) (iii) Case is assigned in contiguity with a COMP with certain properties

Direct Case assignment in English ((68i)) obeys a particularly strict adjacency condition (cf. Stowell (1981), Chomsky (1981)):

- (71) a. John reads (\*often) novels  
b. John would take (\*before the party) a bath

It is significant that similar adjacency requirements hold neither between INFL and the subject nor between COMP and the subject:

- (72) a. John often reads novels  
b. that, before going to the party, John would take a bath

We have already seen that direct Case assignment by INFL may require Adjacency in some languages (cf. Vata, Dutch...). Therefore, neither direct Case assignment by INFL (70i) nor Case assignment by COMP (70iii) can constitute the correct analysis for English. Instead, it must be assumed that nominative Case in English is assigned in exactly the same way as Case to an [NP,VP] in Dutch, that is, via an abstract Case position at the (left) S bracket:

- (73) [<sub>S</sub> Case... INFL ...]  
+V

Nominative Case, then, is assigned under adjacency with the S-boundary, if this S contains a verbal INFL. Case assignment can therefore be considered to be right-directional, in accordance with (67b) and (49). The fact, then, that neither INFL and the subject NP, nor COMP and the subject NP need be adjacent, constitutes evidence for the fact that Case is not directly assigned by INFL or by COMP.

In sum, VSO, V-second and SVO languages have many features in common: nominative Case is assigned by a verbal INFL, and Case is uniformly assigned to the right. They differ however insofar as the position of INFL is concerned: while both V-second and VSO languages have an initial INFL node, albeit occurring at different levels, INFL in SVO languages occurs in second position. The position of INFL in languages with a verbal INFL correlates thus only to some extent with the value assigned to the parameter for Case directionality.

The question arises how the position of INFL in a particular language is determined, a question, which, I believe, is of importance to the problem of whether or not UG incorporates something like the head initial head final parameter.

We have basically made two hypotheses concerning the position of INFL; first, that its surface position is the same as its D- and S-structure position, and secondly, that there is no necessary relation between the left or rightward orientation of the VP and the position of INFL. Taken in conjunction with subject predicate order, we are led to expect the occurrence of the following type of languages.

- (74) a. (V-second)
- 
- b. (V-second, Dutch, German)
- 
- c. (VSO languages)
- 
- d. (Warlpiri? Luiseño?)
- 
- e. (SVO languages)
- 
- f. (Vata, Gbadi...)
- 
- g. (Tigrinia? Amharic?)
- 
- h. (Japanese...)
- 

Potential candidates for each of these structures can be found; it will be of particular interest to establish whether languages like Tigrinia should indeed be assigned the structure in (74g). Again such problems will have to be addressed in future research.

#### 7.4. Properties of the preposed verb and verbal-trace

Now that the distributional properties of verbs have been accounted for, let us next consider what the properties of the preposed verb and the verbal trace are. We will determine this by contrasting the properties of

the preposed verb and the verbal trace in Vata and Dutch with those that have been isolated for Spanish in Torrego (1981). The properties of the preposed verb and verbal trace in Dutch will be shown to be quite different from those in Spanish. And, in fact, the properties of the V-movement rule itself in Spanish will be shown to be quite different from those in Vata or Dutch.

Let us start with a brief summary of the argumentation of Torrego (1981). Torrego argues that Spanish has a rule of verb preposing, which obligatorily preposes a verb if an argument has been *wh*-questioned. This rule applies in main and embedded clauses (75a, 75b), provided that COMP contains a *wh*-pronoun or a trace left by successive cyclic *wh*-movement (the structure Torrego argues for is indicated in the following examples):

- (75) a. [Qué<sub>i</sub> [<sub>S</sub> querían [<sub>S</sub> esos dos [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub>]]]]  
 'What did those two want?'  
 (Torrego (2a))
- b. No sabía [<sub>S</sub>' qué<sub>i</sub> [<sub>S</sub> querían [<sub>S</sub> esos dos [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub>]]]]]  
 'I didn't know what those two wanted'  
 (Torrego (8a))
- c. Qué<sub>i</sub> [<sub>S</sub> pensaba [<sub>S</sub> Juan [<sub>VP</sub> t<sub>v</sub> [t<sub>i</sub> que] [<sub>S</sub> le había dicho [<sub>S</sub> Pedro [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub> que] [<sub>S</sub> había publicado [<sub>S</sub> la revista [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub>]]]]]]]]]  
 'What did John think that Peter told him that the journalist had published?'  
 (Torrego (20b))

Torrego argues that the preposed verb and the verbal trace have the following properties:

- (76) (i) The preposed verb properly governs the subject position, and  
 (ii) The verbal trace, albeit a governor, is not 'strong' enough to properly govern an empty category in the VP

That the preposed verb properly governs a trace in subject position - (76i), explains why a subject may be extracted out of a *wh*-island:

- (77) Quién<sub>i</sub> [<sub>S</sub> no recuerdas [<sub>S</sub> pro t<sub>v</sub> [qué película<sub>j</sub> [<sub>S</sub> dirigió [<sub>S</sub> [e]<sub>i</sub> [<sub>VP</sub> t<sub>v</sub> [e]<sub>j</sub> en el cincuenta uno]]]]]]]  
 'Who don't you remember what movie directed in fifty one'  
 (Torrego (60))

That the verbal trace is not a proper governor - (76ii) - explains why a

complement of a verb may not be extracted out of a *wh*-island if V-preposing has occurred. This is indicated by the following contrast:

- (78) a. Qué diccionario<sub>i</sub> no sabías si [<sub>S</sub> Celia [<sub>VP</sub> había devuelto [e]<sub>i</sub> ya]]  
 'What dictionary didn't you know if Celia had returned already'  
 b. \*Qué diccionario<sub>i</sub> no sabías [a quién<sub>j</sub>] [había devuelto [<sub>S</sub> Celia [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub> [e]<sub>j</sub>]]]]]  
 'Which dictionary didn't you know to whom Celia returned'  
 (Torrego (48))

Let us accept these conclusions, and try to discuss whether the preposed verb and V-bound trace in Vata or Dutch have similar properties.

Does the preposed verb properly govern the subject position? It is clear that it does not in Vata. Neither (79a) nor (79b) constitute a proper government configuration, as we have concluded from the obligatory occurrence of a resumptive pronoun in this configuration:

- (79) a. \**wh*-phrase<sub>i</sub> [<sub>S</sub> [e]<sub>i</sub> [<sub>INFL</sub> V<sub>k</sub>] [<sub>VP</sub> ... [e]<sub>k</sub>]]  
 b. \**wh*-phrase<sub>i</sub> [<sub>S</sub> [e]<sub>i</sub> [<sub>INFL</sub> AUX [<sub>VP</sub> ... V]]]

A similar argument can be made for Dutch, although not directly in overt *wh*-questions like (80):

- (80) Dutch: [<sub>INFL</sub> *wh*-phrase<sub>i</sub> V<sub>k</sub>] [<sub>S</sub> [e]<sub>i</sub> ...]

In Chapter 1 and Chapter 6 we argued that proper government in (80) is due to the appearance of a coindexed *wh*-phrase in INFL (= COMP). This hypothesis has allowed us to explain the existence of *that-t* violations in Dutch. It could be argued however, that it is really the preposed verb that properly governs the subject position (which implies the abandonment of the neat correlation). Additional arguments may be presented showing that the preposed verb does not properly govern the subject position. These arguments are based on sentences exhibiting Superiority effects. Consider briefly how the effects of the Superiority Condition of Chomsky (1973), illustrated in the English examples in (81), are accounted for within the LGB framework.

- (81) a. I wonder who saw what  
 b. \*I wonder what who saw

Aoun, Hornstein & Sportiche (1981) propose the following account. *Wh*-phrases in an A-position (e.g. *wh-in-situ*) are obligatorily moved

into COMP at LF by the rule of *wh*-raising (cf. also Huang (1982)). The ECP, an LF principle (cf. Kayne (1982), Rizzi (1982), Koopman (1982)) applies to the output of *Wh*-raising. Movement of the *wh*-phrase *in-situ* in object position (81a) will satisfy the ECP, since the trace appears in a properly governed position. Movement of *wh-in situ* from subject position, however, will lead to an ECP violation, since the trace in subject position fails to be properly governed (cf. also Koopman (1982)).<sup>20</sup> Thus the contrast between (81a) and (81b) can be accounted for by the ECP.

Returning to the question of whether the preposed verb in Dutch properly governs the subject position or not, we can now use Superiority as a test. Indeed, if the preposed verb properly governs the subject position, no superiority effects should occur in Dutch. If, on the other hand, it does not properly govern the subject position, superiority effects should be observed. Consider now the following data:

- (82) a. Wie<sub>i</sub> heeft<sub>k</sub> [e]<sub>i</sub> lange brieven aan wie geschreven [e]<sub>k</sub>  
 Who has long letters to who written  
 'Who has written long letters to who'  
 b. Ik weet niet wie lange brieven aan wie geschreven heeft  
 I know not who long letters to who written has  
 'I do not know who has written long letters to who'  
 c.\*Aan wie heeft wie lange brieven geschreven  
 To who has who long letters written  
 d.\*Ik weet niet aan wie wie lange brieven heeft geschreven  
 I know not to who who long letters has written  
 e. Wie schrijft lange brieven aan wie  
 Who writes long letters to who  
 f.\*Aan wie schrijft wie lange brieven  
 To who writes who long letters

These data show (i) that there is no difference in grammaticality between matrix clauses in which V-movement has applied and embedded complements in which no V-movement has applied, and (ii) that Superiority is observed in Dutch.

Accordingly, we conclude that the preposed verb does not properly govern the subject position in Vata and Dutch.

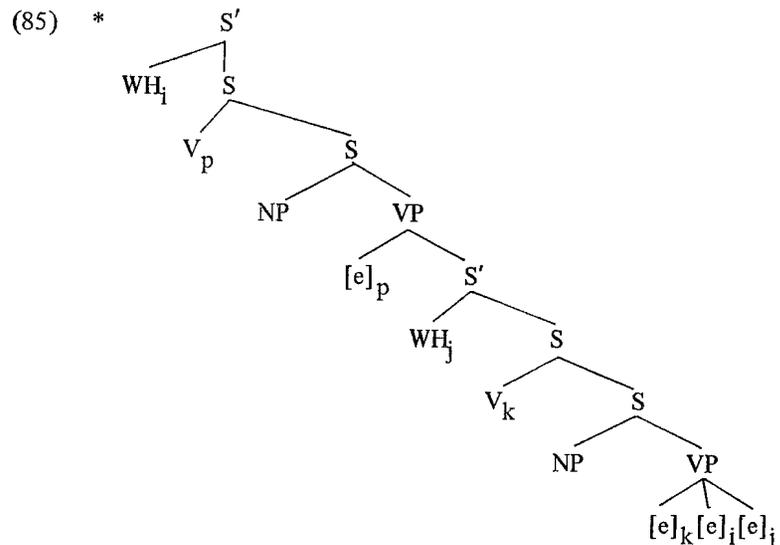
Let us next turn to the question of whether the verbal trace itself is 'strong' enough to qualify as a proper governor. Again, evidence from Vata tends to show that a verbal trace *is* a proper governor. First, in simple sentences, a *wh*-trace in the VP is properly governed.

- (83)  $y\bar{I}_i$  ñ  $I\bar{e}_k$  [<sub>VP</sub> [e]<sub>i</sub> [e]<sub>k</sub>] lá  
 what you eat WH  
 'What are you eating?'

This is not sufficient, though, to show that a verbal trace properly governs the *wh*-trace in the VP, since parallel examples in Spanish are grammatical as well:

- (84) Qué<sub>i</sub> [<sub>S</sub> querían [<sub>S</sub> esos dos [<sub>VP</sub> t<sub>v</sub> [e]<sub>i</sub>]]]

In order to capture the contrast in grammaticality between (84) and (78b), Torrego proposes redefining proper government in such a way that the trace in (84) is properly governed, but the trace in (78b) is not. This is achieved by the assumption that an ( $\bar{A}$ ) chain must be properly governed, that is either the chain is lexically governed, or, if it is not lexically governed, all of the members of the chain (where, by stipulation a chain must consist of more than one member) must be governed. In (84), the *wh*-trace is governed by the verbal trace, and the *wh*-phrase is governed by the preposed verb: thus, all members of the chain are governed and the ECP is satisfied. But consider next a structure like (78b), repeated here as (85):



Torrego argues that the preposed *wh*-phrase and its trace in (85) do not form a chain: she adopts the proposal of Aoun (1982) to the effect that *S'* breaks a chain. Therefore, the *wh*-trace is a chain in itself, and should be lexically governed, which it is not. Hence the ungrammaticality of (85).

Therefore, the Vata examples which must be considered are not those in (86), but those with a structure comparable to (85). Given the definition

of proper government presented by Torrego, we would expect examples corresponding to (65a) to be grammatical, but examples corresponding to (78b) (= (83)) to be ungrammatical. Or, at least, one would expect a contrast between the two structures. Consider now the following examples:

- (86) a. Kòfí mÓ<sub>i</sub> à nĭ [zĒ<sub>j</sub> mĒmĒ<sub>j</sub>] à ká ɓÓ  
 Kofi him we NEG-A what we FUT-A REL  
 [e]<sub>i</sub> [e]<sub>j</sub> ] yì  
 know  
 'It is to Kofi that we do not know what to give'
- b. Kòfí mÓ<sub>i</sub> à nĭ [zĒ<sub>j</sub> mĒmĒ<sub>j</sub>] ñ nyĒ'- ɓÓ  
 Kofi him we NEG-A what you gave-REL  
 [e]<sub>i</sub> [e]<sub>j</sub> ] yì  
 know  
 'It is to Kofi that we don't know what you have given'

The grammaticality of (86b) and the absence of any contrast between the two examples indicates that the verbal trace in Vata does seem to act as a proper governor of the *wh*-trace.

Unfortunately, similar arguments cannot be constructed for Dutch, since V-second only applies in root sentences, and, because of Bounding Theory, *wh*-island violations are impossible.

The effects of V-preposing in Spanish are thus quite different from those in Vata or Dutch: the preposed verb does not function as a proper governor, but the verbal trace does. In fact, the Spanish verb movement rule itself has quite different properties from the rule in Vata or Dutch. It does not fit into the typology of V-movement rules we have been discussing up to this point. For example, V-movement in Vata or in Dutch affects only one verb. In Spanish, however, both the finite verb and past participle move (see 74c) accompanied, moreover, by negation and clitics. Furthermore, V-movement in Spanish only applies in *wh*-questions (leaving yes/no questions out of consideration), in both matrix and embedded complements. Moreover, it needs to be triggered by the occurrence of a particular type of *wh*-phrase, which can be characterized as being  $\theta$ -dependent on the verb. To extend the parallel between NP and V movement rules, the Spanish V-preposing rule rather seems to correspond to Stylistic Inversion in French, which is also a triggered rule, applying in main and embedded clauses alike (cf. Kayne & Pollock (1978)).<sup>21</sup> Note also that this rule does not fit the dimensions along which dependencies expressed by the rule *move- $\alpha$*  are classified.

## 7.5. Discussion

It has been shown in this chapter, that the requirement that nominative Case be assigned by a verbal INFL extends beyond Vata and Gbadi, and seems to be more adequate than the hypothesis that AGR assigns nominative Case. Moreover, the NP-type of V-movement is probably widespread, and occurs among others probably in inflected Portuguese infinitives.

This chapter has furthermore been devoted to the problem of how to account for crosslinguistic differences which can be observed with respect to the NP-type of V-movement: the main focus was on differences and parallelisms between Vata V-movement and V-second in Dutch.

It has been shown that the two V-movement rules are reflections of the same process, i.e. of the NP-type of V-movement (movement to a V-position). We have also motivated the analysis of V-second as movement of the verb into COMP (which we later argued is really INFL). The root character of V-second can be directly related to the landing site position of V: in the presence of a lexical complementizer, V-movement is prohibited. This analysis of V-second finds further support in the fact that it allows us to isolate the difference between Dutch and Vata: the two differ with respect to the landing site position of the verb: INFL in Vata, and COMP (= INFL) in Dutch. And, in fact, this difference may be further reduced, since the V-movement-as-forced-by-the-Case-filter analysis carries over to Dutch, and there is some evidence that INFL is a more appropriate name for the node that is generally called COMP in Dutch. Vata and Dutch, then, would both represent V-movement into INFL, with INFL occurring in a different position in each language. This position, we argued, correlates with the value for the directionality of Case assignment in the two languages. Case is assigned to the left in Vata, but to the right in Dutch. Evidence for the right directionality of Case assignment in Dutch derives from the distribution of NPs and clitic pronouns. Thus, ultimately, the difference between Vata and Dutch reduces to the different values assigned to the parameter for Case assignment. Extension of this analysis to VSO and SVO languages has been briefly reviewed, and problems have been indicated.

We have also presented arguments showing that the V-movement rules of SAI and V-second must occur between D- and S-structure, since SAI and V-second interact with the ECP, as can be concluded from the data concerning extraction of the subject NP in English and Dutch. It has been shown that the possibility of extraction of the subject is exactly the same in main and embedded clauses (providing, of course, that an appropriate bridge verb intervenes). This is an interesting and important result, since it implies that complex grammatical behavior with respect to *that-t* phenomena can be deduced by the language learner upon presentation of simple clauses.

Although the analysis has some very interesting features, and sheds light upon the question of the locus of differences between languages, many details have not been discussed. Many questions also arise, both empirical and theoretical and some strong predictions are made about phenomena that one expects or does not expect to occur in a particular language. Let us briefly discuss some of these.

First, we have argued that nominative Case is often assigned by a verbal INFL. The problem of what constitutes a verbal INFL has barely been addressed though, and remains to be further investigated.

We have also argued that there is a difference between  $\theta$ -theory and Case theory: whereas the value of the parameter establishing directionality for  $\theta$ -role assignment can vary categorially, the same is not true for Case theory: no categorial specifications are allowed. In case of conflict, the parameter for the direction of Case assignment can be satisfied in other ways, either by movement of an NP (cf. Chinese and Mahou) or by movement of the Case feature to a position in which Case directionality can be satisfied (indirect Case assignment).

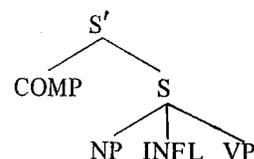
Two questions arise, however with respect to the parameter for Case directionality. First, it may very well be the case that this parameter constitutes the unmarked case for Case assignment, but that other - more marked options - are available at the same time in a given language. Secondly, the question arises of how accurate the hypothesis is that no categorial specifications are allowed.<sup>22</sup> Notice also that this implies that in SVO (i.e. NP INFL VP languages), NP and INFL need *not* be adjacent, since NP will always receive Case by means of move-Case. This prediction needs to be investigated further.

The analysis of V-second as V-movement into INFL has been motivated in Dutch. But, as we have mentioned several times, we assume that it extends to other V-second languages as well. The analysis of V-second as V-movement into INFL accounts directly for the root character of this rule. This explanation may be extended directly to Norwegian, German and Swedish (on analyses of V-second in Swedish, see also Holmberg (1983) and Platzack (1983)) - languages for which it is clear that V-second is a root phenomenon - but seems to run into problems with Yiddish and Icelandic (Maling & Zaenen (1981)), - languages for which it has been claimed that V-second is not a root rule, since it may apply in embedded complements as well. However, we are not convinced that V-movement in these languages is not a root phenomenon, and that its application in certain non-root environments is not due to other factors. In Yiddish, for example, V-second may only apply in certain embedded complements, but not in others, such as indirect questions, relative clauses derived by *wh*-movement (Lowenstamm, 1977), and certain complement clauses of factive verbs (Lowenstamm, personal communication). Similar

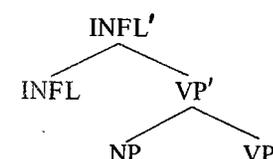
remarks extend to Icelandic (cf. Den Besten et al (1983)). We suppose, therefore, that the analysis of V-second can be extended to other V-second languages, and that apparent differences between V-second languages are related to the different possibilities of allowing for topicalization in embedded complements.

A second problem concerns the root rule of SAI in English. SAI share the characteristics of V-movement into COMP in other V-second languages, but differs from them in that only verbs that may appear in INFL may undergo SAI. Also, we have assumed that INFL in English does not occur under  $S'$  but under S, i.e. schematically:

(87) a. *English*

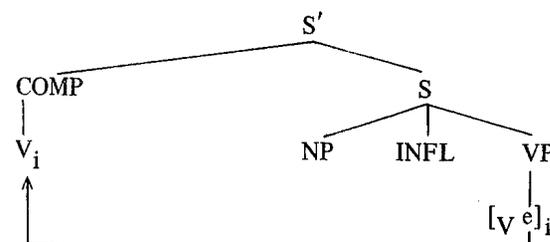


b. *V-second*



How can we explain the difference between English (and other languages with this same property)<sup>23</sup> and other V-second languages. For example, why can the main verb in English not be proposed to yield surface structures like *\*Saw John Mary?* The impossibility of this might be related to an ECP violation. To understand this, consider the structure which would correspond to such impossible surface structures:

(88) \*



By virtue of the Projection Principle, it follows that (88) contains a verbal trace in the VP. We have argued in chapter 6 that a verbal trace needs to be properly governed: (88) can then be ruled out as an ECP violation. Indeed, the preposed verb governs, via COMP indexing, only INFL, and not the verbal trace in the VP. If auxiliaries are preposed, however, proper government is satisfied, since the trace of the auxiliary in INFL is governed by the COMP containing the antecedent.

A further remark concerns the relation between *that-t* violations in Dutch, and the functioning of V-second. According to our proposal,

*that-t* violations in Dutch are possible in embedded complements, precisely because in main clauses COMP (= INFL), although doubly filled with a *wh*-phrase and the finite verb, allows proper government of the subject trace. We would therefore expect *that-t* violations to be systematically possible in V-second languages. This prediction is not without problems. Taraldsen (1979) for example discusses cases in Norwegian in which the *that-t* filter is respected, but also cases in which *that-t* violations occur. It should be noted, however, that, as far as we know, all V-second languages either directly exhibit *that-t* violations, or at least have dialects that allow them. This contrasts with English dialects in which the *that-t* filter seems to be systematically respected. It is interesting, in this context, to discuss German. In standard German no conclusion about *that-t* violations may be drawn, as German does not allow long extraction. Some German dialects, however, do allow long extraction. This is the case in Bavarian for example, and interestingly, *that-t* violations do occur (the data are drawn from Bayer (1983)):

- (89) a. weam<sub>i</sub> moanstu dass der Franz t<sub>i</sub> troffe hot  
 whom think-you that Franz met has  
 'Who do you think that Franz met'  
 b. wea<sub>i</sub> moanstu dass t<sub>i</sub> an Franz troffe hot  
 who think-you that Franz met has  
 'Who do you think has met Franz'

Bavarian also allows proper government from COMP (cf. INFL) if it is doubly filled:

- (90) Es is no ned g'wiess [<sub>S'</sub> wea<sub>i</sub> (dass) [<sub>S</sub> t<sub>i</sub> kummt]]  
 It is not sure who comes'

These data are, of course, highly suggestive, and seem to conform exactly to our analysis.

Thus, although certainly not without problems, the correlation between V-second and *that-t* violations seems to find enough theoretical and empirical support to make it worthwhile trying to find alternative analyses for problematical cases, if there are any.

To end this chapter, let us briefly consider the question of how the value for the parameter for Case directionality can be recovered from surface structures by the language learner, given the proposals in this chapter.

Given the strong condition on Case assignment, formulated in (51), i.e. that in the unmarked case no categorial specifications are allowed, it is sufficient if the value for Case assignment can be established for one category.

A prime candidate for such a category, is the category P, (as is, in fact, also the case with the directionality of  $\theta$ -role assignment cf. 4.5.). Indeed, as far as I know, Ps and their lexical NP complements must always be adjacent, i.e. Ps and their complements (where by complement we mean a lexical NP)<sup>24</sup> may not be scrambled. Let us assume, therefore, that the following descriptive statement holds:

- (90) Prepositions or postpositions are always adjacent to their (lexical NP) complement

Or, in other words, Case assignment by Ps would always require Adjacency. Now, if this is true, it can be easily seen how the language learner may easily establish the value for Case directionality. Because of (51) and (90), the presentation of PPs, consisting of a P and a lexical NP would be sufficient.

This, I think, would be an extremely interesting result. It should be kept in mind, however, that the discussion above is necessarily speculative, depending, for instance, on the validity of the particular proposals we have made with respect to Case theory. Future research will have to provide insight into these matters.

## NOTES

1. The stylistically marked character of this process could be related to the fact that INFL would contain an auxiliary, in its infinitival form.
2. For discussion, see, among others, Den Besten (1977), Evers (1981), (1982), Goldsmith (1981), Holmberg (1983), Koster (1975), Maling and Zaenen (1981), Platzack (1983), Thiersch (1978).
3. It has been proposed that in contexts like (15a, 13b) etc., the impossibility of V-second would follow from the fact that the embedded complement clause is governed (cf. Safir (1981) for a particular implementation of this idea), rather than from the fact that a lexical complementizer is present. Safir's analysis has drawbacks, however. It is unclear, for example, how it succeeds in excluding V-second from applying in relative clauses, or why V-second applies in Dutch topicalizations.
4. Such a constraint seems to occur rather frequently in languages with INFL in the so-called Wackernagel's position (i.e. second position in surface structure). We will assume, without arguments, however, that this constraint is independent from the position of INFL. If this is true, one would expect to find languages with INFL in final or in second position which are subject to the same requirements.
5. But, unlike Dutch and other V-second languages, only verbs which may appear in AUX (i.e. modals, auxiliaries, *have* and *be*) may undergo SAI in English. We return to this difference in 7.5.
6. Recall that we have argued in chapter 6 that this rule need not be formulated. Rather its basic effects follow from general percolation mechanisms, by virtue of which a maximal projection inherits the index of its head.
7. The literature contains basically two proposals, insuring the appearance of *do*

in English: the analysis of *do-support* (Chomsky (1955)), which inserts *do* in INFL if INFL is non-adjacent to a verb, and the analysis of *do-deletion* (among others, Emonds (1976), Akmajian, Steele & Wasow (1980)), which has the following features: (i) INFL (at D-structure) contains either a modal or *do*. (ii) *do* can be replaced by *have* and *be under have-* and *be-raising* (i.e. *do-replacement*), and finally (iii) *do* is deleted, if it is adjacent to a verb. We assume here a *do-support* analysis, although not much seems to be at stake. We do so for the following reasons. First, there does not seem to be any way in the present framework of *forcing* all INFL nodes to contain a verbal element (i.e. *do* or a modal) at D-structure. An INFL node may simply contain a [+Tense] morpheme. Secondly, the rule of *do-replacement* seems to be an artefact of this analysis. And finally, proponents of the *do-deletion* analysis cite as an advantage that it expresses the fact that INFL (in finite clauses) always contains a verbal element. But note that this is equally true for the *do-support* analysis as well. According to our assumptions, it is sufficient that INFL contains a verbal element at S-structure, for reasons of nominative Case assignment. The real question, then, is why a verb strictly adjacent to INFL in English 'counts' as a verbal INFL. (On this matter, see also the analysis in terms of V-hopping below).

8. The two constructions may illustrate however that subjects in all Dutch dialects can be topicalized or relativized. As an illustration, consider the following representations:

- (i) a. [<sub>S'</sub> Marie [<sub>S'</sub> [<sub>COMP</sub> die<sub>i</sub> komt<sub>k</sub>] [<sub>S</sub> [<sub>NP</sub> e<sub>i</sub>] volgende week [e]<sub>k</sub>]]]  
       Mary           DEM comes           next week  
       'It is Mary who comes next week'
- b. [<sub>NP</sub> de jongen [<sub>S'</sub> [<sub>COMP</sub> die<sub>i</sub>] [<sub>S</sub> [<sub>NP</sub> e<sub>i</sub>] volgende week komt]]]  
       the boy           DEM           next week comes  
       'It is the boy who comes next week'

In (ia) and (ib) the trace in subject position must be considered to be properly governed, in (ia), even if the COMP node is doubly filled. Because of these facts, we are forced to illustrate our point in *wh*-questions, which are much more opaque with respect to subject extraction.

9. As noted in Reuland (1982), ergative verbs without an auxiliary demand the presence of *er* in case of subject extraction:

- (i) a. \*Wie komt aan  
       Who comes PART  
       b. Wie komt er aan  
       Who come there PART  
       'Who is arriving?'

Similar restrictions are not observed in relative clauses or topicalizations however. 10. This fact is probably related to the fact that indefinite object NPs do not have exactly the same distribution as definite object NPs. See also Reuland (1983) for discussion on this matter.

11. These judgments seem very clear to me. Such structures are also presented as grammatical in Koster (1978b, 218a) and Reuland (1981, 40). They are, however, considered to be ungrammatical by Bennis (1980).

12. Indefinite object NPs (compare fn. 10) are not taken into consideration here. We do not concern ourselves with the important questions concerning Case assignment to indirect object NPs either.

13. It may seem tempting to pursue an alternative analysis for Dutch based on the following assumptions: (i) the VP is verb initial, i.e.  $\theta$ -roles are assigned to the right; (ii) INFL is final, and contains all inflectional material, including infinitival *te*, *-en*, etc.; (iii) the verb moves into INFL in all clausal complements; (iv) a verb which is moved into an INFL which is, in turn, governed, must undergo V-raising (cf. Evers (1975)) or the complement must be extraposed, because of 4(12); and (v) the finite verb moves into COMP in root sentences. This analysis would eliminate the need to assume different categorial specifications for  $\theta$ -role assignment by Vs and by Ns, as well as the abstract VP initial Case position we will argue for below: Case could simply be assigned by a verbal chain.

Such an analysis meets with serious problems, however, (how to account for NP A order, prehead complements in nominalizations, how to capture the adjacency of particle verb constructions and PP-V idioms?). We will therefore not pursue this alternative here.

14. The hypothesis that movement of Case features is involved yields a simple explanation for the fact that this Case position occurs in VP initial position. Since movement can only substitute, or adjoin to a maximal projection, and movement of the Case features cannot be substitution, it must therefore be adjunction to a maximal projection, in this case the VP. Notice that this provides an argument in favour of a configurationally represented VP node in Dutch.

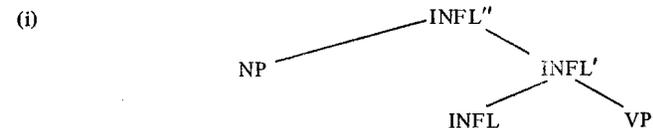
15. The similarity between COMP and INFL in V-second languages has led several people to propose to label this node CONFL (Platzack (1983)...).

16. Let us point out that, unlike Haegeman and Bennis (1983), we analyze these cases as clitics on COMP, not as cases of stylistic inversion of the subject, with clitics occurring in second position in S, outside VP.

17. Our analysis has much in common with a recent analysis proposed in Sproat (1983), who proposes to account for the surface position of INFL in Welsh, and VSO languages more generally, by parametrizing the notion government for directionality. In VSO languages all categories would govern to the right. Thus, if the subject needs to be governed INFL has to move from second position into first position. The basic differences between the two accounts resides in the fact that I do not presume that government is parametrized for directionality, and that I assume that INFL in VSO languages is always in first position.

18. VSO and V-second languages also differ with respect to the fact that in V-second languages, the initial (preverbal) position in root sentences must be filled (except in yes/no questions and imperatives). No such requirement holds for VSO languages.

19. Let us mention again that we will not address the question whether the base rule for English should be represented as (66), or as (i) (cf. Stowell (1981), Mc ANulty (1982)):



20. In (68a), the configuration for proper government is created at S-structure, by means of COMP indexing (cf. Aoun, Hornstein and Sportiche (1981)).

21. The class of *wh*-words triggering Stylistic Inversion in French is broader than that triggering V-preposing in Spanish: *comment* for example triggers Stylistic Inversion, but *pourquoi* does not:

- (i) a. Comment est parti Jean  
b. \*Pourquoi est parti Jean

22. Let us mention two possibly problematical languages for this hypothesis. First, Hungarian, if Hungarian, as argued in Horvath (1981) is head initial for the VP, but otherwise postpositional. And secondly, Akan languages (Kwa), which are generally head initial for the VP on the surface, but postpositional.

23. Italian and Portuguese are like English in this respect: only auxiliaries may be preposed by the AUX-to-COMP rule.

24. Dutch PPs show that we need to refer to the position of lexical NPs: lexical NPs follow the P, whereas certain pronouns, the *R*-pronouns, must precede it. The complex situation of Dutch PPs may be summarized as follows (see Van Riemsdijk (1978) for more discussion). Dutch is mainly prepositional, that is, lexical NPs follow the P, unless the P contains a so-called *R*-pronoun, which must precede the P (e.g. *op tafel*, 'on the table' *erop* 'on it'). Furthermore:

- (i) most Ps allow for the *R*-pronoun, but some do not:

- a. zonder jas                   \* er zonder  
   without a coat

- (ii) Ps which allow for an *R*-pronoun may be stranded, provided this P is  $\theta$ -governed by the verb:

- b. Ik heb er op gerekend  
   I have there on counted  
   'I have counted on it'  
c. Daar heb ik op gerekend  
   There have I on counted  
   'It is on that thing that I counted on'  
d. Hij heeft zijn boek er na gepubliceerd  
   He has his book there after published  
   'He has published his book after that'  
e. \*Waar heeft hij zijn boek na gepubliceerd  
   Where has he his book after published

How can these data be fitted into the theory of the base developed in this study? (i) raises the question of why only *er* may, and, in fact, must occur in pre-P position. Suppose that the particularity of *er* is that it need not be Case marked. The fact that *er* occurs to the left of a P, and lexical NPs to the right, may then be interpreted as (iii):

- (iii) a. Ps which allow for *er* assign a  $\theta$ -role to their left (just like V);  
b. Ps, like all lexical categories, assign Case to the right

Ps which do not allow for *er*, could be lexically specified as assigning a  $\theta$ -role to the right. Note, then, that this would represent a rather unique situation: I know of no other languages where a comparable situation arises, languages which would, for example, have certain verbs which assign a  $\theta$ -role to their left, whereas others would assign a  $\theta$ -role to the right.

## LIST OF ABBREVIATIONS

|         |                                                                                     |
|---------|-------------------------------------------------------------------------------------|
| ATR     | Advanced Tongue Root                                                                |
| AUX/Aux | Auxiliary                                                                           |
| APPL    | Applied suffix                                                                      |
| A       | Adjective                                                                           |
| CAUS    | Causative suffix                                                                    |
| CL      | Clitic                                                                              |
| COND-A  | Auxiliary indicating conditional mood                                               |
| DEF/DET | Definite marker/determiner                                                          |
| FOC     | Focus particle                                                                      |
| FUT-A   | Future auxiliary                                                                    |
| FT      | Future Tense particle                                                               |
| H       | High tone                                                                           |
| L       | Low tone                                                                            |
| MH      | Mid-High tone                                                                       |
| MA      | Verbal suffix                                                                       |
| MALI    | Verbal suffix                                                                       |
| N       | Nucleus                                                                             |
| N       | Noun                                                                                |
| NEG-P   | Negative particle                                                                   |
| NEG-A   | Negative auxiliary                                                                  |
| NOM     | Nominalization suffix                                                               |
| O       | Onset                                                                               |
| P       | Pre- or Postposition                                                                |
| PT      | Past Tense Particle                                                                 |
| PART    | Verbal particle                                                                     |
| PAS     | Passive suffix                                                                      |
| PERF-A  | Perfect auxiliary                                                                   |
| R       | Rime                                                                                |
| Q       | Interrogative (Yes/no) particle                                                     |
| REL     | Relative Clause marker                                                              |
| V       | Vowel                                                                               |
| V       | Verb                                                                                |
| WH      | WH-construction particle                                                            |
| *       | The following sentence is ungrammatical                                             |
| * ( )   | The following sentence is ungrammatical if the text between parentheses is omitted  |
| (* )    | The following sentence is ungrammatical if the text between parentheses is present. |

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