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STUDIES IN THE GRAMMAR OF KOYO

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by

Dago Pascal KOKORA

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Committee

Dr. Linda J. Schwartz (chairperson)

Dr. Charles S. Bird

Dr. Harry L. Gradman

Dr. Carleton T. Hodge

Dr. Fred W. Householder

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Abstract

This work is an attempt to analyze a few aspects of Koyo, a Kru language of the Ivory Coast. These are: COMPLEMENTATION, MODIFICATION and FOCUS CONSTRUCTIONS. Prior to the description per se of these features, some introductory remarks present the model of description used for the anlaysis of Koyo. Two reasons, one external and the other internal to the model, are given for adopting the TGG framework (Transformational Generative Grammar). An opening chapter follows the introduction and gives an overview of some morphological, phonological and tonological aspects of the language under study. It is argued in this first chapter that the notion of "productive" vs "nonproductive" rule allows one to lump together under the same and unique component Morphology and Phonology. This chapter also shows the lexical and grammatical functions of tones in Koyo.

In Chapter II, various types of complement sentences are described. Observation of these facts shows that the "factive" vs "nonfactive" distinction (Kiparsky and Kiparsky, 1968b/1971) is useful to analyze Koyo complex sentences involving a subset of cognitive, emotive and sensory predicates. This chapter intentionally avoids all the theoretical controversies leveled against the linguistic notion of "presupposition" and proposes a reasonable analysis of some complement-taking predicates in Koyo.

The discussion in Chapter III points out the interdependence of Semantics and Syntax and reveals that for some grammatical features, such

as ADJECTIVES, the priority of Semantics becomes obvious. This chapter also deals with facts of Relative Clauses and Adverbs. With respect to the former, a rule referring to the grammatical terms of "subject" and "object" is assessed as having more explanatory value than an Output Condition à la Ross (1967b) that usually refers to structural terms, such as NP, VP, and so on. The section on Adverbs shows the free word order of this category within the scope of the Predicate phrase but not outside of it.

The topic on FOCUS SENTENCES describes several facts concerning focus structures in Koyo. On the face of these observations, the standard transformational framework, which handles these constructions by the movement analysis, is discarded as an inadequate approach. Instead, a nonmovement analysis, called here the null-hypothesis is proposed as a formal mechanism to account for all of the focus sentence types in Koyo.

Chapter V contains some concluding remarks that summarize each chapter of this dissertation.

Conventions

a). Tone Marking: the following symbols indicate tones.

´	high tone as in [kó], 'corpse'
¯	mid tone as in [vādā], 'baobab-tree'
`	low tone as in [gò], 'tail'
˩	mid tone gliding as in [sū], 'tree'
˨	high tone gliding as in [bǒ], 'bowl'

b). Abbreviations with alphabetic letters.

A	Accusative
Adj	Adjective
Adv	Adverb
Aux	Auxiliary
Cleft-M	Cleft marker
Comp	Complementizer
D, Det	Determiner
Ds	Deep structure
Emp	Emphatic marker
Foc	Focus
Gnom	Gerundive nominal
Loc	Locative
MORPHO	Morhology
N	Noun, Nominative
Neg	Negative marker
NP	Noun phrase
NVOS	Nominative proform-Verb-Object-Subject

O, Obj	Object
OSVA	Object-Subject-Verb-Accusative proform
OSV	Object-Subject-Verb
P	Preposition
PP	Preposition phrase
Pred-P	Predicate phrase
Pres	Present tense
PHONO	Phonology
PS	Phrase structure
Q-Part	Question particle
Q-Ref	Question reflex
Rel	Relative
S	Sentence, subject
Spec	Specifier
SNVO	Subject-Nominative proform-Verb-Object
SONV	Subject-Object-Nominative proform-Verb
SVAO	Subject-Verb-Accusative proform-Object
SOV	Subject-Object-Verb
SVO	Subject-Verb-Object
Top. M	Topic marker
TGG	Transformational Generative Grammar
TRANSF	Transformation, Transformational
Trans	Transitive
V	Verb, vowel
VP	Verb phrase

X,Y,W,Z	Cover symbols
(T[P])	Truth of the embedded proposition
(F[P])	Falsity of the embedded proposition

c). Special symbols.

[ ]	used to indicate a string pertaining to a certain category. Also indicates phonetic transcription.
( )	used to indicate optional string(s). Also used to indicate descriptive glosses.
{ }	used to conflate rules that are identical except for one symbol always occurring in the same position.
→	indicates the operation of rewriting.
?	indicates questionable grammaticality or uncertainty about the label of a node.
#	indicates sentence boundaries and also ambiguous sentences.
*	indicates ungrammatical sentences.
/ /	used to indicate phonemic transcription
~	indicates nasal segment as in [bã], 'drum'

d). Orthographic letters. The following symbols are adopted for typographic convenience.

Phonetics	Orthography	Phonetics	Orthography
ɓ	ɓ	ɪ	I
ɣ	ɛ	ʊ	U
ɲ	ñ	ɛ	E
ŋ	ng	ɔ	O
		ə	ɨ
		ɯ	ʉ

Contents

INTRODUCTION

0.1.1. The Problem of Choice

In setting out to analyze a given language, the analyst is always faced with a problem of choice, for the description of any human language can be achieved in more than one fashion. Therefore, the option of one particular approach over other methods should be stated and justified. The theoretical background assumed here is that of Transformational Generative Grammar (hereafter TGG). The question may then be asked, "what makes TGG a more useful description for a natural language than a purely structural approach?"

0.1.2. The TGG Framework

One possible answer to the question of why the TGG has been adopted can be stated this way.

(1). It is within the TGG framework that most recent linguistic research has been conducted.

(2). This paradigm provides a model that allows one to discuss syntax and semantics, morphology and phonology from one consistent and unified vantage point.

This last observation summarizes the essential goal pursued in this thesis, which deals with a few aspects of the Grammar of Koyo.[1] The TGG referred to here is based on Noam Chomsky's Aspects of the Theory of Syntax (1965) and other, later transformational works. This study then assumes a four-component language model for the description of the Koyo language. The components are described below.

0.1.2.1. Base Component

The first component is termed the Base. It essentially establishes the basic syntactic-semantic relationships that characterize a given language.[2] This component is not as complex as the one sketched out in Chomsky (1965, pp. 106-107). However, Chomsky (1965, pp. 120-123) gave a second version of the Base Component where the latter contains no complex symbols. The Base Component adopted for the grammar of Koyo is similar to Chomsky's second proposal. The Base here is reduced to the Phrase Structure Component since the lexicon f nctions as a separate component. In addition to this structure reduction, this component carries only one set of rules, the categorial rules that are rewriting or formation rules. All the subcategorization rules are eliminated from this component and their function taken over by the First Lexicon; i.e., the second component of our four-component language model. The claim embodied in the postulation of such a component is that every spoken utterance in any human language has an underlying level of representation of its constituent units, in addition to the surface representation of these units. These levels have been represented as rooted, oriented trees whose branches are labeled with syntactic categories and grammatical or morphological items. It is further claimed that these trees provide part of the information that the native speaker possesses about the structure of his language. The importance of the distinction between the two levels of the structure of a sentence is that it allows one to assume that sentences that differ in their underlying form also have a different semantic interpretation.[3]

0.1.2.2.1. First Lexicon

The second component is termed First Lexicon. It is made up of the subcategorization rules, which have the status of lexical redundancy rules. The First Lexicon operates on the output of the Base (i.e., the categorial rules) to map them on lexical entries. This mapping process may be called the Lexicalization process. By way of illustration, consider the following Koyo data:

0.1. (a) titeplañO-O O yi la duN[4] na
magistrate-the he come Rel. town-in Spec.

O lu saka
he eat rice

'The magistrate who came to town ate some rice.'

(b) gOmala-a O yi la duN na
governor-the he come Rel. town-in Spec.

O lu saka
he eat rice

'The governor who came to town ate some rice.'

(c) ñikpO-O O yi la duN na
person-the he come Rel. town-in Spec.

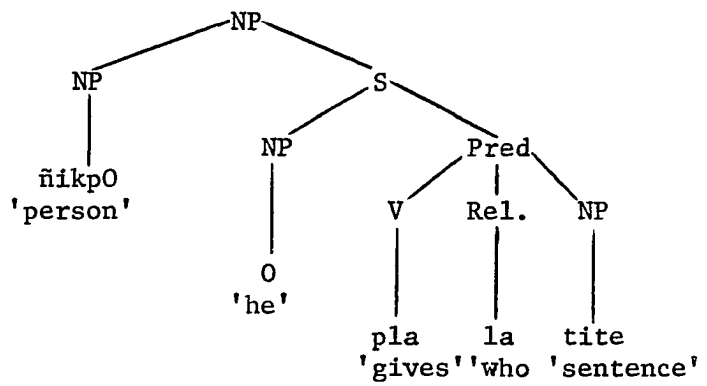
O lu saka
he eat rice

'The person who came to town ate some rice.'

Within a feature matrix model, the subject NP of the main clause in 0.1a, 0.1b, and 0.1c (i.e., tite plañO-O, gOmala-a and ñikpO-O respectively) would be specified as [+N, +animate, +human]. However, the first NP (i.e., titeplañO-O) differs from the other two in that it has a highly

structured base, which can be sketched out in the tree configuration shown in 0.2 below

0.2



0.1.2.2.2. - Gruber 1970 Framework

If Gruber's framework is adopted for the analysis of the data in 0.1, it is clear that his Incorporation principle will allow the lexical entry titeplañO-O to be mapped in the categorial tree shown in 0.2. This configuration, which corresponds to the string 0.3 below, exists only at the prelexical level. Therefore, it is prior to semantic and syntactic interpretation.

0.3 ñikpO O pla la tite
person he give Rel. sentence
'The person who gives the sentence, i.e., the magistrate'.

Gruber's Incorporation principle may be termed a Lexicalization process as far as the Grammar of Koyo is concerned. This means that here, the lexical entry titeplañO has undergone a lexicalization rule that has operated on the string reproduced in 0.3 to yield the main clause subject NP of 0.1a;

i.e., titeplañO. Actually, the lexical entries for gOmala-a in 0.1b and ñikpO-O in 0.1c cannot be morphologically analyzed like 0.3. Since analyzability is a necessary condition for Gruber's incorporation, 0.1b and 0.1c will escape this incorporation process.

0.1.2.3.1. Transformational Component

The third component is the Transformational Component, which has a very complex function in the grammar. It either adds features to the matrices resulting from the operations of the First Lexicon, or it alters these matrices and rearranges certain nodes in the derivation through the process of addition and/or deletion. There is currently a great deal of controversy over this particular component of the grammar. Since transformations are formulated so as to specify the relation holding between the deep or underlying structure and the surface structure of a sentence uttered by a speaker, various kinds of relations between underlying structures and transformations have been characterized differently by different linguists since the advent of Chomsky's Syntactic Structures (1957). The controversy has been so fostered by both published and unpublished papers that Generative Linguistics has in the past few years split into two main streams: Interpretive Semantics and Generative Semantics.[5]

0.1.2.3.2. Morphological Component

Following the Transformational Component, a second path will insert morphemes or lexical items into the categories or matrices that have been transformationally derived. The fourth and last component is the

Morphological Component. This part of the grammar will not be worked out in detail. However, it should be understood that the Morphological Component constitutes an essential part of the grammar, without which a linguistic description of a number of Koyo facts would remain unexplained. For instance, if this component were merely replaced by a phonological component, one would be hard put to explain the formation of compound words such as those reproduced in 0.4 below.

0.4 (a) [[ñí] [nēdē]]
NP N N P P NP
river middle
'The middle of the river'

(b) [[wú] [nēdē]]
NP ? ? P P NP
middle
'The top of the head'

0.1.2.3.3. Why a morphological component?

Within a model allowing a phonological component but not a morphological component, one does not encounter any difficulty in the derivation of 0.4a. However, the account of 0.4b raises at least two objections. One, there is no systematic way to predict when deletion will occur in a compound word formation and when it will not. For instance, wúlú is reduced to wú in the formative wúnēdē; i.e., 'top of the head'. However, gòlò ('palm tree') and nó ('drink') emerge in the compound gànō ('palm wine'). Two, one is hard put to presume that the meaning of the compound is composed of the meanings of its constituents. If this were true, wúnēdē and wúlú lá nédē on the one hand, gànō and gòlò lá nó on the other hand would

be similar concepts. However, this is not the case. The shade between wúnēdē and wúlú lá nédē may be characterized as follows: the former is the concept used to designate the part of the head known as 'the top' or 'the summit'. On the contrary, wúlú lá nédē is the phrase used to contrast the top of the head with the other parts. Likewise, gànō designates 'palm wine'. However, gòlò lá nó serves to specify the source of this beverage. In this case, it is a beverage obtained from gòlò ('palm tree') but not from lúlú, which is another species of 'palm tree'. What these meaning distinctions indicate is the existence of a generic-specific relation between the first and second phrase in both cases. In other words, wúnēdē and gànō have a generic reading, while wúlú lá nédē and gòlò lá nó indicate a specific reading.

Only a morphological component seems able to provide a technique for dealing with the formation of the samples illustrated in 0.5 below. Such a component will generate the morphological rules of 0.5.

0.5 (a) [[wúlú] [nēdē]] → [[wú] [nēdē]]
NP N N P P NP NP ? ? P P NP

(b) [[gòlò] [nó]]
NP N N N N NP

→ [[gà] [nō]]
NP ? ? N N NP

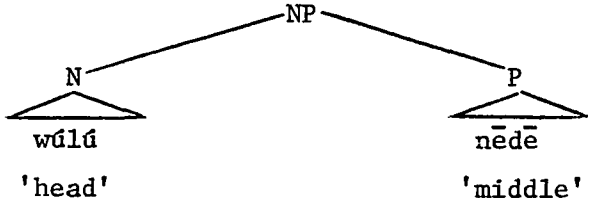
0.1.2.3.4. Role of a morphological component.

Therefore, the morphological component is an essential part, which acts upon the lexical items and grammatical formatives to produce the

phonetic realization of Koyo sentences. There is, however, a basic difference between the surface structure trees produced by the second lexical path and those produced by the morphological component. In the first, morphemes are represented as separate units, as exemplified below in 0.6a-b, which are two equivalent representations of the Koyo compound-word wúnēdē; i.e., 'the top of the head'.

0.6 (a) [[wúlú] [nēdē]]
NP N N P P NP

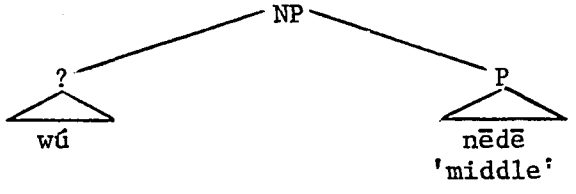
(b)



In the morphological component, morphemes are blended in accordance with the set of morphological rules that makes up this component. The two representations in 0.7a-b are the output of the morphological rule exemplified in 0.5a above.

0.7 (a) [[wú] [nēdē]]
NP ? ? P P NP
middle
'the top of the head'

(b)



'the top of the head'

0.1.3. A four-component language model

This introduction has described and justified the theoretical framework within which this dissertation is pursued. The claim has been advanced that a four-component language model can be a satisfactory one for the description of the language considered. These components are the Base Component, the First Lexicon Component, the Transformational Component and the Second Lexicon Path. Finally, the Morphological Component makes available various sets of rules, specified below, by means of which the surface forms of the language are obtained.

0.1.3.1. Importance of the transformational component.

The comment on the Transformational Component anticipated the recurrent moot question as to whether this study is cast into the Generative Semantics model or into the Interpretive Semantics framework. In this respect, it is made clear that no a priori decision will be made to stand in one camp and find arguments to support one's claims.

0.1.3.2. Organization in chapters

The material covered by this dissertation has been classified under four headings in Chapters I through IV. Chapter I presents a survey of the morphology, phonology and tonology of Koyo. Chapter II deals with the meaning relationship of complex sentences and seeks grammatical markers that specify semantic classes of verbs in Koyo. Chapter III analyzes verb and noun modifiers in order to show their syntactic behavior. Chapter IV looks into the facts of focus sentences, so as to determine their syntactic-semantic import. The concluding remarks constitute a summary of all the topics that have been investigated.

FOOTNOTES

1. Koyo is a Kru language. Greenberg (1970) includes the Kru languages in the Kwa branch of the Niger-Congo family. Koyo is spoken in the southwestern part of the Ivory Coast in West Africa. The Appendix that closes this dissertation contains details on the history of the people and their language.

2. Gruber (1970) proposed a "mechanism" and a "principle" designed to capture the syntactic-semantic relationships of English sentences. He termed them Prelexical Structure and Incorporation, respectively. He considered the former to be the underlying structure generated before semantic and syntactic interpretation. The postulation of such a device enabled Gruber to claim that semantics and syntax have the same representation at the prelexical level of English sentence derivations. The Incorporation principle is a process that links the syntactic-semantic level to the phonological one through the substitution of prelexical items for the phonological form of lexical entries. By way of illustration, Gruber considers the transitivity of the English verb 'pierce' as is clear in the examples attested in (i) below.

   (i) (a) The pencil pierced the cushion.
   (b) The pencil pierced through the cushion.
   (c) * The pencil pierced between the pages.
   (d) The pencil pierced (through) the book between the pages.

   Gruber argues that the surface verb 'pierce' is underlain by 'go through' at the prelexical level. After the Incorporated principle has been applied, (ia) is derived. However, if through is not incorporated, then (ib) and (id) are yielded. On the other hand, the ungrammaticality of (ic) proves that the optional occurrence of the through phrase in (id) does not impair the meaning of the surface string 'pierce'. It will be shown in the course of this dissertation how Gruber's system of Prelexical structure and Incorporation principle is applicable to the case of Koyo.

3. At this point, no theoretical stand is taken as to whether the burden of carrying all the semantic information of a sentence is incumbent upon the Base only, or to admit with Chomsky and the interpretivists the surface aspect of meaning. The analysis of Focus sentences, which is dealt with in Chapter Four, reveals that for some aspects of Koyo grammar, it does not make any difference whether an interpretivist or semanticist solution is adopted.

4. The capital 'N' represents a syllabic nasal, which carries a tone. Several morphemes consist of this nasal with a tone, viz.

   $\acute{N}$ __ with a high tone designates a first person singular.

Ǹ___ with a low tone designates a second person singular.

——Ń with a high tone designates a locative morpheme.

___Ǹ with a low tone designates a past tense morpheme.

5. Advocates of Interpretive Semantics claim that there are semantic rules that interpret deep structure; i.e., map it onto semantic representation, whereas those of Generative Semantics assert that semantic representations are generated by phrase structure rules. The bone of contention of the two models stems from the so-called Katz-Postal hypothesis of the meaning preservedness of transformational devices. This hypothesis postulates that when two different surface structures have the same deep structure, they should have the same meaning. When such a hypothesis was tested by linguists of the Generative School, it turned out that the Katz-Postal proposal should be rejected or at least modified. Those who took the first alternative became 'interpretivists' and those who adopted the other solution were called 'semanticists'. However, in this dissertation, no a priori or aesthetic preference for one model is attempted, since the concern here is not to endorse an interpretivist or a semanticist framework. On the contrary, the stand here remains a more conservative one -- namely, that although some scholars have quite good reasons to be skeptical about the existence or nature of some individual transformational rules, the transformational framework represents a descriptive device. The focus throughout will be to provide the most revealing description of various aspects of Koyo grammar.

CHAPTER I

Morphology, Phonology and Tonology

This preliminary chapter deals with the Morphological Component of the grammar sketched in the introduction of this investigation. This chapter is organized in three sections, each dealing with one of the three terms of the chapter title. In the first section, morphological processes are examined as productive or nonproductive. These distinct processes are illustrated with data from the language under study. In section two, a phonetic and phonological survey is provided with an attempt to set up the distinctive features needed for an adequate description of the language. The last section of the chapter analyzes the tonal system and shows that tones tie together lexicon and syntax, since they have both a lexical and a grammatical function.

1.1. Morphology.

1.1.1. Chapin (1970) and Halle (1973)

Within the TGG paradigm, concern with morphology or a theory of word formation has been slight indeed. To my knowledge, only a few recent studies have dealt with this specific topic with the intent of incorporating it in the general theory of human languages. For instance, Chapin (1970) proposed the 'epicycle hypothesis' of a nonautonomous level of morphology for English. Although this thesis does not advocate an 'epicycle theory' for the analysis of Koyo morphology, Chapin's nonautonomous level of morphology will be adopted. Another important proposal concerning a

theory of derivational morphology is Halle's (1973) programmatic sketch of a theory of word formation.[1] Here again, Halle's idea of an autonomous morphological component different from the phonological component will be discarded. However, it will be shown that the incorporation of a surface filter (as suggested by Halle) will account for certain idiosyncratic restrictions.

1.1.2. Productive and nonproductive processes.

1.1.2.1. Agglutination process.

On the basis of its word formation, Koyo may range among 'agglutinative' language types, in Humboldtean terminology. This means that in this language, forms are made up of clearly identifiable parts. For instance, the translation for 'albine', which surfaces as the single formative wúlúzàrèñ̄O, is in fact a composite of three subparts, which are label bracketed in 1.1 below.

1.1 [[wúlú] [zàrè] [ñ̄O]]
N N N Adj Adj N N N
'head' 'red' 'person'
'an albino'

In 1.1, the agglutination process is made up of a noun plus an adjective plus another noun. These three elements combine together to yield the phonetic form wúlúzàrèñ̄O. One may notice that no crucial change has occurred in the course of the morphologization process, since the lexical items are similar to the compound word.[2]

1.1.2.2. Word Formation rules.

The word formation rule underlying the instance in 1.1 can be formalized as shown in 1.2. Such a rule is further supported by the samples reproduced in 1.3. below.

1.2 [noun + Adjective + noun]
N N

1.3 (a) [[ñíyi] [zàrè] [ngOnO]]
N 'hair' 'red' 'woman' N
'A red-haired woman'

(b) [[ñíyi] [kpākpĪ] [ngOnO]
N 'hair' 'black' 'woman' N
'A dark-haired woman'

(c) [[ɓO] [klǂ] [yō]]
N 'leg' 'short' 'boy' N
'A short-legged boy'

However, 1.4a, which is a possible word in the lexicon of Koyo since it is neither semantically nor syntactically or phonologically anomalous, does not exist among the actual words of the language. It is replaced by 1.4b instead.

1.4 (a) * [[ñíyi] [pāpĪ] [ñO]][3]
N 'hair' 'white' 'person' N

(b) [[yèyèrè] [ñO]]
N "grey-hair" 'person' N
'A grey-haired person'

In Halle's framework,[4] 1.4a constitutes a case of 'lexical gap'. If his approach proves correct, the sample shown in 1.4 above is a piece of evidence that one needs (in Koyo as well as in Halle's theory of English

derivational morphology) an 'Exception Filter device' to handle cases that do not undergo the word formation rule in 1.2.

1.1.3. Nonproductive morphological processes.

1.1.3.1. More word-formation processes.

The items listed in 1.5 through 1.7 below are generated by processes different from the one formalized in 1.2 above. They also allow a close look at the agglutinative status of Koyo.

1.5	(a)	wúgbɨ̄lɨ̄	'hat'
	(b)	wūkŌɓá	'calabash-like head'
	(c)	wúnēdē	'top of the head'
	(d)	wúfēyē	'bone of the head'
	(e)	wúpā	'flat head'
1.6	(a)	wúlúgɨ̀zɨ̄rɨ̄	'totem'
	(b)	wúlúmɨ̄lɨ̄	'head bugs'
	(c)	wúlúniyi	'hair'
	(d)	wúlúklĒ	'cold'
	(e)	wúlúzĪ	'scalp disease'
1.7	(a)	wúlúflālē	'to comb'
	(b)	wúlúdèlē	'to behead'
	(c)	wúlúwŌlōlē	'to shampoo'
	(d)	wúlúsōrōlē	'to put on one's head'
	(e)	wúlúɓĒlūlē	'to carry on one's head'

In 1.5, each word consists of a radical morpheme wú plus a 'free morpheme'

as exemplified in 1.2 b-d repeated here as hyphenated words to show what the free morphemes are and what they mean.

1.5 (b) wú - kōbá (calabash) 'calabash-like head'

(c) wú - nēdē (middle) 'top of the head'

(d) wú - fēyē (bone) 'bone of the head'

However, the radical morpheme may also be followed by a 'bound morpheme', that is, a formative that is not meaningful in its own right. The illustration of this word formation type is given in 1.5a and 1.5c above. On the basis of the data in 1.5 and 1.6, one may formalize 1.8, as a possible word formation rule in Koyo.

1.8 $\underset{N}{[\ wúlú + X\ ]} \rightarrow \underset{N}{[\ wú} + \underset{N}{X\ ]}$

In 1.8, the symbol 'X' represents a variable that ranges over all the morphemes that may fit in the blank filled by that 'X' symbol. What a rule such as 1.8 really shows is that the claim that Koyo is an agglutinative language type must be qualified, since it is not always the case that in this language words are made up of clearly identifiable parts. In other words, it is not the case that the meaning of 1.5a and 1.5e is the sum of the composite meanings of their respective constituent units. Likewise, 1.5d is not the equivalent of the total of its three constituent units, as they are broken down in 1.9 below.

1.9 $\underset{N}{[}$ [wúlú] [gɨ̀] [zɨ̄rɨ̄] $\underset{N}{]}$
'head' 'fetish'

1.1.3.2. Inflectional and agglutinative processes.

On the basis of the observations made previously, it is quite reasonable to hold that Koyo combines both inflectional and agglutinative word formation processes. This assumption is borne out by paired words such as those illustrated in 1.10 - 1.11 where the (a) phrases exemplify the gerundive form, while the (b) phrases illustrate the imperative form.

1.10 (a) [[wúlú] [grāsá [lē]][5]
Gnom. N N V V Gnom.
'head' 'overturn'

→ wúlúsāgràlē 'the action of overturning'

(b) [[grāsā] [wúlú]]
V 'overturn' 'head' V

→ grāwūlúsá 'overturn'

1.11 (a) [[wúlú] [tūpā [lē]]]
Gnom 'head' V 'bend' V Gnom

→ wúlútūpālē 'to bend one's head'

(b) [[tūpā] [wúlú]
V 'bend' 'head'

→ tūpāwúlú 'bend your head'

A componential meaning analysis cannot account for the facts shown in 1.10. While in 1.7, it is quite easy to supply the structure 1.12 for each item of that set, 1.10b looks as if the radical morpheme wúlú were infixed within the verbal form.[6]

1.12 [wúlú + V]
V/N V/N

1.1.3.3. Summary

The previous two paragraphs have exemplified how nonproductive rules[7] can be characterized in Koyo. Instances of the rule type shown in 1.8 may be found in Koyo. I will not list them here, simply because such a concern is outside the scope of this investigation. Suffice it to mention that an 'Exception Filter' device must be incorporated in the theory of the language in order to account for the nonproductive morphological processes alluded to above.

1.1.4. Productive morphological processes.

1.1.4.1. Agent-noun formation I

The morphological rule that governs the agent-noun formation corresponds to a productive morphological process.[8] The illustration of this process will be limited to two sample types: the 'doer' of some activity and the 'eater' of some food. For the first type, the scheme 1.13 may be offered.

1.13
```
[  [ X ] [no] [ñO]  ]
N  N   N V  V N  N  N
         'do' 'person'
```

In the scheme 1.13. X stands for some activity performed by an agent; the symbol 'V' stands for the verb and 'N' for noun. The examples in 1.14 nicely illustrate what has been formalized in 1.13, where the X morphemes are set off by a hyphen and glossed in addition to the meaning of the compound.

1.14	(a)	gɔ̀lɔ́ - nɔ̄ñɔ̄	'the doer of a dug-out' (from 'gɔ̀lɔ́' i.e., 'a dugout')
	(b)	lɔ̄ɓɛ̄ -'nɔ̄ñɔ̄ [9]	'the doer of a job (from 'lɔ̄ɓɛ̄' i.e., 'a job')
	(c)	nÈnÈ - nɔ̀ñɔ̄	'the doer of a skillful thing' (from 'nÈnɛ̄' i.e., 'a woodwork')
	(d)	tɛ́ɓlɛ̄ - nɔ̄ñɔ̄	'the maker of a table' (from 'tɛ́ɓlɛ̄' i.e., 'a table')
	(e)	bɔ́gɔ̀ - nɔ̀ñɔ̄	'a printer, an editor' (from 'bɔ́gɔ̄' i.e., 'a book')
	(f)	mɔ̄nɪ́ - nɔ̄ñɔ̄	'the coiner of money' (from 'mɔ̄nɪ́' i.e., 'money')
	(g)	lɔ̄kwʉ̄ -'nɔ̄ñɔ̄	'a weaver' (from 'lɔ̄kwʉ̄' i.e., 'loin-clothes')

This agent formation process is very productive indeed. While the X element and the noun element in formula 1.13 may not change as much as the verb element, the variation of the latter brings about semantic shades, as is demonstrated by 1.15.

1.15	(a)	bɔ́gɔ̀ - nɔ̀ - ñɔ̄	'a printer, an editor, an author' (from 'nɔ̄' i.e., 'make, fabricate')
	(b)	bɔ́gɔ̀ - jèjɜ̀rà - ñɔ̄	'a writer, an author' (from 'jéjɜ̀rà' i.e., 'write')
	(c)	bɔ́gɔ̀ - ɓɔ̀ɓɔ̀ - ñɔ̄	'the one who conceives the idea(s) encompassed in the paper, in the book' (from 'ɓɔ̄ɓɔ̀' i.e., 'think, conceive')

1.1.4.2. Agent formation II

The other example of the agent formation process can be represented as in 1.16 below.

1.16 [[W] [lu] [ñO]]
N N N V V N N N
'eat' 'person'

In schema 1.16, the variable W covers all the putative food items. The symbols 'V' and 'N' stand for verb and noun respectively. The words in 1.17 below exemplify schema 1.16.

1.17 (a) sáká - lūñŌ 'rice eater'(from sáká, 'rice')

(b) màsù - lùñO 'banana eater' (from màsū, 'banana')

(c) mɨ̄lɛ́ - lūñŌ 'carnivore' (from mɨ̄lɛ́, 'animal')

(d) sɔ́klɔ́ - lūñŌ 'cassava eater' (from sɔ́klɔ́, 'cassava')

(e) zɨ̄rɛ̀ - lùñŌ 'fish eater' (from zɨ̄rɛ̀, 'fish')

(f) fɔ́lŌ - lūñO 'bread eater' (from fɔ́lŌ, 'bread')

(g) gɔ̀mɛ̄ - lúñŌ 'cassava semolina eater' (from gɔ̀mɛ̄, 'cassava semolina')

(h) lɛ̀ - lūñŌ 'eater of everything' (from lō, 'thing')

(i) zɔ́blɔ́ - lūñŌ 'lemon eater' (from zɔ́blɔ́, 'lemon')

(j) mā́glɔ́ - lūñŌ 'mango eater' (from mā́glɔ́, 'mango')

(k) vɔ̀kpá - lūñŌ 'catfish eater' (from vɔ̀kpá, 'catfish')

This list could be endless, provided that one substitutes the variable W for a novel term referring to a food-item. This substitution process will always come out all right. It is not necessary to go into more detail to show how productive some Koyo morphological processes may turn out to be, as the two examples set forth above amply illustrate the phenomenon. Along with what has been said in this section on Koyo mor-

phology, they have revealed that the concept of 'productivity' can characterize the different processes that make up the morphology of the language being studied in this work. In the remainder of this chapter, an analysis of phonetic and phonological features is attempted. The chapter closes with an analysis of the tone system of Koyo.

1.2. Phonetics and Phonology

1.2.1.1. Two-level Representation.

In setting out to describe how the utterance in 1.18 below is pronounced by a Koyo native speaker, the analyst's ultimate goal is to specify as economically and precisely as possible two levels of representation for such an utterance, namely its phonological and phonetic aspects. In order to be able to picture the correct pronunciation of the bracketed strings in 1.18, it is important to establish the segment inventory of the language being studied. The purpose of this section is to attempt such a segment inventory and to specify the necessary distinctive features of the segments. Also in this section, some productive phonological processes will be examined.

1.18 [[bOdU] [Npa] [kpwɨ] [ya] [wO] [kw-a]
S R-fish B-paste W-clay and M-room be-past

[dũ] [I] [a] [plɨ-a] [cya-blo]]
town-in then they be-past all alike S

'A Red-fish, a Banana-past, a White-clay and a Mushroom used to live in town and they were all alike.'

To characterize properly the utterance given in 1.18, one must first of

all specify its phonetic representation;[10] i.e., the string of linearly ordered discrete segments[11] that make up that string.

1.2.1.2. Distinctive features.

The set of distinctive features used here to specify speech sounds in Koyo will be taken from those proposed in the Sound Pattern of English (hereafter SPE), where Chomsky and Halle (1968) described a host of phonetic and phonological properties to classify the sounds of English and other languages whose phonological patterns were familiar to them. However, I shall in addition espouse other proposals of distinctive feature analysis, where they fit the facts exhibited by the data at hand. For instance, one such proposal is Kyman's (1973) feature [grave] for the description of two West African languages.[12] I will begin the discussion of the distinctive features by first giving a complete inventory of the phonetic segments in Koyo. In this respect, the chart in 1.19 pictures the phonetic representations of the Koyo language:

1.19 Koyo phonemes with their distinctive features.

	i	e	E	ʉ	ɨ	a	u	o	O
Syllabic	+	+	+	+	+	+	+	+	+
High	+	-	-	+	-	-	+	-	-
Grave	-	-	-	+	+	+	+	+	+
Labial	-	-	-	-	-	-	+	+	+
Tense	+	+	-	+	+	-	+	+	-

	p	b	ɓ	m	f	v	t	d	s	z	n	l	r	c	j	y	ñ	k	g	ng	kp	gb	w	C^w	C^y
Cons	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	0	0
Syll	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Son	-	-	+	+	-	-	-	-	-	-	+	+	+	-	-	+	+	-	-	+	-	-	+	0	0
High	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	0	0
Voc	-	+	+	+	-	+	-	+	-	+	+	+	-	+	+	+	-	+	+	+	-	+	+	0	0
Stri	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Cont	-	-	-	-	+	+	-	-	+	+	-	+	+	-	-	+	-	-	-	-	-	-	+	0	0
Nas	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-	0	0
Lat	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	0	0
Grav	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	0	0
Lab	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	0	0
Pal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	0	0

1.2.1.3. Acoustic feature [grave]

For the description of Koyo phonemes, one needs to add to the Chomskyan roster of distinctive features a few feature specifications taken from Jakobson-Halle (1956/1971) and Vennemann-Ladefoged (1971). These are the Jakobsonian acoustic feature [grave] and the [labial] feature proposed by Vennemann and Ladefoged to cover bilabials, labiodentals, labiovelars and labialized velars, as well as rounded vowels. Jakobson and Halle described their feature [grave] as follows:

> Grave/acute (1) acoustically-predominance of the low (vs high) part of the spectrum; (2) genetically-peripheral vs medial: peripheral phonemes (velar and labial) have an ampler and less compartmented resonator than the corresponding medial phonemes (palatal and dental). (1971, p. 43)

The claim encompassed in their feature specification is that sounds of language may cluster according to two natural classes, namely labial and velar sounds as contrasted with dental and palatal sounds.

1.2.1.4. Vowel-Consonant Tables.

The vowel and consonant sounds of Koyo may be specified solely in terms of the two features just described. These sounds appear as shown in 1.20.

1.20 (a) Phonetic chart of Koyo vowel sounds.

	[-grave]	[+grave]	[+grave]
(i)	i	ʉ	u
(ii)	(I)		(U)
(iii)	e	ɨ	o
(iv)	E	a	O
	[-labial]	[-labial]	[+labial]

(b) Phonetic chart of Koyo consonant sounds.

[+grave]	[-grave]	[-grave]	[+grave]	[+grave]
p	t	c	k	kp
b-ɓ	d	j	g	gb
f	s			
v	z		(g)	
m	n	ñ	ng	
w	l/r	y		
[+labial]	[-labial]	[-labial]	[-labial]	[+labial]

1.2.1.5. Sequence structure.

The two tables in 1.20 call for some comment on the nature of a few segments that appear in 1.20 but not in 1.19 or vice versa. First of all, in 1.20a the segment enclosed between parentheses are not basic sounds, because they are predictable in certain environments. Given the phonetic representation [kOyIrI], there are two possible underlying representations for this formative: either /kOyere/ or /kOyiri/. How does one go about deciding between these two putative abstract representations? The choice between the two forms becomes easy if one postulates the following sequential constraint on Koyo morpheme structure.

> Only nongrave consonants are followed by high lax vowels; i.e., by I - and U - sounds.

If this sequential condition turns out to be correct, one may dispense with the whole series of high lax vowels in the phonemic representation of Koyo.

1.2.1.6. Segment sequence.

Another observation about the chart in 1.20 concerns the distribution of [l]- and [r]- sounds. A clear case of complementary distribution is involved here. The fact is that all initial [r]- sounds seem to merge at the phonetic level with the voiced velar fricative [g].[13] On the other hand, the symbol 'ɓ' represents an implosive labial sound, which appears to be the unique case of implosive segments in the language. I shall assume without justifying it Welmer's classification of this sound as [+sonorant] as attested in Bird (1968).

1.2.1.7.1. Secondary articulation

The previous two paragraphs have tried to specify the phonetic correlates of the newly proposed features such as [grave], [labial], [high] and [tense]. The last point of this section dealing with Koyo phonetic representations concerns the series of sounds accompanied by a secondary articulation, namely those represented by the symbols 'C^w' and 'C^y' in the chart given in 1.19. In Koyo, the unit phonemes /k/, /g/, /w/, /kp/ and /gb/ are specified for the feature [grave]. However, they contrast phonetically with the following segments: [k^w], [g^w], [kp^w] and [gb^y]. An illustration of these facts is given in 1.21 below.

1.21 (a) kó 'corpse'

(b) gó 'horn'

(c) wɨ́ 'a lump of medicine'

(d) kw̄ɨ́ 'a fork-like tree'

(e) gŵá 'pelvis'

(f) kpá 'price'

(g) gbá 'wrestling'

(h) kpw̄ɨ́ 'white clay'

(i) gb̄ȳāl̄ē 'to fool, the action of fooling'

1.2.1.7.2. Labiovelars

One recalls that Chomsky and Halle (1968, p. 311) have suggested that labiovelars be ambiguously specified as either velarized labials, that is, [p^k] or labialized velars, that is, [k^p]. For them, the ambiguity would ultimately be resolved with regard to the function of the general

sound pattern of the language at hand. In such a framework, labiovelars will be specified velarized labials if the particular language that has these labiovelars, [kp] and [gb], contrasts the latter with the sounds represented by [kp^{w}] and [gb^{w}]. They argue that unless this solution is adopted, it will be impossible to distinguish the paired sounds [kp] - [kp^{w}] and [gb] - [gb^{w}], since the labialization process would be redundant for [p], [b] and [w].

1.2.1.7.3. Two phonemes.

However, I will discard Chomsky-Halle's strategy to account for the data given in 1.21 above. Their proposal does not apply to the instances of 1.21 anyway. In Koyo, the segments [kp^{w}], [gb^{w}], [kp^{y}] and [gb^{y}] should not be looked upon as one phoneme, but rather as two phonemes brought together as the result of a phonological process, which is dealt with in the section on phonological representations. It is for this reason that in the chart shown in 1.19, the feature matrices of these segments are not fully specified. On the contrary, the '0' notation of these matrices indicates that they are not underlying segments.[14]

1.2.2. Phonological representations.

1.2.2.1. Introduction

The utterance illustrated in 1.18 above is made up of different strings upon which a set of phonological rules will operate to derive the systematic phonetic representations discussed in the preceding section. First of all, I will examine a case of a productive phonolo-

gical process, namely the labialization process. I will also be concerned with two other phonological processes that I consider to be non-productive phonological processes: the nasalization and pluralization processes.

1.2.2.1.1. "Surface redundancies"

In the section on morphology, the notion of rule 'productivity' was used to differentiate various morphological processes. The same strategy is adopted here, since the claim put forth in this thesis is that both morphology and phonology are the two subparts of the Morphological Component in the theory developed here. Clayton Wang (1976, passim) defines productive rules as 'surface redundancies'. The illustration of these rules by the Koyo data is in accordance with her definition.

1.2.2.1.2. Redundancy statement.

Surface redundancy statements were mentioned in touching upon the distribution of the sounds [l] and [r] in word structures such as C_1 V_1 C_2 V_2. At this point, I may give the full statement that expresses this surface redundancy.

1.22 Given a structure of the shape $C_1V_1C_2V_2$, if C_2 is either a liquid or glide sound, then the following morpheme structure condition obtains optionally as shown in (a) and (b) below.

(a) if $C_1V_1C_2V_2$
and if
$C_2 = \{^{L}_{G}\}$
Where 'L' stands for Liquid and 'G' for Glide.

(b) then $C_1(V_1)\ C_2V_2$

Where the parenthesis notation indicates that the enclosed item may or may not be chosen.

1.2.2.1.3. Labialization.

Labilaization is a widespread phenomenon in Koyo where it may be thought of as a productive phonological process. In the words listed in 1.23 below, the lips are rounded and pushed forward during the production of the sound symbolized by [w]. The latter may occur adjacent to almost any consonant segment of the language, as demonstrated below.

1.23 (a) pʷ̀ā 'top of the head'

(b) bʷ̀ālē 'lotion'

(c) ɓʷ̀ālē 'to grow, the action of growing'

(d) tʷ̀ālē 'to make someone pass a river'

(e) t̪ʷ̀ālē 'to steer, the action of steering'

(f) dʷ̀Ē 'white monkey'

(g) pʷ̀É 'sting'

(h) jʷ̀ē 'a game's name'

(i) cʷ̀ī ' woman's periods'

(j) gʷ̀é 'palm tree seed'

(k) gʷ̀á 'pelvis'

(l) kʷ̀É 'hunchback'

(m) kʷ̀ɨ́ 'Y-shaped tree'

(n) kʷ̀í 'death'

(o) kpʷ̀ɨ̄ 'white clay'

(p) fʷ̀É 'an animal part'

(q) zw̄ɨ́ 'astonishment'

(r) sw̄É 'surprise'

(s) ngàm̄w̄í 'firefly'

(t) nw̄ālē 'fat'

(u) ngw̄ālē 'scent'

1.2.2.1.4. Two-Way solution.

Now contrast the formatives in 1.23 with those in 1.24 below.

1.24 (a) wō 'mushroom'

(b) wɨ̄ 'a lump of medicine'

(c) wō 'a nickname'

(d) wūú 'waist'

(e) wālé 'speech'

(f) wúlú 'head'

(g) wōlī 'fingers'

(h) wādō 'parcel'

(i) wótō 'an in-law relative'

(j) wówÉÉ 'a kind of seafood'

(k) wōōwō 'steam'

The facts about tone make a difference between the two example sets listed above. In the former set, the glide sound [w] accompanying a consonant segment adjacent to it carries a tone feature. On the contrary, in the second set (i.e., 1.24), this glide sound is not considered as a tone-bearing segment. There are at least two ways to go about explaining the labialization phenomenon in Koyo. One is the

concrete solution and the other is the abstract approach. The two alternatives will now be examined and some reasons given for preferring the second solution.

1.2.2.1.5. Concrete solution.

The concrete solution consists in deriving the [w]-sounds of 1.23 from an underlying [u]-sound. Such an approach would explain why the [w]-segment is a tone-bearing segment in 1.23 where it is a derived segment, but not in 1.24 where it is a basic segment. In this approach, one needs a glide formation rule to account for the data in 1.23. This rule will state that within a morpheme, when a consonant sound is followed by a high, tensed grave vowel [u], which, in turn, is followed by any vowel, then the high tensed grave vowel becomes the glide sound [w]. This phonological process may be expressed by the transformational schema given in 1.25 below.

1.25

C	u	V
[+Cons]	[+syll, +high, +grav]	[+syll]
	↓	
C	w	V
[+Cons]	[-syll]	[+syll]

The only shortcoming of a rule such as 1.25 is its inability to account for data such as 1.24d, 1.24j and 1.24k. In fact, these formatives satisfy the structure description of 1.25, but still the rule fails to apply and no glide formation process occurs. This constitutes a sufficient

reason to wonder whether there is a better solution to the problem raised by the data in 1.23 and 1.24.

1.2.2.1.6. Abstract Solution.

The alternative to the concrete solution is the so-called abstract solution. The latter postulates an underlying vowel occurring between the consonant segment and the labialized sound in 1.23. In other words, the surface string featuring CwV derives from underlying CVwV structure. Assume that this abstract vowel, which is deleted through the operation of a phonological rule, has the phonetic shape of the mid-central schwa [ɨ]. The deletion rule may be formalized as shown in 1.26.

1.26 $$V \rightarrow \phi \; / \; C \_\_\_\_\_ G$$

$$\begin{bmatrix} -\text{grave} \\ -\text{labial} \end{bmatrix} \qquad [+\text{cons}] \qquad \begin{bmatrix} -\text{syll} \\ +\text{high} \\ +\text{grav} \end{bmatrix}$$

A rule such as 1.26 turns out to be an independently motivated phonological rule that accounts for the data exemplified in 1.27 below.

1.27	(a)	bt́É	vs	bɨ̄t́É	'winnowing basket'
	(b)	pt́ɑ́	vs	pɨ̄t́ɑ́	'crumbs'
	(c)	pt́fɑ́	vs	pɨ̄t́ɨ́rú	'gestures'
	(d)	bdfɨ̄	vs	bɨ̀d́ɨ́rɨ̄	'white monkey'
	(e)	gbt́ɨ́	vs	bgɨ̀t́í	'mat'

The left column represents the form as it occurs in casual speech. The right column represents the full form of the actual formative. What makes

the so-called concrete solution difficult, with respect to the data in 1.23 and 1.24, is precisely that one cannot say for sure whether ɓw̄ɛ́ ('a kind of fish') and dẘɛ̄ ('a white monkey') derive from the underlying structure /CuV/ or from an underlying form like /C±V/. I argued that the approach that chooses the first alternative is a concrete solution, since it does not resort to a very remote abstract representation. The trouble, however, is that this /CuV/ pattern never appears as a surface string, since the glide formation rule seems to be transparent. Notice that I mentioned a couple of items in 1.24 that seem to render the glide formation rule opaque. Very likely, the formatives that are exceptions to the glide formation rule behave that way because they all start out with a glide consonant and there is a kind of phonotactic constraint that prevents having a sequence of two adjacent glide sounds. On the other hand, the abstract analysis seems more plausible. For one thing, the schwa-deletion rule is optional. In fact, it is rather a performance rule, say, a rule that distinguishes casual versus formal speech, or native versus foreign pronunciation. To come back to the two formatives mentioned above, I will say that their citation form or their pronunciation by nonnative speakers is represented this way:

b±wɛ̄ ('a kind of fish'), d±wɛ̄ ('a white monkey')

To wrap up the comment, I will say that so-called abstract solution turns out to be more plausible for the data given in 1.23 and 1.24 than a concrete solution. Furthermore, the so-called abstract solution is independently motivated for some other phonological processes occurring in the Koyo language.

1.2.2.2.1. Nasalization

The two phonological processes examined next are dubbed non-productive phonological processes. These are nasalization and pluralization. Concerning the first, no provision has been made thus far to account for the existence of nasal or nasalized vowels in the language being studied. Here again, Koyo nasalized or nasal vowels raise the question as to whether an abstract or concrete solution should not be proposed while devising a Morphological Component for the theory of the language. Consider the contrasts reproduced in 1.28 below.

1.28	(a)	dú	'a town'	dúṹ	'in a town'
	(b)	gỳè	'an egg'	gỳèẽ́	'in an egg'
	(c)	klá	'a farm'	kláã́	'in a farm'
	(d)	bɔ̀gō	'a book'	bɔ́gɔ̀ɔ̃́	'in a book'
	(e)	ƀùtū	'a house'	ƀùtūṹ	'in a house'
	(f)	gɔ̀ló	'a dugout'	gɔ̀lóɔ̃́	'in a dugout'
	(g)	tàkwɨ̄	'a basket'	tàkwɨ̄ɨ̄́	'in a basket'
	(h)	léyērē	'wealth'	léyērēẽ́	'in the status of wealth'

On the basis of the facts presented above, one may be forced to the conclusion that in Koyo, the nasalization phenomenon is not phonologically conditioned. Therefore, one should posit it as an underlying occurrence. Such a move means actually that each of the vowels listed in 1.20a is doubled with a corresponding nasal or nasalized vowel. In other words, the native speaker learning the language will store in the lexicon of his internal knowledge all the contrasts that form both series of oral

and nasal vowel phonemes.[15]

1.2.2.2.2. Uneconomical Approach.

However, it would be very costly to the theory to claim that in Koyo, all the oral vowel phonemes are duplicated by a series of nasal vowel phonemes. In order to avoid such an uneconomical analysis, one may check here an abstract solution, which consists in positing an underlying form that never shows up in the surface string. In this respect, consider the following data:

1.29 àbí táà̀ dàgó
Abi touch-past Dago
'Abi touched Dago'

1.30 àbí dèḕ mòsū
Abi share-past banana
'Abi shared a banana'

1.31 àbí péḕ dàgó
Abi paid-past Dago
'Abi paid Dago'

1.32 àbí bÈ̃Ẽ̀ dàgó
Abi wait-past Dago
'Abi waited for Dago'

1.33 àbí kpūkpàà̀ zèrè
Abi scale-past fish
'Abi scaled a fish'

1.34 àbí blìzìyèḕ gòló-ō
Abi untie-past dugout-the
'Abi untied the dugout'

1.2.2.2.3. Source of Nasalized Vowels

In the sentences reproduced in 1.29 through 1.34, the underlined formatives are the only items of concern at this point.[16] I will assume

that the nasalized vowel derives from an underlying VN sequence in which the final segment is deleted and, as a result of this deletion process, a compensatory vowel length is brought about. This phonological process may be formalized in rule 1.35 below.

1.35 $$\underset{1}{V}\begin{bmatrix}C\\+nasal\end{bmatrix}\underset{2}{\#}\underset{3}{\#} \rightarrow \begin{bmatrix}+nasal\\+long\end{bmatrix}\underset{1}{\phi}\underset{2}{\#}\underset{3}{\#}$$

The postulation of an abstract nasal consonant that triggers the nasalization process observed in 1.29 - 1.34 gains a great deal of support from forms related to those proposed above. In this respect consider the following data.

1.36 (a) Ó tánĒ mòsū 'He touches a banana'

(b) Ó táà̄ mòsū 'He touched a banana'

1.37 (a) Ó dēnĒ mòsū 'He shares a banana'

(b) Ó dèè̌ mòsū 'He shared a banana'

1.38 (a) Ó pÈnĒ àbí 'He pays Abi'

(b) Ó pÉ̋Ȅ̌ àbí 'He paid Abi'

1.39 (a) Ó bĒnĒ àbí 'He waits for Abi'

(b) Ó bȄ̌Ȅ̌ àbí 'He waited for Abi'

1.40 (a) Ó kpūkpānĒ zèrè 'He scales a fish'

(b) Ó kpūkpàà̄ zèrè 'He scaled a fish'

1.41 (a) Ó blīzīyēnĒ gÒló 'He unties a dugout'

(b) Ó blīzīyèè̌ gÒló 'He untied a dugout'

In the example set 1.36 through 1.41, the a-sentences are related to the

b-sentences. In the former where a nasal consonant appears, no nasalized vowel occurs. On the contrary, this nasalized vowel shows up in the b-sentences where the nasal consonant has vanished. This observation seems to be good evidence for the existence of an underlying nasal consonant in the underlined formatives of the b-sentences. In addition, the condition for the deletion of these nasal consonants in word-final position has to be specified.

1.2.2.2.4. Nasalization as a Productive Rule.

Thus far, I have been examining one case of nonproductive phonological process in Koyo grammar. It should be emphasized that this nasalization process does not apply to the whole class of Koyo verbs. It will become clearer later that for some verbs, the present-past tense distinction may be accounted for by different tone patterns. This means that nasalization in Koyo is limited to a closed set of lexical entries. However, the phonological process that yields nasalization is a productive process, although the example set in 1.36 through 1.41 shows the nonproductivity of an abstract nasal suffix as past tense marker, since the set of verbs with nasals as the past tense marker is a closed set. In this respect, the facts of nasalization in Koyo fit quite well the notion of 'rule productivity' as defined by Clayton Wang. Now I proceed to a second case of nonproductive phonological process in Koyo, the pluralization process.

1.2.2.2.5. Pluralization

In Koyo, pluralization involves word-final vowel alternation, which

in turn triggers a stem vowel change in some contexts. By way of illustration, consider 1.42.

1.42	(a)	bùtū	'house'	ɓìtī	'houses'
	(b)	mòsū	'banana'	mèsī	'bananas'
	(c)	bɔ́lɛ̄	'white monkey'	bɔ́lɘ̄	'white monkeys'
	(d)	pɪ́lɛ́	'jar'	pɪ́lɘ́	'jars'
	(e)	bɔ́ɔ̄	'wash-basin'	bíī	'wash-basins'
	(f)	ɓɔ̄ɔ́	'leg'	ɓíī	'legs'
	(g)	tɔ́wɔ̄	'towel'	tɔ́wī	'towels'
	(h)	cérɛ̄	'dish'	cérɘ̄	'dishes'
	(i)	bàkā	'knife'	bàkɘ̄	'knives'
	(j)	lɪ́ɪ́kpɪ́	'island'	lɪ́ɪ́kpɘ́	'islands'

Two facts are fairly obvious in 1.42:

1. The word-final vowel is modified from the singular on the left column to the plural form on the right column.

2. An alternation affects the tense stem vowel from the singular to the plural form.

The facts observed in 1.42 may be expressed by the formal notation in 1.43.

1.43 (a) $$\begin{bmatrix}\text{V}\\ +\text{tense}\\ +\text{grave}\\ +\text{labial}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{grave}\\ -\text{labial}\end{bmatrix} \;/\; \underline{\quad} \; \text{C} \; \begin{bmatrix}\text{V}\\ +\text{high}\\ -\text{grav}\\ +\text{plur}\end{bmatrix}$$

(b) $$[\alpha\ \text{labial}] \rightarrow \begin{bmatrix}+\text{high}\\ -\text{labial}\\ -\alpha\ \text{grav}\end{bmatrix} \;/\; \left[\frac{\quad}{+\text{plural}}\right]$$

The two rules in 1.43 make a statement about vowels of adjacent syllables in dissyllabic words that are inflected for the plural. This stem-vowel and word-final vowel alternation, which is characteristic of plural formation process in Koyo, is a typical case of nonproductive phonological processes as understood by Clayton Wang. She argues that the nonproductive phonological rules apply to a closed class of items. It has been shown that the vowel alternation described above applies only to the morphological subclass of plural formatives. Because this phonological process is limited to a closed set of the Koyo lexicon, one is able to claim that it is a nonproductive process.

1.3. Koyo Tonology.

1.3.1. Contrastive Tones.

The analysis of Koyo sentences must posit the existence of contrastive tones. This is quite clear from the samples illustrated in 1.44 below.

1.44 (a) á vē tá gbá
they fight neg. wrestling
'They are not wrestling'

(b) ó pɛ́lɛ̄ ná gbā
it be my totem
'This constitutes my totem'

(c) Ó tá nóō mɛ́láà Ó gbà
he neg. wine drink-past his swear-words
'He swears he did not drink the wine'

In 1.44 above, the formative gba has three different meanings, distin-

guished by the three different features (i.e., HIGH, MID and LOW) that affect the vowel segment of this monosyllabic lexical entry. But consider now the following items:

1.45 a) gá 'female' with a HIGH level tone.

b) bǒ[17] 'bowl' with a short HIGH-MID glide.

c) sǔ 'tree' with a short MID-HIGH glide.

d) gbā 'totem' with a MID level tone.

e) gà 'liana' with a LOW level tone.

The formatives given above attest the existence of at least five registers. The case of 1.45b and c raises the question of whether one should posit level and glide tones at the underlying representation of Koyo tonal system. Note that both 1.45b and c contain a common denominator, namely the MID level tone. On the face of this fact, it is possible to claim that 1.45b and c are actually derived from an underlying MID level tone associated with an elevating process. For instance, the elevating of the beginning of this underlying MID level tone yields 1.45b above. On the other hand, the elevating of the end of the underlying MID level tone results in the pattern expressed by 1.45c. Before discussing these matters further, it is important to accumulate more data on monosyllabic words featuring either level or glide tones.

1.3.2. Data

The following data are arranged by tone pitch group; i.e., HIGH, MID and LOW.

1.46 a) pó 'tobacco powder'

b) pé 'filth'

c) bá 'father'

d) tó 'war'

e) té (a kind of root vegetable)

f) dú 'town'

g) dá 'place'

h) cɨ́ (ideophone for an object cut into two parts without burr)

i) cá (ideophone to characterize the jump of an animal such as a cat)

j) jɨ́ 'wound'

k) jé 'panther'

l) jí 'fishing ground'

m) kó 'corpse'

n) kɔ́ 'wooden leg used to pound'

o) kʉ́ 'insults'

p) gú 'sickness, illness, poison'

q) gó 'horn'

r) gɔ́ 'chimpanzees'

s) gá 'female'

t) kpá 'price'

u) kpʉ́ 'oil'

v) kpɛ́ 'eagle'

w) gbá 'wrestling'

x) gbɔ́ 'responsibility'

y) gbɛ́ 'fence'

z) ɓɛ́ 'full part'

1.47 a) fʉ́ 'strength'

b) vá 'compound'

c) sɔ́ 'two'

d) lɔ́ 'song'

e) lɔ̃́ 'elephants'

f) lɛ̃́ 'elephant'

g) lí 'spear'

h) nó 'drink'

i) nɔ́ 'mother'

j) nɛ́ 'mouth'

k) ñú 'water'

l) kpɔ́ 'desire'

1.48 a) bɔ̄ 'swamp'

b) jɛ̄ 'antelope'

c) kū 'skin'

d) lɔ̄ 'law'

e) nɛ̄ 'urine'

f) gbā 'totem'

1.49 a) gò 'tail'

b) gà 'liana'

c) jì 'jail'

1.50 a) bɔ̌ 'bowl'

b) ñǐ 'hair'

c) mǐ 'ship'

d) jǎ 'heritage'

e) vǎ 'beard'

1.51 a) ɓŏ 'leg'

b) sŭ 'tree'

c) sŏ 'arm'

d) kŏ 'a kind of spice'

e) yŏ 'no'

The three lexical tones, namely HIGH, MID and LOW yield seven combinations out of nine in disyllabic words, as is clear from the examples given in 1.52.

1.52	a)	sáká	'rice'	HH
	b)	bógō	'book'	HM
	c)	----	----	*HL
	d)	tātá	'granary'	MH
	e)	wādō	'parcel'	MM
	f)	----	----	*ML
	g)	zèrè	'fish'	LL
	h)	tàtā	'bat'	LM
	i)	ɓòtó	'wallet'	LH

However, in trisyllabic words, the sequences in 1.52c and 1.52f are found, as can be seen in 1.53 and 1.54.

1.53	a)	ñídàbō	'water duck'	HLM
	b)	kÓgÒblĒ	'old age'	HLM
	c)	ñígbèlē	'thread'	HLM
	d)	mákpàlā	'lizard'	HLM
	e)	dábÒlō	'crow'	HLM
	f)	yígàdā	'other'	HLM
	g)	kpáàkpú	'eagle'	HLH
1.54	a)	dɨ̄bɨ̄ñŌ	'idiot'	MLM
	b)	gūgùlē	'thought'	MLM
	c)	dīdÈgnŌ	'keeper'	MLM
	d)	tōvèñŌ	'warrior'	MLM
	e)	zŌgÒlÓ	'chin'	MLH
	f)	ɓŌgbòyō	'calf'	MLM
	g)	gūdʉ̀wŌ	'spring mushrooms'	MLM

The following set of examples confirms the observation made about the sequences *HL and *ML, which were believed not to be permissible sequences in Koyo tonal system.

1.55	a)	sábō	'at night'	HM
	b)	sábò	'this night'	HL
1.56	a)	kūgbɨ̄	'evening'	MM
	b)	kūgbɨ̀	'this evening'	ML

The instances in 1.55 and 1.56 show that the HL and ML sequences are not permissible at the level of the lexicon, but they are all right at the

grammatical level. The disyllabic words sabo, kugbɨ are affected by the demonstrative morpheme, which is rendered here by a tone change process. One may therefore conclude from the examples given thus far that the Koyo tonal system does not allow two types of tone sequences.

1. Within monosyllabic words, the following glide tones are ill-formed HIGH-LOW and LOW-HIGH;

2. Within disyllabic lexical entries, HL and ML are not permitted. However these sequences are acceptable at the grammatical level. The samples given in 1.55b and 1.56b support this claim. Also the fact that the two formatives in 1.57a-b indicate locative and vocative cases respectively is further support for these otherwise impermissible tone sequences in Koyo.

1.57 a) yă̰ 'in the shop'

b) nô 'you! fellow'

The problem that now comes to mind is whether these impermissible tone sequences can help one to decide whether only level tones exist at the underlying level, while glide tones are derived from the latter by some tonological process.

1.3.3. Permissible Tone Sequences.

It was previously pointed out that an asymmetry obtains in disyllabic formatives between the permissible tone sequence LH and the impermissible tone sequence *HL. It was also observed that in monosyllabic words, the glide HIGH-MID and the glide MID-HIGH have MID as a common denominator. The question then arises as to why MID should be

the common denominator, instead of HIGH. Assuming that HIGH were the denominator, one would need a depressing process to account for the glides, instead of an elevating process, as previously assumed. This would mean that the glides HIGH-MID and MID-HIGH exemplified in 1.50 and 1.51 respectively are underlain by a high level tone, that the depressing of the end of this level tone yields the glide HIGH-MID, while the depressing of the beginning of the same level tone yields MID-HIGH. This ultimately means that the depressing process would yield the impermissible tone sequence *HL, if one were to consider 1.50 and 1.51 as cases of 'divocalic'[18] but not monosyllabic words.

1.3.4. Impermissible Tone Patterns.

What is interesting in the preceding paragraph is the use of an impermissible tone sequence to show that some apparent underlying glide tones are real cases of spurious lexical tones. The entries in 1.50 and 1.51 illustrate two of the permissible tone sequences given in 1.52, namely HM and MH. This observation highlights the problem of morpheme structure in Koyo. It will be recalled that the usual canonical form in the language under study is the CVCV pattern. However, as already shown above, the CCV pattern is preferred over the CVCV one, whenever the second occurrence of the consonant segment is a liquid or glide sound. Another pecularity of the morpheme structure of Koyo is provided here by the tonal system, namely, the CVV patterns.[19] The instances given in 1.58 are further support of such a morpheme structure at the lexicon level.

1.58 a) lɛ̄ā 'a kind of fish'

b) kpáàkpú 'a kind of eagle'

c) kŏŏkŏ 'always'

d) kŏŏkō 'female nickname'

1.3.5. Tones as Features on Segments.

The observations made thus far on the tonal system of Koyo lend evidence to the following claims:

1. In Koyo, tones are regarded as features on segments -- i.e., each tone feature affects a segment, here a vocalic segment that subsequently becomes a tone-bearing element. If this is true, it will not be the case that a single segment is affected by a two-tone sequence.

2. The second claim, which is complementary of the first, contends that all kinetic tones of Koyo are derivable from underlying mid level tones.[20]

I showed that if these glide tones were to be derived from basic high level tones, a 'tonotactic' constraint that rules out tone sequences such as *HL would be violated. Therefore, all the spurious lexical tones on so-called monosyllabic words are instances of underlying mid level tones augmented by an elevating process. This tonological process elevates the endpoints of the mid level tone with the concomitant phonological process of breaking the tone-bearing vowel into two units of duration, that one may call morae,[21] and this accounts for the divocalic structure of the entries undergoing this elevating process.

1.3.6. Grammatical Function of Tones.

Thus far, the lexical function of tones in Koyo has been of primary concern. However, other functions were mentioned, such as the grammatical function. For instance, it was shown in 1.55 and 1.56 that the shift from the lexical entries in the a-formatives to the grammatical strings in the b-samples was done through a change of tone alone. Also, it appeared in footnote 20 of this chapter that the syntactic processes of definitization and locative case marking were indicated by a so-called floating high tone, which was symbolized by a vowel length and an abstract syllabic nasal respectively. Tones in Koyo also bear a grammatical function, which consists in distinguishing between verb tenses. The instances 1.59 through 1.73 illustrate this grammatical function.

	Present Tense	Past Tense
1.59	a) ó pā he runs	b) ó pà he ran
1.60	a) ó lā he brings	b) ó là he brought
1.61	a) ó vē he fights	b) ó vè he fought
1.62	a) ó bē he forgets	b) ó bè he forgot
1.63	a) ó m̀̄lā he drinks	b) ó m̀̄là he drank

In the following example set, the use of a different pronoun indicates that the Koyo verbal paradigm contains no inflected forms, in the sense of formatives separable from the roots of the words in which they occur.

1.64	a) á lɛ̄ they eat	b) á lɛ̀ they ate
1.65	a) á gōlɛ̄ they sow	b) á gòlù they sowed
1.66	a) á wŌlɛ̄ they wash	b) á wŌlò they washed
1.67	a) á bɛ́lɛ̄ they jump	b) á bɛ́lɛ̀ they jumped
1.68	a) á gōsɛ̄ they vomit	b) á gÒsɛ̀ they vomited

The last series of instances (1.69 - 1.73) contrasts affirmative and negative sentences. It becomes clear that the vowel alternation noted in the previous examples is not actually responsible for the change of tense. At this stage of the research, I have not been able to find any coherent explanation for these alternations. However, with respect to this particular problem, F. Householder has suggested that there is a semantic feature shared by negation and past, namely the feature ['non-actual']. Also, C. Hodge has pointed out that it is possible that the vowel alternation signifies 'completed action.' In this case, the affirmative 'completed action' would occur with past tone marker. The present tone marker would occur with negative completed action. Pending further studies on vowel and tone change in Koyo question of the best way to interpret them remains open.

	Affirmative	Negative
1.69	a) à lɛ̄ we eat	b) à lɛ̄ tá we eat not
1.70	a) à gōlɛ̄ we sow	b) à gōlɛ̄ tá we sow not

1.71	a) à wŌlĒ we wash	b) à wŌlō tá we wash not
1.72	a) à bɛ́lē we jump	b) à bɛ̀lɛ̀ tá we jump not
1.73	a) à gŌsĒ we vomit	b) à gŌsɛ̄ tá we vomit not

The facts observed in 1.59 through 1.73 constitute clear evidence for the grammatical function of tones in Koyo. That the distinction between verb tenses is due only to the tone feature and not to the vowel alternation that occurs concomitantly is plausible, as shown by 1.69-1.73. In these examples, the same vowel alternation occurs between affirmative and negative as in 1.64-1.68, although the tense has not changed from the affirmative to the negative form. This kind of observation lends strength to the claim that in Koyo, tonal features are relevant to tense distinction.

1.4. Summary

1.4.1. This chapter has dealt with the morphological component postulated for the theory of Koyo. In this connection, the hypothesis was advanced that this component comprises two subcomponents, namely the morphological component proper and the phonological component. It was argued that such a grouping under a unique level of analysis is motivated by the similar functions performed by the two sets of rules that make up these subcomponents. The similarity of these rules was described by the notion of 'productive rules', and illustrations of these rules were given for both morphological and phonology.

1.4.2. The last section of this chapter was concerned with the prosodic units of Koyo. In particular, each of the vocalic segments of any lexical entry was affected by one of the three underlying tones, that is, HIGH, MID and LOW. It was also demonstrated that the kinetic tones affecting apparent monosyllabic words were derived from basic mid level tones. This claim turns out to obey the tonotactic constraints that govern the overall tonology of Koyo.

FOOTNOTES

1. Aronoff (1976) claims that no previous attempts have been made to integrate works in morphology into a general framework, say that of generative transformational grammar. However, he does mention that in The Sound Pattern of English (1968), Chomsky and Halle, without saying it explicitly, had sketched out the bases for a theory of word formation by proposing a set of readjustment rules to take care of the discrepancies between syntax and phonology. According to him, it is really in Chomsky (1970) that a theory of Morphology is worked out. Therein, derivational morphology is removed from syntax and relegated to a separate component called the expanded lexicon. Aronoff claims that in "Remarks on Nominalization," "Chomsky prefers to see language as divided into smaller well-distinguished units, each governed by its own, perhaps idiosyncratic, rules." However, the Morphological component outlined in this chapter is quite different from the one Aronoff ascribed to Chomsky, since it encompasses both morphology proper and phonology. This unified component is legitimized by the similarity in function of the rules that operate in both subcomponents.

2. It is simplistic to claim that there is no real difference between the individual lexical items in 1.1 and the compound word that results from their morphologization process. The fact is that at the level of the individual lexical items, the morpheme for 'red' should be represented as shown in (i) below, where an unspecified vowel indicated by the symbol 'V' closes up the string for 'red'.

(i)
```
[  [ wulu ]  [zarV]  [ñO]  ]
N  N      N Adj  Adj N  N  N
```

This problem of unspecified vowels will come up again in the section on the tone system of Koyo. There, it will be argued that for some lexical entries, such as adjectives, the lexical tone is not specified until after the application of certain phonological processes, such as the rule of vowel harmony.

3. The left asterisk does not indicate here an illformedness of the formative it prefixes. It merely points at the existence of a 'lexical gap'; i.e., a 'possible word' in Koyo dictionary. However, such a formative does not appear in the actual lexicon of the language. When the starred notation is not otherwise specified, it indicates an ill-formedness of the item it precedes.

4. Halle (1973) proposed that word formation rules be a subpart of the phonological component of the grammar overall. In addition,

he proposed that a filter subcomponent be incorporated in the grammar of English, which will account for some idiosyncratic restrictions, as demonstrated in (i) below.

(i) (a) proposal, recital, transmittal, arrival, refusal.
(b) proposition, recitation, transmission, *arrivation, *refusation.
(c) derivation, description, conversion, permission, observation.
(d) *derival, *describal, *conversal, *permittal, *observal.

Halle argues that certain -al nominals have -ation counterparts, while others lack them, or vice versa, as shown in (i) above. To account for these anomalies, he proposes an 'Exception filter device', which specifies that in English, stems such as arriv-, refus-, deriv-, describ-, etc. are marked as not undergoing the morphological rules attested in (iia-b).

(ii) (a) $\begin{matrix}[V & + & al\ ] \\ N & & N\end{matrix}$

(b) $\begin{matrix}[V & + & ation] \\ N & & N\end{matrix}$

However, C. Hodge has pointed out to me that, contrary to Halle's claim, the stem deriv- may undergo the morphological rule (iia), as attested in the Second Edition unabridged of Webster's New International Dictionary of the English Language (1960). In the third edition, however, this morphological process for the stem deriv- was not mentioned. At any event, whether or not (iia) applies to the stem deriv-, this fact does not ruin Halle's point. According to the latter, the ill-formed words in (i) are potential lexical entries, but they do not appear in the actual dictionary of English for some arbitrary reason; perhaps the usage of these words has not become a custom.

Halle's reasons for rejecting the 'epicycle hypothesis' proposed by Chapin to support his nonautonomous level of English morphology were that morphology and phonology evidently have different principles of interaction among their respective rules. The former is constrained to global rules while the latter is only conditioned by non global rules. In Chapin's framework, the 'epicycle hypothesis' allows one not to order a rule that does not participate in a given cycle between any other two rules that do. Halle discards this extra-powerful device and proposes an autonomous morphological component that is endowed with the expressive power of global rules. Notice that the global rules that Halle ascribes specifically to his morphological subcomponent have been proposed

for other components of the grammar. See Lakoff (1970a), Fauconnier (1975), Baker-Brame (1972) and Postal (1972b) for syntax on the one hand, and Kisseberth (1970, 1972 and 1973), Dinnsen-King (1972), and Dinnsen (1974) for Phonology on the other hand.

Halle's distinction between a 'filter component' and a 'transformational component' would have been of significant import had he taken pains to base his distinction on the functions achieved by the rules of the grammar overall, instead of concentrating upon their relative order. In that way, he would have set off transformational rules and derivational constraints, which work in quite a different fashion. The former characterize the relatedness of formatives in natural languages; the latter determine the use of rules upon these formatives by marking out some configurations as nonrelated and subsequently throwing them out of the possible derivations.

5. The symbol 'Gnom' stands for gerundive nominal, traditionally referred to as the -ing form in English grammar. As far as Koyo is concerned, Gnom is always a 'gerund' (i.e., a noun), never a 'participle' (i.e., an adjective). The illustration of this is given in (i).

(i) (a) ɓiɓiele nã (i.e., to pray or the action of praying is good)

(b) yoo-o la ɓiɓiele nã (i.e., the praying of the boy or the boy's prayer is good)

In this dissertation, forms such as wulusagrale, wulutɯpale, ɓiɓiele will be indistinctively paraphrased by a gerundive nominal or an infinitival form.

6. The infixation of a different category inside a given category seems to be a frequent process in Koyo grammar. In Chapter IV, it will be shown that this process is a syntactic device, by means of which a transitive verb recovers its transivity, whenever a previous syntactic operation, say Equi-NP deletion, has erased the object-NP of that transitive verb. The ' permutation ' process seems to be operative also at the morphological level, since in 1.10b the formative grasawulu has to be obligatorily converted into grawulusa. However, this is not the case in 1.11b, where tɯpawulu does not yield *tɯwulupa. One way to account for the discrepancy between 1.10b and 1.11b is to say that in the former case, what happens is an ' permutation ' process; while in the latter case, the process of this word formation is nothing but a 'compounding' which simply means that one element has been added to another. This may be related to the 'syllable inversion' process, which is also used in the language to derive a class of adjectives from nouns or vice

versa, as is clear from the samples reproduced in (i) below.

(i)	(a)	troko	'tall, long'
	(b)	kotron0	'tallness, length'
	(c)	trowulu	'high'
	(d)	wulutron0	'height'
	(e)	woko	'wide'
	(f)	kowon0	'width'

This syllable inversion process, which is similar to the 'permutation' process, will be taken up in the section on the tone system to show that in Koyo tones are regarded as features on segments.

7. Clayton-Wang (1974) proposed the 'productivity' criterion to distinguish between phonological processes. She argued that the notion of 'rule productivity' could help constrain phonological theory, since a phonological rule would be recognized as nonproductive if it contained diacritic features or any reference to morphological information. This notion enabled her to set forth a model of phonology, which she described as follows:

> A set of unordered productive ('last') rules, which might also be thought of as surface structure constraints, with the remainder of the ponological rules (the nonproductive, 'non-last', rules) corresponding to something like a morphological component for the purpose of describing regularities of closed sets of lexical items. (Clayton-Wang, (1974), p. 5).

She contrasts productive phonological processes with nonproductive processes, and she claims that the latter are similar to morphological processes. If her notion of rule productivity is espoused here, it will allow one to maintain a nonautonomous morphological level and still make use of Halle's 'Exception Filter' device. This means that in the Morphological Component of the theory I am advocating, there would be two distinct sets of processes: the morphological and phonological processes. Both sets are characterized by productive versus nonproductive rules. Of course the 'productivity' concept would be relative with regard to morphology and phonology. Undoubtly, the overall set of phonological processes is more productive than the overall set of morphological processes. For this reason the latter would correspond to Clayton Wang's <u>non-last</u> rules, while the former would be equivalent to her <u>last</u> rules. The set of phonetic rules would match her <u>late</u> rules.

8. The facts of Koyo plural formation may illustrate how the main difference between morphological and phonological processes are

better perceived in terms of the productivity of these processes. It may help in comprehending the notion of 'productivity', which is advocated here to account for the postulation of a Morphological Component in the theory of Koyo. As will be seen in the next section on phonology, the regular rule of plural formation triggers the vowel alternations reproduced in (i), where the symbol 'C' stands for any consonant segment.

(i)	(a)	CuCu + plural	CiCi
	(b)	CoCu + plural	CeCi
	(c)	CeCe + plural	CeCu
	(d)	CECE + plural	CECu
	(e)	CaCa + plural	CaCu

The generalization that results from the facts in (i) is roughly that when the word's final vowel is a back vowel, then the word in the plural form ends with a high front vowel. On the contrary, when a word in the singular form ends with a nonback vowel, then the plural form terminates with a high central vowel. This plural formation rule is not quite a productive process, since it does not apply to kin terms such as ba, ('father') and nO ('mother'). The former turns into bati, never into *bu. The latter changes to nOti, never to *ni. However, in the process of pluralization, the vowel in (ia) and (ib) is exceptionless, which means that this particular process is very productive.

9. The upright stroke occurring before a toned segment indicates a dissimilation process, which obtains when more than two identical tones occur in sequence and the third tone of the series does not fall upon a word's final segment. In the section on the tone system of Koyo, such a process will not be dwelt upon, since it does not bear crucially on the points at issue therein. However, it is interesting to notice this dissimilation process in a tonal language where the phenomena of downstep and downdrift are nonexistent.

10. Within the generative phonology paradigm, this phonetic representation level is not directly observed. It is already an abstract level to be differentiated from the physical phonetic level, which would correspond to the physical sound. But Chomsky and Halle (1968: 294) believe that one should dispense with this last level, since the linguist's primary concern looks toward the structure of the language rather than the acoustics and physiology of the human speech. They characterize phonetic transcription as follows:

> Phonetic transcription...is understood...not as a direct record of the speech signal, but rather as a representation of what the speaker of a language takes to be the phonetic properties of an utterance, given his hypothesis as to its

surface structure and his knowledge of the rule of the phonological component. (Chomsky and Halle, 1968: 294)

11. This approach is basically composed of:
    1. phonetic similarity
    2. complementary distribution
    3. noncontrastive distribution (meaningwise).

According to this method, where there is contrast as opposed to (3) above, the contrast may be in a minimal pair or in an analogous environment. The advantage of the distinctive features analysis adopted here is that it enables one to eschew the uneconomical classification of Koyo consonants given in (i), which would have been unavoidable otherwise.

(i) (a) sounds with primary articulation

labial	p	b	ɓ	m	w			
labio-dental	f	v						
alveolar	t	d	s	z	l	r	n	
palatal	c	j	ñ	y				
velar	k	g	ng					

(b) coarticulated sounds

labiovelar	kp	gb

(c) sounds with secondary articulation

labial	p^w	b^w	$ɓ^w$	m^w	p^y	b^y	$ɓ^y$	m^y	
labio-dental	f^w	v^w	f^y	v^y					
alveolar	t^w	d^w	s^w	z^w	n^w	t^y	d^y	s^y	z^y
palatal	c^w	j^w	$ñ^w$	y^w	c^y	j^y			
velar	k^w	g^w	ng^w	k^y	g^y	ng^y			
labiovelar	kp^w	gb^w	kp^y	gb^y					

The descriptive device that would come up with this classification for consonant sounds in Koyo would not prove economical at all. On the contrary, a distinctive feature analysis method simplifies in many respects the chart of Koyo speech sounds, as is clear from 1.19 in the text.

12. In his 1973 paper entitled The Feature [Grave] in Phonological Theory, Larry Hyman argues for the necessary inclusion of the Jakobsonian acoustic feature [Grave] in the universal set of distinctive features. His supporting data are drawn from Igbo and Fe?Fe?, two West African languages. Examining the behavior of high vowels in both languages, he notices that the Igbo case does not demonstrate the need for the feature [Grave], because the facts can be handled by resorting to the agreement of labiality and backness, as is shown in (i) through (ii), where the bracketed figures are those from Hyman's text.

(i)	[15]	bí 'to live'	ò-bíbí	'living'
		bè 'to cut'	ò-bù̲bè	'cutting'
		pɨ́ 'to carve'	ò-pɨ̲́pɨ́	'carving'
		bà 'to enter'	ò-bʊ̲̀bà	'entering'
(ii)	[17]	kè 'to divide'	ò-kù̲kù	'dividing'
		ká 'to surpass'	ò-kʊ̲́ká	'surpassing'

On the contrary, high vowel reduplication in Fe?Fe? shows unequivocally the need for the feature [Grave], as is clear from (iii) through (iv), where the bracketed figures again refer to Hyman's notation.

(iii)	[20]	pee'	'to hate'	pʉpee'
		tee	'to remove'	titee
		yee	'to see'	yiyee
		kee'	'to refuse'	kʉkee'
(iv)	[23]	čat	'to shatter'	čičat
		čak	'to seek'	čʉčak (*čičak)

Hyman argues convincingly that the samples in (iii) and (iv) involve a change of [+grave] to [-grave] in the reduplication vowel when the stem consonant is also [-grave]. He thus proposed his rule (24) identified here as (v) instead of his rule (25) written below as (vi).

(v) [24] $\begin{bmatrix}+\text{high}\\+\text{grave}\end{bmatrix} \rightarrow$ [-grave] / ____ [-grave][-grave]

V C V

[+Red]

(ʉ) (t,č) (e,E,a)

(vi) [25] $\begin{bmatrix}+\text{high}\\+\text{back}\end{bmatrix} \rightarrow$ [-back] / ____ $\left\{\begin{matrix}[+\text{cor}]\\\begin{bmatrix}+\text{high}\\-\text{back}\end{bmatrix}\\C\end{matrix}\right\}$ [-back] V

V

[+Red]

13. I have eschewed the encoding of the class of labial consonants as [+anterior] and [-coronal] for one major reason. In the Chomsky-Halle framework, the tongue body features introduced in the universal set of distinctive features do not affect vowel sounds at all. On the contrary, the feature [labial] incorporates, as claimed by Vennemann and Ladefoged, bilabilas, labio-dentals, labiovelars and labialized velars, as well as rounded vowels. On the other hand, the feature [grave] divides speech sounds into two convenient natural classes, namely, the peripheral segments (labilas and velars) and the medial sounds (dentals and palatals).

As far as Koyo is concerned, such a distinction is necessary to account for the distribution of [r]- and [l]-sounds. In Koyo the most common canonical form for a morpheme is CVCV. However, the CCV structure is encountered in formatives that exhibit a liquid or glide segment as the second 'C' in the pattern CCV. The particular phonetic manifestation of the liquid sound that occurs in second position will depend on the nature of the previous consonant; i.e., whether this consonant segment is specified for the feature [grave]. The principle that governs this is the following one: If the C_1 of the C_1C_2V pattern is a dental or palatal sound; i.e., is a nongrave segment, then the phonetic shape of the liquid sound in C_2 may be predicted to be an [r]-sound. On the contrary, if C_1 is a labial or velar sound, that is, a grave segment, then one may predict the liquid sound in C_2 to be an [l]-sound. In other words, the distribution of [l]- and [r]-sounds in medial position is contingent upon the feature specification [grave] of the preceding consonant sound. The illustration of these facts is given in (i) below, where the patterning of labials and velars with [l] is contrasted with that of dentals and palatals with [r]. Note that a quite similar patterning of [l] and [r] with peripheral and medial consonants respectively is reported by Hyman (1973) to have been observed by Westermann (1930) in the Ewe language of West Africa.

(i)	(a)	blā	'white clay'
	(b)	plɨ̄lē	'to pass, the action of passing'
	(c)	vlálē	'to insult, the action of insulting'
	(d)	flálē	'to comb, the action of combing'
	(e)	trá	'mole'
	(f)	dfĒ	'lead'
	(g)	ɓècrɨ̀	'rat'
	(h)	jr̀ò	'sneaking'
	(i)	glà	'teeth'
	(j)	glò	'palm tree'
	(k)	klɨ̄	'half'
	(l)	kplū	'board'

14. A piece of evidence for not considering [kp^w], [gb^w], [kp^y] and [gb^y] as unit phonemes comes from the tone system of the language. Monosyllabic words with an initial labiovelar segment bear only one level tone. On the contrary monosyllabic words that start out with [kp^w], [gb^w], [kp^y] and [gb^y] always exhibit a complex tone pattern, which means that the raised element of the segments with secondary articulation is a tone-bearing segment as is the following vowel sound.

15. L. Schwartz has pointed out that in the case of the data presented in 1.28, the learner does not need to store individual items, since

these are all locative formatives. Here the learner can associate the nasalization with the locative. This means that the analyst has to posit some kind of nasal archiphoneme or an underlying syllabic nasal, here symbolized by 'N', which at times has the meaning of a locative or that of a first and second personal pronoun. Nevertheless, the problem of whether Koyo nasalized vowels should be posited at the underlying representations or not still needs an answer. In this respect, only an abstract solution allows one to give an answer that is not too far-fetched.

16. There is a striking parallel between the two nasalization processes going on in 1.28 on the one hand and 1.29-1.34 on the other. One might argue that in the last set, the past-tense meaning is carried by the nasalization phenomenon, as is the case in 1.28, where the locative reading is carried by this nasalization. If this solution is adopted, once again, the abstract syllabic nasal 'N' will increase its surface ambiguity, since it will be polyvalent between (1) a first personal pronoun, (2) a second personal pronoun, (3) a locative marker and (4) a past tense marker. By way of illustration, consider the samples in (i) below.

(i) (a) Ń lē
I eat

(b) Ǹ lē
you eat

(c) O mɨ̄lĒ dú-Ń
he go town-loc. 'He goes to town'

(d) á tá-Ǹ dàgÓ
they touch-past Dago 'They touched Dago'

However, note that all of the meanings of this abstract syllabic nasal 'N' are distinguished by their environments.

17. Koyo possesses only two glide tone types, as exemplified in 1.45b and c above. Apart from these, other kinetic tones are believed to involve syntactic processes, such as locative and vocative case marking, command process and so on. I will show later that the kinetic tones that surface as HIGH-LOW and LOW-HIGH never occur with one single lexical entry. Therefore, they cannot be considered as lexical tones. I will demonstrate also that, despite their occurrences with single surface lexical items, the combinations HIGH-MID and MID-HIGH, illustrated in 1.45b and c, are actually spurious lexical tones, since they have to be derived from underlying MID level tone.

18. The term <u>divocalic</u> is borrowed from Luckau (1975), who prefers it to the more common term 'disyllabic'. For Luckau, the first term

is more evocative of what tone is associated with, namely vowel. I have adopted Luckau's terminology in a particular meaning, since I oppose divocalic to disyllabic here. The former refers to lexical entries of the CVV pattern, while the latter defines formatives of the usual CVCV structure.

19. The CVC pattern formatives may have at least two sources. There are those contained in the lexicon, as demonstrated in 1.50, 1.51 and 1.58 in the text. There are also those which come from morphological and syntactic processes, as demonstrated in (i) through (iii) below.

(i)	(a)	yó	'a boy'	(b)	yóōó	'the boy whom we talk about'
(ii)	(a)	dú	'a town'	(b)	dúN	'in town'
				(c)	dúūN	'in this town'
(iii)	(a)	Ń pɛ́lɛ̄ yó	'I am a boy'			
	(b)	Ń pɛ́lɛ́á yó	'I was a boy'			

20. The analysis of the Koyo tonal system at this stage lends support to Woo's 1969 analysis that contour tones be eliminated from the universal set of distinctive features, since they are derivable from the three basic tones; i.e., HIGH, MID and LOW. Such an analysis seems to disconfirm W. Wang's 1967 theory of suprasegmental representation of tone which proposed the incorporation within the set of universal distinctive features of kinetic features such as RISING and FALLING. However, Leben (1971) has drawn upon Hausa, Yala and Mende, three West African languages, to show that Wang's and Woo's theories are not contradictory but complementary. He suggests that by holding the positive aspects of each theory one may be able to arrive at universals of tone rules.

21. Bloomfield (1933: 110) defines mora as 'an arbitrary unit of relative duration'. Introducing the notion of mora in Koyo tonal system will be one way to get around the problem of vowel length, which is not phonemic in that language.

CHAPTER II. Sentential Complementation in Koyo

2.0. Introduction

This chapter deals with complementations; i.e., noun phrases that directly dominate dependent sentences.[1] The organization of the chapter is as follows: The first two sections (2.1 and 2.2) define the notion of 'complement' and present the internal structure of Koyo simplex sentences. In section 2.2, various types of sentential complements are described. Section 2.4 examines the meaning relationship between matrix and embedded sentences. Section 2.5 gives a tentative outline of a theory of complementation in Koyo. A brief summary is presented in 2.6.

2.1.1. Notion of complement

The notion of complement has received considerable attention in current linguistic literature. For instance, in Peter Rosenbaum (1965/1967), it means an S introduced in the structure as right sister of some head node, say N-node, V-node or Adj-node. However, Rosenbaum's characterization of this term is not coextensive with the traditional understanding of it. In Hartmann (1972), the traditional notion reads as follows:

> In traditional grammar the term complement is used to denote an element that 'completes' a sentence after a verb which does not usually take an 'object', e.g., the verb to be. In the sentence He is a policeman, a policeman is the complement. (1972: 44)

Hartmann indicates that a complement is a part of a VP by means of which the predicate of the sentence is completed.[2] An illustration of this concept of complementation is given in 2.1 through 2.5 below.

2.1 a) abi ngɨlu-a zɨku[3]
Abi arrive-past yesterday
'Abi arrived yesterday'

b) abi yi duN
Abi come-past town-in
'Abi came to town'

2.2 a) abi bite yoo-o
Abi whip-past boy-the
"Abi whipped the boy'

b) abi ñE yoo-o saka ya mosu
Abi give-past boy-the rice and banana
'Abi gave the boy some rice and some banana'

2.3 a) abi pɨlɨa sukulu-yokpo
Abi be-past schoolboy
'Abi used to be a schoolboy'

b) O no abi kapakapa
he do-past Abi dirty tricks
'He played dirty tricks on Abi'

2.4 a) abi bɨlu zON
Abi fall-past down
'Abi fell down'

b) abi bɨlu saka
Abi pound-past rice
'Abi pounded some rice'

2.5 a) N tErE yo O ka duN mo
I look for-pres. a boy he Modal town-in go
'I look for a boy to go to town'

b) N yera mami ma abi wolozON
I ask-pres. mother that Abi go out
'I ask mother that Abi go out'

The underlined portion in each structure above adds information that completes the meaning of the overall structure. This underscored sub-structure may be regarded as a complement structure.

2.1.2. Current Views on Complementation

The present chapter will be concerned only with complement structure types like those illustrated in 2.5 above.[4] The correctness of some previous analyses of complementation will be assumed. One such analysis is that proposed by Stockwell, et. al., (1973), which assumes that the constituent-S involved in these constructions is directly dominated by NP.[5] The analysis of complement types in Koyo will be based on this assumption. Prior to the discussion of them, some observations on the internal structure of simplex sentences are appropriate.

2.2. Clause internal structure

2.2.1. On morphological variations

Koyo is a language with scarce morphological variations in its verbal system. Mention has already been made of cases of morphological variation, based on either nasalization process or tone feature change. (See Chapter I, section 1.3. above.) The scarcity of these morphological variations, particularly in the verbal paradigm, may lead to wrong interpretations of complementation constructions in Koyo, if attention is not first directed to the clause structure elements of the language.

2.2.2. Finite-nonfinite verbs

The first question is how to distinguish between finite and nonfinite verbs, since the morphological variations are so minute. One way Koyo distinguishes these is change in the word order within the sentence. Sentences with nonfinite verbs have an SOV order.[6] Those with finite

verbs follow the order SVO. The instances in 2.6 through 2.8 illustrate the two word order types. In these charts the symbols 'S', 'V', 'Aux.', 'Neg.' and 'O' stand for Subject, Verb, Auxiliary, Negation and Object respectively.

S V O

2.6 a) abi lɯ sakaa-a
Abi eat-past rice-the
'Abi ate the rice'

b) doñi mo duN
Dogni go-past town-in
'Dogni went to town'

S Aux O V

2.7 a) abi yi sakaa-a lɯ
Abi future rice-the eat
'Abi will eat the rice'

b) doñi ya duN mo
Dogni past town-in go
'Dogni went to town'

S Neg O V

2.8 a) doñi ta sakaa-a lɯ
Dgoni not rice-the eat
'Dogni did not eat the rice'

b) doñi yi ta sakaa-a lɯ
Dogni future not rice-the eat
'Dogni will not eat the rice'

2.2.3. PS rule sample

This brief sketch of the internal structure of Koyo simplex sentences provides some awareness of certain superficial syntactic sequences of the language. In this respect, the following set of Phrase Structure

rules gives a formal view of a few basic structural patterns.

1. $S \rightarrow NP\ (Aux)\ V\ (neg)\ (NP)\ (Q)$

2. $NP \rightarrow N\ (Det)\ \left(\left\{\begin{matrix}PP\\ \overline{S}\end{matrix}\right\}\right)$

3. $\overline{S} \rightarrow Comp\ S$

4. $Comp \rightarrow \left\{\begin{matrix}ka\\ le\\ ma\\ la\end{matrix}\right\}$ [7]

2.3. Various Complement Types

2.3.1. ka-clauses

2.3.1.1. Ambiguous usage of ka

The analysis of this morpheme is difficult, because it is sometimes to be given a full verb reading; i.e., 'to possess' while at others it functions as a complement structure indicator. In the latter sense, it enters into two types of constructions, which may be compared to the English 'for-to' complementizer and the conditional clause marker 'if'. These uses are exemplified by the constructions in 2.9 through 2.11.

2.9 a) O ka tomobi
he have-pres. car
'He owns a car'

b) O ta tomobi ka
he neg. car have
'He does not own a car'

2.10 a) N tErE yoo-o N ka O duN la
I look for boy-the I Comp him town-in bring
'I look for the boy to take him to town'

c) apa ɪuru yoo-o O la O duN
Apa look for-past boy-the she bring him town-in

'Apa looked for the boy until she brought him to town'

2.11 a) N ka-a leyere lu na N yia lowuluN mo
I cond-past wealth eat spec. I fut-past abroad go

'If I were rich, I would travel abroad'

b) N ka-a leyere lu O yi-a saka lu
I cond-past wealth eat he fut-past rice eat

'If I were rich, he would eat rice'

c) leyere N ka-a lu O yi-a saka lu
wealth I cond-past eat he fut-past rice eat

"If I were rich, he would eat rice'

The sentences in 2.9 and 2.11, necessary to give the full picture, fall outside the scope of this chapter. Those in 2.10 will be dealt with here. A close examination of 2.10 reveals that the ka-phrase expresses an overt purpose relation. This becomes obvious when 2.10a is contrasted with 2.10c, where the ka-morpheme is omitted. In the latter, the purpose relation is indeed lessened. The sentences in 2.12 and 2.13 seem to be good paraphrases of 2.10a and 2.10c respectively.

2.12 'I am looking for the boy with the intention of taking him to town'

2.13 'I looked for the boy and as a result of this, I took him to town'

In 2.10c, the focus is laid on the consequence or the result of the action of looking for the boy. This relation type may be termed a purpose in the past. One last remark concerns the syntactic behavior of the clause containing the morpheme ka. As attested by 2.10b, the ka-clause may

function as a clefted nominal. In this connection, one may look at more data on ka-clauses.

2.3.1.2. More Data

The following example set carries on the test of ka-clauses as nominal clauses.

2.14 a) yoo-o tErE 0 ka duN mo
boy-D search he comp town-in go
'The boy tries to go to town'

b) yoo-o ka duN mo 0 tErE e
boy-D Comp town-in go he search it
'To go to town is what the boy tries to do'

2.15 a) mami kpenE yoo-ɔ 0 ka 0 tiye
mother call boy-D she comp him send
'Mother calls the boy to go on errands'

b) 0 ka yoo-o tiye laza mami kpenE 0
she comp boy-D send reason mother call him
'It is to go on errands that mother calls the boy'

2.16 a) mami zEpE yoo-o 0 ka 0 degale ciya
mother whip-pres. boy-D she Comp him smartness teach
'Mother whips the boy to teach him how to behave'

b) 0 ka degale ciya laza mami zEpE yoo-o
she Comp smartness teach reason mother whip boy-D
"It is to teach him how to behave that mother whips the boy'

2.17 a) mami ñE yoo-o fOlO 0 ka lʉ
mother give-past boy-D bread he Comp eat
"Mother gave the boy some bread to eat'

b) 0 ka o lʉ laza mami ñE yoo-o fOlO
he Comp it eat why mother give-past boy-D bread
'It is to eat it that mother gave the boy some bread'

In the data presented above, the b-sentences contrast with the a-sentences in that the former exemplify a clefting process of the ka-clauses reproduced in the latter. These facts lead to the conclusion that in Koyo, ka-clauses have the syntactic behavior of nominal clauses.

2.3.1.3. Main-subordinate clause relation

Upon examination of the data thus far presented, a first conclusion imposes itself. Koyo uses the syntactic marker ka to express a purpose relationship between a main and a subordinate clause. That this purpose reading is carried in a crucial fashion by the marker ka is proven by 2.10c, whose paraphrase in 2.13 reveals the semantic import of the marker ka.[8] At this stage of analysis, the evidence from the Koyo syntactic marker ka supports the claim that semantic differences are usually accompanied by differences in syntax.

2.3.2. le-clauses

2.3.2.1. Data

This structure pretty well parallels the English 'poss-ing' nominals, since it is always the case that in this construction type, the nominalized complement is preceded by a possessive marker, as demonstrated below.

2.18 a) na gamale ka ñakale
your playing have trouble
'Your playing is troublesome'

b) yoo-o la sukuluN mole ka ñakale
boy-D poss. school-in going have trouble
'The boy's going to school is troublesome'

c) yoo-o la sOO ɓitele ta klwaklwa naN
boy-D poss. thus whipping neg. at all good
'The boy's being whipped this way is not good at all'

d) na legbililile yi N mɨlɨ kolaN
your too-much-eating fut. you stomach upset
'Your eating too much will upset your stomach'

In the sentences listed above, the nominalized complement is embedded in an NP that functions as the subject of the complex sentence. Contrariwise, the le-clauses may be embedded in NP's functioning as objects of the complex structures that contain them. This is demonstrated by the following samples.

2.19 a) yoo-o gunE doñi la piti sɨrɨle
boy-D fear Dogni poss. grass mowing
'The boy fears Dogni's mowing the grass'

b) doñi wusu añiya gamale
Dogni spoil-past our playing
'Dogni spoiled our playing'

c) mami ta añiya sakaa-a pile wa
mother neg. our rice-D cooking like
'Mother does not like our cooking the rice'

d) a ɓeliyo ya na bogo yiɓele wusu
our brother past my book knowing spoil
'Our brother has prevented my being educated'

Among the sentences reproduced above, 2.10c-d present a structure that differs from that of the other examples. In these sentences, the head nouns and their respective sentential complements occur between the morpheme of negation or past tense and the main verb of the matrix clause. These facts raise the question of whether sentence final verb placement should be analyzed as a transformational process. This point will be

treated in detail later on.

2.3.3. ma-clauses

2.3.3.1. Idiosyncracy

These nominal clause types have an idiosyncratic distribution. The samples below characterize their idiosyncracies.

2.20 a) baba wa ma Doñi zEpE yoo-o
Father want that Dogni whip boy-D
'Father wants Dogni to whip the boy'

b) baba ta wa ma doñi zEpE yoo-o
Father neg. want that Dogni whip boy-D
'Father does not want Dogni to whip the boy'

c) baba wa doñi zEpE yoo-o
Father want Dogni whip boy-D
'Father likes for Dogni to whip the boy'

2.21 a) baba ngonu ma yoo-o mo lowuluN
father agree that boy-D go abroad
'Father agreed on the boy's going abroad'

b) baba ta ngonu ma yoo-o mo lowuluN
father neg. agree that boy-D go abroad
'Father did not agree on the boy's going abroad'

c) baba ngonu yoo-o mo sukuluN
father agree boy-D go school-in
'Father assented to the boy's going to school'

2.22 a) mami yEra ma O yoo-o yi ɓliN
mother desire that her boy-D come country
'Mother asks for her son to come back home'

b) mami ta yEra ma O yoo-o yi ɓliN
mother neg. desire that her boy-D come country
'Mother did not ask for her son to come back home'

c) mami yEra 0 yoo-o yi ɓliN
mother desire her boy-D come country
'Mother wants her son to come back home'

2.23 a) yoo-o tErE ma 0 mo duN
boy-D search for that he go town-in
'The boy wishes to go to town'

b) yoo-o turu 0 mo duN
boy-D search for he go town-in
'The boy succeeded in going to town'

c) yoo-o turu 0 ka duN mo
boy-D search for he Comp town-in go
'The boy tried to go to town (unfortunately he could not)'

d) yoo-o tErE ma 0 ka duN mo
boy-D search for that he Comp town-in go
'The boy is trying with the purpose of going to town'

e) yoo-o turu ma 0 mo duN
boy-D search for that he go town-in
'The boy wished to go to town'

The instances in 2.20 through 2.23 point out important aspects of ma-clauses in the language under study. First of all, the marker ma is absent from all the b-sentences. This omission corresponds to a semantic shade in the sentences where this complementizer is not overtly marked. The constructions in 2.23 are particularly interesting in more than one respect. Here one notices a co-occurrence phenomenon for the markers ma and ka. Upon a close examination of 2.23, the conclusion that imposes itself is that these syntactic markers, such as ma, ka and so on, are not arbitrary syntactic features, whose sole function is to indicate that some portion of a given string is dependent.

2.3.3.2. Meaning Shade

In 2.23, for instance, the same matrix verb tɛrɛ ('to search for') is used throughout. However, the omission of ma in 2.23b seems to imply that the boy has been successful in his endeavor to go to town. On the contrary, in 2.23a or 2.23e, where ma is overtly marked, one does not get the implication of the boy's actual success. What is rather suggested here, concerns a wish expressed by the speaker. Therefore, the assumption that the meaning shade difference between 2.23a and 2.23b is due to the presence of the complementizer ma,[9] may be well-motivated in the theory of Koyo. (See Section 2.5. below for further detail concerning the presence vs. the absence of the complementizer ma and the interpretation of the meaning shade as due to two different verbs homophonous by pure accident.)

2.3.4. la-clauses

2.3.4.1. Data

This set of clauses seems the most controversial in terms of its classification with nominal clauses. The clauses introduced by this marker seem to function as adverb clauses, rather than complements. However, in Koyo, these construction types are ambiguous between a nominal and an adverbial function, as demonstrated in the data below. For this reason only, la-clauses are included here as complementation structures. Consider the following sentences.

2.24 a) Ó mɨ̄lɛ̄ lā dúǸ nā Ó yī kūgbɨ̀Ǹ yírɨ́bɔ̀
he go Comp town-in Spec he fut. tonight return
'Going to town, he will return tonight'

b) àɓí Ó mɨ̄lĒ la dúŃ nā Ó yī kūgbɨ̄Ǹ yírɨɓÒ[10]
Abi he go Comp town-in Spec he fut. tonight return

'Abi, in going to town, will return tonight'

2.25 a) Ó gāmā la sŌÓ nā Ó yī yóō-ó ɓílá
he play Comp thus Spec he fut boy-D hurt

'Playing that way, he will hurt the boy'

b) àɓí Ó gāmā la sŌÓ nā Ó yī yóō-ó ɓílá
Abi he play Comp thus Spec. he fut boy-D hurt

'Abi, in playing that way, will hurt the boy'

2.26 a) Ó gbīyā N̄ la nā Ó yī pÒtÒN kpé
he bug me Comp Spec he fut right away cry

'In hassling me, he will cry right away'

b) àɓí Ó gbīyā N̄ la sŌÓ nā Ó yī pÒtÒN kpé
Abi he bug me Comp thus Sp he fut now cry

'Abi, in hassling me that way, will cry right away'

2.27 a) Ó pā la sŌÓ nā Ó fíyō tá zÒN ɓīlūlē
he run Comp thus Sp he haste neg down fall-ing

'In running this way, he does not have to wait long before falling down'

b) yóō-ó Ó pā la sŌÓ nā Ó fíyō tá zÒN
boy-D he run Comp thus Spec. he haste neg. down

ɓɨ̄lūlē
falling

'The boy, in running this way, does not have to wait long before falling down'

In the sentences reproduced above, the la-clauses perform a different function in the a-sentences and the b-sentences. One may say that in the former, an adverbial function is achieved, while in the latter, an appositive function is performed.

2.3.4.2. Conclusion

Thus far, it has been shown that complementizers in Koyo participate

in various constructions that are distinguished by the different fashions in which these subordinators are adjoined in the tree configurations where they appear. It was not clear, though, that matrix verbs select their complementizer type, since the co-occurrence of some complementizers within the same complex sentence makes it difficult to subcategorize the verbs for each complementizer. However, it was noticed that the choice of a complementizer is a function of some subtle semantic difference between sentences with complementizers and those without them. This consideration suggests that the analysis of superficial syntactic patterns should be set aside, so as to dwell rather on the meaning relationship between sentences. Only such a procedure can highlight the speaker's internal knowledge whenever he utters a complex sentence. In this perspective, I shall now move on to the examination of the truth conditions of complex sentences in Koyo.

2.4. Meaning Relationships within complex sentences

2.4.1. Introduction

This section does not really describe a specific procedure for determining meaning relations in complex sentences. Furthermore, I dispense with appraising the presuppositional analysis that generative grammarians have set forth in semantic descriptions. The primary concern here is to examine various types of complex sentences in order to indicate their truth conditions. The problem then lies in characterizing some grammatical markers, which, very likely, distinguish the meaning relationships entertained by Koyo complex sentences.

2.4.2. Cognitive Verbs

2.4.2.1. Two verbs of Cognition

Two verbs of cognition in Koyo require their subordinate sentence to be embedded under an object pro-form sO, that is, 'the fact'. This fact is brought out by contrasting some simplex sentences with their corresponding complex sentences.

2.28 a) O yi yoo-o
he know boy-D
'He knows the boy'

b) O yi sO ma yoo-o mo duN
he know it that boy-D go town-in
'He knows the fact that the boy went to town'

c) *O yi ma yoo-o mo duN
he know that boy-D go town-in
'He knows that the boy went to town'

2.29 a) O ta yoo-o yi
he neg boy-D know
'He does not know the boy'

b) O ta sO yi ma yoo-o mo duN
he neg it know that boy-D go town-in
'He does not know the fact that the boy went to town'

c) *O ta yi ma yoo-o mo duN
he neg know that boy-D go town-in
'He does not know that the boy went to town'

2.30 a) O yiɓeN yoo-o
he recognize boy-D
'He recognized the boy'

b) doñi yiɓeN sO ma na wale pɨlɨ-a piyeza
Dogni recognize it that your words be-past true
'Dogni recognized the fact that what you said was true'

c) *doñi yiɓeN ma na wale pɨlɨ-a piyeza
Dogni recognize that your words be-past true
'Dogni recognized that what you said was true'

2.31 a) O ta yoo-o yiɓeN
he neg boy-D recognize
'He did not recognize the boy'

b) doñi ta sO yiɓeN ma na wale pɨlɨ-a piyeza
Dogni neg it recognize that your words be true
'Dogni did not realize the fact that you were right'

c) *doñi ta yiɓeN ma na wale pɨlɨ-a plyeza
Dogni neg recognize that your words be true
'Dogni did not recognize that what you said was true'

In the samples above, the a-sentences exemplify simplex sentences, while the b-c sentences indicate complex sentences. The fact that the grammatical marker sO does not occur in simplex sentences suggests that its presence is indeed independent of the occurrence of the main verb, and thus, that it is a constituent of its own right in the matrix sentences of the b-type. Finally, the fact that the c-sentences are ungrammatical shows that the syntactic marker sO, which I glossed by 'it' is required in such constructions.

2.4.2.2. The Distribution of the formative sO

The distribution of sO in the examples above provides the evidence that this morpheme behaves like an object NP, since it can appear not only in clause final position, but can also be placed before the verb, like an object NP. This shows that the morpheme sO[11] behaves as the object NP of the matrix sentence under which sentential complements are embedded. On the other hand, the accusative function of the marker sO

appears clearly in the question-answer sentences given in 2.32, where sO in the answer clause is equivalent to the object NP underlined in the question clause.

2.32 a) O yi la bOgo zarɛle
he know Q book reading
'Does he know how to read?'

b) EE O yi sO
yes he know it
'Yes, he knows that'

c) EE O yi bOgo zarɛle
yes he know book reading
'Yes, he knows how to read'

It is obvious that in 2.32b, the phrase sO stands for the substructure bOgo zarɛle in 2.32a, as demonstrated by the synonymy of 2.32b and 2.32c.

2.4.3. Emotive and Sensory Verbs

2.4.3.1. Data

In Koyo, another class of predicates in fact subsumes two groups: (1) the emotive verbs, which express the speaker-hearer's emotional reactions and (2) the sensory verbs, which describe sensory events or states. These two predicate types have been grouped into a unique class because they present similar syntactic behaviors, namely that their embedded clauses have an abstract object nominal as a headnoun. This is illustrated in 2.33 through 2.38 below.

2.33 a) e kalɛ N mɨlEN kpañiyi sama yoo-o ku la
it pain me body much the way boy-D die Rel.
'I regret very much how the boy died (i.e., I feel regretful about the manner in which the boy died)'

b) e ta N mɨlEN kalʉ kpañiyi sama yoo-o ku la
it neg me body pain much the way boy-D die Rel.
'I do not regret very much how the boy died'

c) *e kalʉ N mɨlEN kpañiyi ma yoo-o ku
it pain me body much that boy-D die
'I regret very much that the boy died'

d) *e kalʉ N mɨlEN kpañiyi ma yoo-o ku la
it pain me body much that boy-D die Rel.
'I regret very much that the boy died'

2.34 a) O bo doñi aliyE sama O ta la sukuluN mo
he give Dogni harass the way he neg Rel. school-in go
'He harassed Dogni for not going to school'

b) O ta doñi aliyE bo sama O ta la sukuluN mo
he neg Dongi harass give the way he neg Rel. school-in go
'He did not harass Dogni for not going to school'

c) *O bo doñi aliyE ma O ta sukuluN mo
he give Dogni harass that he neg school-in go
'He harassed Dogni for not going to school'

d) *O bo doñi aliyE ma O ta la sukuluN mo
he give Dogni harass that he neg Rel. school go
'He harassed Dogni for not going to school'

2.35 a) e no N pOpE sama O bɨla la O-ye
it make me joy the way he hurt Rel. himself
'I was pleased that he hurt himself'

b) e ta N pOpE no sama O bɨla la O-ye
it neg me joy make the way he hurt Rel. himself
'I was not pleased that he hurt himself'

c) *e no N pOpE ma O bɨla O-ye
it make me joy that he hurt himself
'I was pleased that he hurt himself'

d) *e no N pOpE ma O bɨla la O-ye
it make me joy that he hurt Rel. himself
'I was pleased that he hurt himself'

2.36 a) e ka N to sama O yi la duN
it have me appreciate the way he come Rel. town-in
'I appreciated that he came to town'

b) e ta N to ka sama O yi la duN
it neg me appreciate have the way he come Rel. town-in
'I did not appreciate that he came to town'

c) *e ka N to ma O yi duN
it have me appreciate that he come town-in
'I appreciated that he came to town'

d) *e ka N to ma O yi la duN
it have me appreciate that he come Rel. town-in
'I appreciated that he came to town'

The sentences above illustrate facts of emotive predicates; i.e., verbs that express subjective reactions. Consider now samples exemplifying sensory predicates; i.e., those which describe sensory events or states.

2.37 a) loo-o no N ñukuluwiN sama o mEN la
song-D make me ears-in the way it sweet Rel.
'The song sounded to me as if it were beautiful'

b) loo-o ta N ñukuluwiN no sama o mEN la
song-D neg me ears-in make the way it sweet Rel.
'The song did not sound to me as if it were beautiful'

c) *loo-o no N ñukuluwiN ma o mEN
song-D make me ears-in that it sweet
'The song sounded to me as if it were beautiful'

2.38 a) sakaa-a no N yereN sama a ya la zaru
rice-D make me eyes-in the way it past Rel. ripe
'The rice looked to me as if it were ripe'

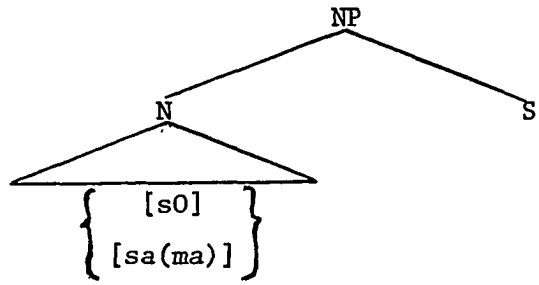
b) sakaa-a ta N yereN no sama a ya la zaru
rice-D neg me eyes-in make the way it past Rel. ripe
'The rice did not look to me as if it were ripe'

c) *sakaa-a no N yereN ma a ya zaru
rice-D make me eyes-in that it past ripe
'The rice looked to me as if it were ripe'

2.4.3.2. Abstract object nominal

In 2.33 through 2.38, the discontinuous phrase sama...la has the literal meaning 'the manner in which'. The claim here is that in Koyo, emotive and sensory predicates behave alike, since they require their sentential complements to be embedded under an abstract object nominal. If such is the case, this fact enables one to distinguish two classes of predicates that constrain embedded clauses to fit the particular tree configuration designated in 2.39 below.

2.39



The predicates whose embedded clauses satisfy 2.39 include the cognitive verbs that attribute mental states to people. It was pointed out in section 2.4.2. that this predicate-type requires its embedded clauses to be headed by the object pro-form sO. The other predicate class that meets the structure in 2.39 subsumes emotive and sensory verbs. These require their constituent clauses to be headed by the abstract object nominal sa,[12] i.e., 'the manner, the fact'.

2.4.3.3. Factive Predicates

For the sake of argument, I shall call factive[13] predicates the higher verbs in 2.33 through 2.36. This categorization means that the higher predicates possess a syntactic property that shows up when they

are in a superordinate relationship with other verbs. Whether this syntactic property is matched by the semantic feature of 'presupposition' will be discussed later. Meanwhile, I will pursue my investigation on other higher predicates, which lack the property of factivity and for this reason are referred to as counterfactives.[14]

2.40 a) e ɓɨlɯ doñi pɨlE-ko ma yoo-o ko sukuluN
it fall Dogni heart-on that boy-D be school-in
'It occurred to Dogni that the boy is in school'

b) e ta doñi pɨlE-ko ɓɨlɯ ma yoo-o ko sukuluN
it neg Dogni heart-on fall that boy-in be school-in
'It did not occur to Dogni that the boy is in school'

In both 2.40a and 2.40b, the speaker assumes that the embedded clauses express true propositions, even though their higher predicates vary from an affirmative to a negative content. The fact that the truth of their embedded sentences is constant, regardless of the positive or negative value of their matrix sentences, has led some linguists to believe that presupposition is not part of what is asserted in the sentence. (See Karttunen 1971a,1971b for details). Now consider the following sentences.

2.41 a) doñi noñɨra lO pɨlɨ sojeyo (F[P])
Dogni act as if D-he be soldier
'Dogni acted like a soldier'

b) doñi ta noñɨra lO pɨlɨ sojeyo (T[P])
Dogni neg act as if D-he be soldier
'Dogni did not act like a soldier'

Here the matrix verb presupposes the falsity of its embedded clause. I will use the shorthand (F[P]) to indicate that the presupposition on the embedded sentence is false. On the contrary, (T[P]) means that the

presupposition of the embedded sentence is true.

2.4.3.4. Counterfactives

According to the conception of presupposition that has been elaborated thus far, the higher verb in 2.41 does not satisfy the requirement to be classified as factive predicate, since the truth of its embedded clause is not constant under the negation test.[15] The a-sentence, for instance, will be marked (F[P]), which means that its embedded proposition is false. In fact, the presupposition here is that Dogni is not actually a soldier. On the contrary, the b-sentence will be labeled (T[P]), which signifies that the embedded proposition is true. Here the presupposition is that Dogni is actually a soldier. These facts exactly fit Rosenberg's proposed definition of counterfactives. But consider now the instances in 2.42 below.

2.42 a) doñi noñɨra ma 0 pɨlɨ sojeyo (F[P])
Dogni act as if that he be soldier
'Dogni acted as if he wanted to be a soldier

b) doñi ta noñɨra ma 0 pɨlɨ sojeyo (T-F[P])
Dogni neg act as if that he be soldier
'Dogni did not act as if he wanted to be a soldier'

Despite the parallel between the sentences in 2.41 and 2.42 above, however, the presuppositions of their complements are different. While in 2.41b the presupposition is true, in 2.42b, it is ambiguous (i.e., may be true or false, indifferently) despite the same predicate verb and the same illocutionary force. The suspicion here might be that in Koyo, the predicate noñɨra ('to act as') is a crucial case for an adequate analysis of the semantic presupposition of sentential complements. It is therefore

necessary to indicate how 2.41 differs from 2.42. In this respect, consider the following examples:

2.43 a) doñi noñɨra 10 pɨlɨ sojeyo ma piyeza 0 ta
Dogni act as if the one be soldier but truly he neg

sojeyo pɨlɨ
soldier be

'Dogni acted like a soldier, but indeed he isn't'

b) #[16]doñi ta noñɨra 10 pɨlɨ sojeyo ma piyeza
Dogni neg act as if the one be soldier but truly

0 ta sojeyo pɨlɨ
he neg soldier be

'Dogni did not act like a soldier, which he isn't'

c) doñi noñɨra ma 0 pɨlɨ sojeyo ma nawolE mɨlɨ
Dogni act as if that he be soldier but truth inside

0 ta 0 pɨlɨ
he neg him be

'Dogni acted as if he wanted to be a soldier, at any rate, he is not one'

d) doñi ta noñɨra ma 0 pɨlɨ soljeyo ma nawole mɨlɨ
Dogni neg act as if that he be soldier but truth inside

0 ta 0 pɨlɨ
he neg him be

'Dogni did not act as if he wanted to be a soldier, at any rate, he is not one'

The first observation one might make in skimming through the data above is that 2.43b is contradictory, while the other sentences are fine. This simply means that different types of presuppositions are involved in 2.41 and 2.42 above. Looking for the origin of the difference between 2.41b and 2.42b in terms of their presuppositions, one may attribute the difference to the complementizer that is overtly marked in 2.42b, but

not in 2.41b. However, in section 2.5 it is argued that the meaning difference is due to the existence of two distinct verbs noñ±ra.

2.4.3.5. Summing up

Thus far, I have tried to specify the meaning relationship that governs complex sentences in Koyo by distinguishing two major classes of higher predicates: (1) cognitive predicates, which assign mental states to speakers and (2) emotive-sensory predicates, which indicate subjective reactions and sensory events. These classes have a similar syntactic behavior. But it is not at all clear that specific semantic properties are in a one-to-one correspondence with these syntactic features. I shall now sketch out a tentative theory of complementation in Koyo.

2.5. Toward a Theory of Complementation in Koyo

2.5.1. Introduction

In the previous sections, I have demonstrated that a superficial analysis of the syntactic categories that introduce predicate complement constructions was a poor device for the description of complex sentences in Koyo. For instance, it appeared obvious that the different complementizers presented above cannot really subcategorize the various complementizable predicates of the language at issue. The co-occurrence of some of them makes it difficult to predict which one selects the matrix verb. The indeterminacy of these subordinators, therefore, forced us to seek some deeper relationships. To this effect, a great deal of time was devoted to the investigation of the meaning relationships entertained by

the constituent clauses of Koyo complex structures. It was discovered that the language has two classes of predicates (cognitive and emotive-sensory verbs) that require their complement sentences to be embedded under an abstract object nominal.

2.5.2. Data

By way of illustration, consider some of the sentences in 2.28-2.31 on the one hand and in 2.33-2.38 on the other hand. For ease of reference, I will repeat here the appropriate samples and will indicate the presuppositions of their embedded clauses.

2.44 a) O yi sO ma yoo-o mo duN (T[P])
he know it that boy-D go town-in
'He knows the fact that the boy went to town'

b) O ta sO yi ma yoo-o mo duN (T[P])
he neg it know that boy-D go town-in
'He does not know the fact that the boy went to town'

2.45 a) doñi yiɓeN sO ma na wale pɨlɨa piyeza (T[P])
Dogni realize it that your words be true
'Dogni was aware of the fact that what you said was true'

b) doñi ta sO yiɓeN ma na wale pɨlɨa piyeza (T[P])
Dogni neg it realize that your words be true
'Dogni was not aware of the fact that what you said was true'

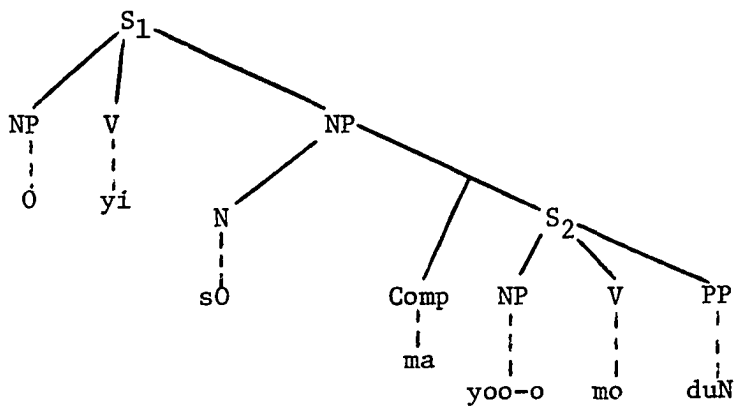
In the sentences above, the matrix verbs are two verbs of cognition that presuppose the truth of their embedded propositions, no matter what the illocutionary of the matrix predicates. In fact, in the a-sentences, one finds a positive assertion of the matrix verb, while in the b-sentences, one deals with a negative assertion of this matrix verb. The facts just described satisfy the definition of 'factivity' proposed by the Kiparskys,

according to which a sentence with a factive predicate presupposes the truth of its complement proposition. If this definition is correct, then one is able to say that in Koyo, the class verb of the type yi and yibeN are factive predicates, since, as seen above, the truth-value of their complement sentences is constant under the negation test. Besides the semantic import of these verbs, there is a syntactic behavior particular to them.

2.5.2.1. Complex-NP structure

These verbs require their embedded clauses to be dominated by a complex NP whose head is filled by an abstract object nominal, namely sO ('the fact'). On the assumption of this analysis, one may propose the following tree configuration for these structures.[17]

2.46



That these verbs require the presence of this syntactic marker for their complex structure to be grammatical is proved by 2.28c, 2.29c, 2.30c and 2.31c, which are all ungrammatical as the result of the omission of the marker sO.

2.5.2.2. Emotive verb data

Now consider some of the key sentences of the class of emotive and sensory verbs, using the same procedure for indicating their presuppositional reading.

2.47 a) e kalu N mɨlEN kpañiyi sama yoo-o ku la (T[P])
it pain me body much the way boy-D die Rel.
'I regret very much how the boy died'

b) e ta N mɨlEN kalu kpañiyi sama yoo-o ku la (T[P])
it neg me body pain much the way boy-D die Relative
'I do not regret very much how the boy died'

2.48 a) O bo doñi aliyE sama O ta la sukuluN mo(T[P])
he give Dogni harass the way he neg Rel. school-in go
'He harasses Dogni for not going to school'

b) O ta doñi aliyE bo sama O ta la sukuluN
he neg Dogni harass give the way he neg Rel. school-in
mo (T[P])
go
'He did not harass Dogni for not going to school'

2.49 a) e no N pOpE sama O bɨla la O-ye (T[P])
it make me joy the way he hurt Rel. himself
'I was pleased that he hurt himself'

b) e ta N pOpE no sama O bɨla la O-ye (T[P])
it neg me joy make the way he hurt Rel. himself
'I was not pleased that he hurt himself'

2.50 a) e ka N to sama O yi la duN (T[P])
it have me appreciate the way he come Rel. town-in
'I appreciated that he came to town'

b) e ta N to ka sama O yi la duN (T[P])
it neg me appreciate have the way he come Rel. town-in
'I didn't appreciate that he came to town'

In this example set, the observation can be made again that in Koyo, there is a class of verbs--call them emotive predicates--that presuppose the truth value of their embedded propositions, regardless of the illocutionary force of the matrix sentences. It may also be noticed that, on the syntactic grounds, their constituent sentences (the ma-clauses) function as appositive to a head nominal, which is here the abstract object noun sa; i.e., 'the manner'.

2.5.2.3. Sensory verb data

In order to accumulate more data, I will examine one last group of verbs, the class of sensory predicates. Here, although one observes the syntactic device of Complex-NP structure,[18] which was seen in both verbs of cognition and emotivity, the presupposition is cancelled in this case.

2.51 a) loo-o no N ñukuluwiN sama o mEN la (T-F[P])
song-D make me ears-in the way it sweet Rel.
'The song sounded to me as if it were beautiful'

b) loo-o ta N ñukluwiN no sama o mEN la (T-F[P])
song-D neg me ears-in make the way it sweet Rel.
'The song did not sound to me as if it were beautiful'

2.52 a) sakaa-a no N yereN sama a ya la zaru (T-F[P])
rice-D make me eyes-in the way it past Rel. ripe
'The rice looked to me as if it were ripe'

b) sakaa-a ta N yereN no sama a ya la zaru (T-F[P])
rice-D neg me eyes-in make the way it past Rel. ripe
'The rice did not look to me as if it were ripe'

The fact is that in the samples just mentioned above, the matrix verbs of this type presuppose neither the truth nor the falsity of their embedded

propositions. In other words, the presupposition is neutral with respect to the truth or the falsity of the subordinate clause. The question then is how should one account for the various facts displayed in 2.44 through 2.52? The next section addresses itself to such a question.

2.5.3. Presuppositional analysis of Koyo complex sentences

There are different approaches to the account of the facts exemplified in the above sentences. One way to do it, would be to start with the Kiparsky's definitions of linguistic presupposition and assess their analysis of English complementation in accordance with later proposals such as those of Karttunen (1971a, b; 1973), of Rosenberg (1975), of Kempson (1975), of Wilson (1975) and of other linguists working on this specific topic. This procedure, however, seems cumbersome for the Koyo data examined thus far. In this respect, it is sufficient to retain here the Kiparskys' characterization of factivity. The only modification that I have introduced concerns the term counterfactive, as defined in Rosenberg (1975):

> Counterfactive predicates presuppose the opposite or the negative of their embedded sentences (Rosenberg 1975, passim)

The term proposed by Rosenberg is more specific than the one suggested by the Kiparskys; i.e., nonfactive. Under the Kiparskys' definition, nonfactive predicates are all those that have failed the test to be classified as factive verbs,that is, the negation test. For this reason, I will prefer here the Rosenberg's term over the Kiparskys' one.

2.5.3.1. Difficulties with respect to the factive-counterfactive relation

The more complex situation of the factive-counterfactive relation in the Koyo data exemplified in the above sentences concerns the verb noñ±ra ('act as'). As defined by the Kiparkys, factive predicates presuppose the truth of their embedded propositions, while counterfactive predicates presuppose the falsity of their constituent sentences, as defined in Rosenberg:

> Counterfactive predicates (e.g., pretend)... are judged to cause their embedded complements to be presupposed to be false (Rosenberg 1975: 1)

Given the above definitions, one may return to the sentences attested to in 2.41 and 2.42. In the former example set, the predicate noñ±ra falls under the definition of counterfactivity, while in the last set it does not conform to the definition of either factive or counterfactive. In the former set, indeed, it is always the case that the positive-negative value of the matrix verb presupposes the opposite value of the embedded proposition. This observation is in accordance with the definition of factivity as proposed by the Kiparskys, in the sense that this verb would be classified as nonfactive. On the contrary, when one examines 2.42, it appears that noñ±ra does not fall into the class of either factive or counterfactive predicates because in 2.42a, the predicate noñ±ra presupposes the negative of its embedded sentences, as it is the case in 2.41a. On the face of this observation, it is plausible to claim that the predicate noñ±ra, whether accompanied or not by the complementizer ma, will always presuppose the opposite of its embedded complement. This means that noñ±ra fall into the classification of counterfactive verb.

However, in 2.42b, the presupposition of the subordinate clause may be either true or false. If the speaker-hearer believes that Dogni desires to be a soldier, the presupposition will be false. On the contrary, if the speaker-hearer believes that Dogni is actually a soldier, the presupposition will be true. In other words, the truth-value of the embedded clause is indeterminate in examples of this type as opposed to examples like 2.42a. The question then is to know what makes the difference between 2.41b and 2.42b. Is the truth or falsity of the presupposition of the latter due to the presence of the complementizer ma? Intuitively, one is tempted to answer yes to this question, since the only difference between 2.41b and 2.42b is the appearance of ma in the latter. However, there is an alternative to account for the difference between 2.41b and 2.42b. This alternative consists in assuming that the predicate noñ ra that occurs with the complementizer ma is quite different from the one occurring without that complementizer, in which case the homophony of these two verbal forms is pure accident. Thus, noñ±ra ma is classified as a factive predicate and noñ±ra ϕ is counterfactive.

2.5.3.2. Apparent objections to the double status of the predicate noñ±ra

One may object to the proposal that favors a double status of the predicate noñ±ra, since it seems to be an arbitrary formula to accommodate the cases where the factive-counterfactive distinction fails to work. Moreover, one should raise the question of whether the formal classification of verbs like noñ±ra reflects in any way the speaker's intuitive

judgment that noñɨra ma and noñɨra ϕ are two separate morphemes. Another alternative is to ascribe the difference between 2.41b and 2.42b to the presence versus the absence of the complementizer ma and not to two separate predicates noñɨra, as assumed here. If this is done, the context of a predicate must be taken into account before a truth value is assigned(to the complement of at least that class of predicates)to the complement of at least that class of predicates which have different factivity status depending on the presence or absence of the ma complementizer. The solution of two separate predicate noñɨra is ultimately to be preferred over the alternative that must consider the context of the matrix verb. The solution adopted here is therefore based on the Kiparkys' factive-counterfactive distinction. Given that factive predicates presuppose the truth of their subordinate clauses, that counterfactive verbs presuppose the opposite of their embedded sentences, noñɨra in 2.41 may be classified as a counterfactive predicate, while in 2.42, the presupposition of the constituent sentences being constant under the negation test, on this ground, the verb noñɨra should be considered a different lexical entry that may be classified as a factive predicate. This type of argument should be extended to the matrix verbs occurring in 2.51 and 2.52, since the presupposition of their complement sentences is indeterminate under the test of negation. Here again the matrix predicates should be regarded as the same phonological realization of two distinct factive-counterfactive verbs. The solution that has just been outlined shows that for Koyo the subcategorization in factive and counterfactive verbs, as proposed by the Kiparskys seems

adequate, since it allows one to account for that subset of complement-taking predicates where the truth-value apparently varies depending on the presence or absence of the complementizer.

2.6. Summary

2.6.1. This chapter on complementation has investigated the facts of complement sentences in Koyo. In this connection, the notion of 'complement' was defined in order to delineate the precise domain of this investigation. From this stage on, I proceeded to the analysis of the internal organization of simplex and complex sentences in the language under study. It appeared that this kind of procedure was quite superficial, leaving aside the foundation of the interaction of higher predicates and their complements.

2.6.2. On the face of this observation, I moved to a new approach, designed to capture the putative underlying regularities of the meaning relationships entertained by complex sentences in Koyo. This new framework enables me to outline a tentative theory of complementation for the language being studied. One of the major findings of this section is that certain semantic differences are reflected by syntactic distinctions. In particular, it appeared that the presuppositional status of some complement-taking predicates may be accounted for by the factive-counterfactive distinction, as proposed by the Kiparskys for the analysis of English complementation. The application of this distinction to the Koyo data concerning complement sentences reveals that some matrix predicates

within complex sentence structures must be differentiated despite their surface structure homophony. And once this is done, the apparent optional appearance of a complementizer (i.e., ma) in the complement of some verbs is shown to be a function of the factivity properties of the verbs in that these verbs fall into two factivity classes.

FOOTNOTES

1. Rosenbaum 1965/1967 has questioned the existence of verb phrase complementations after having argued for them in his 1965 doctoral dissertation. Stockwell et al. (1973) have proved that Rosenbaum's criteria for distinguishing between NP complementations and VP complementations were faulty. In fact they demonstrated convincingly that the behavior of these constructions under passivization, pseudo-clefting, extraposition and pronominalization is unsatisfactory for establishing a putative distinction between them. In this connection, Liles (1975) discards Rosenbaum's terminology, which is noun phrase complement and classifies them as noun clauses that function as appositives in the structures where they appear. He claims that the functional classification of these constructions is more along traditional lines than Rosenbaum's label. I will not discuss further the new terminology proposed by Liles (i.e., nounclause appositives) as opposed to the old one (i.e., nounphrase complements) first aired in the generative transformational framework by Rosenbaum's 1965/1967 investigation of English complement constructions.

2. Quirk et al. (1972:801) concur with Hartmann in characterizing complementation as including the obligatory elements of clause structure that are required for the completion of the verb meaning. However, the complement constructions that are investigated here are essentially dependent clauses of complex sentences, which function as noun phrases.

3. In the interests of simplicity, tone will henceforth not be marked unless necessary for the point being made.

4. In addition to the two nominal clauses mentioned in the text, two other clause types will be examined. One of which is equivalent to English -ing clauses. The other is a dependent clause used as an adjunct. These distinctions will become clearer as this chapter progresses.

5. Within Generative Transformational Grammar, there is not one unanimous view as to the structure of predicate complement constructions. Opposed to the view of Stockwell et al. is the Bresnan and Chomsky approach which analyzes the complement sentence not in terms of an NP-constituent, but as a sentence immediately dominated by a "S bar," symbolized by '$\bar{S}$'.

6. In Koyo, it is not appropriate to distinguish between finite and non-finite verbs, in the way they are traditionally understood. Traditionally, a finite verb is one with definite personal reference viz., "I ate", "I will eat." On the contrary, a nonfinite form is not so

limited, as demonstrated by "to eat". Since Koyo lacks so-called infinitival forms as such, I will postulate an Aux-node comprising all the markers that contribute to a nonfinite verb reading. For instance.

a) ka indicates the purpose or the intention of performing an action expressed by the verb
abi ka 0 ka bOgo ciya
Abi has he Aux book learn

'Abi must learn to read and to write'

b) ta is used as a negative marker
abi ta sukuluN mo
Abi Neg school-in go

'Abi did not go to school'

c) ya indicates a near past tense
abi ya duN mo
Abi Past town-in go

'Abi has gone to town' or 'Abi went to town'

d) yi expresses a future tense
abi yi duN mo
Abi Future town-in go

'Abi will go to town'

The claim made here is that the Aux-node comprising the formatives ka, ta, ya and yi is responsible for the nonfinite reading obtained in a-d.

7. Two remarks are needed here. First, the table of PS rules contains only the major category rules of the language. Second, the Bresnan and Chomsky approach to embedded sentences is espoused here with the 'S bar' notation. However, I am not committing myself to the theoretical consequences subsumed under this device. As mentioned above, the bulk of this chapter is based on the assumption that in Koyo, predicate complement constructions are immediately dominated by NP. The claim made by rule 4 in the text is that the four clauses (i.e., ka, le, ma and la) may be thought of as complement structure indicators. I will show later how the la-clause differs from the other three clauses. In fact, it behaves like an adverb clause and for this reason it should not be regarded as a complementizer.

8. If the proposed analysis of the marker ka is correct, it further supports the conclusion that Rosenbaum's analysis of complementizers as being arbitary syntactic features that are semantically empty is unwarranted. Kiparsky and Kiparsky (1971) have argued against this view.

9. Parallel observations have been advanced for other languages, in particular for English. For instance, Spears (1973) has argued that the meaning difference between two otherwise identical structures, save for their complementizers, is due to their different complementizers. He indicates that a sentence such as (ia) will initiate the reaction contained in (iia), whereas (ib) will be followed by (iib). This means that for Spears, (ia) and (ib) are basically synonymous and the shade between them is brought about by their different complementizers.

(i) (a) "It's significant that a bat isn't able to fly"
(b) "It's significant for a bat to be able to fly"

(ii) (a) "You've got your facts wrong. A bat is able to fly"
(b) "That's true. I've never actually seen one yet that couldn't"

If the proposed analysis of the complementizer ma is correct, it may be a further support for the lexicalist approach, which generates these complementizers in the Base, instead of inserting them by transformations.

One recalls that Bresnan (1970) proposed to handle the problem of complementizers by means of Phrase Structure rules at the Base component of her theory of English. She argued that the matrix verb subcategorization argument is a better explanatory device, when compared to Lakoff's 1965/1970b rule feature analysis. Once again, if my analysis of ka, ma and so on is correct and if the assumption that all the meaning of an utterance is specified in the deep structure, then Bresnan's Phrase Structure rules approach should be espoused here for the description of the data on predicate complement structures in Koyo. However, Bresnan does not go by the claim that meaning is specified in the deep structure only. She argues that matrix verb subcategorizations and rule interactions are two good motivations for postulating complementizers at the Base componenet. However, Bonney (1976) has shown that Bresnan's arguments for postulating these complementizers in the Base are unwarranted, because based on the incorrect assumption that the choice of the complementizers is a function only of the main clause verb. He indicates in particular that other factors, such as the internal property of the complement, must be taken into account. If this appraisal is correct, then the question of complementizers in Koyo will be handled otherwise, if, along with Bonney's objection to Bresnan's deep source of these categories, one espouses Jackendoff's (1972) concept of semantic representation, which is pervasive throughout from the deep structure or the level of 'syntactic generality' to the level of surface structure. The motivation is that in Koyo complex sentence structures, the complementizer

category is or is not marked overtly, and this fact influences the overall meaning of the string. In this connection, one could assume that at some derivational level close to the deep structure or the level of syntactic generality, to use Jackendoff's terminology, the two constituent sentences of the complex structure are amalgamated into a single semantic unit. Later on in the derivational history, an overt complementizer marker may be inserted by transformation, which can justify the semantic difference between a string with an overt complementizer marker and a string without it. In any event, I do think that there is no need to dwell on this matter of the derivational process of complementizers. In reality, whether complementizers should be generated at the Base or through transformations is not crucial to the question of meaning relationships within Koyo complex sentence structures. Therefore, I will not take sides on this precise matter. Suffice it to know, given one on the other stand, one's way to go about analyzing the semantic distinctions underlying the syntactic structures.

10. The sentence illustrated in 2.24b is similar to the one reproduced in (i) below, except for one tone feature difference.

(i) àbí ò mīlĒ la dúN nā ó yī kūgbɨN yírìbò
Abi he go Rel. town-in Sp he fut tonight return

'Abi, who is going to town, will return tonight'

The syntactic difference between (i) and 2.24b is established by the la-clauses that appear in both sentences. In the former, this clause starts off with a personal pronoun marked for a low tone, while in the latter, the la-clause begins with a personal pronoun marked for a high tone. I briefly mentioned in section 2.3.1.1. that the morpheme ka was ambiguous between a full-verb reading, namely 'to possess', a conditional-clause interpretation and a complementizer meaning corresponding to the English 'for-to' complementizer. Here also, one has the case of the marker la, ambiguous between a relative-clause meaning and an appositive interpretation. Since I dispensed with the marking of the tone pattern, to ease the reading of the data, the only way to make a distinction between a la-clause with an appositive meaning is to use the abbreviated forms 'Comp.' and 'Rel.' for nominal appositive and relative-clause respectively.

11. sO and e are two morphemes corresponding to the two English pronouns, both written as 'it', which are homophonous by pure accident. sO and e are not identical as far as their functions are concerned. One may see the difference thanks to a test using a question-answer structure, as demonstrated in (i) through (ii) below.

(i) (a) N yi sO
I know it

'I know it'

(b) N bobo s0
I think it
'I think so'

(c) N bobo e
I think it
'I think about it'

(ii) (a) N yi wale aN
you know problem Q
'Do you know the problem?'

(b) EE N yi e
yes I know it
'Yes, I know it'

(c) #EE N yi s0
yes i know it
'Yes, I know it'

(iii) (a) N bobo wale aN
you think problem Q
'Do you think about the problem?'

(b) EE N bobo e
yes I think it
'Yes, I think of it'

(c) #EE N bobo s0
yes I think it
'Yes, I think so'

In (iic) and (iiic), the sentences are headed by the symbol '#' to show that they are semantically deviant. The fact that they are semantically anomalous indicates that s0 cannot be substituted for a plain noun, here wale. On the contrary, e can stand for a plain noun.

On the other hand, s0 stands for a complex structure, which can be paraphrased by 'whatever you asked me about'. Actually (iic) means: 'Yes, I know whatever you asked me about'.

Similarly, (iiic) means: 'I think this way whatever I was asked about'. It is therefore obvious that (iic) and (iiic) are deviant only in the reading meant by these sentences.

12. In the structure sama, the constituent sa may be considered a 'free morpheme' that functions as an abstract object nominal. The fact that (ia-d) below are in paraphrase relation proves that sa is a meaingful string, which can stand by itself.

(i) (a) N nu sama yevalo kaN la gbo
I understand the way procreativeness have Rel. value
'I understood that procreativeness is valuable'

(b) N nu sa yevalo kaN la gbo
I understand the way procreativeness have Rel. value
'I understood that procreativeness is valuable'

(c) sama yevalo kaN la gbo N nu e
the way procreativeness have Rel. value I understand it
'That procreativeness is valuable, I understood it'

(d) sa yevalo kaN la gbo N nu e
the way procreativeness have Rel. value I understand it
'That procreativeness is valuable, I understood it'

13. Paul and Carol Kiparsky's paper on "fact", first circulated in 1968, constitutes, to my knowledge, the first attempt in the linguistic literature to make use of the concept of factivity. According to their analysis, a factive predicate presupposes the truth value of its complement sentence, no matter what the illocutionary force of the matrix verb, i.e., whether it is of an affirmative, negative, question or command type. Actually, the Kiparskys did not contrast 'factive' with 'counterfactive' as it appears in the text. On the contrary, they opposed the term 'factive' to 'nonfactive'. Since the Kiparsky's paper, many terms such as 'semi-factive', 'implicative' and 'nonimplicative' have been proposed by many scholars to describe the facts of 'factive predicates'. (See Givon [1972] for further discussion of these terms.) Because of the profusion of these terms and their overlappings, I have preferred to espouse the more specific term 'counterfactive', as proposed by Rosenberg (1975).

14. Marc Rosenberg defined 'counterfactives' as follows: "predicates which presuppose the opposite or negative of the propositions they embed" (Rosenberg 1975:4). He notices that the English verb pretend has been considered the most likely candidate for a counterfactive verb. He furthermore observes that Richard Harris (1974) has included in this class the verbs wish, make believe and dream. Kempson (1975) offers the same treatment as Rosenberg for pretend, since according to her the verb class of the pretend type usually implies

the falsity of their complement sentences. I will raise this question again in the next section (2.5), which deals with a proposed theory of complementation in Koyo.

15. The negation test has often been used to assess the presuppositional content of factive verbs, since the Kiparskys first applied it to this verb class. Many objections were raised against the validity of such a test. To accomodate these, several solutions were offered. The Kiparskys (1971:351) have advocated the contrastive stress argument to handle cases where the negative sentence of factives can be interpreted as negating their complements as well. Wilson (1975) has criticized this view and has espoused Keenen's 1970 distinction between 'internal' and 'external' negations. In fact, Wilson relabeled these as 'choice-negation' and 'exclusion negation' respectively. According to Keenen, the former type of negation preserves the presuppositions of its embedded clauses, while the latter lacks such presuppositions. But Rosenberg, in turn, has shown the circularity of Keenen's distinction, indicating in particular that presupposition and internal negation are not in one-to-one correspondence. He also argued that it is possible to have a presupposition with a sentence in external negation form. The fact is that the whole issue of presupposition seems very difficult to appreciate. However, I will show in the last section of this chapter, i.e., in 2.5., how to make use of this concept to interpret certain sentential complements in the language being studied. (See also Riddle 1975 for a new approach to this concept of "presupposition").

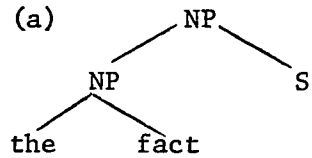
16. Throughout, a double cross (#) will head a sentence whose reading is not appropriate to the context considered. In other words, this symbol indicates semantic deviance rather than syntactic ill-formedness.

17. One of the major concerns of the proposal presented by Kiparsky and Kiparsky as an alternative to Rosenbaum's analysis of English complementizers, was to promote a syntactic theory, which, unlike Aspects of a theory of syntax (1965), considers syntactic structures as reflections of underlying semantic structures. In this connection, they tried to justify all the syntactic differences encountered in English complement constructions as a function of their semantic differences. For instance, they divided all the complement-taking predicates into factives and nonfactives, on the semantic ground of the presupposition of their embedded propositions. They further indicated that poss-ing + S and (the fact) that + S select factive verbs, while other complement constructions govern only nonfactive predicates. Along this line, they claimed that the syntactic distinction that opposes for-to and that-clauses is reflected in the semantic distinction between emotive and nonemotive predicates. As far as Koyo is concerned, the choice of treating complement constructions within the framework proposed by Rosenbaum would encounter many difficulties. As the analysis thus far shows, there is no systematic way of subcategorizing complement-taking predicates with some syntactic features designed to specify

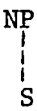
the complementizers these predicates select. The reason this cannot happen is simply because of the co-occurrence character of some complementizers. It would be difficult to determine which complementizer is selected by which predicate. The Kiparsky's approach, therefore, has a better chance to have explanatory value for the data in Koyo.

18. In their analysis of English predicate complement constructions, Kiparsky and Kiparsky account for the presuppositional reading of these complex sentences by deriving the presuppositional sentence from an underlying structure similar to that of relative clauses, where the head noun dominates the abstract nominal the fact. In this way, they are able to distinguish complements of factives, as shown in (ia), from those of nonfactives, as is clear from (ib) below.

(i) (a)



(b)



CHAPTER III

MODIFIERS IN KOYO

Introduction

This chapter deals with another important feature of Koyo grammar, namely modifiers.[1] Three problem areas are investigated here: adjectives, adverbs and relative clauses. An attempt is made to characterize the relationships of adjectives and adverbs with respect to nouns and verbs, respectively. Also, the strategies that govern the formation of relative clauses are described through both deletion and movement analyses. Thus, this chapter on the structure of modification in Koyo is organized as follows: 3.1. Analysis of adjectives; 3.2. Adverbs and adverbial clauses; 3.3. Relative clause strategies; 3.4. Theoretical implications fo the foregoing analyses; 3.5. Summary of this chapter.

3.1. Analysis of adjectives in Koyo.

3.1.1. Syntax of Adjectives.

3.1.1.1. Syntactic Distribution

In this first section, I will concentrate more on the syntactic function and the semantic classes of the speech-part here called 'adjectives.' In this connection, I will open this section with syntax and defer the morphological considerations to the end of this study. The syntactic distribution of adjectives within Koyo simplex sentences may be expressed by the Phrase Structure Rule 3.1 reproduced below.

3.1 NP $\longrightarrow$ N $(Adj)_o$ Det

The claim encompassed in the Schema 3.1 amounts to saying that in the language under study, the class of adjectives occurs optionally in postnominal position. However, when the data are scrutinized more closely, many exceptions appear to the postnominal source of the adjective class in Koyo. A few examples will make this point easy to follow.

3.2 (a) sonuu-u ya gOlE
bucket-D past-tense last
'The bucket has been used for a long time'

(b) gOlEgOlE sonuu-u
last-last bucket-D
'The long-used bucket'

(c) gOlEgOlE sonu
last-last bucket
'A long-used bucket'

3.3 (a) kotu-u za
dress-D red
'The dress is red'

(b) kotu zaro-o
dress red-D
'The red dress'

(c) kotu zaro
dress red
'A red dress'

3.4 (a) yoo-o troko
boy-D tall
'The boy is tall'

(b) kotrono yoo-o
tallness boy-D
'The tall boy'

(c) kotrono yo
tallness boy
'A tall boy'

3.5 (a) mosu-u mEN
banana-D sweet
'The banana is tasty'

(b) mENmEN mosu-u
sweet-sweet banana-D
'A tasty banana'

3.6 (a) sakaa-a ya zE
rice-D past-tense tainted
'The rice is tainted'

(b) zEzE saka
tainted-tainted rice
'A tainted rice'

The examples given above attest that there is no systematic way to relate the prenominal and postnominal positions of these adjectives by means of a transformational operation or a set of transformational operations. For instance, in 3.2b-c, these adjectives occur in prenominal position under the reduplicated form of their postnominal counterpart. However, the observation made in the previous sample is no longer true for the following adjective in 3.3, where the postnominal position is across the board.

3.1.1.2. Data

Upon examination of the data presented thus far, one may wish to reject the unitary treatment of the adjectives listed in 3.2 through 3.6 above. The argument may run this way: 3.3 is different from the others in that no reduplication process is involved in the derivation of this example set. On the contrary, whenever a reduplication occurs (as in 3.2, 3.5, and 3.6) or an adjectival[2] (as in 3.4), then the prenominal position of these adjectives follows from the reduplication

and adjectival processes. However, this type of explanation fails to account for the instances reproduced in 3.7 through 3.9 below, where the reduplication process works, and still no prenominal occurrences of these adjectives are encountered.

3.7 (a) kotu-u naN
dress-D pretty
'The dress is pretty'

(b) kotu naNno-o
dress pretty-pretty-D
'The pretty dress'

(c) kotu naNno
dress pretty-pretty
'A pretty dress'

3.8 (a) kotu-u pON
dress-D white
'The dress is white'

(b) kotu papo-o
dress white-white-D
'The white dress'

(c) kotu papo
dress white-white
'A white dress'

3.9 (a) kotu-u kpe
dress-D black
'The dress is black'

(b) kotu kpakpo-o
dress black-black-D
'The black dress'

(c) kotu kpakpo
dress black-black
'A black dress'

The instances given above show that the reduplication process account is inadequate to explain the prenominal and postnominal occurrences of

Koyo adjective words. I will now examine the syntactic functions of this word-class to seek a better explanation of the facts displayed.

3.1.2. Functions of adjectives

3.1.2.1. Attributive vs. Predicative

In Koyo, adjectives have either an attributive or predicative function.[3] This is illustrated below.

3.10 (a) towo-o za
towel-D red
'The towel is red'

(b) towo zaro
towel red
'A red towel'

(c) towo-o kpe
towel-D black
'A black towel'

(d) towo kpakpo
towel black
'A black towel'

(e) towo-o pON
towel-D white
'The towel is white'

(f) towo pOpo
towel white
'A white towel'

3.11 (a) ñikpO-O ñu
person-D ugly
'The man is ugly'

(b) ñikpa ñoño
person ugly
'An ugly man'

3.12 (a) ñikpa seseliyE
person small
'A thin man'

(b)	ñikpa	ñɨbɨlu
	person	young
	'A young man'	
(c)	ñikpa	kʉliliyE
	person	short
	'A small man'	
(d)	ñikpa	tEto
	person	solid
	'A strong man'	
(e)	ñikpa	ƀElo
	person	tall
	'A tall man'	
(f)	ñikpa	lolo
	person	new
	'A new man'	
(g)	ñikpa	dOgba
	person	plump
	'A plump man'	

To make a first generalization from the data given above, one may advance the proposal that the process of reduplication distinguishes the two syntactic functions of Koyo adjectives, namely attributive and predicative functions. In the predicative position, the adjectives appear under the nonreduplicated forms, while in their attributive function, these adjectives show up with the reduplicated forms. However, this statement represents only a gross generalization, as is clear from 3.12 above. In the latter, there is no way to find out whether the adjectives used in their attributive function have a nonreduplicated shape, since they cannot appear in a predicative position at all, unless one makes use of the copulative verb, which so far, has shown no surface manifestation in the predicative instances. In other words, the data in 3.12 prove that reduplication is not the sole

indicator of the distinction between predicative and attributive functions, since in this particular case, the copulative verb appears to set off the two subclasses of adjectives, as is demonstrated in 3.13 below.

3.13	(a)	ñikpO-O	pɨlɨ	lE-seseliyE
		person-D	be	Spec. small
		'The man is thin'		
	(b)	ñikpO-O	pɨlɨ	ñɨbɨlu
		person-D	be	young
		'The man is young'		
	(c)	ñikpO-O	pɨlɨ	lE-kuliliyE
		person-D	be	Spec. short
		'The man is small'		
	(d)	ñikpO-O	pɨlɨ	lE- tEto
		person-D	be	Spec. solid
		'The man is strong'		
	(e)	ñikpO-O	pɨlɨ	lE-ɓElo
		person-D	be	Spec. tall
		'The man is tall'		
	(f)	ñikpO-O	pɨlɨ	lE-lolo
		person-D	be	Spec. new
		'The man is new'		
	(g)	ñikpO-O	pɨlɨ	lE- dOgba
		person-D	be	Spec. plump
		'The man is plump'		

For the above examples, a lE-formative appears which functions as a specifier in the sentences in which it occurs. This specifier seems (in addition to the copula) to indicate the predicative function in at least some instances.

3.1.2.2. More Data

The previous paragraph indicated that 3.12 was a problem for the claim that reduplication is an important clue in distinguishing between attributive and predicative adjectives in Koyo. However, before taking the ultimate decision on this matter, let me accumulate more data.

3.14	(a)	kotu-u	kpOlO
		dress-D	clean
		'The dress is clean'	
	(b)	kpOlOkpOlO	kotu
		clean-clean	dress
		'A clean dress'	
3.15	(a)	sakaa-a	su
		rice-D	hot
		'The rice is hot'	
	(b)	susu	saka
		hot-hot	rice
		'Some hot rice'	
3.16	(a)	mɨlE-E	tE
		meat-D	hard
		'The meat is hard'	
	(b)	tEtE	mɨlE
		hard-hard	meat
		'A hard meat'	
3.17	(a)	kosu-u	ga
		fire-D	alive
		'The fire is alive'	
	(b)	gaga	kosu
		alive-alive	fire
		'A fire that is alive'	
3.18	(a)	ñu-u	watO
		water-D	fresh
		'The water is fresh'	
	(b)	watOwatO	ñu
		fresh-fresh	water
		'A fresh water'	

3.19	(a)	yoo-o	g̱i̱lE
		boy-D	grown
		'The boy is grown up'	
	(b)	g̱i̱lEg̱i̱lE	yo
		grown-grown	boy
		'A grown-up boy'	
3.20	(a)	zere-e	zE
		fish-D	tainted
		'The fish is tainted'	
	(b)	zEzE	zere
		tainted-tainted	fish
		'A tainted fish'	
3.21	(a)	mosu-u	y̱i̱rʉ
		banana-D	cooked
		'The banana is cooked'	
	(b)	y̱i̱rʉy̱i̱rʉ	mosu
		cooked-cooked	banana
		'A cooked banana'	

At this stage of the investigation of Koyo adjectives, two sets of data are worth particular attention. These are 3.12-3.13 and 3.14-3.21 above. They suggest that in Koyo, the class of adjectives can be divided into two subclasses. For one group of these items, the syntactic process of reduplication allows one to set apart predicate and attributive adjectives. For the other group, as demonstrated in 3.12-3.13, the presence versus the absence of a copulative verb distinguishes predicative from attributive adjectives.

3.1.2.3. Tentative solution

If the generalization reached at this point holds good, the conclusion should follow automatically that in Koyo, all adjectives are generated in postnominal position where they immediately follow

the nominals they qualify. In this position, most of the adjectives have two forms, a short and a long or reduplicated form. The reduplicated forms are fronted to prenominal position, where they function as attributive adjectives. However, some adjectives present only one form for both predicative and attributive functions. In that case, there is no fronting process, but the copulative verb functions to differentiate the two syntactic functions of this subclass of adjectives. However attractive this type of explanation may turn out to be, there still seems to be a problem with the proposed solution. For the virtue of such a solution is no different from making a list of all the current adjectives and checking each one to see whether it will fall under the reduplication column or the copulative one. For want of a more explanatory solution, this one may be adopted, since it meets the criterion of observational adequacy.[5] Meanwhile, I will move on to considerations related to the semantic aspect of these adjectives.

3.1.3. Semantics of adjectives

3.1.3.1. Semantic Types

In this section dealing with the semantics of adjectives in Koyo, I will use Dixon's 1970 framework.[6] In his paper, Dixon attempted to characterize the universal semantic types associated with adjectives. As a result of this investigation, the author distinguished the following eight types shown in 3.22 below.

		Semantic types	Illustration in English
3.22	(a)	dimension	big, small, long, short . . .
	(b)	position[7]	high, low . . .
	(c)	physical property	hard, soft, heavy, light . . .
	(d)	color	black, white, red . . .
	(e)	human propensity	happy, clever, rude, wicked . . .
	(f)	age	new, old, young . . .
	(g)	value	good, bad, excellent, fine . . .
	(h)	speed	fast, quick, slow . . .

Dixon indicated that some of these eight semantic types have overlapping properties. For instance, he showed that dimension, position and physical property may not be distinguishable in other languages, as they are in English, since they have rather similar properties. He also noticed that physical property and color may share some properties. In other words, Dixon claims that some eight distinct universal types may exist in a language, whenever its adjective word-class is dubbed an open-ended class. However, there are languages that have a small nonproductive minor class of adjectives. According to him, these languages have other means to express the concepts that other languages, like English, use adjectives to convey.[8] In the remainder of this section, I will isolate the semantic types associated with adjectives in Koyo. From this classification, I hope to be able to predict some of the morphological and syntactic properties of the speech part under scrutiny.

3.1.3.2. Pairing with Semantic Types

The pairings of Koyo adjectives with the semantic types identified in 3.22 above is remarkable in that there are great similarities between some types. For instance, dimension and position are not distinguishable. Likewise, human propensity and value share the same terms. These pairings are shown in 3.23 below.

		Semantic classes	Koyo adjectives	
3.23	(a)	dimension-position	kado	'big, high'
			seseliyE	'small, low'
			kɯliliyE	'short, low'
			troko	'long, high'
			wONko	'wide, extensive'
			trowulu	'high, lofty'
	(b)	physical property	tEmo	'solid, strong'
			tEko	'hard, uneasy'
			ngOloko	'heavy'
	(c)	color	kpe	'black'
			pON	'white'
			za	'red'
			zoñu-wato	'cool sauce-like, i.e., yellow'
			sokuwala	'green'
	(d)	human propensity[9]	daNdaN	'foolishness'
			dɨbɨ	'stupidity'
			kapakapa	'wickedness'
			folo	'clever, smart'
			ba	'dumb'
			tEkolo	'impudent, saucy'
	(e)	age	lVlV[10]	'new'
			dOgba	'adolescent'
			ñibɨlu	'young'
			gɨlE	'aged, old'
	(f)	value[11]	naN	'good vs beautiful'
				'bad vs ugly'
	(g)	speed	fiyo	'fast, quick'
			bɨwaN	'lagging, retarding'

3.1.4. Semantic classes.

3.1.4.1. The dimension-position class

Adjectives of dimension-position always occur in postnominal position in Koyo. In order to distinguish between their attributive and predicative functions, the language manifests the distinction through the occurrence of a copulative verb. The immediate evidence of this is shown in 3.24-3.27, where the a-instances express the attributive function of the adjectives they comprise. On the other hand, the b-instances indicate the predicative constructions of these adjectives.

3.24 (a) suu — kado-o
tree — big-D
'The big tree'

(b) suu-u — pɨlɨ — lE-kado
tree — be — Spec. big
'The tree is big'

3.25 (a) suu — bolu-u
tree — tall-D
'The tall tree'

(b) suu-u — pɨlɨ — lE- bolu
tree-D — be — Spec. tall
'The tree is tall'

3.26 (a) suu — seseliyE-E
tree — small-D
'The small tree'

(b) suu-u — pɨlɨ — lE-seseliyE
tree-D — be — Spec. small
'The tree is small'

3.27 (a) suu — kʉliliyE-e
tree — short-D
'The short tree'

(b) suu-u — pɨlɨ — lE-kʉliliyE
tree-D — be — Spec. short
'The tree is short'

3.1.4.2. The color - age class

Adjectives of color and age have the same syntactic behavior as the adjectives of dimension-position just discussed. The illustration of these two semantic classes can be checked in the instances reproduced below.

3.28 (a) yo kpakpO-O
boy black-D
'The black boy'

(b) yoo-o kpe
boy-D black
'The boy is black'

3.29 (a) yo papON-ON
boy white-D
'The white boy'

(b) yoo-o pON
boy-D white
'The boy is white'

3.30 (a) yo zarO-O
boy red-D
'The red boy'

(b) yoo-o za
boy-D red
'The boy is red'

3.31 (a) ñikpa lolo-o
person new-D
'The new man'

(b) ñikpO-O pili lE-lolo
person-D be Spec. new
'The man is new'

3.32 (a) ñikpa dOgba-a
person plump-D
'The plump man'

(b) ñikpO-O pɨlɨ lE-dOgba
person-D be plump
'The man is plump'

3.33 (a) ñikpO-O pɨlɨ ñɨbɨlu
person-D be young
'The person is young'

The adjectives of dimension-position and those of age behave alike in that they require a linking copulative verb in their predicative constructions. On the contrary, the adjectives of color do not need the copula in their predicative function, because of the reduplicated forms of these adjectives when they appear in attributive constructions. However, the idiosyncracy of this semantic class is that the reduplicated forms are not fronted or shifted around the nouns they qualify, as explained previously. (See above, section 3.1.2.3.) At this point, it is obvious that the syntactically based explanation, provided in order to set up two subclasses of adjectives in Koyo, falls short here, since the adjectives of color, which satisfy the same requirements as the adjectives mentioned in 3.14-3.21, behave differently from the latter. It seems to me that the only way to get around the difficulties brought about by the adjectives of color, as attested in 3.28-3.30, is to claim that all the adjectives that belong to the semantic classes of dimension-position, color and age are generated postnominally.

3.1.4.3. Noun-derived and verb-derived adjectives

Up to this point, I have tried to show that in Koyo, there is a group of semantic classes of adjectives that are always generated in the position after the nouns they qualify. I will argue hereafter that there is another group of semantic classes of adjectives that

are generated both in prenominal and postnominal positions. What is interesting in the case of this last group is that their prenominal adjectives are actually noun-like and verb-like formatives. In other words, Koyo uses the major classes of noun and verb to express adjectival concepts, where languages of the English type make use of so-called prenominal adjectives.[12]

3.1.4.4. Human propensity adjectives

Adjectives of human propensity, physical property, value and speed premodify and postmodify the nouns they qualify. Before looking for the reasons of this behavior, let me accumulate some supporting data.

3.34 (a) daNdaN yoo-o
foolishness boy-D
'The foolish boy'

(b) yoo-o nE daNdaN
boy-D act foolish
'The boy is foolish'

3.35 (a) dɨbɨ yoo-o
stupidity boy-D
'The stupid boy'

(b) yoo-o nE dɨbɨ
boy-D act stupid
'The boy is stupid'

3.36 (a) kapakapa yoo-o
wickedness boy-D
'The wicked boy'

(b) yoo-o nE kapakapa
boy-D act wicked
'The boy is wicked'

3.37 (a) folofolo[13] yoo-o
smart-smart boy-D
'The smart boy'

(b) yoo-o folo
boy-D smart
'The boy is smart'

(c) yoo-o ka folole
boy-D have smartness
'The boy is smart'

(d) yoo-o pɨlɨ folole
boy-D be smartness
'The boy is smart'

3.38 (a) *baba yoo-o
dumbness boy-D
'The dumb boy'

(b) yoo-o ba
boy-D dumb
'The boy is dumb'

(c) yoo-o pɨlɨ ba-ñO
boy-D be dumb-person
'The boy is dumb'

The following example set exemplifies adjectives of physical property.

3.39 (a) motEnO yoo-o
strength boy-D
'The strong boy'

(b) yoo-o tEmo
boy-D strong
'The boy is strong'

3.40 (a) kongOnO yoo-o
heaviness boy-D
'The heavy boy'

(b) yoo-o ngONoko
boy-D heavy
'The boy is heavy'

3.41 (a) koyOnO mosu-u
softness banana-D
'The soft banana'

(b) mosu-u yONko
banana-D soft
'The banana is soft'

3.42 (a) kofinO mosu-u
lightness banana-D
'The light banana'

(b) mosu-u fiNko
banana light
'The banana is light'

The next set deals with adjectives of value.

3.43 (a) nanO yoo-o
beauty boy-D
'The handsome boy'

(b) yoo-o naN
boy-D beautiful
'The boy is handsome'

(c) yoo-o naN-plEko[14]
boy-D good-heart-on
'The boy is good-hearted'

(d) yo nanO-O
boy good-D
'The good-natured boy'

3.44 (a) ñunO yoo-o
ugliness boy-D
'The ugly boy'

(b) yoo-o ñu
boy-D ugly
'The boy is ugly'

(c) yoo-o ñu-plE-mɨlɨ
boy-D bad-heart-inside
'The boy is bad-tempered'

(d) yo ñoño-o
boy bad-D
'The bad-tempered boy'

The last set of data exemplifies adjectives of speed.

3.45 (a) fiyofiyo[15] yoo-o
fast-fast boy-D
'The fast boy'

(b) yoo-o fiyo
boy-D fast
'The boy is fast'

3.46 (a) bɨwaNbɨwaN yoo-o
slow-slow boy-D
'The slow boy'

(b) yoo-o bɨwanE
boy-D slow
'The boy is slow'

3.1.4.5. Derived adjectives

The data accumulated in the previous pages exemplify adjectives of human propensity, as in 3.34-3.38, of physical property, as in 3.39-3.42, of value, as in 3.43-3.44, and of speed, as in 3.45-3.46 above. I have already indicated that these four semantic classes may group together, since they occur in prenominal and postnominal positions. Also, I mentioned that when these adjectives occur in prenominal position, they are characteristic of noun-like or verb-like formatives. In this connection, it is not unreasonable to call this semantic group of adjectves after their morphological characterization, namely derived adjectives. In other words, the first group of adjectives described in 3.24 through 3.33 constrasts with a second

group, which I have labelled derived adjectives. I will call the first group true adjectives, and deal with this new distinction in the next section, which treats the morphology of Koyo adjectives.

3.1.5. Morphology of adjectives

3.1.5.1. Summing up

Thus far, the analysis has concentrated on a specific class of adjectives, namely "descriptive"[16] adjectives. I examined the syntactic functions of these adjectives and set up relevant semantic classes. I indicated that a syntactically based solution alone leaves certain facts unexplained, even though such a solution may appear very appealing. I argued for instance, that the syntactic account based on the reduplication process and the surface manifestation of a copulative verb is insufficient to handle the adjectives of the semantic class of age. Also, I mentioned that a semantic approach better justifies the morphological distinction between derived and true adjectives. However, some difficult cases still remain, even from the semantic standpoint. A couple of them may be evoked reconsidering the adjectives of age.

3.1.5.2. Adjectives of Age

The adjectives of age have been subcategorized with adjectives of dimension-position and color under the label of "true" adjectives. I pointed out that they occur in surface structures as postmodifiers of the nouns they accompany. The illustration was given above in 3.24 through 3.33, where all the adjectives postmodify their accompanying

nouns, regardless of their attributive or predicative function. However, note the following two adjectives of age, which have a syntactic distribution quite opposite that of the other adjectives of age.

3.47 (a) lokuwe-e ya kON gOlE
loin-cloth-D completive world-in last
'The loin-cloth has been used for a long time'

(b) kOgObɨlE lokuwe-e
ancient loin-cloth
'The old-fashioned loin-cloth'

3.48 (a) yoo-o ya gɨlE
boy-D completive grown-up
'The boy has grown-up'

(b) gɨlEgɨlE yoo-o
grown-up boy-D
'The grown-up boy'

In the samples attested above, two adjectives of age occur in their surface structures at the prenominal position contrary to the claim thus far upheld. The immediate question that comes to mind is to know whether this constitutes a counterexample to the generalization advanced up to this point.

3.1.5.3. Compound word formation

In Koyo, there is a morphological process for compound-word formation that consists in premodifying a noun with the reduplicated form of a verbal entry. The immediate evidence of this is given in the examples below.

3.49 (a) gama-gama ngwace
entertain-entertain watch
'A toy watch'

(b) bɨle-bɨle — laka
sing-sing — box
'A record player'

(c) pa-pa — gOlo
run-run — dugout
'A vehicle'

(d) jejɨra-jejɨra — lo
write-write — thing
'A penholder, a pencil'

(e) lu-lu — lo
eat-eat — thing
'A food item'

(f) golu-golu — saka
sow-sow — rice
'A seed rice'

(g) bite-bite — yo
beat-beat — boy
'A beaten boy'

(h) wolu-wolu — somala
wash-wash — soap
'A laundry soap'

(i) budo-budo — somala
bathe-bathe — soap
'A toilet soap'

(j) ngɨra-ngɨra — kaniya
shine-shine — lamp
'A lit lamp'

(k) pi-pi — zere
cook-cook — fish
'A cooked fish'

The most telling test for finding out about the nature of the pre-modifying formatives, which have been underlined in the instances attested in 3.49a-l above, is contained in the samples reproduced in 3.50 below, where the ungrammaticality of the b- and c-phrases

demonstrates two good points: (1) that yErE, which means 'raw,' cannot premodify the qualified noun, since it is not a verb-like formative, (2) that pipi, which is the reduplicated form of the verb pi i.e., 'cook,' only occurs in prenominal position.

3.50 (a) zere yErE
fish raw
'A raw fish'

(b) *yErE zere
raw fish
'A raw fish'

(c) *zere pipi
fish cooked
'A cooked fish'

(d) pipi zere
cooked fish
'A cooked fish'

At this stage, one may realize how the semantic class distinctions previously set up are important in understanding the morphological processes that govern the formation of Koyo adjective classes. I will now make some observations on the two groups of semantic classes of adjectives set up previously in relation to the morphological considerations proposed earlier.

3.1.5.4. "True" adjectives

The claim advanced here is that in Koyo, the group of so-called true adjectives comprises three semantic subclasses, namely dimension-position, color and age. The syntactic position in which these occur in surface structures is the postnominal position. However, the

adjectives of age fail to undergo the general syntactic process characteristic of this group of adjectives. This discrepancy is accountable by the fact that in 3.47b, the formative kOgOb±lE is a noun functioning as an adjective. Likewise in 3.48b, the entry g±lEg±lE is the reduplicated form of the verb g±lE, which means 'to grow up.' Since these two adjectivals are derived from a noun and a verb, respectively, they cannot have the same source as the other adjectives of age. They should thus have their source in prenominal position.

3.1.5.5. Double observation

The case of these two adjectives of age can be extended to the other group of semantic subclasses, namely human propensity, physical property, value and speed. Here again, one cannot treat the prenominal and postnominal occurrences of this adjective group in a unitary way. The prenominal position of these adjectives does not come as the result of the absence of a linking copulative verb with a subsequent fronting of these adjectives. What really happens in these cases is that the premodification of the nouns is a syntactic operation entirely different from the postmodification of these same nouns. What all the previous considerations seem to point out is that the semantic analysis conducted above shows two important points for the understanding of the Koyo adjective classes. One is that there is a closed set of so-called true adjectives, which occur immediately after the noun phrases within the language under study. The other observation is that the second group of semantic classes of adjectives is half-way between

the process that governs the formation of the group of "true" adjectives and that governing the formation of compound words in the language.

3.1.5.6. Conclusion

This section on the analysis of Koyo adjectives has shown the insufficiency of the syntactic approach alone. It has further demonstrated the necessity of taking into consideration the semantic aspect of these adjectives. As an immediate result of such a concern, one realizes that the class of adjectives in Koyo actually groups into two main divisions, namely the closed set of adjectives proper and the open-ended set of derived or pseudo adjectives, which are based on the same principle of formation as the compound formatives of the language being studied. For this precise reason, the semantic approach to this section has proved very beneficial to a better understanding of Koyo adjectives.

3.2. Adverbs and adverbial clauses

3.2.1. The problem of label

It has been shown in the previous section that a pure syntactic consideration of the facts about adjectives is insufficient to provide an adequate analysis of this speech part. In this connection, semantic classes were considered, which allowed one to capture the generalizations refractory to the distributional account. In the present section, the procedure is reversed. One need not resort to the semantic features such as time, manner, degree, mood . . . to

account for the class of adverbs in Koyo, since a syntactic structure analysis is sufficient to cope with the facts under examination.[17]

3.2.2. Morphology of adverbs

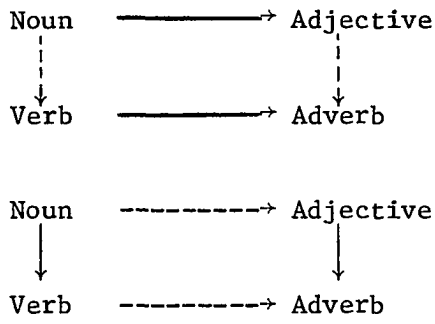
In most of the generative approaches to adverbs, a great deal of attention has been paid to the relationship between adjective and adverb classes. This may have been due to the overwhelming proportion of manner adverbs in many of the Indo-European languages such as English or French, where these adverbs are morphologically derivable from an adjective form + a derivational suffix, such as -ly in English or -ment in French.[18] An illustration of this is provided for both English and French in 3.51 and 3.52, respectively.

		Adjective-class		Adverb-class
3.51	(a)	clever	-	cleverly
	(b)	clumsy	-	clumsily
	(c)	square	-	squarely
	(d)	brave	-	bravely
3.52	(a)	intelligent	-	intelligemment
	(b)	gauche	-	gauchement
	(c)	carré	-	carrément
	(d)	brave	-	bravement

In the case of English and French, it is obvious that the sets of -ly and -ment adverbs have a morphological justification. Likewise, some nominals are morphologically related to certain verbs in those

languages. For this reason, the tendency has been to favor a vertical rather than a horizontal relationship between the categories shown in diagram 3.53 below.

3.53 (a)



In 3.53, the arrows indicate the derivational relations between these word classes. For instance, several linguists working in the framework of generative grammar have conducted more research in the sense of 3.53a, where the dotted arrows indicate a primary relation and the bold face arrows show that the relationship between the two categories is not very important (see Lees [1963], Chomsky [1970], Newmeyer [1971], and Smith [1972] for further discussion on the derivational relation between the major categories of noun and verb. For the derivational relation between the major categories of adjective and adverb, see Keyser [1968], Lakoff [1968; 1970a,b], Jackendoff [1972]). The relationship outlined in 3.53b better accounts for the data on Koyo adverbs. The arrows in 3.53b are to be read in the way suggested for 3.53a, namely that the dotted arrows state a primary relationship, while the bold face arrows indicate a minor relationship, which is very often overlooked.

3.2.3. Syntactic functions of adverbs

Linguists such as Quirk et al. (1972), Dubois et al. (1973), Onions (1974) and Hornby (1975), agree[19] to assign two basic functions to the class of adverbs. These are 'clause constituent' and 'modifier.' According to Quirk et al., when an adverb within a clause operates as a constituent distinct from subject, verb, object and complement, it is assigned a clause constituent function. In this case, it is peripheral to the structure of the clause per se. On the other hand, when the adverb behaves like a modifier of another constituent of the main or subordinate clauses, it means that the adverb will limit or specify the current meaning of the constituent so modified. Before proceeding further, let me illustrate these two functions as seen below.

3.54 (a) abi yi-a dɨraN beko-la-sOrE-ko
Abi come-past here last of Sunday-on
'Abi came here last Sunday'

(b) abi yi dɨraN yekaN
Abi come here today
'Abi came here today'

(c) abi yi dɨraN pOtON
Abi come here now
'Abi just came here right now'

(d) abi ye dɨraN kONkON
Abi come here always
'Abi often comes here'

3.55 (a) abi mo soje-ko sa 0 pɨlɨ ngwadi
Abi go soldier-on since ne be a male
'Abi went to the army since he is a male'

(b) abi yi kubɨli mo 0 ka moni ñi
Abi fut. France go he if money find
'Abi will go to France if he finds some money'

(c) tañi abi pɨlɨ-a yo 0 naN-a
the time Abi be-past a boy he good-completive
pɨlE-ko
heart-on
'When Abi was a boy he was good-natured'

Under the definitions of the syntactic functions of adverbs given above, the instances in 3.54 illustrate adverbs in their clause constituent function. On the other hand, the samples attested in 3.55 exemplify the modifier function of these adverbial phrases, i.e., phrases whose head is the adverb-word underlined in the data. My analysis of this Koyo word-class will concentrate only on the first type of adverbs exemplified in 3.54 above. I will try to show that the mobility of the adverb item within Koyo simplex sentences in not arbitrary at all. This ability to move around is a function of the scope of the verb phrase of that simplex sentence. It will follow from these observations that in Koyo all clause constituent adverbs are generated in the base as predicate-modifiers, that so-called adverb sentence-modifiers are obtained through the transformational operation called adverb-fronting. But before taking any theoretical stand, let me provide more data for the ensuing discussion.

3.56 (a) dagO yi bʉtuN guwaN
Dago come house-into backwards
'Dago came backwards into the house'

(b) dagO yi guwaN bʉtuN
Dago come backwards house-into
'Dago came back(wards) into the house'

(c) *dagO guwaN yi bʉtuN
Dago back(wards) come house-into
'Dago came backwards into the house'

(d) guwaN dagO yi ɓutuN
backwards Dago come house-into
'It is backwards that Dago came into the house'

3.57 (a) doñi yi ɓutuN pOtON
Dogni come house-into now
'Dogni came into the house right now'

(b) doñi yi pOtON ɓutuN
Dogni come now house-into
'Dogni came into the house right now'

(c) *doñi pOtON yi ɓutuN
Dogni now come house-into
'Dogni came into the house right now'

(d) pOtON doñi yi ɓutuN
now Dogni come house-into
'It is right now that Dogni came into the house'

3.58 (a) dagO ta duN mo yekaN
Dago neg. town-in go today
'Dago did not go to town today'

(b) dagO ta yekaN duN mo
Dago neg. today town-in go
'Dago did not go to town today'

(c) *dagO yekaN ta duN mo
Dago today neg. town-in go
'Dago did not go to town today'

(d) yekaN dagO ta duN mo
today Dago neg. town-in go
'Today, Dago did not go to town'

3.59 (a) doñi yi loɓe-e no kapakapasa
Dogni future job-D do badly
'Dogni will do the job badly'

(b) doñi yi loɓe-e kapakapasa no
Dogni future job badly do
'Dogni will do the job badly'

(c) *doñi kapakapasa yi loɓe-e no
Dogni badly future job-D do
'It is badly that Dogni will do the job'

(e)	doñi	yi	kapakapasa	lobe-e	no
	Dogni	future	badly	job-D	do

'Dogni will do the job badly'

The following observations may be made about the instances attested above: (1) the adverb-word moves freely within the scope of the predicate phrase of each sentence. For instance, when this adverb-word escapes the scope of the predicate phrase, the sentence becomes ungrammatical, as demonstrated by the c-sentences throughout. However, in the d-sentences, the adverb-word is outside the scope of the verb phrase. Nevertheless, these sentences are perfectly grammatical. How does one account for the discrepancy between the c and d sentence types? To be able to explain this discrepancy, one must look at the way the adverb-item is attached to the trees that underlie these sentence types. In the c-sentences, the adverb is sister-adjoined to the subject NP that immediately precedes it. This means that the adverb-node occurring in second position in the scope of the predicate phrase has been permutated with the verb-node, which is first in the predicate phrase. The result of this operation is a sentence that is not acceptable in the grammar of Koyo. On the contrary, in the d-sentence types, there is no permutation of the adverb-node with the first element of the predicate phrase, but the adverb-item modifies the whole sentence. The formal device to characterize this operation is called Chomsky-adjunction. That the adverb-word in the d-sentence types is Chomsky-adjoined to the overall sentence is independently motivated by the intonation break, which sets off this adverb from the rest of the sentence.

3.2.4. Putative deep structure source of adverbs

The question may arise as to where the adverb-node is attached in the deep structure phrase marker. This question is quite relevant, since as indicated previously the adverb-word moves freely within the scope of the predicate phrase of the simplex sentence. More will be said about this below. Meanwhile, let me accumulate some more data related to this matter.

3.60 (a) guwaN dagO yi ɓutuN
backwards Dago come house-into
'It is backwards that Dago came into the house'

(b) guwaN dagO yi la ɓutuN
backwards Dago come [t] house-into
'It is backwards that Dago came into the house'

(c) guwaN mo[21] dagO yi ɓutuN
backwards topic-marker Dago come house-into

3.61 (a) pOtON dagO yi ɓutuN
now Dago come house-into
'It is right now that Dago came into the house'

(b) pOtON dagO yi la ɓutuN
now Dago come [t] house-into
'It is right now that Dago came into the house'

(c) pOtON mo dagO yi ɓutuN
now Top-M Dago come house-into
'It is right now that Dago came into the house'

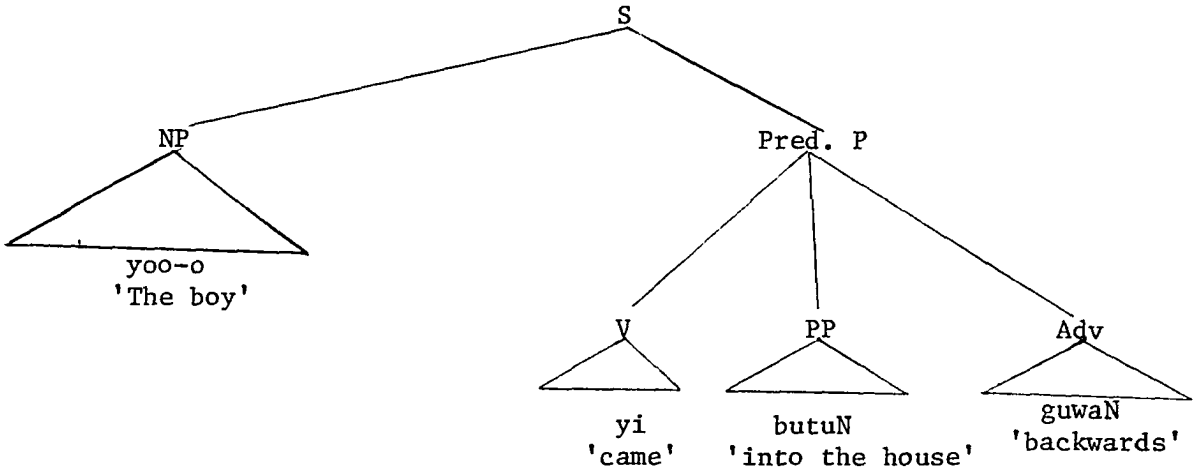
3.62 (a) lowuluN abi sa yereba-bɨlo
abroad Abi spend year-one
'It is abroad that Abi spent one year'

(b) lowuluN abi sa la yereba-bɨlo
abroad Abi spend [t] year-one
'It is abroad that Abi spent one year'

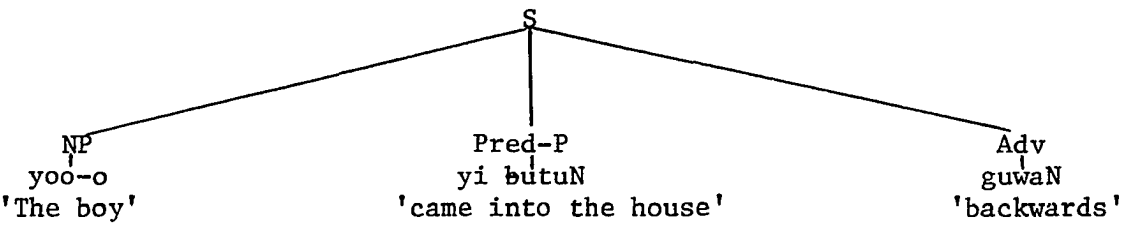
(c) lowuluN mo abi sa yereba-bɨlo[22]
abroad Top-M Abi spend year-one
'It is abroad that Abi spent one year'

In the set of examples reproduced above, I intuitively believe that they are somewhat paraphrases of one another in each subset. For instance, the only difference that I perceive between the a- and c-sentences consists in the intonation break that sets off the introductory adverb in the a-sentences. Contrariwise, in the c-sentences, the disjunctural contrast between the adverb-word and the topicalization marker is wiped out. I have already mentioned the emphasis aspect of the la-formative whenever it occurs in the sentence. Now, if all the observations made on the data presented up to this point hold good, then a choice problem arises as to which tree configuration better accounts for the facts described in the previous pages. In fact, both 3.63 and 3.64 have been proposed to underlie sentences containing adverb-words.

3.63



3.64



This choice problem will arise again in the section on the theoretical implications of the analysis conducted on the three areas of modification structure in Koyo. Meanwhile, let me summarize the observations made in this section concerning adverbs. It has been shown that a morphological approach to the facts concerning adverbs in Koyo was not appropriate, because this language, unlike English, French and other Indo-European languages, does not exhibit the same range of derivational relations between verbs and derival nominals on the one hand, and between adjectives and adverbs on the other hand. For this reason, a functional approach to these facts seems more appropriate. This approach consists essentially in defining adverbs as modifiers of the verb element of the sentence in which they occur. I will examine now the facts concerning relative clauses.

3.3 Relative clause strategies[23]

3.3.1. Introduction

Relativization in Koyo, like in many languages, may be thought of as a device for incorporating into a single sentence certain information that could be expressed equally well by more than one sentence.[24] What is characteristic of relative clauses in the language under study

is that the relative sentence begins with either a full nominal or a pro-form, followed by the verb, to which is attached an invariant marker of the relativization process, namely the marker la. Finally an optional specifier marker na[25] may terminate the relative sentence.

3.3.2. Facts of Koyo relative clauses

The description of the facts of Koyo relative clauses requires first an examination of the data presented in 3.65 through 3.73 below. In examples 3.65-3.69, no reflex of the head noun appears in the subordinate clause.

3.65 (a) sakaa-a yoo-o faN la kɨlaN na
rice-D boy-D take Rel. field-in Specifier
'The rice that the boy took to the field'

(b) mosu-u yoo-o lʉ la na
banana-D boy-D eat Rel. Spec.
'The banana that the boy ate'

3.66 (a) yoo-o apa ñE la bOgo-o na
boy-D Apa give Rel. book-D Spec.
'The boy to whom Apa gave the book'

(b) bOgo-o apa ñE la yoo-o na
book-D Apa give Rel. boy-D Spec.
'The book Apa gave the boy'

3.67 (a) yereba-a yoo-o mo la lowuluN na
year-D boy-D go Rel. abroad Spec.
'The year the boy went abroad'

(b) liyoo-o kOñuwa-a ve la too-o na
period-D Kognoa-D fight Rel. war-D Spec.
'The time the Kognoa did the war'

3.68 (a) bʉtu-u yoo-o peN la mɨ na
house-D boy-D sleep Rel. locative Spec.
'The house the boy slept in'

(b) bɨti-i yuwa-a peN la mɨ na
houses-D boys-D sleep Rel. loc. Spec.
'The houses the boys slept in'

3.69 (a) yoo-o ba dagO zEpE la na
boy-D father Dago whip Rel. Spec.
'The boy's father whom Dago whipped'

(b) yuwa-a ba dagO zEpE la na
boys-D father Dago whip Rel. Spec.
'The boys' father whom Dago whipped'

In sentences 3.70-3.73, a third person pronoun coreferential with the head noun occurs within the relative clause.

3.70 (a) yoo-o O yi la duN na
boy-D Pro come Rel. town-in Spec.
'The boy who came to town'

(b) ngOnOO-O O pi la sakaa-a na
woman-D Pro cook Rel. rice-D Spec.
'The woman who cooked rice'

3.71 (a) abɨ O ñE la yoo-o bOgo na
Abi Pro give Rel. boy-D book Spec.
'Abi, who gave the boy a book'

(b) abɨ bOgo-o O ñE la yoo-o na
Abi book-D Pro give Rel. boy-D Spec.
'The book that Abi gave to the boy'

3.72 (a) yuwa-a a yi la duN na
boys-D Pro come Rel. town-in Spec.
'The boys who came to town'

(b) suu-u o bɨlʉ la zON na
tree-D Pro fall Rel. down Spec.
'The tree that fell down'

(c) sii-i e bɨlʉ la zON na
trees-D Pro fall Rel. down Spec.
'The trees that fell down'

3.73 (a) abɨ bite yoo-o O yi la
Abi beat boy-D Pro come Rel.
'Abi beat the boy who came to town'

(b) abi bite yoo-o dagO ci ma
Abi beat boy-D Dago say Comp.

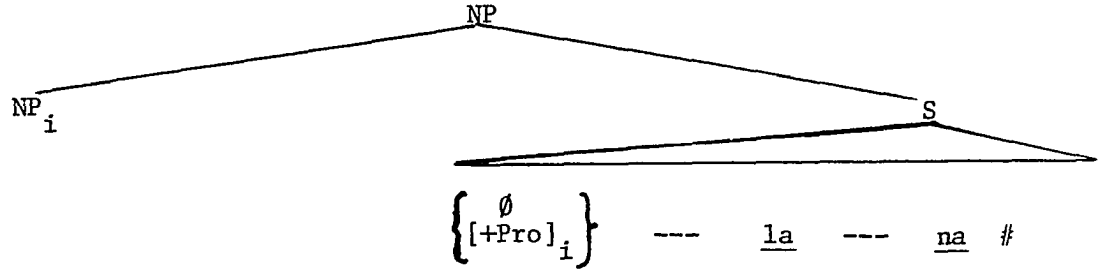
O yi la duN na
Pro come Rel. town-in Spec.
'Abi beat the boy that Dago said came to town'

(c) yo O ba bite la na O[26]
boy his father beat Re. Spec. he

yi degale koma
future smartness acquire
'A certain boy that his father beat will acquire a great deal of smartness'

The tree in 3.74 below shows the surface order of the major constituents of the relative clauses presented above.

3.74



3.3.3. Generalization about Koyo relative clauses

From the data accumulated in 3.65 through 3.73, one may arrive at the following generalization about Koyo relative clauses. The coreferential nominal, functions as the subject of the relative clause, is manifested as a person pronoun, and it agrees in animateness with the antecedent head nominal. On the contrary, the shared nominal, which functions as any predicate NP of the relative clause, never occurs within the relative sentence. Present generative theory offers at

least two alternative analyses to account for these facts. One is a deletion analysis, which Morgan (1972) applied to facts of English and Albanian. The other approach, here called the movement analysis, was reexamined by Schachter (1973) under his proposal of a promotion analysis. The purpose, therefore, of the present analysis, is to show that under either approach, a solution that places a condition on one step of the process of relativization (i.e., a Rule Condition Constraint) best accounts for the Koyo data. Furthermore, an important implication of the treatment proposed here is that it casts doubt on the adequacy of Chomsky's 1973 analysis of the movement of WH-phrases in English.

3.3.4. Generative Framework for Relative Clause Formation

3.3.4.1. Deletion analysis

3.3.4.1.1. Morgan's 1972 framework

For the analysis of the facts of relative clauses in Koyo, Morgan's 1972 framework, called the deletion or movement analysis[27] seems adequate to cover the range of data considered here in this paper. Morgan's article seeks to prove that Albanian, as well as Modern English, has two rules of relativization, one being a movement rule and the other a deletion rule. What is of interest here, is that Morgan claims the existence of two distinct syntactic processes (movement and deletion), which account for the same grammatical aspect. Likewise, it will be shown below that in the grammar of Koyo, one also needs two distinct rules or at least a two-step rule to express the process of relativization, namely a step of pronominalization and a

step of nominal deletion. These steps or rules are shown in 3.75 below.

3.75 Relative clause formation

(a) Pronominalization: Obligatory

W	NP_i	X	NP_i	Y	Z
1	2	3	4	5	6
1	2	3	4	5	6

[+Pro]

(b) Nominal deletion: Obligatory

W	NP_i	X	NP_i	Y	Z
1	2	3	4	5	6
1	2	3	Ø	5	6

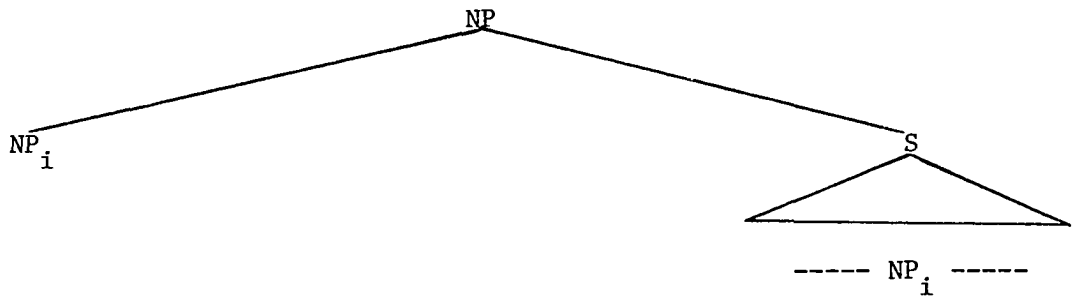
Condition: X must be non-null. In 3.75, it is clear that the two rules have a similar input structure but a different output tree. In the first case, a pro-form occurs within the relative sentence in lieu of the shared nominal, if one works along the line of a transformational approach. On the contrary, this proform is generated in the base if one espouses an interpretive solution. In any event, as far as the data here are concerned, the two distinct steps of the relativization process are necessary whichever approach is chosen. However, for ease of exposition, the terminology of a transformational analysis will be used throughout. In the second step, that is 3.75b, nominal deletion occurs, with a condition on its application. This means that the nominal within the relative clause that is identical to the head noun is deleted in situ. Before proceeding to the implications

of these rules, let me come back to the tree shown in 3.74 and consider once more its major surface structure constituents.

3.3.4.1.2. Deep structure configuration

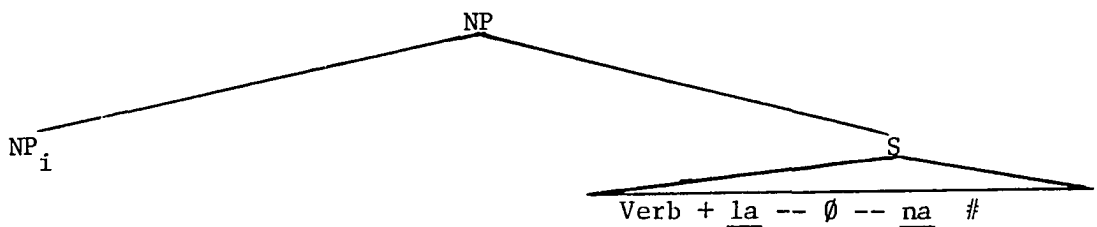
Assume that the tree in 3.76 underlies any relative clause sentence in Koyo.[28]

3.76



The claim embodied in Structure 3.76 amounts to saying that a relative clause contains a constituent that is coreferential to a constituent of the matrix sentence. In order to derive the examples in 3.65 through 3.73 from the configuration shown in 3.76, one needs a syntactic operation with two distinct steps. For instance, in the derivation of the examples in 3.65-3.69, output tree 3.77 rises from 3.76 through the operation of a nominal deletion in the embedded S.

3.77

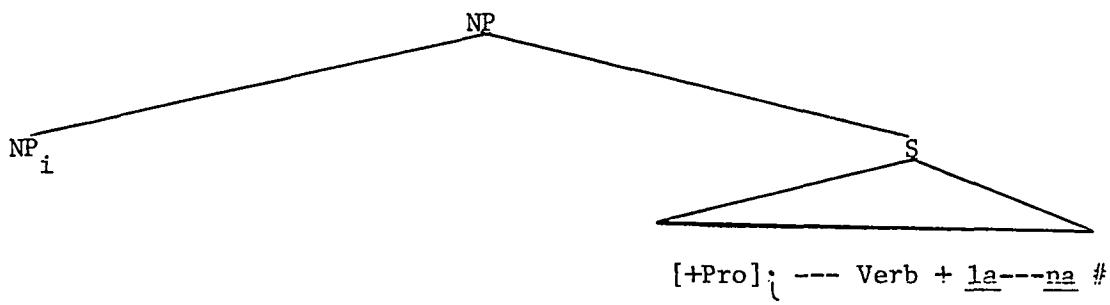


The structure in 3.77 implies that the embedded coreferential nominal has been erased. Subsequently, a relative clause marker is suffixed immediately after the verbal constituent. Finally a specification of the shared nominal, which is invariably na, may terminate the relative clause as such. This raises the question of whether the deletion process actually takes place right away, or if a copying process with a concomitant anaphoric pronominalization occurs as an intermediate step before any deletion.[29]

3.3.4.1.3. Derived structure

The second set of examples, that is, those in 3.70 thorugh 3.73, illustrates a derived structure that differs from the one shown in 3.77 above, in that here a coreferential pro-form appears in the subordinate clause, as can be seen in 3.78 below.

3.78



The claim made by 3.78 is that a process of pronominalization has turned the shared nominal into an obligatory pro-form that is coreferential to the nominal of the matrix sentence. The evidence of the obligatoriness of pronominalization is immediately seen in the

ungrammatical sentences of 3.79 below.

3.79 (a) *yoo-o yi la duN na
boy-D come Rel. town-in Spec.
'The boy who came to town'

(b) *ngOnOO-O pi la sakaa-a na
woman-D cook Rel. rice-D Spec.
'The woman who cooked the rice'

(c) *abi ñE la yoo-o bOgo na
Abi give Rel. boy-D book Spec.
'Abi, who gave the boy a book'

(d) *abi bite yoo-o yi la duN na
Abi beat boy-D come Rel. town-in Spec.
"Abi beat the boy who came to town'

The unacceptability of the sentences in 3.79 demonstrates the necessity of putting a constraint on the deletion process of the coreferential nominal in the Koyo relativization process. This constraint may be expressed as 3.80 below.

3.80 All the coreferential nominals are deleted when they are relativized on, except for those performing a subject function.

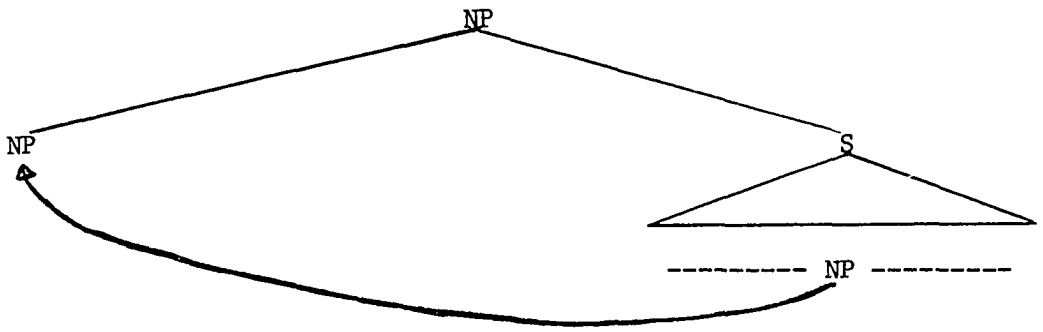
3.3.4.2. Movement analysis

3.3.4.2.1. Schachter's 1973 framework

Schachter (1973) has argued against the standard NP-S analysis of relativization and has proposed a model where the head NP actually dominates no lexical item, but rather a dummy symbol. This new model, called here the delta-S analysis, assumes that in the relativization process of some languages,[30] there is no head noun with a lexical content in the underlying representation. Given this, the

relativization process of all languages with overt head nouns is assumed to consist in the promotion from the embedded clause to the matrix sentence of the constituent to be relativized. One consequence of Schachter's analysis was to assume a movement process in the relative clause formation of these languages, witness the configuration in 3.80 below.

3.80



The Koyo sentences examined thus far are not incompatible with the kind of promotion analysis put forth by Schachter. But in order to fully appreciate this promotion account for Koyo relative clauses, it is important to assume a couple of language universals proposed by Perlmutter in 1972. These are read as 3.81 below.

3.81 (a) Rules that appear to be "chopping rules" are actually "copying rules" that leave behind a shadow pronoun in the position of the constituent that has apparently been "chopped."

(b) Shadow pronouns are subsequently deleted by a rule, I will refer to as Shadow Pronoun Deletion simply as Shadow Deletion (p. 73).

3.3.4.2.2. Perlmutter's proposals

If Perlmutter's proposals are correct, their translation into Schachter's promotion analysis can account for the data presented above in a satisfactory fashion. According to Permutter's theory, the relativizable NP of the relative clause is copied into the dummy node of the matrix sentence, leaving a shadow pronoun that is subsequently deleted if its deletability conditions are met. If one uses this approach to describe the facts of relative clause sentences in Koyo, here again, a constraint should be put on the deletion of the shadow pronoun. Otherwise, the deletion of the shadow that rises from the subject position after the movement rule has applied, will result in ungrammatical strings. These facts support the existence of two distinct steps in the process of relativization, one of which must refer to the distinction between subject and non-subject nominals. One potential mechanism to capture this generalization is the Rule Condition Solution.

3.3.4.3. Rule Condition Solution

3.3.4.3.1. Filtering devices

Present generative theory has developed many filtering devices to constrain the excessive power of the theory by means of which grammars of particular languages are described. The number and power of these mechanisms have now proliferated to the point that it is extremely difficult to provide unique solutions to specific problems. The position defended here is that the facts of relativization in Koyo

are better explained by constraining the structural index of one of the two rules mentioned in 3.75 above. On grounds of simplicity, it is argued here that the Rule Condition Solution is preferable to a surface structure constraint or an output condition.

3.3.4.3.2. Surface structure constraint

A surface structure constraint has usually been defined as a filtering device that rules out ill-formed surface strings resulting from well-formed deep structures and well-motivated transformations. Of course, it is a matter of empirical evidence whether the derivation of a specific string is subject to a deep or surface constraint. As far as the relativization process in Koyo is concerned, the argument for a Rule Condition Solution goes this way: Since one needs to be able to distinguish between the grammatical functions of "subject" and "object," a surface structure constraint solution will immediately run into trouble unless one assumes that such a restriction contains information indicating syntactic functions.[32]

3.3.4.3.3. The Double NP Constraint

If one had to reject the Rule Condition Solution, which places a constraint on one step of the relativization process, to adopt an Output Condition Solution, the latter could be expressed as in 3.82 below.

3.82 The Double Noun Phrase Constraint
The NP's of the same slot that are adjacent to one another and are not conjoined items cannot precede a V-node unless the second NP has the feature specification [+Pronoun].[33]

Given 3.82, all the instances in 3.70-3.73 could be accounted for without any need of the condition in 3.75b, which renders the rule complex. If such were the case, on grounds of simplicity, one would wonder whether 3.82 (instead of the condition in 3.75b) should not be incorporated in the grammar of Koyo. Notice that such a surface constraint actually has no effect upon other focus constructions, such as questioned, clefted and topicalized sentences.[34] However, the main reason for the ultimate rejection of 3.82 is that such a constraint does not directly capture the generalization that subject and non-subject functions behave differently under relativization. Furthermore, surface structure has to refer to the notion of coreferentiality or the slot sameness condition, while the proposed Rule Condition Constraint refers only to syntactic functions or positions. What is at issue here is to know which generalization is the appropriate one between the slot sameness, attested in 3.82, and the different subject-object function, as expressed in 3.75 above. As mentioned earlier, the generalization in 3.75, which is defined in relational terms (Postal, 1974;44; Perlmutter and Postal, 1974), will reduce the formal mechanism of the grammar by adopting the notions of "subject" and "object" at the pretransformational level. The incorporation of these concepts in the grammar would reduce the number of surface structure constraints defined in terms of structural conditions, as is the case in 3.82. If this reasoning is correct, the Rule Condition Solution imposes itself as more adequate than the Output Condition Solution, because it handles the data in a more satisfactory fashion.

3.4. Theoretical implications

3.4.1. Introduction

This section will bring together three theories related to the three problem areas investigated in the course of Chapter III. These are tentative outlines without any pretention to exhaustiveness. These brief comments are motivated by some current challenges of the standard theories proposed for adjectives, adverbs and relative clauses.

3.4.2. Theory of adjectives in Koyo

3.4.2.1. Reduced relative clause

Present transformational analyses on the topic of adjectives do not have a long pedigree. However, the reduced relative clause and the preposed adjective account has become the predominant model in the description of adjectives in English (for more detail on this analysis type, see Smith [1964], Chomsky [1957, 1965], Ross [1967b, 1969], Bolinger [1967], Berman [1974], and Levi [1973, 1976]. However, Berman and Levi have found the standard account of English adjective-class quite inadequate, given the fact that many adjectives cannot fit the framework using reduced relative clause and preposed adjective. Levi (1976) has proposed to classify them as the group of Nonpredicating Adjectives in English.[35] Note again that as long as it is permissible to refer to coreferentiality in a surface structure constraint (see footnote 34), the above strings do not meet the structure description of 3.82. However, these sentences have some bearing on 3.82 if coreferentiality is defined as a deep structure notion. Again, the

problem of which level is more appropriate, for the characterization of the concept of coreferentiality remains open.

3.4.2.2. Standard model

Assume that the standard model proposed for the description of adjectives in English and some other Indo-European languages like French was a candidate for a language universal. There are factual reasons in Koyo to suspect that such a potential universal would not fit the case of adjectives in Koyo.

(1) Koyo seldom has overt representation of copulative verbs in its predicative constructions. However, this fact does not present any difficulty at all for the standard analysis, if, following Bach (1967), it is argued that relative clause reduction could be simplified by not having an underlying copula.

(2) The surface structure organization of relative sentences in English and other Indo-European languages is quite different from that in Koyo. In the former, the relative marker starts the relative clause when overtly marked. In Koyo, however, the relative marker is an invariant formative that is suffixed on the verbal element of the relative clause. For this reason, it is far-fetched to find in Koyo a syntactic operation equivalent to the relative clause reduction known as WHIZ-deletion in English. The data examined in the first part of this chapter points to the evidence of the impossibility of holding such a view. In fact, it has been argued that the explanation that consists in preposing the long or reduplicated adjectival forms,

in Koyo attributive constructions, is very likely inadequate, as there are reduplicated forms that fail to undergo this process for no obvious syntactic reason.

3.4.2.3. Priority of semantics

One advantage of the type of analysis conducted above on the Koyo adjective class is to have shown the priority of semantic properties over syntactic and morphological properties in Koyo. The analysis of adjectives in Koyo in the first section of this chapter showed the insufficiency of syntactic subcategorization alone in order to predict the occurrence of both prenominal and postnominal adjectives in Koyo. I also indicated that the incorporation of semantic information allows one to better understand the surface morphological irregularities. In this connection, I indicated that the prenominal position of certain semantic subclasses was due to a morphological process parallel to the formation of a subset of nominals in Koyo that consists in premodifying the entity so designated by the verb that characterizes the activity performed by this entity. For instance, 3.49a-1 illustrates nicely this morphological process. My claim is that all prenominal adjectives seem to be derived in this way. But one would not be able to come to such a conclusion if a semantic analysis had not been done prior to the eventual morphological subcategorization. This shows the priority of semantic information in building up a theory of adjectives in Koyo.

3.4.3. Theory of Adverbs in Koyo

3.4.3.1. Overview

The standard generative description of the class of adverbs has been tossed between a transformationalist solution (see Lakoff [1970b:145-65] for further discussion) and a lexicalist interpretation (see Jackendoff [1972:47-107] for further information) without much success either way, because, as Jackendoff pointed out, the adverb class has not been recognized as a speech part in the current literature of generative grammar. The solution proposed here for a theory of adverbs in Koyo is similar to what Jackendoff calls the "non-reductionist approach"--that is, an approach that postulates the adverb node in the set of phrase structure rules. However, I am not committing myself to the theoretical position of Jackendoff. Here I will try to stay away from the controversies between transformationalists and lexicalists, since my starting assumption is quite different from the one held by either side.

3.4.3.2. Functional treatment

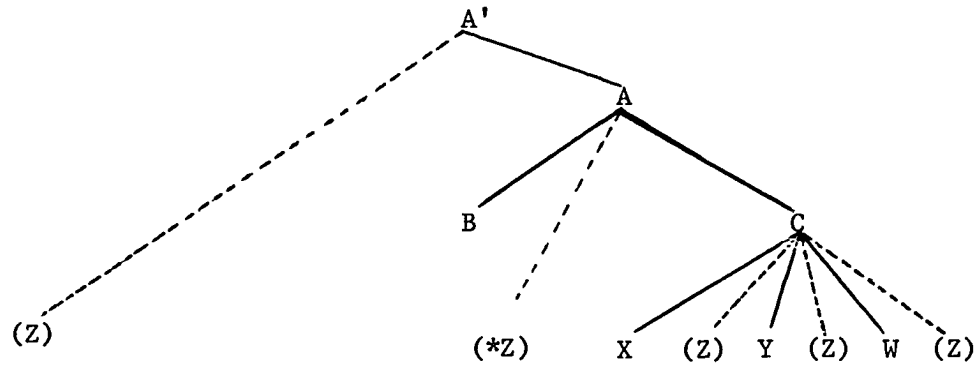
Most generative grammarians have clung to the morphological standpoint, in their description of adverbs. In so doing, they automatically found an interesting relationship between verb and noun on the one hand, and between adjective and adverb on the other hand.[36] Revealing though this analysis type may be, the more traditional approach based on a functional view of these syntactic categories is taken here.[37] In other words, adverbs are mainly considered as

modifiers of the V-node, just as adjectives have been analyzed as modifiers of nouns. In this respect, the relationships entertained between these categories is no longer the morphological relation defining basic versus derived constituents. Rather, it is a functional relation of head constituent modified by another lexical entry. Given these premises, I will assume that in Koyo the adverb node is generated in the scope of the predicate phrase. Such an assumption implies that what is called "sentence adverb" under the standard analysis is very likely the result of a fronting transformation. At this stage, one may pose the following question: Are there no semantic distinctions between sentential and nonsentential adverbs? The following paragraph addresses this question.

3.4.3.3. Deep structure of adverbs in Koyo

The claim has been made that Koyo simplex sentences containing the adverb words described above is underlain by the tree configuration designated in 3.63 rather than 3.64, in section 3.2.4. of this chapter. I suspect that there are at least two reasons for believing this way. (1) The first argument consists in the fact that the adverb-word is able to move freely within the scope of the predicate phrase. To illustrate this statement, let me draw below the phrase marker 3.83. In this tree, the alphabetic letters represent variables, and the parenthesized constituent at one specific place in the surface string precludes its position at the other potential places of occurrence.

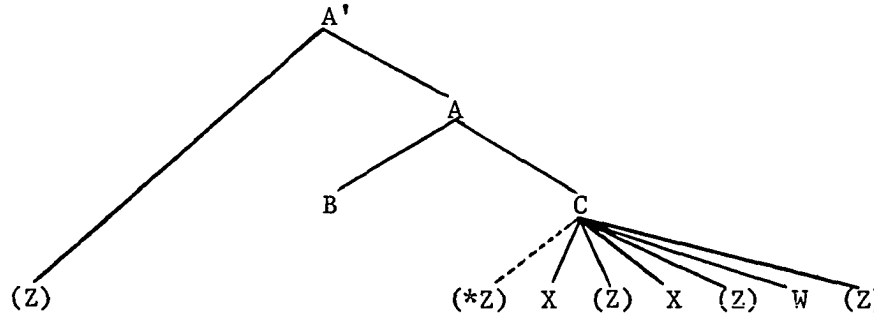
3.83



Assume that the A-symbol represents a S-node, B stands for a NP-node, C for predicate phrase, finally X, Y, W and Z for verb, noun, adjective and adverb, respectively. Notice that all the occurrences of Z but one should be parenthesized. In 3.60, I argued that the marker la may be a trace of the adverb that has been fronted. If the advocates of the trace theory are correct, the application of this mechanism to Koyo sentences containing adverb words will indicate the deep source right after the verb category that the adverb category is meant to modify, as I have been claiming. Notice also that the diagram proposed in 3.83 contains one occurrence of Z that is ill-formed. This is precisely the case where the adverb-word has escaped the realm of the predicate phrase. But the Z-category exclusively dominated by A' has also moved out of the scope of the predicate phrase. However, it is still well-formed, while the Z that is sister-adjoined to B and C is no longer grammatical. How can one account for such a discrepancy? (2) The second argument addresses itself to this apparently anomaly.

The fact that all the Z's that are daughter-adjoined to the C-node are grammatical, but that the one that is sister-adjoined to it is not grammatical, constitutes clear evidence that in Koyo, adverbs have their source in the scope of the predicate phrase. Therefore, they are not dominated immediately by the S-node as the tree in 3.64 claims. On this ground, the phrase marker in 3.83 is motivated in the theory of adverbs in Koyo. On the other hand, grammaticality of the Z dominated by A' and the ill-formedness of the Z dominated by A proves the necessity of Chomsky-adjunction[38] in such a theory. One may raise the following objection to the tree in 3.83. Given a theory of linear order, it is not obvious that the node *Z in 3.83 is attached directly to node A. This means that the ungrammatical string *Z could be attached to node C instead. If this were the case, all the previous discussion based on the concept of scope would not hold. In other words, if 3.83' were the right tree instead of 3.83, the discussion concerning scope would fall short.

3.83'



If the ungrammatical string *Z were directly attached to C and if the transportability convention were correct, there would be no way to

explain the ungrammaticality of the Z-node with a broken line in 3.83', unless one argued that adverbs being of predicate phrase scope, it must not immediately precede the predicate phrase (since that would put the predicate phrase in the adverb's scope). However appealing this argument is, it would rule out the convention of transportability as defined by Keyser (1968). This convention has to be added to the grammar of Koyo, in order to explain the behavior of adverbs in Koyo, namely their free word order. This is the ultimate reason for claiming that 3.83 is the adequate representation of Koyo sentences containing the ungrammatical string *Z.

3.4.4. Theory of relative clauses in Koyo

3.4.4.1. Chomsky's 1973 proposal

Two strategies of deriving Koyo relative clauses have been described, namely a deletion strategy and a pronominalization strategy. It has been shown that under the two analyses proposed above, one needs to constrain at least one step of the relativization process by referring to the syntactic functions of the relativizable nominals. These facts and the hypotheses put forth cast doubt on Chomsky's 1973 analysis of WH-phrases in English.[39] Chomsky proposed a number of conditions that function together to restrict the power of English extraction rules. One such crucial constraint that affects those rules is expressed in 3.84 below.

3.84 No rule can involve X, Y, in

---X---[α----Z----WYV]

Where (a) Z is the specified subject of WYV
or (b) Y is in COMP and X is not in COMP
or (c) Y is not in COMP and α is a tensed S

(Chomsky 1973:244)

The claim implied by the conditions in 3.84 is that items cannot be extracted from a tensed sentence or across a specified subject unless they are moved into the Comp-position. On the basis of this principle, Chomsky argues that a movement process is indeed involved in a structure such as 3.85, which he derives from 3.86. Similarly, 3.87 rises from the underlying string seen in 3.88 below.

3.85 The man who came . . .

3.86 [the man [Δ [who came]]]
NP Comp S

3.87 The man who I saw . . .

3.88 [the man [Δ [I saw who]]]
NP Comp S

The structures 3.86 and 3.88 actually claim that both relative pronouns are extracted by a unitary process from their embedded sentences and promoted into the Comp-node of their matrix sentences. My contention here is that the analysis provided for Koyo data suggests that for English as well, 3.85 and 3.87 may be obtained through two distinct syntactic processes, one of which (namely 3.86) does not involve any movement at all.

3.4.4.2. Grammatical functions

This suggestion for the reanalysis of English relative clause formation implies a dichotomous process based on the distinction between grammatical functions, namely that when the WH-phrase functions as the subject of the relative sentence, no movement is involved in the relativization process. On the contrary, when it functions as a non-subject nominal, then there is indeed movement. The immediate consequence of this type of reasoning is to avoid the principle of vacuous application[40] that Chomsky himself rejects with the following remark.

> 3.89 One might then raise the question whether cyclic tranformations should be constrained so as to forbid operations that never change the terminal string of a phrase-marker, but only its structure, as in the original formulations of subject raising to object position.
>
> (Chomsky 1973:254)

If 3.89 is to be given full consideration, then Chomsky is hard put to prevent WH-substitution from applying vacuously to a configuration such as 3.86, where the structure has changed but where the terminal string of the phrase-marker remains the same throughout.[41] A second drawback of Chomsky's conditions in 3.84 is the loss of parallelism between WH-phrase constructions and other focus constructions, such as topicalization[42] in the sense of Ross (1967b). Ross has shown the similarities of these two construction types by arguing that they are subject to a so-called Left Branch Condition. If 3.84 is correct, then the parallelism between WH-phrase sentences and focus sentences

will be lost, because one would be unable to explain why the subject nominal undergoes a movement process in questioned and relative sentences but not in topicalized sentences. One way to save this parallelism is to add a new constraint to the grammar of English. This constraint may be expressed as follows:

3.90 In both question and relative clause formation, all the WH-phrases are subject to a movement rule, except for those which are functioning as subject prior to the movement rule.

3.4.4.3. The "issue"

To wrap up what has been said above, let me mention some points of the previous discussion. First, it has been shown that in Koyo, the syntactic difference between subjects NPs and object NPs calls for two distinct steps in the process of relativization. Second, the analogy between facts of Koyo and English allows one to cast doubts on Chomsky's 1973 analysis of English WH-phrases. It is suggested that a solution based on two distinct processes of relativization that refer to grammatical functions definitely prevent including undesirable principles of rule application, such as vacuous application. A further prediction of the framework based on this dichotomous process of relativization has been to save the parallelism between rules of topicalization and rules of WH-item movement. To this effect, a new constraint on movement rules (namely 3.90) was set up so as to be included in the grammar of English.

3.5. Summary

3.5.1. This chapter has dealt with one basic type of syntactic structure in Koyo, namely the structure of modification. In this respect, three problem areas were delimited: adjectives, adverbs, and relative clauses. For each of these three aspects of the structure of modification, I first conducted an analysis of the data, and then sought the best way to account for the facts described. Finally, I compared the proposed solutions to the standard explanations of these topics within the framework of generative grammar.

3.5.2. Concerning adjectives, it was shown that a semantic approach highlights the syntactic and morphological implications involved in the description of adjective-words in Koyo. The section on adverbs demonstrated that adverb-words are essentially predicate modifiers, that they have their deep source in the scope of the predicate phrase. Finally, the last section of relative clauses argued that an adequate theory of relativization in Koyo ought to be based on a two-step relativization process, which cannot be defined only in terms of structural conditions, but has to make reference to relational terms.

FOOTNOTES

1. In syntax, a modifier is a constituent or a group of constituents that limits or specifies a head word within a noun or a verb phrase. In this respect, structures of modification are as basic to syntactic structures as the structures of predication, or complementation or coordination.

2. I use the term adjectival in the sense defined by Hartmann (1972) who provides us with the following:

> A name given by some grammarians to a structure which functions as an adjective or modifier, before or after a noun, but which cannot take the normal inflexions of an adjective, e.g., the above statement, a girl spoiled by her mother is not a good room-mate.

It is clear that in 3.4, the word standing for the adjective 'tall' has changed its status of adjective to that of a noun from its post-nominal position to the prenominal one. This is what I regard as an adjectival process to abide by Hartmann's definition of this term.

3. According to Quirk et al. (1972), adjectives in attributive function do not characterize the referent of the noun directly. For this reason, he calls them noninherent adjectives. They indicate that attributive adjectives premodify nouns. This implies that predicative adjectives, which are dubbed inherent adjectives, postmodify the nouns they qualify. However, they notice that one cannot use without many difficulties such a simple subclassification, at least in the case of English, since many adjectives have more than one syntactic and/or semantic value.

4. The adjective ñu is ambiguously defined as (1) a physical qualification such as 'ugly' or (2) a moral qualification like 'bad.' Similarly, the adjective naN is bivalent in that it means either 'beautiful, pretty' or 'pleasant, nice.' It will be shown later that the distinction of semantic classes is important in order to handle the problems raised by this particular aspect of Koyo syntax. At any rate, these semantic classes will turn out to have syntactic reflexes, since by knowing the semantic classes, one is able to predict whether the adjectives will occur in prenominal or postnominal positions.

5. According to Chomsky (1965:26-27), there are two levels for justifying a generative grammar. One is the level of descriptive adequacy. With respect to this level, Chomsky writes:

> The grammar is justified to the extent that it correctly describes its object, namely the linguistic intuition--the tacit competence--of the native speaker.

As for the second level, i.e., explanatory adequacy, Chomsky believes that it is more rarely attainble. This level is reached when the grammar is a principled descriptively adequate system. Note that Chomsky feels that observational adequacy does not necessarily attain either level of justification.

6. The purpose of Dixon's study was to show that syntactic properties can be predicted from semantic representations in various ways. To illustrate this claim, he indicated that, on semantic grounds, it was possible to arrive at a less heterogeneous classification of the English verbs taking for-to complements, as proposed by Rosenbaum (1965/1967:121). In this respect, he writes:

> The LIKING type has the norm property 'taking POSS-ING complement'; all the members of this type--like, hate, love, dislike, loathe, and so on--take this complement. However, only certain of the most common members of the type can, extensionally, take FOR-TO complements--like, hate, love have the extension whereas dislike and loathe are lacking it.

Bonney (1976) concurs with Dixon in finding Rosenbaum's classification very heterogeneous, because essentially based on the independence of syntactic information in the description of human languages. Bonney argues that the reason the BELIEVE type can take both THAT and FOR-TO complements, while the RESENT type take THAT but not FOR-TO is, contrary to Rosenbaum's assumption, that all accusative and infinitive constructions do not derive from FOR-TO complements; and this syntactic information is based on the semantic distinction between the nonfactive BELIEVE type and the factive RESENT type.

7. F. Householder has pointed out to me that the position type can be illustrated in English by (i) and (ii) below.

> (i) "that airplane is high in the sky"
> (ii) "the ball hit low on the wall"

whereas dimension is as in (iii) and (iv)

> (iii) "that wall is high"
> (iv) "that is a low hill"

8. Dixon has indicated Chinese, Hausa and Chinook as samples of some of the adjective-deficient languages that express all their adjectival concepts through other syntactic means. For instance, he claims that Chinese makes use of its intransitive verbs to

express its adjectival concepts. Also, he claims that Hausa uses nouns and verbs to that effect. Finally, he indicates that Chinook resorts to nouns, verbs and particles to convey these adjectival concepts.

9. The first three words of 3.23e are glossed by nouns instead of adjectives. The evidence of Dixon's claim that some languages use other syntactic means to convey adjectival concepts expressed by adjectives in English speaks for itself. However, what I want to mention about these three formatives is that they have a syntactic distribution different from that of the items that follow in the list. The former require a surface linking verb in their predicative constructions, while the latter do not, as is clear from (i) below.

(i) a. yoo-o nE daNdaN
boy-D act foolishness
'The boy is foolish'

b. yoo-o ka dɨbɨ
boy-D have stupidity
'The boy is stupid'

c. yoo-o nE kapakapa
boy-D act wickedness
'The boy is wicked'

With the last three items such as folo, ba and tEkolo, there is no need for a surface linking verb in the predicative constructions of these words. This is quite clear from the examples given in (ii) below.

(ii) a. yoo-o folo
boy-D smart
'The boy is smart'

b. yoo-o ba
boy-D dumb
'The boy is dumb'

c. yoo-o tEkolo
boy-D impudent
'The boy is saucy'

10. I decided to represent the vowel sounds of this word by the symbol 'V' to show that the quality of these sounds are contingent upon the quality of the vowel sounds of the preceding nouns. The immediate evidence of this statement can be seen in (i) below, where the vowel alterations occurring within the adjective forms

vary in function of the front, central or back vowels contained in the nouns.

(i) a. li lele 'a new spear' vs. li lelɯ 'new spears'
pɨle lele 'a new jug' vs. pɨle lɨlɯ 'new jugs'
bElE lele 'a new bed' vs. bElE lɨlɯ 'new beds'
b. kɯkɨ lɨlɨ 'a new mountain' vs. kɯkɯ lɨlɯ 'new mountains'
baka lɨlɨ 'a new knife' vs. bakɯ lɨlɯ 'new knives'
c. tutu lolu 'a new blanket' vs. titi leli 'new blankets'
gogolo lolu 'a new bug' vs. gogoli leli 'new bugs'
dOkO lolu 'a new plate' vs. dOkɨwi leli 'new plates'

Given the instances in (ia-c), there is no way to predict the underlying vowel of the formative standing for the adjective 'new.' On the fact of these observations, one may suggest the postulation of two abstract vowels. One will assume that these vowels remain unspecified until the time the nouns co-occurring with these adjectives have determined the quality of the vowels in the adjectival forms.

11. The adjectives of value are bivalent, that is, they designate both physical qualities and moral behavior. On the first ground they will classify with adjectives of physical property. It will appear later that these two semantic classes occur both in prenominal and postnominal positions, for some good reasons.

12. Levi (1976) has convincingly argued that it is wrong to derive the class of English adjectives from one source, namely the reduced relative clause and the preposed adjective. She showed that there is a subclass of nonpredicating adjectives that appear in prenominal position and that cannot be derived from relative clauses in which they appear in predicate position with the same head noun. I will look again into Levi's proposal in the last section but one, where I will treat the theoretical implications of the different analyses proposed for these three problem areas, that is adjectives, adverbs, and relative clauses.

13. The word for 'smart' seems to be an exception in that in prenominal position, it does not sound to me to be a noun-like formative. In this respect, I will consider it an exception to the general behavior of the adjectives of human propensity. Of course, 3.37b and 3.37c are not perfect paraphrases of each other, since the latter implies some surprise from the standpoint of the speaker who utters such a sentence. It is usually the case that an adverb is added in this type of sentence to modify the item functioning as an adjective. This is illustrated in (i) below.

(i) yoo-o ka piyeza folole
boy-D have really smartness
'The boy is really smart'

14. Koyo uses a compound process to disambiguate formatives such as naN i.e., 'beautiful or kind' and ñu i.e., 'ugly or bad.' In the moral propensity reading, the language resorts to the work plE i.e., 'heart' in addition to the appropriate preposition. For instance, in naN-plE-ko, the preposition is ko, which means 'on, upon.' On the other hand, for ñu-plE-mɨlɨ, the preposition is mɨlɨ, that is, 'in, inside.'

15. The prenominal positions of the adjectives of speed fall under the same case as the two adjectives of human propensity mentioned in 3.37 and 3.38 in the text above. I indicated in footnote 13 of this chapter that folofolo in prenominal position was a reduplicated form rather than a derived word related to a noun-like or verb-like formative. One may also notice that in 3.38, ba (i.e., 'dumb') lacks both a reduplicated and a derived form. These kinds of difficulties are certainly problems for a purely syntactic analysis as well as for a semantic approach.

16. This is to be understood in the sense of Bloomfield (1933:202) who divided adjectives into two classes and illustrated each one as follows:

> The adjectives are divided into two classes, descriptive and limiting, by the circumstance that when adjectives of both these classes occur in a phrase, the limiting adjective precedes and modifies the group of descriptive adjective plus noun. Thus, in a form like this fresh milk, the immediate constituents are the limiting adjective this, and the noun phrase fresh milk, which consists, in turn, of the descriptive adjective fresh and the noun milk.

As pointed out by F. Householder, Bloomfield's descriptive adjectives correspond to our "adjectives" in general. However, his limiting adjectives are our demonstratives.

17. It is debatable whether one should look at the traditional distinct terms for the adverb class as syntactic features in the sense of Chomsky's 1965 Aspects of the Theory of Syntax or as semantic features, a theoretical view that some scholars like Keyser (1968) and Jackendoff (1972) have defended. I am adopting here Jackendoff's proposal in positing a base Adv-node; however, I am not committing myself to his theoretical stand. At any event, his distinction of semantic properties of adverbs is not relevant to the issue at hand. The departure of my approach from that of Jackendoff and others is that the latter stress a morphologically based account, whereas I trust that a functionally based analysis is better suited for the data in Koyo.

18. The tendency of defining adverbs from this morphological standpoint alone has led some grammarians to consider the English -ly adverbs as the only true adverbs, while the other adverb types are dubbed adverbials. Hartmann (1972) mentions this distinction:

> Some grammarians would limit the term adverb to refer only to those words which are regular in form, i.e., which take -ly. A word having the same function but a different form, e.g., He walked fast or He walked across the field is then called an adverbial. (1972:6)

This characterization of the class of adverbs means that the functional aspect of this speech part is not much considered here. Only morphological considerations constitute the criteria to classify a word as an adverb or rather an adverbial. But in a language such as Koyo, where there is no such overwhelming proportion of a subclass of adverbs derived through the adjunction of a given derivational suffix to a subclass of adjectives, it becomes obvious that a functional analysis should prevail.

19. As a matter of fact, the agreement between these scholars concerning the adverb class is superficial indeed. While Onions concurs with Dubois et al. in classifying adverbs according to their meaning (adversative, causal, conditional, temporal, local and so on), Hornby trusts that these are functional classifications. At any event, I will not be concerned with these distinctions since I dispense altogether with these features by postulating a base adverb-node. (See also footnote 17 in this chapter for further references on this issue.)

20. The formative la may suggest that the adverb-node is ordered at this place if there is any order at all at the deeply underlying structures of Koyo simplex sentences. In this connection, I used the notational device offered by some generative grammarians to indicate the trace of an element that has been moved from its original locus. (For further discussion on the notion of 'trace' see Chomsky [1973], [1975], Fiengo [1974], Morin [1974].) It must be noticed that Koyo uses other la-formatives to indicate question particles in yes-no questions or relative markers in relative clauses. I suspect that these are homophonous by pure accident. At any event, the context always allows one to identify the appropriate form for the appropriate usage.

21. The morpheme mo is a topicalization marker that is optional. But when it is not omitted, it adds some emphasis reading to the whole sentence. It should be noticed, as will appear in Chapter IV, that the vowel sound of this formative should be represented by a symbol stating that it is not specified until the phonological process of vowel harmony has occurred, since this formative

is at times spelled out ma or mo, depending on the quality of the vowels contained in the previous word. For this reason, it would be justified to represent this entry as mV at the level of the lexicon. (See also footnote 10 of this chapter for related matters.)

22. The sentence in 3.62b has a variant in which the la-formative is replaced by the pro-form O, meaning 'there' as is clear from (i) below.

(i)

lowuluN	abi	sa	O	yereba-bɨlo
abroad	Abi	spend	there	year-one

'Abi spent one year abroad'

Given that 3.62b and (i) are paraphrases of each other, one may conclude from this observation that the proform O and the la-morpheme perform the same syntactic function in their respective sentence. Since O is indeed an anaphoric pronoun for the locative phrase lowuluN (i.e., 'abroad'), by the same token, one may assume that la is a referential formative for the introductory adverb in the sentences where it occurs.

23. This section on relative clause strategies constitutes essentially the content of a paper presented at the twelfth Regional Meeting of the Chicago Linguistic Society, held at the University of Chicago during the Spring Semester of 1976 to appear in the 12th volume of CLS (forthcoming).

24. I will deal here with only the Chomsky-Smith embedding analysis framework. Throughout, I ignore the Thompson conjoining analysis type. In any event, the appropriateness of one or the other approach is not relevant for the point at issue.

25. The question may arise as to which of the two invariant markers (la or na) is the trigger of the relativization process. The only piece of evidence for believing that la carries the burden of the relativization process is its obligatory occurrence within any one relative clause. It should be stressed that its absence takes away the relativization reading. As for the marker na, it is optional, and its major function is that of an intensifier or emphasis formative. The na-intensifier also occurs in structures corresponding to conditional clauses or gerundive constructions. (See Chapter II, passim.)

26. As mentioned previously, (see Chapter II, passim) there is a tone pattern difference between the pro-form that occurs with certain types of relative clauses and the usual third personal pronoun. For this precise reason, in the gloss of the data I have managed to keep the distinction by translating the proform of the

relative clause by 'Pro.' On the contrary, the usual personal pronoun is translated by 'he.' The illustration of this tonal difference is shown in (i) below.

(i) a. dàgó ò yì lā dúN nā
Dago Pro come Rel. town-in Spec.
'Dago who came to town . . .'

b. dàgó ó yī lā dúN nā
Dago he come Comp town-in Spec.
'Dago, when he came to town . . . '

c. dágó ó yī dúN
Dago he come town-in
'As for Dago, he came to town.'

27. One might raise the question as to whether there is anything left to be deleted if Morgan's framework also refers to a movement process. I suspect that Morgan's deletion or movement hypothesis assumes that the English that-formative is a complementizer that behaves differently from WH-relatives under relativization. As a matter of fact, the former undergoes a deletion process in situ when it is identical to the head noun. On the contrary, the latter obey a movement process, witness the Pied Piping Constraint they are subject to.

28. Adopted here without any further demonstration is Ross's analysis called the NP-S approach. However, as far as the Koyo data are concerned, it should not make any difference if the NP-S or Det-S framework were decided upon. Since the choice of one alternative over the other is not crucial to the claims made in the present analysis, I will assume straight off that the NP-S structure underlies relative clauses in Koyo.

29. The fact is that Koyo contains relative clause-like structures where an anaphoric pronoun is retained within the embedded sentence. However, there is a great deal of meaning difference between these structures and the relative clauses analyzed in the text, as witness the sentences in (i) below whose cleft reading is quite obvious.

(i) a. sakaa-a yoo-o fan-a la kɨlaN
rice-D boy-D take it Comp field-in
'As for the rice, it is the boy that took it to the field'

b. mosu-u yoo-o lu (i.e., lu+u) la
banana-D boy-D eat-it Comp
'As for the banana, it is the boy who ate it'

c. bOgo-o apa ñno (i.e., ñE-o) la yoo-o
book-D Apa give-it Comp boy-D
'As for the book, it is Apa who gave it to the boy'

d. yoo-o apa ñ-O la bOgo-o
boy-D Apa give-him Comp book-D
'As for the boy, it is Apa who gave him the book'

The facts in (i) above do not argue whether the deletion process is a single or a complex operation. However, they do support that if a copying process is indeed involved in the derivation of an object relative, then the well-formed string is obtained only after the deletion of that nominal has occurred. Notice also that (ia) has a relative sentence counterpart where the occurrence of the na-specifier gives a better stylistic flavor to the relatived sentence. The immediate evidence of this can be seen in (ii) below.

(ii) sakaa-a yoo-o O fan-a la kɨlaN na
rice-D boy-D Pro take-it Rel. field-in Spec.

golu-a$_i$
sow-it
'As for the rice, the boy who took it to the field sowed it'

30. Besides English, Schachter's paper adduces data from four non-Indo-European languages. These are Akan (a Niger-Congo language of Ghana), Hausa (an Afro-Asiatic language of Nigeria), Ilonggo (a Malayo-Polynesian language of Philippines) and Bambara (a Niger-Congo language of Mali).

31. In the spirit of the Surface Structure Constraints proposed by Perlmutter (1971), such information is beyond the scope of surface structure constraints, since the latter are defined in terms of structural conditions (i.e., X, NP, V, Adj, Y, W . . .). However, if the domain of transformations and the constraints imposed on them were defined in relational terms, as suggested by Postal (1974:44) and by Perlmutter, D. and Postal, M (1974), then surface structure constraints would be dispensed with altogether in this particular case, since the notions of "subject" and "object" would be expressed at the pretransformational level.

32. As L. Schwartz pointed out to me, no one seems to have justified yet the existence of a constraint on surface structure constraints that prevents them from referring to the notion of coreferentiality, even though the latter qualifies first as a deep structure notion. One piece of evidence for suspecting that surface

structure constraints may refer to coreferentiality lies in the interaction of the rules of pronominalization and reflexivization in English, as understood by standard transformational analysis, where the reflexivization process is carried out only on the output structure of pronominalization. What this fact points out is that the coreferentiality condition which underlies pronominalization must also enter the operation of reflexivization at a level k of the derivational history. This ultimately means that the notion of coreferentiality is pervasive throughout certain derivations. If so, there is no reason not to assume that surface structure constraints can refer to that deep structure notion.

34. The lack of any effect of 3.82 on the constructions exemplified in (i) below proves that what is at stake here is not the coreferentiality of the double Noun Phrase in the structure NP NP V X, but its syntactic function of "subject" or "object." These facts argue strongly for the inadequacy of 3.82, as mentioned above.

(i) a. losa yoo-o faN duN aN
what boy-D take town-in Q-particle
'What did the boy take to town?'

b. sakak-a yoo-o lɯ
rice-D boy-D eat
'The boy ate the rice' (where the underlined word indicates an emphatic stress on the entry so marked)

c. yoo-o sakaa-a 0 lɯ
boy-D rice-D he eat
'The boy ate the rice'

d. sakaa-a yoo-o lɯ-a
rice-D boy-D eat-it
'The rice the boy ate'

e. sakaa-a ma yoo-o lɯ
rice-D Top-Marker boy-D eat
'The rice the boy ate'

In the examples attested above, (ia) represents a questioned sentence. As for (ib-c), they exemplify contrastive sentences. Finally, (id) and (ie) illustrate dislocated and topicalized instances, respectively. Note again that as long as it is permissible to refer to coreferentiality in a surface structure constraint (see preceding footnote), the above strings do not meet the structure description of 3.82. However, these sentences have some bearing on 3.82 if coreferentiality is defined as a

deep structure notion. Again, the problem of which level is more appropriate, for the characterization of the concept of coreferentiality remains open.

35. Working on the assumption that a group of adjectives in English are syntactically different from so-called true adjectives in terms of their "predicability," Levi (1976:4) makes the following claim.

> I will claim in this work that the surface syntactic differences displayed by nonpredicating adjectives are a reflection of a distinction in their underlying lexical categories. That is, where true, predicable adjectives are derived from underlying relative clauses as per the standard analysis, nonpredicating adjectives can be shown to derive from nodes in immediately antecedent phrase markers which bear either N or Adv category labels for the nominal and adverbial subclasses of nonpredicating adjectives, respectively. [1976:4]

Levi ultimately demonstrates that the surface syntactic anomalies are predictable from basic distinctions in the semantic structure that underlies these adjectives. The importance of Levi's study is quite obvious, as she shows a different approach to English adjective-class.

36. In her dissertation, Levi indicates another type of relationship entertained by these four basic syntactic categories, namely noun, verb, adjective and adverb. She also indicates that Lakoff (1970a) showed that verbs and adjectives form a natural class in that they are predicates of NP. In this connection, she observes that nouns and adverbs form the complementary class of nonpredicates of NP.

37. According to Aronoff (1976), when someone introduces a notion that may not be noncontroversial, he usually justifies the introduction with an illusion to its commonness in older thought. It is this "deep ecclesiastian conviction" as qualified by Aronoff that has induced me to include here this quotation from Dubois et al. (1973:15-16).

> La grammaire traditionelle définit l'adverbe comme un mot qui accompagne un verb, un adjectif ou un autre adverbe pour en modifier ou en preciser le sens.
> En grammaire traditionnelle, le terme d'adverbial désigne la fonction (d'un adverbe, d'un complément circonstanciel) consistant à modifier le verbe dans une construction endocentrique: ainsi prudemment dans Pierre conduit prudemment ou ce matin dans Pierre est venu ce matin ont une fonction adverbiale.

38. Keyser (1968) has argued for the incorporation of a transportability convention into the universal theory of grammar. According to Keyser, "this convention permits a particular constituent to occupy any position in a derived tree so long as the sister relationships with all other nodes in the tree are maintained." [p:368] If Keyser's arguments are correct, their application to Koyo would constitute another evidence that in this language, the adverb-node belongs to the domain of the predicate phrase where it is free to move. But outside this scope, the movement of this node is constrained in a very specific fashion, namely that this movement be done by Chomsky-adjunction, rather than sister adjunction. In the latter, it yields ungrammatical strings.

39. One may believe that the facts of relativization in Koyo have no bearing whatsoever on the facts that characterize English. However, it should be remembered that it is quite legitimate to use cross-linguistic evidence to settle an issue involving a given language. On this ground, the two-step analysis of Koyo relativization may help to solve the problem of WH-phrase movement in English. The legitimacy of this cross-linguistic evidence is further supported in this case by the fact that the intent of Chomsky's proposal was to make a contribution to Universal Grammar.

40. This observation was first brought to my attention by Peter Cannings who attributes it to R. Higgins. Since I did not have the opportunity to discuss the matter with the latter, I hope he will pardon me if I have distorted or misinterpreted his original idea.

41. Even if one argues that 3.86 does not apply in a vacuous fashion because of the occurrence of boundary symbols in the output tree by Chomsky-adjunction, I still fail to see how the terminal string of the phrase-marker has changed from the input to the output configuration. It is, I believe, what is at issue in Chomsky's remark related in 3.89 above.

42. Schachter's paper is quite remarkable in that it not only points out some formal similarities between focus constructions and WH-phrase sentences, but it tries to give a unitary account of these phenomena. Therefore, it would be regrettable if the concern of setting general constraints on movement rules overshadowed the parallelisms observed between these various constructions.

CHAPTER IV

FOCUS SENTENCES IN KOYO

4.0. Introduction

The purpose of this chapter is to propose an analysis of various focus constructions exemplified below. The organization of the chapter is as follows. Section 4.1. presents the data and main generalizations concerning these constructions; Section 4.2. presents the null-hypothesis[1] adopted here and shows how it works to derive all the sentence-types described in the previous section. Finally, Section 4.3. discusses any remaining theoretical issues, such as the advantage of this hypothesis over a standard transformational approach. Section 4.4. is a summary of the chapter.

4.1. Data and Main Generalizations

4.1.1. Introduction

This section illustrates the most frequent focus sentence-types encountered in Koyo. Simple sentences with unmarked order and sentences with various marked orders are examined next. This last point also treats questioned sentences, which are considered as specific cases of focus constructions.

4.1.2. Data

4.1. a) jubuu-u abi lu
banana-D Abi eat
'Abi ate the dessert-banana'[2]

b) abi O lu jubuu-u
Abi he eat banana-D

'Abi ate the dessert-banana'

4.2. a) abi jubuu-u O lu
Abi banana-D he eat

'As for Abi, he ate the dessert-banana'

b) jubuu-u abi O lu
banana-D Abi he eat

'The dessert-banana, Abi ate'

c) jubuu-u abi lu (i.e., lu + o)
banana-D Abi eat-it

'As for the dessert-banana, Abi ate it'

d) jubuu-u abi lu (i.e., lu + o) la
banana-D Abi eat-it Comp.

'As for the dessert-banana, it is Abi who ate it'

4.3. a) abi mO O lu jubuu-u
Abi cleft-M he eat banana-D

'It is Abi who ate the dessert-banana'

b) jubuu-u mo abi lu
banana-D cleft-M Abi eat

'It is the dessert-banana that Abi ate'

4.4. a) nO-mO O lu la jubuu-u na
person he eat Rel. banana-D Spec.

O-mO[3] pɨlɨ abi
he-Emp. be Abi

'The one who ate the banana is Abi'

b) no-mo abi lu la na o-mo pɨlɨ jubuu-u
thing Abi eat Rel. Spec. it-Emp. be banana-D

'What Abi ate is the dessert-banana'

4.5. a) O wOtO-pɨlE leyo nO[4]
he cool-heart king this

'He keeps cool, this King'

b) abi zEpE-a yuwɨ na
Abi whip-them boys these

'Abi whipped them, these boys'

4.6 a) Oba O lu-a jubuu-u aN
Who he eat-Q banana-D Q-reflex
'Who ate the dessert-banana?'

b) losa abi lu aN
what Abi eat Q
'Waht did Abi eat?'

4.1.3. Main Generalizations

4.1.3.1. Focus-topic Relation[5]

The sentences in 4.2a and 4.2b look as if they are paraphrases of each other. However, they are different in meaning, as they are actually responsive to different types of questions. For instance, the former will answer a question such as that exemplified in 4.7a, while the latter will reply to a question such as that shown in 4.7b below.

4.7 a) Who ate what?

b) What did who eat? or Who ate what?

Let me stress that in each sentence of 4.2, the focus constituent is always the second occurrence. The immediate evidence of this can be seen in 4.8 below.

4.8 a) abi jubuu ma ta zObilO O lu
Abi banana but Neg. orange he eat
'It is a dessert-banana but not an orange that Abi ate'

b) jubuu-u abi ma ta piti O lu (i.e., lu + o)
banana-D Abi but Neg. Piti he eat-it
'As for the dessert-banana, it is Abi but not Piti who ate it'

In 4.8a, the constrast is in fact between jubuu and zObilO. If focal

constituents are equivalent to contrasted constituents, it means that in Koyo, the focal constituent is not in a one-to-one correspondence with the leftmost syntactic category. In fact, the contrasted words in 4.8; i.e., jubuu and abi are second occurrences in their respective sentences. Likewise, 4.2a and 4.2b above show that when "topical" and "focal" constituents co-occur in preverbal position, it is always the case that the topical constituent precedes the focal constituent. In other words, the focal element occurs as the leftmost formative of a Koyo sentence only when it subsumes a topical function in addition to its own focal function.

4.1.3.2. Various Designations.

The sentences given in 4.1 through 4.8 have been recorded under various names in the linguistic literature. For example, the instances in 4.1 have been called sentences with contrastive focus (Quirk, et. al., 1972:938). The occurrences in 4.2 have received the names of topicalized or dislocated sentences, the difference between them being the presence versus the absence of a "trace" left behind by the moved constituent. The sentences in 4.2 and 4.4 have been labeled cleft and pseudo-cleft constructions, respectively (Akmajian, 1970). The diversity of these appellations suggests that these focus constructions have not received a unitary syntactic treatment until very recently. For instance, Akmajian (1970) treats only cleft and pseudo-cleft sentences, which he believes have a common derivational source. Fischer (1968) deals with cleft and Contrastive Stress Sentences, which he claims share a

common source. However, Wirth (1973) and Gundel (1974) have started to consider these various constructions as a unified domain of syntactic investigation. The ultimate purpose of Chapter IV is to contribute further to the research type initiated by Wirth and Gundel. I will now examine Koyo simple sentences with an unmarked order.

4.1.4. Simple Sentences with Unmarked Order

4.1.4.1. Koyo unmarked[6] Order is SVO.

It was mentioned in the course in Chapter II that Koyo has two significant surface word orders, namely a S(ubject) V(erb) O(bject) sequence (hereafter, SVO) and a S(ubject) O(bject) V(erb) order (hereafter, SOV). The former occurs when the given sentence has no overt syntactic representation of a tense-aspect feature.[7] The latter is required in case of an overt expression of the feature for tense-aspect within the sentence. In the paragraph that immediately follows, I try to motivate the two claims advanced above, namely that Koyo has an unmarked SVO order and that the SOV order involves many component processes that contribute to make it more complex than the SVO sequence.

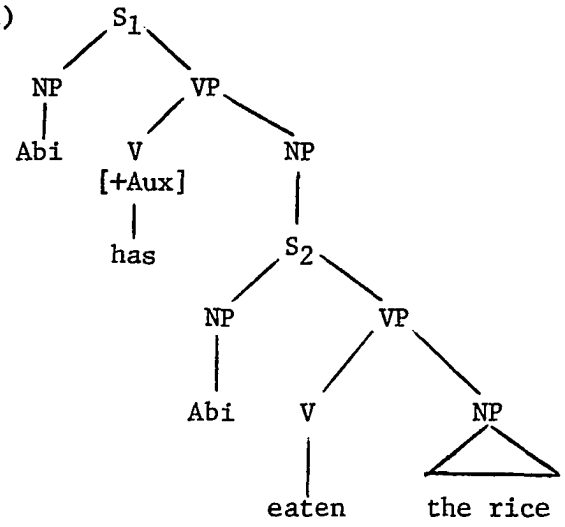
4.1.4.2. Transitive Auxiliary Analysis

Ross(1967c[8]) attempted to explain the surface order of the main and auxiliary verbs found in SVO and SOV languages by means of so-called transitive auxiliary analysis. According to this hypothesis, auxiliary verbs are to be considered complex structures,[9] in which the S containing the main verb is believed to be an object to a higher auxiliary verb.

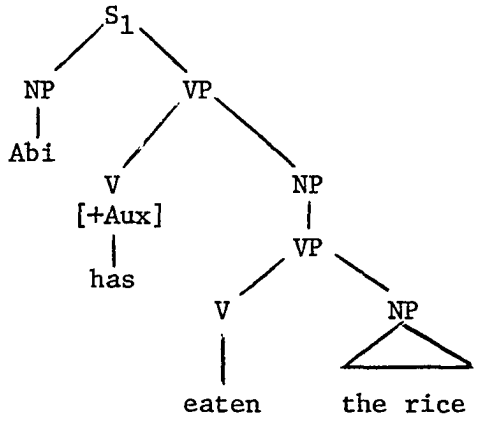
A Ross-type deep structure derivation for 4.9 would look like 4.10a-b below.

4.9 'Abi has eaten the rice'

4.10 a)



b) Equi-NP deletion



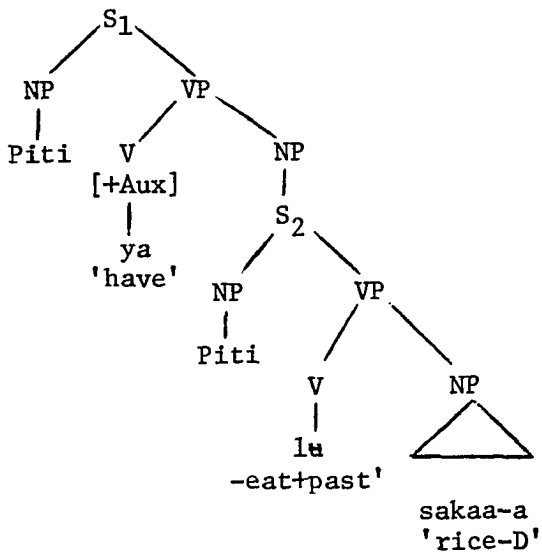
In Ross's framework, the surface structure string attested in 4.9 has the deep phrase marker designed in 4.10a and the derived phrase marker obtained in 4.10b by means of the transformational operation called Equi-NP deletion. Notice that the deletion rule has to be supplemented

by Ross's tree pruning convention (1967b:24ff; 1969:288-299).

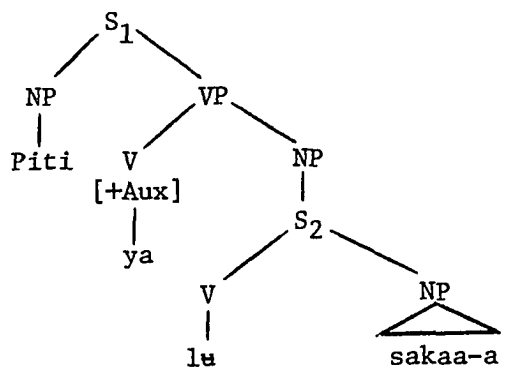
4.1.4.3. Application to the Case of Koyo

The type of analysis proposed by Ross may be applied to the case of Koyo surface SOV order. The result of such an application would be the following derivation, shown in 4.11 below.

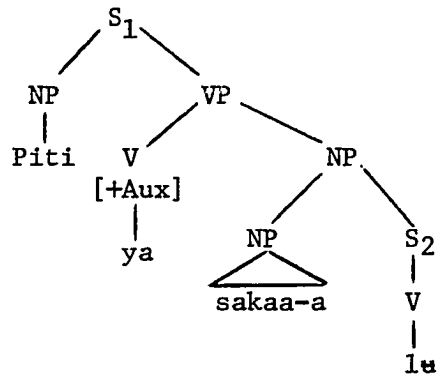
4.11 a) Deep structure



b) Equi-NP deletion



c) Object shift



The pruning of S_2 in 4.11c will yield the surface string attested in 4.12 below.

4.12 piti ya sakaa-a lu
Piti past-tense rice-D eat
'Piti ate the rice'

4.1.5. Various Marked Order Sentences

4.1.5.1. Focus Structures

The sentences given in 4.1 through 4.8 exemplify some of the marked word sequences encountered in Koyo. One of them is OSV, which denotes that prominence is given to the object constituent of the sentence. However, several different means indicate the category that is given prominence in Koyo focus structures. I will use here the symbols 'N' and 'A' to refer to subject and object pronoun respectively. These differentiate various marked order sentences, which are SONV, OSVA, NVOS and SVAO, to mention only a few. Contrastive stress sentences exhibit both OSV and SNVO orders. The former occurs when the constituent to receive the focus is the grammatical object of the normal stress sentence.

Contrariwise, when the focus falls on the grammatical subject of the normal stress sentence, then the word order is SNVO. I will propose in 4.2 that both OSV and SNVO derive from a more abstract structure, namely S'NP, where NP represents the focus reading of these constructions.

4.1.5.2. Interrogative Sentences in Koyo

Koyo has two basic question types for its simple sentence patterns: yes-or-no questions and specific questions. As their names suggest, the former call for a short answer of the yes-or-no type. The latter parallel the English sentences known as Wh-questions. These request specific information about the noun phrases of the given sentence. A few sentences will illustrate what is meant here.

4.13 a) tekɨli yi
Tekry come
'Tekry came'

b) tekɨli lʉ sakaa-a aN/la[10]
Tekry eat rice-D Q-particle
'Did Tekry eat the rice?'

c) Oba gole-a[11] sakaa-a aN/la
who sow-Q rice-D Q-reflex
'Who sows the rice?'

4.1.5.3. Theoretical Framework

In the paradigm of generative transformational grammar, questioned sentences have received a great deal of attention (for further details, see Katz and Postal, 1964; Greenberg, 1966; Baker, 1968, 1970; Bach, 1971; Langacker, 1974; Bokamba, 1976; and other resources). Baker (1970) claimed that on the basis of Greenberg's surface structure analysis

of interrogative sentences in a number of world languages, the only possible question movement rule in human language is one that moves the questioned constituent to clause-initial position. Along with such a claim, Baker stated that:

> Only languages which position their particles for yes-no questions in clause-initial position permit a movement rule for questioned constituent. (1970:207)

On the basis of this hypothesis, he indicated that

> There is only one possible movement rule for questions, which differs in different languages only in particular formative mentioned in place of English wh. (Baker, 1970:207)

This universal rule for question formation is stated in 4.14. Baker also indicated that such a transformation operation has the effect of ruling out other potential rules, among which he cited 4.15 below.

4.14 Question Formation

Q	X	NP	Y		
1	2	3	4	→	1, 3 + 2, ϕ, 4

Condition: 3 dominates WH

4.15

X	NP	Y	Q		
1	2	3	4	→	2 + 1, ϕ, 3, 4

However, I will adopt a different approach for the analysis of interrogative sentences in Koyo since the facts concerning questioned sentences do not present any syntactic clue whatsoever to distinguish questioned sentence constructions from other focus structures.[14]

4.2. The Null-Hypothesis

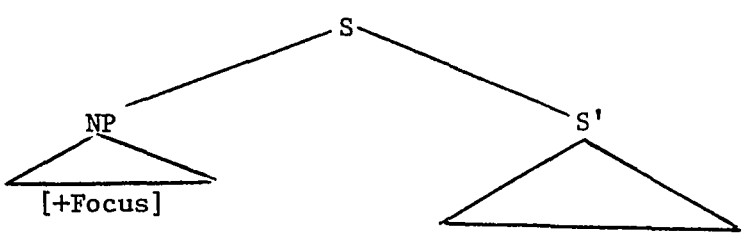
4.2.1. Introduction

As mentioned above, the null-hypothesis claims that deep structures and surface configurations of given constructions are essentially similar. This does not mean that the null-hypothesis does not make use of any transformational operations. On the contrary, the rationale behind this mechanism is to provide a means that reduces the number of transformational operations used in the grammar of Koyo. In this connection, the null-hypothesis proposes to explain some facts of a given language by using only the existing set of transformations that have already been motivated in the grammar of the language under study. In other words, the null-hypothesis avoids positing new transformations that are not needed independently elsewhere in the theory of the language being considered.

4.2.2. Formal Mechanism

I will assume that all the focus sentences examined thus far in Koyo data are neither the result of a copy and deletion operation, nor that of a movement rule.[12] On the contrary, these constructions are already generated in their position in the base. In other words, focus structures correspond to the abstract configuration S'NP, where NP represents the focus constituent, is dominated by a S and is sister to S', as shown in 4.16.

4.16



The null-hypothesis adopted here claims that a tree configuration such as 4.16 above underlies every focus construction in Koyo. The above tree means that Koyo distinguishes between focus and nonfocus constructions. This distinction may be expressed by the schemata given in 4.17.

4.17 $$S \rightarrow \left\{ \begin{matrix} NP & S \\ NP & Pred\ P \end{matrix} \right\}$$

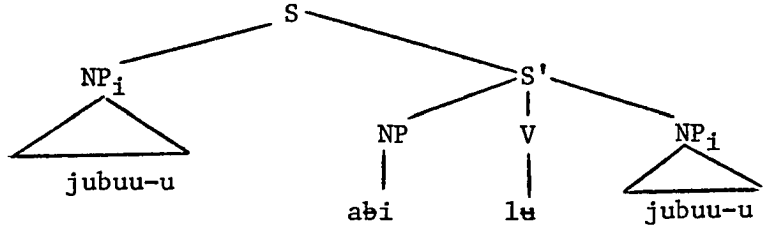
The top part of 4.17 indicates the structure that underlies the Koyo focus structures. This rule 4.17 claims that in Koyo a sentence may be cogenerated with an NP category that is sister adjoined to that sentence. This structure will yield focus sentences at the surface level. On the other hand, 4.17 claims that when the Koyo sentences occur in isolation they are composed of two constituents, namely, a noun phrase followed by a predicate phrase. This corresponds to the structure of the Koyo simple sentence types.

4.2.3. Sentence-type Derivation

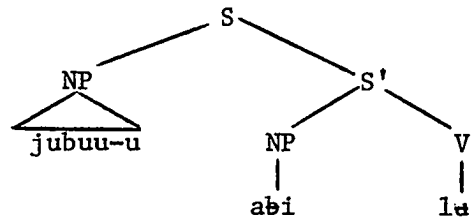
4.2.3.1. Focus Sentences

Given the initial phrase marker 4.16, the derivation of a focus sentence such as 4.1a above may be pictured as shown in 4.18 below.

4.18 a) Underlying representation

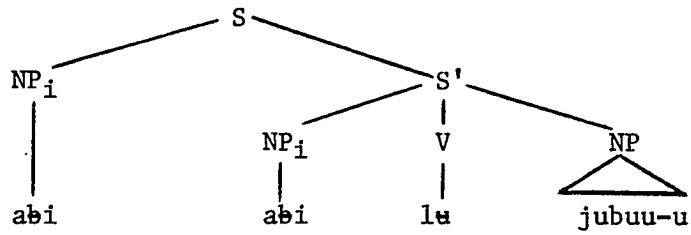


b) Equi-NP deletion

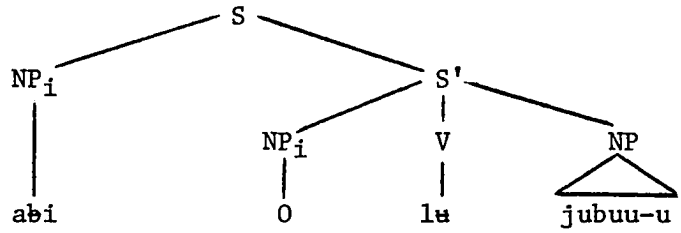


The trees in 4.18 show that the derivation of 4.1a requires only one transformational operation (i.e., Equi-NP deletion), which has been motivated elsewhere in the grammar of Koyo, namely, in the analysis of auxiliary verbs. Likewise, for the derivation of 4.1b, the following derivations are required.

4.19 a) Underlying representation



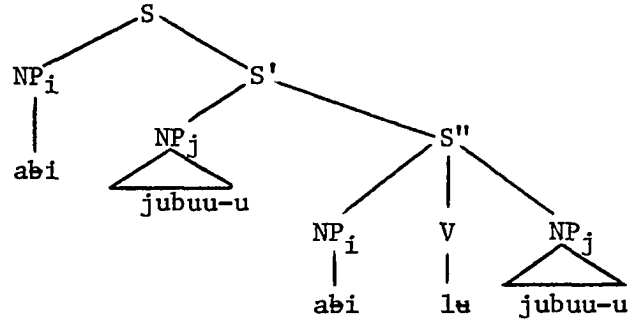
b) Pronominalization



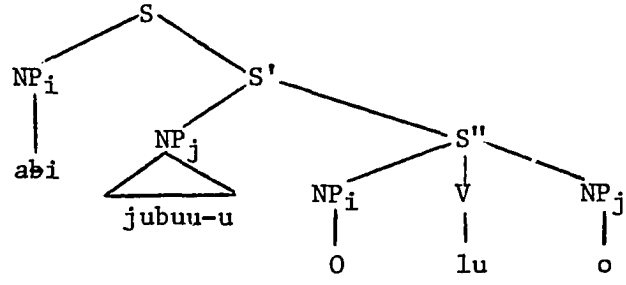
Here again, 4.1a shows that for the derivation of 4.1b, only one transformational operation, pronominalization, is required. The rule of pronominalization is needed independently in the grammar of Koyo to

account for some sentences that exhibit this pro-form. Note that if the pro-form has been chosen to be generated in the base as required by the Interpretivist school, the deep structure representation of 4.1b would be similar to its surface structure configuration. Without any complication at all of the theory of Koyo, the null-hypothesis adopted here has enabled the derivation of the focus structures attested to in 4.1 above. The derivation of 4.2a is a little more complex, but it is quite compatible with the null-hypothesis as demonstrated in 4.20.

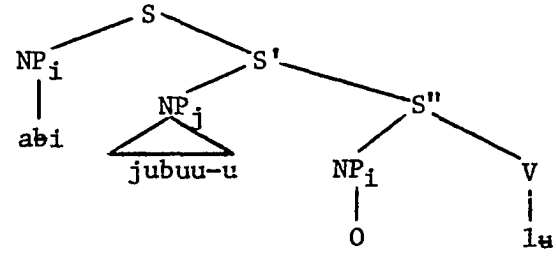
4.20 a) Underlying representation



b) Pronominalization



c) Pro-form deletion



The derivations shown in 4.20 point out some interesting aspects of Koyo. First, 4.20a indicates that more than one constituent per sentence can be focused. When this case occurs, it is always possible to generate the focus constituent directly at the base, since the TGG that my description is based on includes the principle of recursiveness. Second, the deletion operation in 4.20c is constrained to erase only the object pronoun not the subject pro-form. One recalls that in Chapter III above (i.e., section 3.3.4.) a similar constraint was put forth for the deletion of coreferential noun phrases within the relative clause. It was argued that when the identical NP is subject of the relative clause, no deletion occurs. On the contrary the NP is obligatorily pronominalized. However, when the identical constituent functions as the object of the relative, deletion occurs. The parallelism between the facts about the Koyo relative clause and the deletion of pro-forms in the Koyo focus construction is quite significant and is a further support of the use of relational terms such as "subject", "object" in the grammatical description of the Koyo language. Third, the derivations in 4.20 further motivate the focus-topic relation presented above. It was pointed out that Koyo focus constructions may take on various shapes, the two most frequent ones being 4.21a and 4.21b.

4.21 a) S → NP S

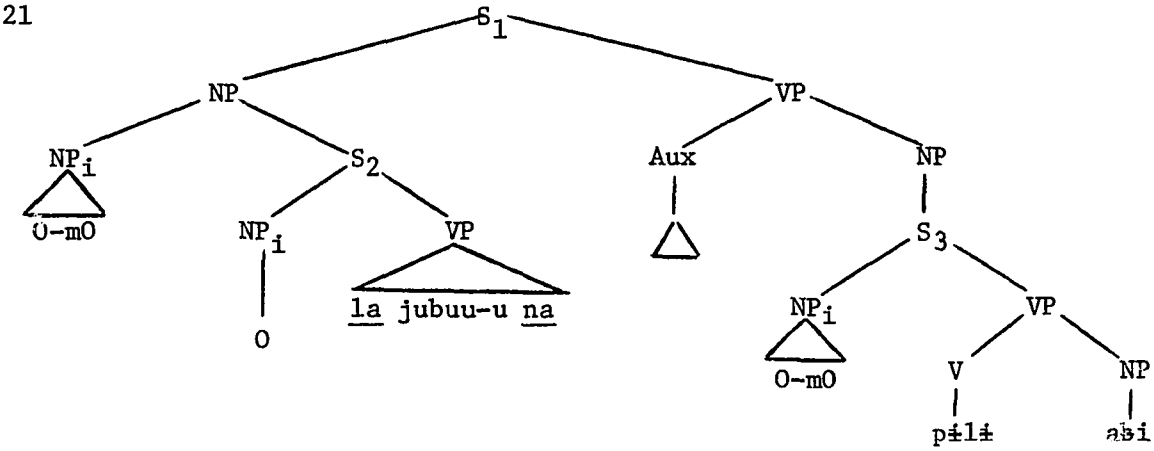
b) S → NP NP S

Under condition a), the claim is that both focus and topic correspond to the NP that is sister adjoined to S. However, under condition b), topic

always precedes focus in that topic corresponds to the first NP and focus to the second. These observations suggest that in the Koyo focus constructions, topic (i.e., the constituent indicating what the sentence is about) and focus (i.e., the constituent which bears the contrastive stress) may coincide. However, when these two semantic functions are distinguished, the topical element will precede the focal one.

The last remark about the Koyo focus sentences concerns the tree representation given in 4.21 below. This configuration contains two identical or coreferential pronominal NPs and an Aux-node. However, the surface string of this initial phrase marker still mentions the two coreferential pro-forms, but the Aux-node has no lexical representation. The fact is that the coreferential pro-forms are not deleted in all their subject positions, that is, in S_1, S_2 and S_3. In all the sentences contained in 4.21, the coreferential NPs, because of their subject function, do not undergo the Equi-NP deletion transformation, though the structural description of this phrase marker satisfies this operation of Equi-NP deletion, as shown by the coreferential notation on the subject NPs in 4.21. This is the third observation made about the deletion constraint in Koyo sentences. It shows how important is such a device for the better understanding of the grammar of this language.

4.21

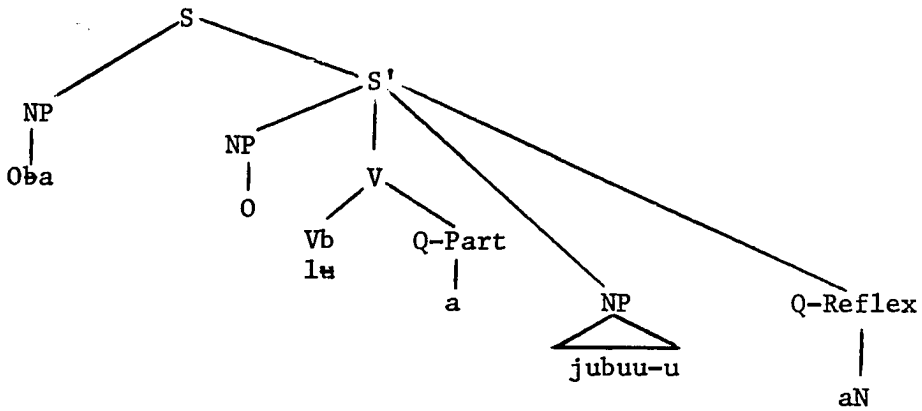


The configuration in 4.21 is different from the trees designed in 4.17 through 4.20 in that no transformational operation is needed here. Even the Equi-NP deletion cannot apply, for the reasons already mentioned. I think that the sentence type represented in 4.21 is comparable to the sentence types that Higgins (1973) characterizes as "Specificational Pseudo-Cleft Sentences."[13]

4.2.3.2. Questioned Sentences

The derivation of questioned sentences within the null-hypothesis will follow a procedure similar to the one put forth for focus sentences. In this connection, I will assume that 4.16 is the deep tree configuration of questioned sentence types in Koyo. Given this abstract representation, the derivational history in 4.6a and 4.6b may be pictured as seen in 4.22 and 4.23, respectively.

4.22 a) Underlying representation

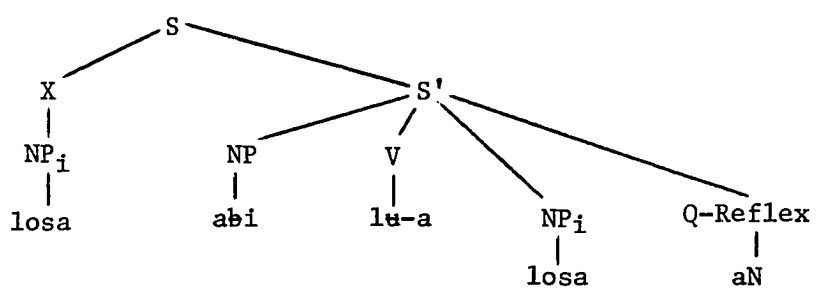


b) Surface structure

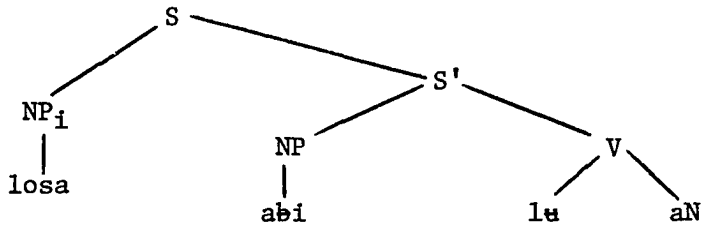
[[O ba] [[O] [lua] [jubuu-a] [aN]]]
S NP S' NP V NP S' S

Note that in 4.22, the abstract representation of 4.6a is similar to its surface structure representation. Note also that in 4.22a, the substructure dominated by S' corresponds to a yes-or-no questioned sentence. It follows from this observation that in Koyo, yes-or-no questioned sentences are related to specific questioned sentences in the same way as simple declarative sentences are related to focus sentences. This constitutes a good argument for uniform treatment of focus sentences and specific questioned sentences. Now, I will give the derivational steps of 4.6b.

4.23 a) Underlying representation



b) Equi-NP deletion



Here again, the substructure dominated by S' in 4.23b may stand for a yes-or-no questioned sentence. This means that focus and specific question sentences seem to share the same range of functions in Koyo sentences in that both are structurally focus constructions. In this respect, it is quite reasonable to consider them as a unified domain of syntactic investigation. All remaining theoretical issues related to focus structures will now be discussed. In particular, some of the advantages of the null-hypothesis over the transformational framework will be examined. To begin with, the standard transformation approach to the question of focus constructions will be presented briefly. Then this hypothesis will be evaluated with respect to the null-hypothesis.

4.3. Remaining Theoretical Issues

4.3.1. Standard Analysis

The instances attested to in 4.2 above illustrate two focus construction types known under the names of topicalization and dislocation in current linguistic literature. Ross (1967b:232-236) gives three rules that account for the facts displayed by these typical constructions. These rules are shown below.

4.24 Topicalization (Optional)

```
   X   NP   Y
   1   2    3    →
2#[1   ϕ    3]
```

4.25 Left Dislocation (Optional)

```
   X   NP   Y
   1   2    3    →
2#[1   2    3]
     [+Pro]
```

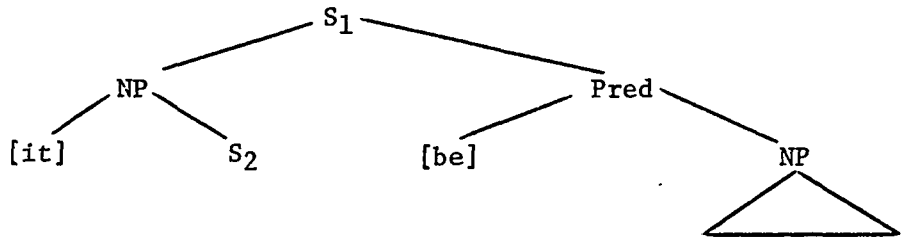
4.26 Right Dislocation

```
   X   NP   Y
      [-Pro]
   1   2    3
 [1    2    3]#2
      [+Pro]
```

The common claim made by these three rules is that a noun-phrase moves from an arbitrary point of embedding to clause-initial or clause-final position, the difference between the first rule type and the other two being the pronoun copy, which appears in the latter but not in the former. With respect to the three rules, the moved constituent is Chomsky-adjoined to the structure-set for which it has become either the head-point or the end-point. This approach is known under the name of extraction analysis (for a counter-proposal[14] to the extraction analysis of these constructions, see Gundel, 1974:66-215). On the other hand, the sentence types exemplified in 4.3 and 4.4 above have received the names of cleft and pseudo-cleft sentences. Although many analyses have been proposed to account for these structures, the similarities of the various solutions are striking in that they are all reducible to a deep phrase-marker similar to that of a Relative clause + Predicative

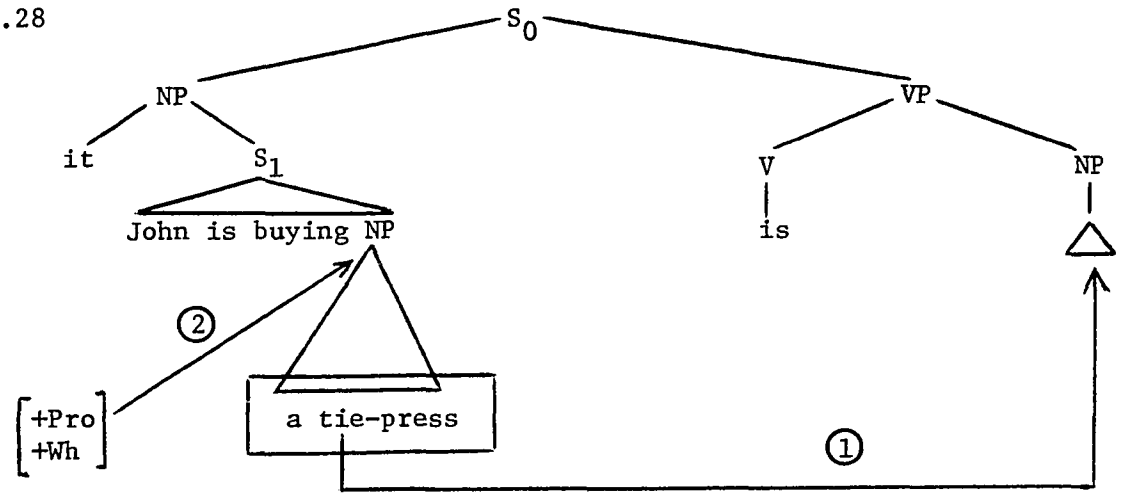
structure, as illustrated in 4.27 below.

4.27 Relative Clause + Predicate Structure



According to Higgins (1973:34), "the Relative clause and predicate complement" constitute an extraction analysis. The extraction analysis of cleft and pseudo-cleft sentences assumes that the clefted item is extracted from the relative clause and inserted into the empty predicate complement node. Higgins (1973:35, [15]) provides the diagram seen in 4.28 below to exemplify the mechanism of the extraction analysis.

4.28

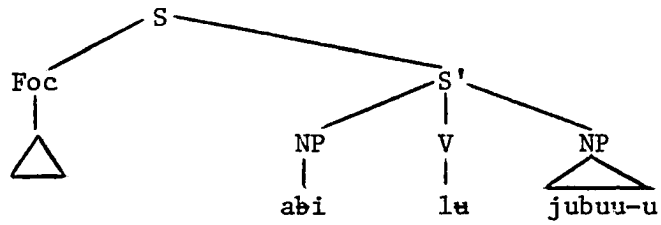


Within the framework of the standard analysis presented above, the derivation of the focus structures given in 4.1 through 4.8 must assume:

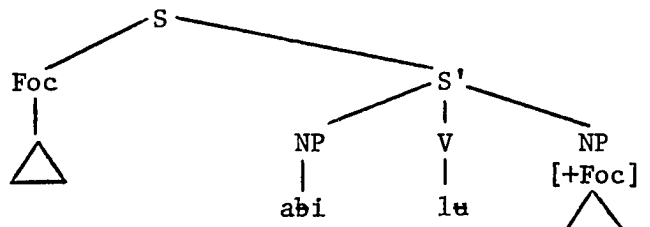
1. that in Koyo there are two distinct structures, namely, focus constructions and nonfocus constructions;
2. that the focus constituents may be marked either at the deep structure or at the surface level.[15]

For instance, if one chooses to mark the focus constituent at the deep level, the derivational history of a structure such as 4.1a will look like that shown in 4.29 below.

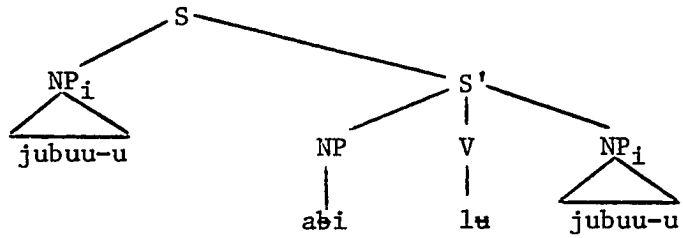
4.29 a) Underlying representation



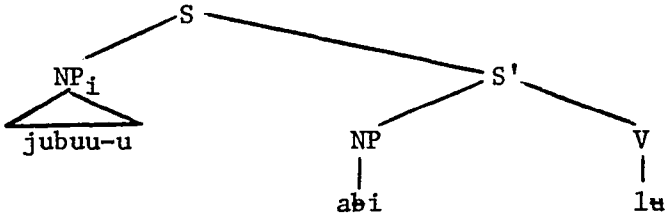
b) Focus placement



c) Focus copying

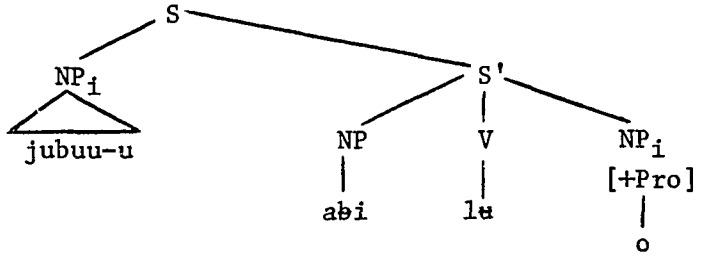


d) Equi-NP deletion



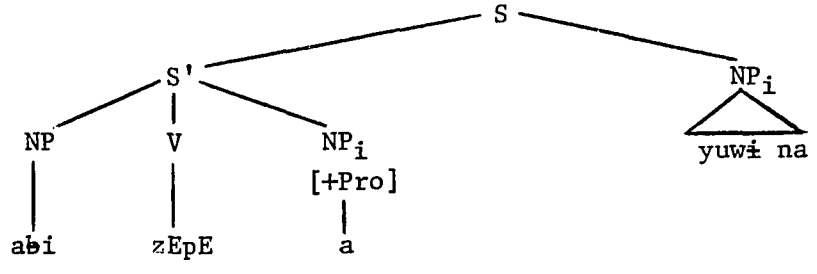
However, for the derivation of 4.2c, the Equip-NP deletion in 4.2a above needs to be replaced by the operation of pronominalization, as demonstrated in 4.29e below.

e) Pronominalization



Finally, the derivation of 4.5b requires an extra step, which may be called the transformation of NP-flip as demonstrated in 4.29f below.

f) NP-flip



The standard analysis makes the crucial claim that focus constituents are

copied into their surface structure positions (step c of 4.29). Instead of a copying operation followed by a deletion of the original, the standard analysis may use a movement process by means of which focus constituents are moved into their surface configurations. On the face of these observations, one question comes to mind: What makes the derivations based upon the null-hypotheses (4.16-4.20) more appealing than those based on the transformational approach (4.29-f)? The superiority of one hypothesis over the other will be examined now. In this connection, I will concentrate on the movement solution as opposed to the nonmovement solution.[16] The former will be the transformation framework, while the latter will be the null-hypothesis, which is adopted in this chapter as a better explanatory device for the facts concerning focus constructions in Koyo.

4.3.2. Superiority of the Null-Hypothesis

Both the movement and the nonmovement analyses seem to meet the observational adequacy of the grammar of Koyo. However if the movement analysis makes good observations about the data, it does not really explain the facts. The only kind of justification that might be expected from the movement analysis is the following: The constituent that bears the focus is set off and moved to sentence initial position to show that the prominence is on that constituent. However, the next question is: Why is the prominence sometimes marked sentence initially (left dislocation, topicalization) and sometimes sentence finally (right dislocation, cleft and pseudo-cleft)? The movement analysis is unable to

account for the bidirectional movement of the focus constituents in focus constructions. In this respect, the movement analysis has no explanatory value at all. This approach is adequate only to the extent that it describes the facts that are observed about focus constructions in Koyo and no more.

On the other hand, no question of direction of movement can arise, since the null-hypothesis is by definition a nonmovement analysis. This hypothesis claims essentially that the slot that is usually filled by the focus constituents or the specific question words represents a specific information as regards simple declarative sentences or yes-or-no questioned sentences in Koyo. This means that if the slot is specified for a focal or a question feature, the meaning of the S(entence), which is sister adjoined to this slot, will change from nonfocus to focus sentence and from yes-or-no question to specific question sentence respectively. In other words, the distinction between the four sentence types in Koyo, namely, simple declarative versus focus sentences, yes-or-no versus specific question sentences follows as a natural consequence from the incorporation of the null-hypothesis in the grammar of Koyo. If this is true, and I believe it is, then the null-hypothesis presented above possesses more explanatory value than the competing transformational approach.

4.4. Summary

4.4.1. This chapter has dealt with focus construction in Koyo. It was observed that all these structures could be treated as a unified domain

of syntactic investigation. In order to be able to work along the lines of the new direction of research launched independently by Wirth (1973) and Gundel (1974), this chapter opened with the presentation of the data and the main generalizations concerning focus constructions. It was shown that simple declarative sentences with unmarked order are of the SVO type. On the contrary, focus and specific question sentences have various marked orders.

4.4.2. The second point of the chapter presented the null-hypothesis and showed how it works to derive all the focus sentence types and related structures occurring in Koyo; e.g., simple sentences versus focus sentences versus questioned sentences. Finally, the last section dealing with some remaining theoretical issues, showed that the null-hypothesis is superior to the standard transformational analysis, since the former possesses more explanatory value than the latter.

Chapter IV

Footnotes

1. The null-hypothesis is opposed to the transformational hypothesis in that it claims that the deep structure of a given construction is essentially similar to its surface configuration. The former differs from the standard structural analysis in that it makes use of transformations. But the point here is that the null-hypothesis posits no new transformations that are not independently needed elsewhere in the grammar of the language for which this hypothesis is adopted. For the application of this mechanism to the case of English, I am aware of two works. Jenkins (1975) deals with the English existential known as there-insertion. The other investigation is Higgin's (1973) doctoral dissertation on pseudo-cleft construction in English. F. Householder has pointed out to me that "null hypothesis" is a general term for the assumption that no special hypothesis is needed to account for a set of data (i.e., it means almost "chance" or "coincidence").

2. An underscored word indicates a heavy stress. The latter differs from the normal primary stress, which in English falls on the penultimate syllable of the underlined compound word attested in 4.1a above. A difference exists between 4.1a and the sentence such as (1) below. The former presupposes that some food item is actually eaten by an individual. On the contrary, (i) asserts that the individual Abi rather than anyone else ate the dessert banana.

   (i) abi lɯ jubuu-u
   Abi eat banana-D
   'Abi ate the dessert-banana'

   The question then is how does (i) differ from 4.1b? The latter implies that reference to the individual Abi has already been made and the hearer knows about the subject for whom an assertion is made.

3. The phrase 0m0 is a two-morpheme word comprising the third personal pronoun 0; i.e., 'he' and the emphatic marker m0; i.e., 'self'. By extension, one may break down the formative for 'person' and 'thing' in 4.4a and 4.4b, respectively. The former; i.e., n0m0 is made up of n0 ('the one') and m0 ('self). The difference between n0m0 and nomo is a feature opposition of animate versus nonanimate. Here again, the question of vowel alternation raised in the previous chapter reappears. The vowel of the emphatic marker should be left unspecified until after the application of the vowel alternation rule, which in this particular case follows the morphological process

by means of which the formatives nO + mV and no + mV amalgamate to yield 'person' and 'thing', respectively.

4. This instance of right dislocation may raise the question as to what is the basic word order of Koyo declarative sentences. If this order is assumed to be S(ubject) V(erb) O(bject), then the next question is how to distinguish between 4.5 and (i) below.
   (i) O wOtO keyo nO pɨlE

5. Chomsky (1965:221) defines topic as "the leftmost NP immediately dominated by S in the surface structure." Gundel (1974, passim) rejects the Chomskyan surface structure account of the notion of "topic". In this dissertation, I will make no distinction between focus constituent and contrasted constituent. Norman (1974) has convincingly demonstrated that Chomsky's notion of "focus" is the same as the concept of "contrast".

6. Unmarked order is to be understood as that order of constituents found in declarative sentences that do not contain any negation or a specific tense-aspect feature. What is called here a specific tense-aspect feature is usually rendered in Koyo by the yi, ya and ka-morphemes, which denote future, past-aspects and hypothetical condition, respectively. The illustration of these features is attested in (i) below.

(i) a) O ye duN
he come town-in
'He comes to town'

b) O yi-a duN
he come-past town-in
'He came to town'

c) O yi duN yi
he future town-in come
'He will come to town'

d) O ya duN yi
he past town-in come
'He has come to town'

e) O ka moni ñi
he condition money find
'If he finds some money'

7. The fact is that the extraction of the tense-aspect feature from the body of the main verb is not the only factor for switching from SVO to SOV in Koyo word order. Other important factors are

the negation formative ta; i.e., 'not' and the subordinator marker in the conditional clause, as indicated in the previous footnote. The negation morpheme can actually be assumed to be a verb and the hypothetical condition marker ka is somehow related to the verb that denotes the possession of an object, namely ka, 'to own, to have'. My suspicion for the SOV order is that in this case there is a process of extraction or dislocation of the tense-aspect feature from the V-node. This process subsequently triggers the movement of the object NP inside the verbal entry so dislocated. The result of this double process is that the main verb is left in sentence final position.

8. I have not been able to find Ross's paper mentioned above. However, I read a summary of it in Rosenbaum's doctoral dissertation (1974: 52ff). Accordingly, I assume that Rosenbaum's interpretation of this paper is correct.

9. If Ross is correct in claiming that structures with overt auxiliary verbs are actually complex structures in which the auxiliary is in fact a higher predicate, then some facts of Koyo sentence structure are comparable to German sentence patterns. The latter indeed have been described as a SVO language in its simplex sentences and a SOV language as far as its subordinate sentences are concerned. In Koyo, the fact that negation and conditional clause markers exhibit the same syntactic behavior as auxiliary verbs constitutes good evidence for claiming that all these constituents should be considered higher predicates whenever they occur in a surface string. If Ross's analysis of auxiliaries as main verbs is correct, its application to Koyo SOV sequence would mark this order as being complex. Accordingly, the SVO order would automatically become unmarked. However, there is an alternative to the Transitive Auxiliary Analysis. This alternative assumes that in Koyo, both SVO and SOV are unmarked orders and require the Phrase Structure Rules of the language to mention two distinct formation rules for the category S(entence). In this respect, one has for Koyo the following PS rules as exemplified in (i).

(i) 1. S → NP V NP
2. S → NP Aux NP V
3. NP → NP (Det)
4. V → Vb Tense

The inconvenience of (i) is the claim that in rule 1 and rule 2 the respective categories are not related. Such a claim seems to be counterintuitive at most.

10. In Koyo, question particles are equivalently represented by a, aN, or la. I do not think that there is any meaning difference between these various forms.

11. Upon examination of the examples given in 4.13 above, the question may be raised as to where is attached the category representing the question particle in the tree configuration of an interrogative sentence in Koyo? I believe that this particle is a suffix of the verb category. However, this particle may have an optional reflex that appears in sentence final position, as demonstrated in the a-b pair of (i) below, which are paraphrases of each other.

(i) a) losaza a ko(w) a popoN
why we be Q world-in
'Why are we in this world?'

b) losaza a ko(w) a popoN aN
why we be Q world-in Q-reflex
'Why are we in this world?'

12. According to Bokamba (1976), Dzamba has no specific question formation rule comparable to the English inversion rule. However, the author distinguishes questioned sentences from other focus structures, as the former are used to perform a syntactic process different from the processes performed by the other focus structures. In Dzamba, questioned constituents move rightward, while other focused constituents move leftward.

In the standard transformational analysis of focus structures, two analysis types have been proposed. One is known as extraction analysis (Lakoff, 1965:F.40-F.41; Chomsky, 1970:197-198, 209; Akmajian, 1970; Grosu, 1973:295-298, cited in Higgins (1973:34). The other approach is deletion analysis, attributed by Higgins (1973:33) to Peters and Bach (1968), Clifton (1969), and Ross (1972). Higgins (1973:54-98) has shown the difficulties common to both analyses. For this reason, he has proposed the null-hypothesis to explain the pseudo-cleft construction in English. I will come back to the transformational hypothesis in the third section of this chapter.

13. In Chapter V of his doctoral dissertation, Higgins analyzes some characteristics of copular sentences with respect to the notions of "Referential noun phrase", "Predicational reading" and "Specificational reading." He goes on in Chapter VI to describe some special properties of "Specificational Pseudo-Cleft Sentences," i.e., copular sentences that cannot be clefted or pseudo-clefted. In this respect he states the following constraint:

> "A Specificational Pseudo-Cleft Sentence is 'inviolable' in the sense that none of its main constituents can be deleted or moved." (Higgins, 1973:286)

In Koyo, the constraint is more general in that it is not limited

to the "specificational pseudo-cleft sentences" as defined by Higgins. On the contrary, this constraint affects all the pronominal NPs which occur in subject position.

14. Gundel's reason for rejecting an extraction analysis in structures with so-called dislocated substructures is the following: Since the dislocated noun phrase must be marked for the feature specification [+ objective] or whatever feature distinguishes the dislocated and the nondislocated item, she claims that an extraction analysis type would yield the ungrammatical strings attested to in (i-iv) below where the bracketed figures are from Gundel (1974:71).

(i) [10] a. Me/Myself, I never drink beer
b. *I, I never drink beer

(ii) [11] a. Him, he never does anything right
b. *He, he never does anything right

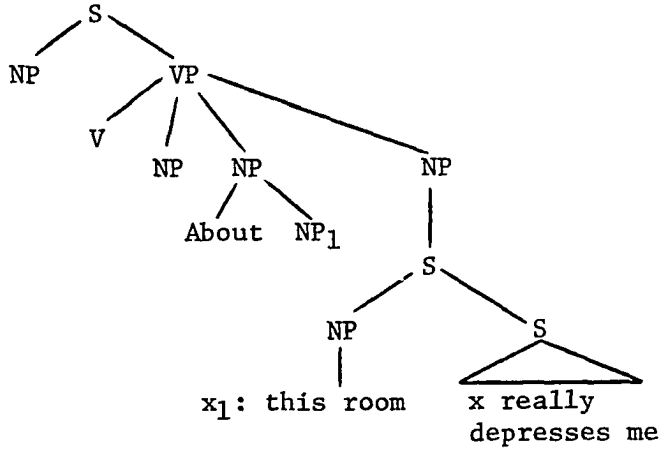
(iii) [12] a. You and me, we ought to get together some time
b. You and I, we ought to get together some time

(iv) [13] a. Them, I know they'll never believe me
b. *They, I know they'll never believe me

Since Gundel is not willing to accept a special lexical rule to change the case of the NP from the nondislocated to the dislocated position, she discards the extraction analysis in favor of a "Logical Structure Hypothesis." Gundel does not really motivate her choice of this new hypothesis. However she does state that: "an about phrase containing the dislocated NP is actually part of the performative clause (see Chapter I in Gundel),i.e., the logical structure of (1a) is roughly (24)."

(1a) (About) this room, it really depresses me

(24)



On the other hand, Hirschbuhler's (1975) proposal on the source of Lefthand NPs in French confirms Gundel's hypothesis, which I am adopting under the so-called null-hypothesis in the present section of this chapter. I am grateful to Peter Cannings for calling my attention to the existence of Hirschbuhler's squib.

15. Chomsky (1971) has proposed to derive English contrastive stress and normal sentences from a common syntactic deep structure and then account for their semantic distinction by means of the focus-presupposition relation, which is a surface structure phenomenon. For instance, he states that: "the focus is the phrase containing the intonation center, and the presupposition is determined by replacement of the focus by a variable" (1971:200). On the other hand, Lakoff (1971) has argued for the deep structure interpretation of the concepts of presupposition and focus, which he considers as part of the semantic representation and which are related to surface constituents through global derivational constraints. (For further details, see Bach, 1968; McCawley, 1970; Ross, 1970; Postal, 1972.) However, for the grammar of Koyo focus structures, it is obvious that neither proposal is crucial for the facts under consideration since a deep structure marking of focus as seen in 4.29b or a simple surface structure marking of the focus constituents would equally account for the range of data being studied.

16. I have been informed that Higgins (1974) has argued against the necessity of movement transformations. According to Peter Cannings (private communication), in this respect, the paper has one argument based on three points as follows:

    (1) Given that the Comp-node has been motivated and that it can dominate categories such as NPs, PPs, ...
    (2) Given the necessity of "traces"... (for further details on this theory, see Chomsky, 1973:269 note 49, 1975; Fiengo, 1974:25; Morin, 1974; and other sources)
    (3) Given that you can generate WH-items and the traces in their surface positions and relate the two positions with the independently needed "semantic trace binding rules"

Higgins then concludes that the movement operation is superfluous. If these points are proved correct, they would support the claim advanced here for Koyo focus constructions, namely, that movement rules are not needed to explain them. On the contrary, the postulation of the null-hypothesis based on a Phrase Structure Rule such as 4.16 is sufficient to account for all these focus structures. The null-hypothesis that has been adopted here leads one to believe that Koyo comprises only Bounded Rules, such as Raising Rules and Clause-Internal Rules (Postal 1974:46).

CHAPTER V

CONCLUDING REMARKS

5.0. Introduction

This thesis has examined three basic types of syntactic structures in Koyo, namely, Complementation, Modification and Predication. The first two structures have been investigated in some detail. As for the last structure type; i.e., Predication, its treatment has rather been pervasive throughout. The purpose of this general conclusion is to summarize the different aspects of the language that have been investigated in this dissertation. There are indeed many ways to present the summing up of a work made up of self-contained parts. One of these is to summarize briefly each part, then make mention of the issue, if any, related to each part. I will follow this procedure in the four sections below, and I will end by stating what the present description suggests about the current theory of languages.

5.1. Opening Chapter

The first chapter was devoted to a survey analysis of three features in Koyo, understood as prerequisites to a syntactic treatment of this language. These are morphology, phonology and tonology. This chapter raised the issues of productivity in phonology (see Kiparsky [1973a, b]. However, no attempt was made to participate in the debate over what phonological rules are. Clayton Wang (1974:35) has drawn the line between the linguists who limit phonological rules "to just those rules which

make surface-level generations" (Saltarelli, 1971; Skousen, 1972) and Kiparsky (1973a, b). The latter concurs with Skousen in claiming that a phonological rule is real if "surface violations" of it tend to be eliminated. But he does not agree that if surface violations of a rule do not tend to become eliminated, then the rule is not real. Since the goal of this chapter was to provide a description that could help understand the syntactic problems of the ensuring chapters, I did not deem it relevant to verify the claim that rules are productive only to the extent that they eliminate surface exceptions. On the contrary, I suggested that the notion of productivity when worked out could bring under the same heading the two subcomponents of language called Morphology and Phonology.

5.2. The second chapter tackled the question of complement structures in Koyo. The difficulty of a syntactic treatment alone definitely turned the investigation toward the examination of the meaning relationships in Koyo Complex Sentences. It was revealed that for a class of predicates, that is, cognitive, emotive and sensory verbs, which presuppose the truth of their complement sentences, syntactic markers appear in these complex sentences as reflections of the presuppositional readings contained in these constructions. The issue in this chapter could be that of the relevance of a semantic theory of presupposition for the description of natural languages. Kempson (1975) and Wilson (1975) address themselves to this issue. Their conclusion is that a presuppositional approach to human languages has so many shortcomings that it becomes quite impracticable.

Once again, given the scope of the present investigation which aims at a description of Koyo that is as adequate as possible, this chapter deliberately avoids highly speculative arguments on the notion of presupposition. In this respect, only the basic assumptions of the presuppositional analysis proposed by the Kiparskys (1968b/1971) are retained. It is argued throughout that their framework is adequate to handle the data concerning complement-taking predicates in the Koyo language.

5.3. In Chapter III, the structure of modification is dealt with. In fact, this chapter shows how two basic categories of Koyo sentences (i.e., Noun and Verb) are modified by other categories. In this connection, three problem areas are investigated. These are adjectives, relative clauses and adverbs. The first two modify a head noun, while the last modifies a verb-item. It appeared that for an adequate approach to the part of speech known under the name of "adjective", background work to determine the different semantic classes of these items was a prerequisite. Without it, syntactic and morphological studies of adjectives would result in an aggregation of facts leading to no meaningful generalization. Anyway, this section of the chapter showed that semantics and syntax are so mingled that it appears impossible to separate them in linguistic theory. Of course, the issue connected with these previous considerations is what Lakoff and Ross's short paper raised in 1968, namely, "Is deep structure necessary?" If semantics is only interpretive and syntax generative, the analysis of adjectives in Koyo will require an

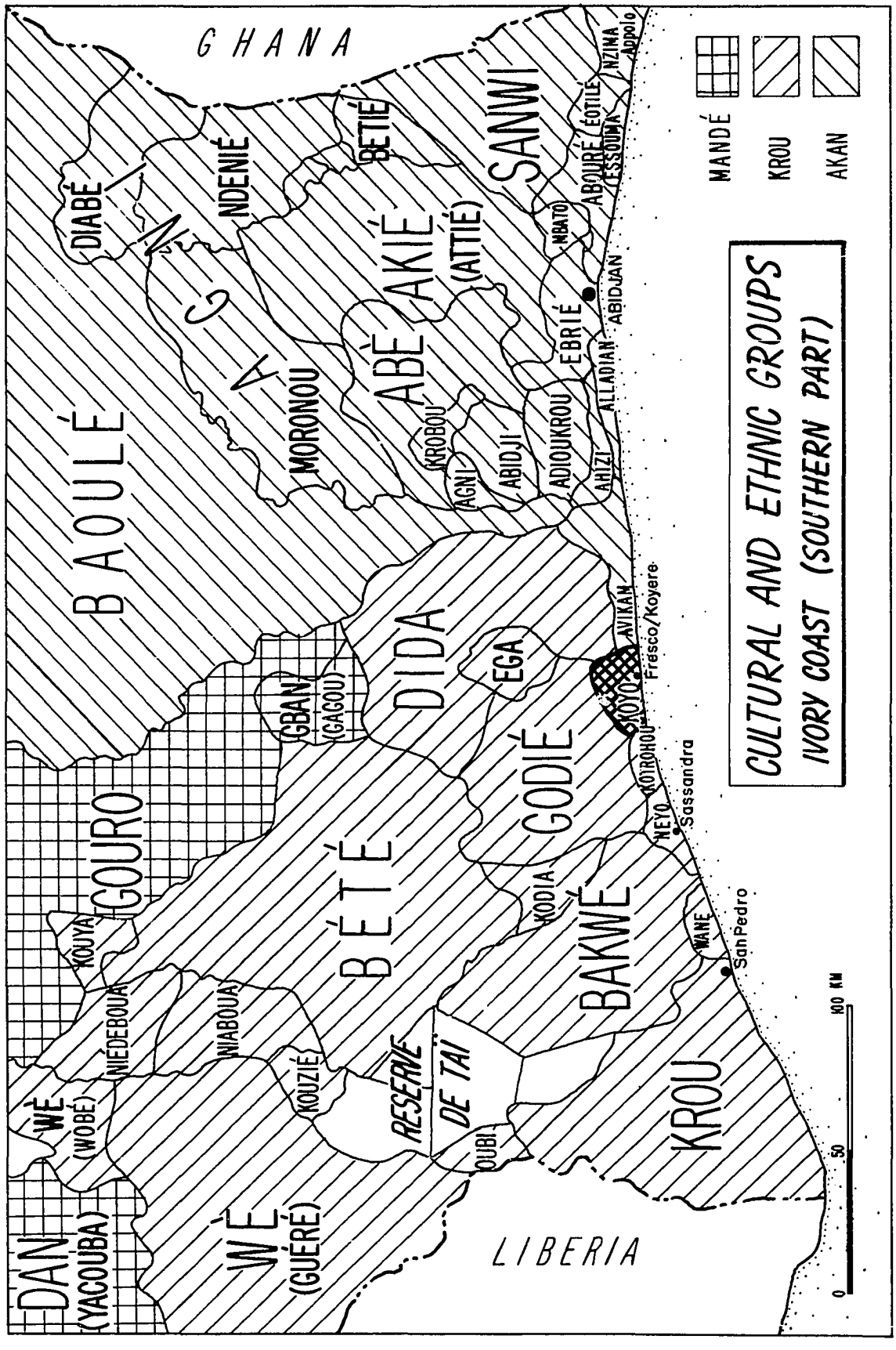
extremely complex machinery for this description. But Chapter III does not address the issue as such. Another aspect of this chapter is the proposal that a deep structure constraint is necessary to treat relative clause sentences in Koyo. It clearly appears that whether one makes use of the two potential devices available in the present theory for the analysis of these clauses (the extraction or deletion analysis), the Rule condition constraint suggested applies equally and is indispensable for the well-formedness of relative clauses.

5.4. Chapter IV broached the question of focus sentences. In this respect, the question arises as to how to generate these constructions in the theory of Koyo. In order to answer this question, several solutions were tried. Within the transformational framework, a deep structure interpretation of these phenomena and various transformations of copying and deletion tried to handle the data. But it is obvious that the standard analysis which uses the movement solution has a very limited explanatory value, since it is unable to account for the bidirectional movement of the focus constituents in focus constructions. The framework adopted in this last chapter of the dissertation is called the null-hypothesis (i.e., a descriptive device that enables the investigator to reduce to a minimum the number of transformational operations needed to analyze a given language). The rationale behind this new approach is to show that all the structures described in this chapter seem to have the same range of functions in the syntax of Koyo. In all these constructions, the constituent that is set off the rest of the sentence is designed to carry

out a specific information that enables the reader to know what the sentence is about.

5.5. At the end of this investigation, I cannot conclude without raising the ultimate question, namely, what is the contribution of this investigation to the field of linguistics? The relevance of the above question is so important that I should tell you this anecdote which is not funny at all but is in order here because it haunted my mind throughout the writing of this dissertation.

It was about two years ago, when I was doing my course requirements. One of the assignments for L575 (i.e., a Graduate Linguistic course on Introduction to Linguistic Theory) was Teeter's 1964 paper on "Descriptive linguistics in America: Triviality vs Irrelevance." The evaluation of my instructor of this paper was that nobody including Teeter should take the trouble of writing a linguistic work if he or she has no original idea or ideas to propose as a contribution to the linguistic theory. The purpose of this dissertation has been to attempt to gain some insight into the grammatical structures of the Koyo language -- a language which had never previously been studied systematically. This investigation thus constitutes an original contribution to the field of linguistics. It is hoped that it will provide a basis for further systematic research both into this particular language and also into the nature of languages in general.



APPENDIX

A "Piece" of History on the People and Their Language

I.1. The word "Koyo", which appears throughout this investigation, is an abridgement for the phrase:

koyere	la	ñekpa	la	cici	wale
Koyere	of	people	of	spoken	words

'The speaking of the people of Koyere'

A shorter form, namely, "kDye wale ie kOyere-wale", is used as an equivalent of the former and means: "the language of Koyere", where the last term designates a small town located on the sea coast in the southwestern part of the Ivory Coast. This town is also known under the nonnative name of Fresco. The purpose of this appendix is to provide a background information on the two terms "Koyere" and "Fresco". An attempt to set forth the origin or derivation of these terms seems doomed to failure, since the literature in this domain is too scarce and the reliability of present-day oral tradition is questionable. Yet the investigator, who is a native of this small place in the Ivory Coast, has adopted here the philosophy that a good player of chess always follows whenever he starts a new game with an unorganized collection of pawns and men on either the black or red side of the chess board. Like the chess player, he believes in the possibility of putting together all the pieces so as to come out with a coherent design or plan.

I.2. As far as the term "Koyere"[1] is concerned, an etymological approach would immediately look for its division into a root

or stem element + an affix element. In this respect, one assumption may be to analyze "Koyere" as a compound morpheme item, though from the synchronic standpoint, the constituent -yere in "Koyere" is no longer a meaningful formative. However, from a comparative linguistics viewpoint, there are cognates in related languages that substantiate the hypothesis that "Koyere" is made up of two subunits, a root unit ko- i.e., a spice very commonly found in that region of the Ivory Coast, and an affix unit -yere,[2] which in some cognates means 'country'.

I.3. As I mentioned at the outset of this appendix, the term "Fresco"[3] sounds quite like a foreign designation. For one thing, if this word were not a nonnative term, one would need to explain why two names are used to identify the same geographical area. Furthermore, the word Fresco violates the basic phonotactic constraints of Koyo, which can be expressed as follows:

(1) If two consonantal sounds are in sequence, then the second segment may not be a true consonant, i.e., a stop or fricative sound. (Since Koyo does not have any affricate sounds, it follows that only stops and fricatives are considered true consonants.)

(2) If the second consonant of a cluster is a liquid sound, this segment will be realized as an l-like or r-like consonant, depending on whether or not the first element of the cluster has the feature specification [Grave].

Given the above phonotactic constraints, it is clear that the term Fresco (i.e., phonetically [frEsko]), violates (1) and (2) above. This fact constitutes good evidence of the nonnative status of the word. The claim that Fresco is not a native term is corroborated by a further observation on the way the native speaker, who is illiterate,

pronounces this word, namely [flEsIkoo]. In other words, the illiterate pronounces it according to the phonotactic constraints of the phonological system he is aware of.

I.4. At this stage, it is important to justify why, unlike other writers,[4] I call the native language of Fresco or Koyere, "Koyo" and not "Godié."[5] The choice of the term Koyo to designate the language under consideration can be justified on anthropological and linguistic considerations. On the first account, I think it quite appropriate for a language spoken by a given community to draw its name from that of the people speaking that language. The examples on this matter speak for themselves. Thus, the French speak French; the Germans speak German; the English speak English; the Russians speak Russian, and so on. In this connection the Koyo, who are the inhabitants of Koyere, will speak "Koyo". Although this type of reasoning is not enough of an argument to extend the name of the speaker to that of the language itself (for instance, the Scotch or Scottish speak English, the Belgians speak French and the Mossi speak More), this reasoning is supported by two independent facts that one may observe among neighboring tribes. For instance, the Avikam of Grand Lahou and the Aladjan of Jacqueville[6] call the language spoken at Koyere or Fresco by the two terms Koyo and Ekoyo, respectively. Why should one believe that these designations mean anything to the Avikam or Aladjan? I will emphasize that Aladjan and Kognoa have entertained for a long time a mEnoñO relationship (i.e., a "covenant" relationship), which makes me believe

that their designation of the language of their allies is important as one seeks the most appropriate term to be given to the language spoken by the inhabitants of Koyere or Fresco. But in addition to the anthropological reasons just discussed, linguistic motivations militate for the maintenance of the term Koyo.

I.5. On the linguistic ground as well, the word is accounted for in at least two ways. First, it is true that there is no such thing as a Godié language,[7] as opposed to a Dida language,[8] or a Bete language,[9] etc. What is true, though, is the fact that within the so-called Kru dialects[10] speaking areas, languages and/or dialects exist that, very likely, are genetically related. But within such a complex unit (call it Kru languages, for want of a better term), there is absolutely no way to define the isoglosses of the constituent units, say, Godié, Dida, Bété, and so on. One single illustration of this statement is that so-called standard Bété of Soubré presents less problems of mutual intelligibility with respect to Koyo than does the standard Bété of Gagnoa. At this stage, my contention is that the terms such as Bété, Dida, Godié, Néyo, Bakwé, etc., are imaginary cover terms for collections of related languages. And unless these cover designations are given up, there is little chance of gaining more insight into these languages or dialects. The second motivation for distinguishing Koyo as a constitutent unit within the complex unit, is that Koyo differs from the so-called Godié from the segmental and suprasegmental standpoint. By way of illustration, let me provide the

following example, in which the a-sample represents a standard Godié[11] utterance the the b-instance a Koyo sentence.

(a) yúu-ú mò dó zèka
boy-D go town today
'The boy went to town today'

(b) yóo-ó mo dúN yèkaN
'The boy went to town today'

It may be noticed that the tonal contrast and the segmental variation between (a) and (b) are not so significant as to impair mutual intelligibility between the speakers of (a) and (b). However, either speaker is absolutely aware of the discrepancies between the two utterances. The claim advanced here is that a variance such as the one noted between (a) and (b) above will turn into mutual unintelligibility as the distance from one community to the other increases. In other words, the geographical remoteness between two language communities currently subsumed under a unique cover term is a major factor of mutual unintelligibility. If so, one is urged not to rely too much on these convenient classifactory terms, such as Godié, Dida, Bété and other proposed designations to describe the linguistic characteristics of this region of the Ivory Coast. Once again, background work remains to be done on more linguistically based classifications.

FOOTNOTES

* The map drawn on the page before the Appendix to this dissertation is a replica of part of the map provided by the Cartographic department of ORSTOM in Atlas de Côte D'Ivoire (1971) edited by the Institute of Tropical Geography at the University of Abidjan. I took the liberty of filling in the blank left for Koyo. My reasons for doing this are given below, as I proceed to provide a bit of history on the people, i.e., the Kognoa, and their language, that is, Koyo. More will be said about these distinctions a little later. But I must add right away that this map is an incomplete view of the language-situation in the Ivory Coast, since it does not mention the northern part of the country, which was left out only for lack of space.

1. The endeavor to trace the origin of a word in any language that has no written literature is entirely based on the folk stories extant in that language. These stories are handed down from generation to generation and constitute the oral tradition of the community. In the case of "Koyere" such a tradition exists, for which I will refer the reader to a three-page sketch in Kokora (1968). According to this tradition, Kognoa, the name of the inhabitants of Koyere, was a nickname given by the Droguiés, another tribe ahead of the Kognoa in the migration movement toward the southwestern part of the country. The Droguiés dubbed the newcomers "Dognoa," that is, "possessors of kOO." (The last term designates a kind of spice used as a cooking ingredient to thicken a sauce.) But there is another version, according to which "Kognoa" actually means "hunchbacked men." One has here a bit of evidence of the questionable nature of present-day oral traditions.

   From written documents, most of them based on the oral traditions, the origin of this term is traced to a Newole or Neyo word to designate Fresco (Migeod, 1913). Migeod (1913:252) provides the following chart to identify some place names used in the Newole language (i.e., the language spoken by the inhabitants of Sassandra, a town in the extreme southwest of the Ivory Coast. Currently, this language is known under the name of Neyo.) The chart is reproduced below.

(i)

Usual name	Newole name
Drewin	Kebe
Fresco	Kwayre
Jacqueville	Aladya (Alagyan)
Kotru	Legre
Lahou	Ble
Sassandra	Bokre
Tabu	Urone

Although Migeod provides no justification for claiming that the terms in the right column are native words of Newole or Neyo, it is certain that in Koyo as well, the local designations for the names in the left column in (i) are, as seen in the right column in (ii) below.

(ii)

Usual name	Newole name	Koyo name
Drewin	Kebe	--
Fresco	Kwayre	Koyere
Jacqueville	Aladya (Alagyan)	Ladjan
Kotry (Kotrohou)	Legre	Legleko (Drogolou)
Lahou	Ble	Bleyere
Sassandra	Bokre	Gbogle
Tabu	Urone	--

Except for "Drewin" and "Tabu", for which I am not aware of Koyo counterparts, all the other place names seem to have a one-to-one correspondence in Newole and Koyo. This fact may be regarded as good evidence for the relatedness of Koy and Néyo, provided that Migeod's claim is correct. On the other hand, this observation may signify that these terms are simply borrowed words that Koyo and Néyo incorporated in their respective lexicons. No more will be said on these two interpretations, which are outside the scope of this present appendix.

2. Migeod (1913:252), in a footnote, makes the following observation:

> Names in the Kroo languages and dialects vary according to the termination added to the root, which never appears alone. Po, bo, pwe, bwe, bwa are suffixes of nationality. Nyo or yo = man; yo = child; hiri, re, ble, bli = country; wi, wole (Bete) = language.

It should be noted that hiri, whose phonetic shape in Koyo is [yIrI] and ble (i.e., phonetically [bɨlI]) are two formatives in the Koyo lexicon. But while the former behaves only as a suffixal element, the latter is a meaningful formative, which means 'country'. This may be corroborated by the samples attested below.

(i) (a) Koyere 'Fresco'
(b) Bleyere 'Lahou'

However, note the suffixal usage of the term ble, as seen in (ii) below.

(ii) Koubli [kubɨli] 'France, i.e., the country of the dead'

It is interesting to notice the association of France with the next world, i.e., the country of the dead. There is a simple explanation. The first white men to be seen by these black men of Koyere came by the sea, and this vision of other human beings beyond the horizon of the sea came as a surprise that they could not believe to start with. Hence the nickname of Kou-bli, i.e., the country of the dead. This is quite a plausible explanation, if one recalls how the first French to migrate to Algeria happened to be called "blackfeet" simply because they were wearing black boots up to their knees during the first landing. I will not dwell on this matter any further, since there is often no logic behind the way names are given to human beings or to objects.

3. The attempts to trace the origin of the term Fresco should be regarded as tentative, since there is still a great deal of speculation in what will be said here. However, the synopsis of the few sources of information I was able to crosscut turned out to be consistent as to the identification of the term and its geographical location. The first source of information is Atger (1962:31), where Fresco is supposed to be the distortion of "Francis Cove", very likely a traveler of the early European contact with the West Coast of Africa. The plausibility of Atger's assumption is supported by one anecdote of the travels of the Knight Nuno Cristão, along the coast of modern West Africa.

According to a Portuguese chronicler of the fifteenth century (Gomes Eanes de Azurara [1936]), the first expedition to the West Coast of Africa went up to modern Sierra Leone, where it was stranded because of the death of its chief commander, the Knight Nuno Cristão. The chronicler claims that Cristão found death while ascending the river that was termed after his name "Rio de Cristão" or "Rio de Nuno Cristão." He further notes that this river has been so marked in almost all the old charts, in memory of this catastrophe ([1938]:238, note 1).

The same chronicler also affirms that in 1460, a second expedition to the West Coast of Africa went beyond this point reached by the first expedition. He goes on to identify this further point as located 110 leagues away from Cape Verde, that is, beyond modern Sierra Leone. At this stage, if Atger's hypothesis is correct, one may assume that Francis Cove was among the crew of Alvaro Fernandes, the leader of this second expedition. Assuming that the new rivers found along this coast were given the names of those who first explored them, the name of Fresco or Rio de Fresco may have originated in this way. L. Schwartz has pointed out to me, in private communication, that there is a simple way out, which could dispense with the hypothesis of Francis Cove's name distortion or his unfortunate death. This solution consists in assuming that Rio Fresco was intended to mean "fresh or cool" water from the Portuguese. F. Householder concurs with L. Schwartz in the plausibility of such an explanation.

However, the assumption that Fresco was discovered during the second Portuguese expedition to the West Coast of Africa would be on very shaky ground if there were no independent sources confirming such a hypothesis.

As a matter of fact, the historian Blake, in expounding on the conflict between Portuguese and French over which of them first discovered the West Coast of Africa, sums up a passage from Nicolas Villant (1669:409-430):

> Two French ships sailed from Dieppe to the Rio Fresco, just south of Cape Verde, and thence to the Rio dos Sestos, as early as the winter of 1364-65. The success of this venture led to other voyages, in which the merchants of Rouen as well as those of Dieppe were interested. Trade was opened up with the modern Grain and Gold Coast (read Ivory Coast and Ghana respectively) and, in 1382, a fort was built on the site of the later castle of Sao Jorge da Mina. Various key trading points around the coast received French names, like the Rio Fresco, which was called "The Bay of France", and the Rio dos Sestos which was termed "Petite Dieppe". Unfortunately, civil war in France withdrew attention from this lucrative traffic so that, after 1410, it was abandoned. (Blake, 1937:2-3)

The reliability of the French claim matters very little for the point I want to get into. In fact, it was proven later, pace Blake, that all this was a simple hoax on the part of the French government, which, once Louis XIV came to the throne, was eager to provide historical justification of its territorial claims in West Africa. What is thought of importance in the French story is the acknowledgment of the discovery of Fresco, probably during the second Portuguese expedition, before the French travelers called it "The Bay of France", if such a designation has ever existed.

Another independent source supporting the discovery of Fresco as early as the middle of the fifteenth century, is mentioned in Atger (1962:31). According to him, Fresco had important trade relations with theDutch during the slavery period. But it is also true that these Hollanders began to replace the Portuguese only at the end of the seventeenth century. Therefore, for Fresco to have entertained an important trade relationship with the Dutch, it ought to have been discovered beforehand.

4. Quite a few written documents concern the social and economic activities of the inhabitants scattered in the western part of the Ivory Coast. Thus far, the emphasis has been to study in depth the social organizations of the tribes located in the eastern part. Witness this observation of Person (1964:335);

> La prospection des pays Bété et Krou à l'ouest du Bandama n'a pas encore été effectuée. Elle sera menée tout d'abord de façon extensive. Dans ces sociétiés sans état, les traditions orales doivent être pauvres et morcelées à l'extrême, ainsi que l'a confirmé le sondage effectué par Denise Paulme lors de son enquête sociologique de 1953, il semble cependant que c'est le cas chez les Gouros et les Dan (Yacouba). Il sera donc possible de reconstituer les movements de population au moins jusqu'au début de XVIII^{e} siècle. Il s'agit de toute facon d'une zone dont l'histoire s'est déroulée dans un isolement exceptionnel, à un rythme très lent et dans un cadre très morcelé, ses lignes générales seront donc très difficiles à reconstituer.

The major reason for quoting this passage is to indicate that even very recent publications, such as A. Schwartz (1971), still go by the same old clichés referred to by Denise Paulme in the fifties and by Person in the sixties. Some of these clichés are: "the exceptional isolation of the western ethnical groups," "the unorganization of their societies as compared to the well-organized groups of the eastern part of the country." I really do not know in what way a social organization based on a kingdom system is better organized than one that is not. Of course, in the case of the social organizations not based on the kingdom system, the anthropologist is faced with much more field work. If this is what one dubs "unorganized social groups," I can understand this concern of anthropologists in the field.

As I have already mentioned, Schwartz's paper on the Kru groups within the Ivory Coast does not constitute a new perspective on this matter. As I understand it, Schwartz's thirteen subdivisions in the Kru family are not based on tribe distinctions, but on geographical criteria. What bothers me about this is the reliability of this geographical factor, which has been used so often and so much in describing different language communities in the Ivory Coast. One exception to this common practice is the recent language survey conducted by Marchese and Gatrix (1974), which is based on a mutual intelligibility test, rather than the usual geographically based classification. Marchese and Gatrix have proposed three dialects to cover the 90 subunits of Schwartz, which are arbitrarily subsumed under the designations Dida, Godié and Néyo. What Marchese and Gatrix have done, contrary to Schwartz, is to seek three centers of language divergence of the linguistic area they were surveying. These centers were identified as Yocouboué in the South, Lakota in the North and Lagako in the West. The dialects of these centers were promoted as the dominant languages within the surveyed linguistic area. Once again, they did not appeal to the divisions such as Dida, Godié and Néyo, some of which have a mythological or unknown origin. If such a tentative survey was taken up in order to be refined, chances are that the

endeavor would lead perforce to the discovery of the features particular to the cultural vision of the Krou people, what Schwartz strives to unearth by cutting up the difference social communities through geographical factors alone.

5. Several writers have terms the language spoken at Koyere or Fresco differently from what I have done here. For instance, Migeod (1911:135) distinguishes:

> 1. Neyo (Newole) of Sassandra, Drewin
> 2. Godye of Godyeko, Niagoru and Nogbo
> 3. Godye of Kotru
> 4. Godye of Lozue, Djiva and Dyida

Notice that for Migeod, the term Godié subsumes both Dida and Godié. Though Migeod took the precaution of warning the readers that his classification was but geographical, one can see that he was less anxious about balkanizing the linguistic area he was surveying.

Another writer, Atger (1962:31), claims that Europeans used to call Lahous the various tribes located along the lagoon, which bears the same name. According to Atger, the term Lahou designates the language spoken by the people of the Maritimebank (i.e., Avikams of Fresco and Néyaux de Sassandra) as well as the people of the hinterland (i.e., Didas, Godiés and Kouadias). One may notice that Atger's classification also falls into the pitfall of the geographically based division in linguistic groups. However, the great interest of Atger's proposal is his desire to subsume under a unique term the different language or dialect communities extant along the Maritimebank and the hinterland.

Westerman and Bryan (1952:48) distinguish Koyo from Godié. They state that:

> Kwaya is also known as Zegbe, west of the Dida in the valleys of the Rio Fresco and Yobehiri. Clarke's 'Friesko', 'Friesco' and the 'Eple' appear to be vocabularies of this dialect. Godeye (Godia) call themselves Godye of Go; west of the Kwaya around Kotrou. Other names which may be those of sections of the tribe, or of other tribes, speaking this dialect, are Legre, Nogbo, Baleko, Kotrohu (Clarke's Kotrahu).

While Westerman and Bryand distinguish Koyo from Godié, Lavergne (1953:136) does not mention Koyo as a subunit of Godié, but Kokra (1956:52) makes the observation that the people of Fresco are called the Godie of Fresco. In light of the preceding considerations, it seems that the situation is not clear as to which language belongs to what unit, mainly because there has been no real background work in this linguistic area (except for the Marchese-Gatrix survey commented on earlier).

Personally, I do not care whether Koyo is subsumed under Godié or under other designations that might be devised. What I resent here is the geographically based classifications, which were once justified under the pen of Migeod (1911, 1913), but which in 1971 give the reader the impression of an attempt to further balkanize these linguistic areas. Pending further studies in which the language classifications will be based on more linguistic criteria, I have chosen the nonpretentious attitude of calling a specific dialect of any language-speaking community after the name of its inhabitants. This constitutes the ultimate justification for my calling the language or dialect spoken at Koyere after the name of Koyo, instead of Godié. As a matter of fact, it would have been unfair on my part to pretend to give a linguistic description of a Godié language, given that there is such a language, and I am not a speaker of this language and I have no informant to work with. In view of these feelings, I have proposed in this dissertation a grammatical description of the language or dialect that I speak myself, namely Koyo.

6. The Avikam of Grand Lahou and the Aladjan of Jacqueville are classified among the lagoon groups, which, in turn, constitute a sub-group in the Kwa languages.

7. According to Schwartz (1971, passim), the term Godié is made up of the amalgamation of two formatives, namely gwe and dji, which means 'Chimpanzee-panther'. He claims that it is very likely a nickname that the Néyo of Sassandra gave to the Godié tribes, because of their temperament, similar to that of these two animals when they are fighting. Another version of the origin of the term Godié is the one held by Kouassi-Lowa (1967:23), according to which the word is the distortion of the clause:

   a ka gouen zie i.e., 'We are about to go further'

   According to the author, the Godié, not willing to stay with their companions the Dida for the night, said these words and left the resting place they had reached at dusk.

8. The term Dida is believed to have more than one explanation. Schwartz (1971, passim), following Terray (1969), claims that the term dida comes either from the Avikam language in which it means 'tattoed', or from the Baoulé language in which it signifies 'eat and sleep'. Kouassi-Lowa (1967) proposes a third interpretation, according to which the term designates in Godié or Dida an 'eating place'. I really do not see what all these fancy etymologies have to do with the languages or dialects spoken by the people of this linguistic area.

9. According to A. Schwartz (1971, passim), the term bété has not yet been related to any meaningful origin. He indicates, however, that Paulme (no date) has acknowledged that it is the name that the native speakers call themselves.

10. Duitsman and Ingemann (1975:81) have convincingly argued that terms such as Kru, Krahn, Grebo and Bassa, which are supposedly dialects of the Kru group, are in fact cover terms for a linguistic area in Liberia, which may be divided into two major subunits, namely klao and TajuosO. Duitsman et al.'s paper came as the result of a project of linguistic survey. As they mention in their paper, the purpose of this research was:

    (1) to determine the number the Kru dialects and their locations,
    (2) to determine the nature of their interrelationships and
    (3) to gain an understanding of the relationships between Kru and the languages adjacent to it.

    One of the conclusions they reached was that Krahn, Grebo and Bassa, like Kru, were English cover terms for collections of dialects. I personally believe that as far as the Kru groups in the Ivory Coast are concerned, what needs to be done is to study the status of the different dialects that comprise these groups, as attempted by Marchese and Gatrix in 1974 for a small portion of this huge linguistic area.

11. What I call standard Godié is what I assume to be the counterpart of the Koyo sentence in the context of the next neighboring village, not far from Fresco, in which the type of discrepancies I am talking about are already perceived between the speaker (a) and the speaker (b). In this respect, the utterance in (a) may not be the particular speech of any so-called Godié speakers, since this example is meant to be only illustrative.

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Vita

General Information

Born: June 16, 1941: Fresco, Ivory Coast, West Africa

Educational Background

Undergraduate

(a) Studies--Major: Religion and Theology (1963-1967)
Major: English Studies, Université-Abidjan, Ivory Coast (1969-1972)

(b) Employment--Teaching Assistant: Summer Institute of African Linguistics, Université-Grenoble, France (1968)

Associate Researcher: Institute of Applied Linguistics, Université-Abidjan, Ivory Coast (1969-1972)

Graduate

(a) Studies--M.A. in general linguistics, with major emphasis on Transformational Grammar and minor on TESOL (Teaching of English to Speakers of Other Languages); Indiana University, Bloomington, Indiana (1974)

(b) Employment--Teaching Assistant: Department of Linguistics, Indiana University (Summer 1974)

Associate Instructor: Department of Linguistics, Indiana University (Fall 1975 and Spring 1976)

Honors and Fellowship Awards

1972 - 1975 Overseas Exchange Program Student Fellow, Indiana University.

1974 - 1975 International Student Program Fees Remission Fellowship, Indiana University.

1975 - 1976 Ivorian Government Grant (Ministry of Scientific Research)

Publications

"Koyiri ou Fresco." In: Centre Universitaire de Recherches de Développement, Bulletin de Liaison. (1968)

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