GIVEON, Talmy, 1936-
STUDIES IN CHIBEMBA AND BANTU GRAMMAR.

University of California, Los Angeles, Ph.D., 1969
Language and Literature, linguistics

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Los Angeles

Studies in ChiBemba and Bantu Grammar

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of Philosophy in Linguistics

by

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ACKNOWLEDGEMENTS

This work was undertaken while the author was a research fellow of the Foreign Area Fellowship Program, New York, to which he is much indebted for trust and support. I am also indebted to the Institute for Social Research, Lusaka, Zambia, for making their affiliation facilities available to me. I am particularly indebted to Dr. Dorothea Lehmann of the Center for African Studies, The University of Zambia, Lusaka, for much help and support during my fieldwork in Zambia. Thanks are also due Prof. Malcolm Guthrie and Mr. Michael Mann of London University, School of Oriental and African Studies, Dept. of Africa, for making some of their unpublished notes on ChiBemba available to me. I am also in the debt of Dr. John Sharman of Nairobi, Kenya, for having kindly lent me a copy of his dissertation, as well as for hours of stimulating discussion. I am much indebted to Prof. Paul Schachter and Prof. Barbara Partee of the Dept. of Linguistics, The University of California, Los Angeles, for helpful criticism of an earlier version of the manuscript. Although neither may agree with all or much of what I chose to say, they both helped make this manuscript somewhat better than it might have been.

Most directly, I am indebted to my informant and good friend, Mr. Peter Chilufya of Lusaka, Zambia (formerly of Malole, Chief Chiti Mukulu, District of Kaasama, Northern Province), for having endured with greatest patience and unfailing enthusiasm the rigours and strictures involved in this investigation. The many factual errors as well as errors of

judgement which may have inadvertently found their way into this work are entirely my own, and do not in the least reflect upon Peter's vast knowledge of ChiBemba.

Finally, I should like to record my great debt to my friend and erstwhile colleague, Dr. Jeffrey Gruber, who has made many of the grammatical solutions adopted throughout this work possible. This is not to imply approval on his part, and in fact he may well consider the honor more than a trifle dubious, having had no chance so far to witness the possibly many ways in which his own work was here invoked in vain. Nevertheless, thanks ever so much, Jeffrey, wherever you are.

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1967, Transformations of Ellipsis, Sense Development and Rules of Lexical Derivation, SP-2896, Systems Development Corp., Santa Monica, California

1969, The SiLuyana Language, Institute for Social Research, The University of Zambia, Lusaka

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ABSTRACT OF THE DISSERTATION

Studies in ChiBemba and Bantu Grammar

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Three major areas of the Core Grammar of ChiBemba, a Bantu language from Zambia's Northern Province, are described and analyzed. Part 1. deals with the structure of Nominals, features on Nouns and Nominals, an initial version of the Base Rules of the grammar as needed to account for the various optional members of the Nominal Phrase. Semantic and morphological contrast involving the prefix-initial vowel are analyzed.

Part 2. deals primarily with Concordial Agreement, within the context of the Transformational Component of the grammar. It is first shown that Agreement must consist of two distinct sub-components: Feature Spreading, which is a Cyclic Transformational Process, and 'Spelling', which is a post-transformational process of the Second Lexicon. Next the implications of Conjunction and Pronominalisation for Feature Spreading are probed. The Data seem to suggest a specific locus for Feature Spreading within the battery of Cyclic Transformations; following Conjunction Reduction but Preceding Deletion and Embedding rules. Formalisms are given for the concordial Resolution of Number, Gender and Person features, arising from Conjunction. The 'spelling rules' associated with the

concordial morphemes are then discussed, together with the morphological irregularities arising from the various sub-components of the Second Lexicon. The implications of Concordial Agreement in Bantu for Universal Grammar or Linguistic Theory are discussed.

Part 3. deals with the structure of the Verbal Phrase and the typology of verbs. General problems associated with Transitivity, Prepositional structure and the Incorporation of Prepositions into Verbs are discussed. In particular, Fillmore's Case Grammar format and Gruber's 'Lexical Base' format are contrasted as to their ability to account for the facts of both IchiBemba and English. Much of the discussion throughout centers upon the deep verb (operator) 'cause' and its position within the deep semantic structure of ChiBemba, as well of the implications of causative relations for linguistic structure and linguistic typology in general.

0. INTRODUCTION

This work has been motivated by several, hopefully compatible, interests. Its most immediate concern is the grammar of ChiBemba*), a Bantu language from Zambia's Northern Province. IchiBemba*), however, is not described here only for itself, but with some broader objectives in mind. To begin with, much of the grammar of ChiBemba is not peculiar to it alone, but in many areas resembles closely the grammar of other Bantu languages. This is so partly because of ChiBemba's central position within the Bantu field, and partly because of the high degree of common grammatical structure shown in all Bantu languages. Further, in several areas of the grammar this work will inevitably need to concern itself with Universal Grammar, or what is common to the grammars of all human languages. It is perhaps a happy coincidence that in many areas of the grammar, a Bantu language seems to be a very useful tool of linguistic research, shedding light on topics of general interest.

The particular linguistic approach used in this study may be termed generative, to the extent that it undertakes not only to describe and classify utterances, but also to probe into the nature of the linguistic knowledge or rules of grammar that the speaker must have internalised in order to produce and interpret those utterances. This is not to imply that the grammar described below is the grammar stored in the

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*) IchiBemba, the language of the Bemba people (aba-Bemba), is the full 'quotation-form' name of the language, also used following 'and', 'or', 'but' or 'with'. Following prepositions or 'of', ChiBemba will be here used. The reason for this practice will be made apparent in section (1.3) below, which deals with the initial vowel of noun prefixes.

mind of the ChiBemba speaker. Nevertheless, rules of grammar arrived at through linguistic analysis are not viewed here as mere methodological devices, used to satisfy the aesthetic sense of the linguist. Rather, we shall assume that in some sense these rules are a model approximating both the structure and contents of the speaker's knowledge of his language, or his linguistic competence. This will in turn imply that when alternative grammatical solutions are offered below, an attempt must be always made to decide which one, given the evidence available, is 'more true' than the others. For this reason, an implicit but ever present concern of this work will be, hopefully, the nature of the linguistic evidence used to decide between alternative grammatical solutions.

Since Generative Grammar has in recent years branched out into a variety of approaches, it should be perhaps mentioned that the approach used here is roughly concerned with 'Generative Semantics', or, with characterising the deep semantic structure upon which semantic interpretation is based. The format followed mostly, though not consistently, is that developed by Gruber(1967). This is not to say that the discussion of transformations will be completely neglected. In fact, many transformational rules are either specifically described, mentioned or strongly implied throughout the discussion below. Part (2.) in particular is almost entirely devoted to rules that are either transformational or have transformational powers. What is more, transformational evidence will be used at many points as partial evidence for the validation of deep structure. In short, the presence of a specific, ordered and highly structured body of transformational rules of this grammar

will be assumed throughout, although the Transformational Component will not be discussed as such under a single heading.

It is customary at this point to review the available literature concerned with the subject under investigation. This custom will be partly waived here. Works on either ChiBemba or Bantu grammer which bear intimately upon this study, will be discussed in the appropriate detail throughout the relevant sections of this work. Others, particularly grammars of ChiBemba available in print, will be only briefly mentioned. Of the considerable number of these, only the grammars of Sambeek(1955) and Sims(1959) are of interest to the linguist. Neither has been prepared by a linguist, and both contain a number of factual misrepresentations concerning the morphology, phonology and syntax of the language. At several points both are misleading or silent about questions of meaning; neither is particularly revealing with regard to the overall structure of ChiBemba or Bantu grammar; their orthographic practices show little of the underlying phonological structure of the language. Nevertheless, they are the best grammars of ChiBemba so far available in print , both make an attempt to cover a broad segment of the grammar, and as such must therefore be considered as helpful reference material.

Of the works on ChiBemba or Bantu to be discussed in detail later on, Guthrie's(1948a, 1948b, 1961) are relevant to the discussion of the Base Rules and in particular to the sections dealing with nominals(1.). The old classic of Doke(1935) deals with the kinds of semantic categories defined by the Base Rules. Gregersen's(1967) is of great relevance to Part (1.) dealing with Nominals and Part (2.) dealing with Concordial agreement. This is so in particular because it is the first major

work on Bantu grammar using the Transformation model, albeit a somewhat early version of it. The Phonology of ChiBemba by Kashoki(1967) is the first linguistic work on this language done by a native speaker, and should therefore be mentioned in spite of the fact that the phonology was not included within this work. Of great interest to any linguist working on ChiBemba are the works of John Sharman(1955, 1963a, 1963b). The first of those deals with the tense-aspect system, the second incorporates the first and further elaborates on the morphology and meaning of verb-attached morphemes, while the third deals mostly with the morphology of nominals and their concordial prefixes. Sharman and Meeussen (1966) is mostly concerned with the tonal aspect of the tense-aspect system. Of the works by this author cited, Givon(1967) is concerned with lexical structure of mostly verbs, Givon(1969) is a preliminary description of another Bantu language, SiLuyana, and Givon(1970) deals with ordered rules in the phonology of ChiBemba.

Covering the entire grammar of one language is an enormous taks which, needless to say, will not be here attempted. Many areas of ChiBemba grammar will be given scant attention or none at all. The discussion will concentrate mostly on the areas judged to be at the semantic core of the grammar, all the while hoping that the solutions proposed will not require major revision due to the omissions. (One regretable omission is that of the tense-aspect system, the full description of which can be found in Givon(in preparation)). Nevertheless, one cannot know beyond any shred of doubt whether some crucial facts have not been also overlooked in the process. If any such data were to be later discovered, a more fundamental revision of this grammar will be in order.

This study is divided into three major parts:

(1.) The structure of Nominals, including nouns and pronouns, noun modifiers and their sources and the implications of these sources for the structure of the ChiBemba Base Rules in general.

(2.) The Rules of Concordial Agreement, their status, structure and relative order within the grammar, as well as some of the morphological irregularities in the concordial system.

(3.) The structure of Verbals and the typology of verbs, including the discussion of one derivational rule (causative) judged to be crucial for the understanding of the verbal system.

Several problems of presentation have arisen from the particular sequence of the material, and more particularly from the regrettable omission of the Phonology. For example, although a more comprehensive treatment of Concordial Agreement is deferred until after the main portion of the Base Rules is introduced and discussed, arguments involving the shape and function of concordial morphemes are many times used in the validation of particular Base Rules or Deep Structures. A certain amount of repetition is inevitable then, with the concordial morphemes first introduced in a tabular form, but later reanalyzed through an altogether different approach. Further, the approach taken in dealing with the concordial system is morpho-phonemic, so that many phonological rules of ChiBemba will be discussed, mentioned or assumed without always giving them sufficient independent motivation. Omitting the Phonology from this work also means that the reasons for chosing the particular orthography here employed will remain, in some instances, unclear to the reader familiar with the orthographic practices in printed Chi-

Bemba texts. This difficulty is unavoidable, but may be slightly alleviated perhaps by the following comments concerning the orthography used in the ChiBemba citations below.

It is feared that our citation orthography, despite strenuous efforts, has remained somewhat inconsistent. Whenever judged necessary, morpheme boundaries are marked by /-/. Most consonants have the accepted IPA values, but /c/ is sometimes used to render the voiceless palatal affricate (as in English 'church'), and the combination /sh/ is used to render the corresponding fricative. Since /h/ by itself is not a sound of ChiBemba, no ambiguity arises from this practice. The letter /b/ is used to render both the sounds /b/ and /β/, which in ChiBemba are allophones of the same phoneme. The nasal /ŋ/ is marked only when it does not precede /g/ and /k/ on the surface; /ny/ is marked as it appears on the surface; this author doubts whether either nasal is phonemic in ChiBemba, although Kashoki(1967) has elected to give them phonemic status. Whenever /y/ or /w/ that appear on the surface arise from a ('deep') consonantal source, they will be marked as glides. When they arise from a vocalic source (through 'gliding' of /i,u/ or /e,o/), they will be given as glides (/y,w/) only if not followed by a morpheme boundary (/-/). When clarification of the morpheme division is desired, the vowel forms (/i,u/) will be always given, even if the morpheme boundary is left unmarked. Some discussion of the two 'deep' sources of these glides can be found in Givon(1970). Some lack of consistence may be also found in the rendition of vowel sequences subject to vowel fusion ('vowel assimilation'). The 'surface' (assimilated, fused) forms are usually given when no morpheme boundaries are marked or when no confu-

sion of the morphemic structure is anticipated. The 'deep' (non-assimilated) forms will be given when needed to clarify the structure involved.

IchiBemba is a tonal language, and the 'deep' contrast between HIGH and LOW tone is significant on the lexical, morphemic and intonational level. In this work no attempt is made to go into the tonology, and only in some instances the structural HIGH or LOW tone will be marked over the vowel, as /V/ or /V/, respectively.

The symbol /¢/ will be used, at least through parts (1.) and (2.), to indicate a boundary across which vowel fusion (and vowel length) rules do not operate. The ultimate 'deep' status of this entity is discussed later on in Part (2.), and also in Givon(1970).

An added difficulty of presentation may have arisen from the attempt here made to communicate at the same time with two audiences which are sometimes mutually exclusive, theoretical linguists and practicing Bantuists. This will require some re-iteration of points deemed obvious to the Generative linguist. On the other hand, it is also likely that some of the discussion may appear irrelevant or uninteresting to the Bantuist. The author begs the indulgence of both.

1.0 THE STRUCTURE OF NOMINALS

1.0.1. Preliminaries

The nominal system of Bantu languages has a long history of linguistic descriptions, most of which have concerned themselves mostly with the morphology of the concordial affixes. An early exception was Doke (1935), whose Terminology is at least implicitly an attempt to enumerate the abstract syntactic-semantic categories of Bantu grammar. Doke has divided those categories the following way:

Substantive (nouns or pronouns)

Qualificative (noun modifiers)

Predicative (verbs and copulas)

Descriptive (adverbials)

Conjunctive (conjunctions and subordinators)

Despite the original intent, Doke's categories only partly converge with a deep semantic classification, a fact that is due to a variety of reasons:

(a) Doke included pronouns, the result of the process of anaphora, in his substantive category. In the same vain he also considered demonstratives, enumeratives (numerals) and in fact all qualificatives (noun modifiers) used anaphorically, to be substantives as well. This again masks the distinct process of anaphora, on the one hand, and the crucial difference between inherent and derived gender on the other hand. In Doke's format, therefore, despite the initial division of substantives and qualificatives, there is no natural way of showing how pronouns of all kinds may receive their concordial markers through agreement with

gender-bearing nouns.

(b) Further, both anaphora and pronominalisation cannot be described in Doke's format, since pronouns are viewed there as categories of the Base.

(c) There is no explicit attempt made within Doke's system to describe possible relations between noun modifiers ('qualificatives') and their sources. The occurrence of predicative adjectives or numerals is not mentioned. The category 'relative' is not explicitly linked to verbals. The category 'possessive' is given as a Base category, with no indication as to possible sentential sources. The possible relation between 'qualificative pronouns' and the general category 'qualificative' is not even discussed.

(d) Some distinctions among Doke's sub-categories are morphological rather than semantic, e.g. the division of verbs into 'regular disyllabic', 'monosyllabic' and 'vowel verb'.

(e) Finally, relations of constituency are only partially revealed. Thus, it is never stated explicitly that 'qualificatives' are optional constituents of Nominal Phrases, or that 'descriptives' are optional constituents of Predicate Phrases or of Sentences.

Doke seems at least implicitly to have separated categories which bear inherent lexical gender ('substantive') from categories which agree with them ('qualificative', 'predicative'). This may seem a rather obvious point, perhaps, had not a diametrically opposed view been expressed by Guthrie(1948a, 1961), who writes: "...The items of a chain group (noun phrase; T.G.) will necessarily agree with each other..." (1961, p.9) "...Syntactically there is no justification for treating

one item in such a chain as more important than any other..."(ibid, p.16). And later: "...This method(Guthrie's;T.G.) of treatment avoids the necessity of inferring that something is omitted when P(Gutherie's subject slot) is filled with ... (an adjective; T.G.) It is not even necessary to postulate different slots for ... (noun; T.G.) and ... (adjective; T.G.), since as a representative of a P unit (subject nominal; T.G.), ...(noun), ... (adjective) and ... ... (noun-adjective) are all of equal status...(ibid, p.8). In this fashion, while the syntactic reality of the category Noun Phrase is strongly emphasized, some of the most common grammatical processes in a Bantu language, such as head noun deletion, the use of modifiers as anaphoric pronouns, and the intimate relation between these two and concordial agreement, are completely obscured. Gregersen(1967) has aptly criticised Guthrie on this, stressing the need to differentiate strongly between categories which bear inherent lexical gender, and those which 'agree'.

In all fairness one should note that Guthrie has apparently reversed his position on this issue, since earlier he has written: "... It will be necessary to take into account two types of words: those which control agreement of other words, and those whose agreement is controlled by words of the first type..."(Guthrie(1948b), p.847).

Marconnes(1931) has encountered a difficulty of somewhat different kind, in his case due to not perceiving the difference between the inherent lexical gender of Bantu nouns, and derivational gender which nouns may acquire by being transferred into another gender class. He writes: "... one cannot insist too strongly on the variability of the articles (noun prefixes; T.G.) which the same noun can take. A Karanga

noun can change an article as easily as an English noun can change its adjectives..."(ibid, p.235). Nothing could be of course more misleading of Bantu grammar than this statement, which describes the derivational use of the Shona noun classes in imparting added augmentative, diminutive, pejorative, praise or other meanings to nouns already bearing an inherent lexical gender.

In the same vain, the oft cited case of 'man' and 'thing'(IchiBemba umu-ntu and ici-ntu, respectively) is very rare and only a seeming exception to the rule, and must be synchronically analysed (regardless of possible historical connections) as a mere case of homophony.

Gorman(1950) illustrates another common practice in his Lozi grammar, when he states: "...The subject in Silozi is always a pronoun, i.e., the boy, he killed the snake..."(ibid, introduction, p.vii). The concordial agreement morpheme of the verb (subject concord), has thus been mistaken for the subject nominal itself, this no doubt due to the deletion rule of the subject noun, a rule that is optional but widely used when the identity of the subject is known or had been previously established. The result is that all subject nouns are interpreted as apositional. As we shall see later on, there might be a case made for adopting this kind of interpretation to the 1st and 2nd person pronouns, and it may be that the non-appearance of any subject nominal before those -- except in apposition -- is indeed responsible for the misunderstanding.

At this point one may mention the question of syntactic order. One consequence of Guthrie's accepting of all possible surface orders of the constituents in a Noun Phrase as standing on a complete par with

each other, is that the distinction between order indicating deep grammatical relations (such as noun:modifier, subject; verb; object) and order resulting from secondary (transformational) re-ordering becomes considerably blurred. In fact, Bantu languages possess many rules of secondary re-ordering or deletion, through which stylistic variations, emphasis, topicalisation and other important distinctions are made. While it is still an open question in Linguistic Theory whether deep grammatical functions and relations need at all to be introduced by the use of 'significant, grammatical' order, one must not confuse with it processes of transformational re-ordering, which are distinct rules within the grammar.

1.0.2. Transformational sources

The following sections which concern themselves often with the various optional members of the Nominal Phrase, will also investigate their possible 'deep' sentential sources. While raising the question of sources may be a peculiarity of Transformational linguists, the grammatical phenomena to be discussed below are real enough in Bantu. In general, seeking a transformational source for a modifier hinges upon the assumption that 'semantic relations' or 'selectional restrictions' which manifest themselves in substantially identical ways across two different syntactic constructions, point out to a possible derivational or 'transformational' relation between the two. In some cases it may be that the two constructions share all their deep semantic structure, so that one could go on and seek arguments as to which of the two is, in a sense, primary, and which transformationally derived. In other in-

stances two constructions may share only part of their deep semantic structure, in which case they may be said to have been independently derived from their partially common respective sources. One way or another, if an element of deep semantic structure is shared by two surface constructions, it needs to be characterised only once by the Base Rules. Adopting this approach, it is legitimate and indeed necessary for the linguist to seek the 'deep transformational sources' of partially identical structures. A rudimentary example may illustrate this:

(a) umuana aali-ile 'the child left'

(b) umuana aali-ishile 'the child came'

(c) umuana ɸua-ishile aali-ile 'the child who came left'

It seems that (c) above differs from (a) only by the presence of the Relative Clause:

(d) ...ɸua-ishile... '...who came...'

It further seems that the clause (d) is in meaning closely related to sentence (b), and that (c) incorporates in it the meaning of both (a) and (b). A grammar which aims to express deep facts of semantic interpretation, may then go on and state that the 'deep source' of (d) is the sentence (b), from which it is 'transformationally derived' by the process of 'embedding'. Needless to add, proofs other than purely semantic ones are always sought in order to substantiate claims about the semantic relatedness of particular surface (transformed) structures.

Since in the following sections the deep sources for ChiBemba noun modifiers will be sought, it is necessary at this point to give an initial version of the Base Rules of this grammar. This will be done in spite of the fact that many of the rules will not be discussed until

later on in Parts (2.) or (3.), and many of the rules will be revised during the subsequent investigation. The classes of noun modifiers for which sources will be sought are:

(a) Adjectives
(b) Nouns
(c) Locatives
(d) Numerals
(e) Ordinals
(f) -A-linked nominals('possessives')
(g) Relative Clauses
(h) Demonstratives
(i) Intensifiers

1.0.3. The Base Rules, first version

The initial version of our Base Rules is given in Table 1. below. Most of the rules are 'phrase structure rules', but some are 'feature rules'. For the benefit of those not acquainted with the notation, a brief note concerning the conventions and symbols used may perhaps be of some help. The re-write arrow -> is used in the 'phrase-structure' (or 'category') rules to mean: 'the item left of the arrow has the following constituents, in that order'. In 'feature rules' the same arrow will mean: 'the feature left of the arrow has in addition, also, the following (optional or obligatory) other features'. Although in general this author agrees with Gruber(1967a) that every category of the base rules is also a [+feature] of itself, we shall nevertheless continue to make the distinction in our formalisms, where categories may be marked by letters or sequences of letters, while features will be enclosed in square brackets and preceded by a plus or minus sign. Gruber(1967a) has convincingly demonstrated that there is not -- and there need not be -- a clear line dividing semantic structure given in the Base Rules

from semantic structure given in the lexicon. Some of the feature-rules described in this work pertain to lexical semantic structure, while others get their phonological 'expression' post-transformationally, in the second lexicon.

The curly brackets in the notation indicate optional choice of only one of the items enclosed. For larger sets, this is indicated by the use of parentheses. Parentheses around a single category or feature indicate that it may or may not be chosen. Angled brackets are used in context sensitive rules, to indicate that a particular choice on the left of the slash sign is optionally chosen only if the item enclosed in angled brackets on the right hand side of the slash is present. The slash itself means:'the rule on the left applies only if the environment specified on the right is there'. Finally, paired square brackets (paired left and right of the slash sign) indicate that the environments within the brackets of the right are ordered the same way as -- and apply respectively to -- the items within the brackets on the left.

An informal description of the Base Rules in Table 1. is as follows:

Rule 1. provides for conjunction and sentence adverbs, neither of which will be given extensive attention in this work.

Rule 2. divides the 'basic sentence' (S') into Nominal and Predicate phrases, the first of which will be also known as the sentence subject.

Rule 3. re-writes the Nominal into two constituents, an optional Preposition, and the rest, NOM.

Rule 4. provides for the feature [singular] (in other formats 'plurality'), which is not inherent in nouns but is rather a feature of the

TABLE 1. BASE RULES, FIRST VERSION

1. S → { S(j S)^n ; S'(ADV$_s$) } (where n ≥ 1)
2. S' → NOMINAL PREDICATE
3. NOMINAL → (PREP) NOM
4. [+NOM] → ([+sg.])
5. NOM → (DEM) NP (S)
6. DEM → (1,2,3,4)
7. NP → { NP S ; N (I) }
8. [+N] → [[+gender], ([+plurality]),...]
9. I → ('eka', 'ena', 'onse', 'ine')*)
10. PREDICATE → MODALITY (NEG) { VERBAL ; COPULAR }
11. VERBAL → V ({ S ; NOM }) (NOMINAL) (ADVERBIAL)
12. ADVERBIAL → (MANNER, INTENS., INSTRUM., ACCOMP., BENEF., ORD.)
13. COPULAR → COP PRED
14. COP → { 'LI' ; 'BA' }
15. PRED → (NOMINAL, NOMINAL$_{loc}$, ADJ, NUM, NA-NOMINAL, S)
16. MODALITY → F_m (a branching feature system)
17. ADV$_s$ → (TIME, PLACE, DUR., FREQ., COND., PURP., CAUS.,...)
18. j → ('na', 'naangu', 'noomba', 'kabili', ...)*)
19. [{ [+ADJ] ; [+NOM] } ; [+NOMINAL]] → ([+type] / [[-------]$_{pred}$; NEG ...[-------]])

Nominal Phrase. The rule is a 'feature rule'.

Rule 5. provides for Demonstratives, and also for recursivity of non-restrictive (henceforth NR) modifiers. The rule by itself is not a recursive rule, but the symbol S is, through Rule 1. (conjunction).

Rule 6. divides Demonstratives into the four deictic categories recognised on the surface. The actual semantic structure of these categories may be more complex and may involve cross-classifying features.

Rule 7. accounts for another type of recursivity in Nominals, that of restrictive modifiers (henceforth R). The lower option is non-recursive and provides for re-writing the Noun Phrase into a Noun and an optional Intensifier.

Rule 8. is, in a format which recognizes clear-cut boundaries, a feature rule of the lexicon. It provides for the two inherent features of nouns with which we shall be mostly concerned here, the feature of gender and that of plurality ('mass') which is optional(that is, in 'feature rules', nouns are either 'mass' or not).

Rule 9. gives the four Intensifiers identified in ChiBemba; the breach of format involved has already been noted.*)

Rule 10. divides Predicates into Modality, an optional Negative and either a Verbal or a Copular phrase.

Rule 11. provides for the structure of Verbal Phrases and the classification of verbs, and will be discussed in Part (3.).

*) For easier exposition we have, in these two cases, violated the rule that only semantic categories/features may be given in the Base Rules. Involved are two 'closed-classes', Intensifiers(I)and conjunctions(j). Had we remained within our format, only the semantic features underlying these lexical items would have been given. Or, in a format recognising clear separation between the Base and the Lexicon, I and j would be terminal symbols of the Base Rules.

Rule 12. gives some of the possible Verb Phrase adverbials, a subject not covered in much detail in this work.

Rule 13. divides Copular predicates into two constituents, Copula and Pred(icate).

Rule 14. provides for the two possible copulas, uku-ba 'be,become' and the 'defective verb' -li 'be'. The rule is again 'illegitimate' within our present format.

Rule 15. provides for the various predicate types which follow the copula, and will be greatly revised during the discussion below. The option S provides for the use of the copula as an auxiliary and will not be further discussed in this work, though some discussion will be found in Givon(in preparation).

Rule 16. will also be revised at several points, but the expansion of the F_m feature system is omitted from this work and will be discussed elsewhere(ibid).

Rule 17. lists some of the possible sentence adverbials, and will not be specifically treated in this work.

Rule 18. provides for some of the conjunctions used in ChiBemba, and the breach of format involved has already been noted.

Rule 19. is a context-sensitive feature rule which provides for the contrast 'type/token' ('generic/specific') associated with Nominals and Adjectives, a subject to be discussed in much detail later on.

1.1. FEATURES OF NOUNS AND FEATURES OF NOMINALS

Rule 8. (Table 1.) above makes the claim that all IchiBemba nouns possess an inherent gender feature. The relation between this feature

and the feature number, on one hand, and the morphological agreement class on the other hand, was treated in Guthrie(1948b). Initially Guthrie has recognized the division between the overtly expressed concordial agreement (in his terminology 'class') and the inherent lexical feature of gender: "... since the classifying of words according to prefixes arises out of the concord system, words that control different agreements cannot be placed in the same class..."(ibid, p.848). The process of agreement is judged by Guthrie to be the most crucial feature of the Nominal grammar, while gender, a feature of the lexicon, is in some sense outside the grammar: "...the facts require that genders of a Bantu language should be assigned to the lexical structure and not considered as part of the grammatical system..."(ibid, p.856).

The assignment of gender to the lexicon is by itself correct. In Guthrie's system it is followed, however, by a rather curious approach to the pairing of singulars and plurals of the same noun stems: "...When all IP nominals (nouns; T.G.) have been sorted into classes according to both their own prefixes and the agreement they require (impose; T.G.), a certain correlation (emphasis is mine; T.G.) between various classes is observed. This is due to the fact that among IP nominals may be found definite sets of two or more (emphasis is mine; T.G.) prefixes with identical stems, which give rise to short series of words... Investigation shows that by far the commonest kind of gender is that consisting of two classes..."(ibid, p.849). In other words, it is suggested that while the overriding feature of nouns is the 'class' of prefixal agreement, the lexical unity of the singular and plural of the same noun stem is sort of an interesting coincidence.

This is somewhat in the tradition of earlier comparative work in Bantu, which focused mostly upon the morphological concord-classes. Guthrie's order of priorities also seems to follow a presumed discovery procedure, by which the lexical unity of the singular and plural of the same noun cannot be inputed with full empirical certainty until all 'classes' have been sifted through and sorted out. Hockett seems to have adopted a similar line, when remarking that: "... in Bantu languages, which have twenty-five or thirty genders (sic), there is some tendency (emphasis is mine; T.G.) for the classes to pair off in corresponding singulars and plurals..."(Hockett,1958, p.233).

In fact, the seemingly accidental pairing of singular and plural concordial-classes, referred to by Guthrie as 'the commonest kind', is a most crucial fact in the Bantu class-gender system. In ChiBemba, for example, all count nouns fall into the following paired classes (for ease of reference and communication, the traditional enumeration of the agreement classes will be retained in this work): 1/2, 3/4, 5/6, 7/8, 9/10, 11/10, 12/13, 14/6, 15/6.

For the moment using the notation adopted in our Rules 4., 8.(Table 1.), each one of the paired expressions above stands for one inherent noun gender. (That is, the feature [+gender] will be re-written as any one of these). The combination of a specific gender feature with the feature [+singular] of the Nominal node dominating a Noun, will be expressed or 'spelled' as the concord class on the left of the slash in each pair above. While the combination of the same specific gender with [-singular] (or the absence of it), will be expressed or 'spelled' in the concord class on the right of the slash. This process is treated

more formally in Part (2.) of this study.

1.1.1. Mass nouns

The first major difficulty this approach must contend with involves the treatment of 'mass' nouns. In English these nouns share some features with 'plural' nouns (quantification by 'all', the indefinite article 'some'), but differ in other ways (taking the pronoun 'it' rather than 'they', and the quantifier 'much' rather than 'many'). Gruber(1967a, p.26) has made a convincing case for treating plural in English as a 'further specification' or 'further marking' of mass.

The traditional enumeration of the Bantu concordial 'classes' has usually labeled those into which mass-nouns fall and which, consequently, do not pair, as 'classes which take no plural'. This must imply, if pursued further, that in some sense these nouns are inherently singular. Guthrie(1948b) includes mass nouns ('uncountables') in his general category of 'one-class genders'.

In ChiBemba, mass nouns (both concrete and abstract), may fall into several concordial classes. Many concrete mass nouns fall into ordinary plural classes, such as 6 (ameenshi 'water', amafuta 'oil') 4 (imicele 'salt') or 8 (ifiushi 'smoke', ifiela 'metal'). For many of these nouns, in fact, a paired singular is 'potentially possible' and may be many times found, as in, respectively: iliinshi 'a drop of water' ifuta 'a drop of oil, a lump of fat', umucele 'a grain/lump of salt', iciushi 'one puff of smoke', iciela 'a piece of metal'. Whether these singulars are formed through 'back formation' or not is an open question that is, however, irrelevant at this point. The generalization made

above about the regular pairing is not yet broken. And if one of these nouns shows no singular, it may be interpreted to mean that it possesses the inherent feature [+plurality] (as given in our Rule 8., Table 1.), a feature that blocks the taking of [+singular] by this noun.

Other 'paired' mass nouns could be perhaps treated also as regular count nouns. Thus, note:

umu-to 'soup', 'soup in one bowl'(3)
imi-to 'lots of soup', 'soups at various places/of various kinds'(4)

umu-me 'dew' (3)
imi-me 'much dew', 'dew in various places'(4)

umu-lopa 'blood'
imi-lopa 'much blood', 'pools of blood at different places'(4)

The problem gets more involved when one considers mass nouns, most of them abstract but some concrete, which fall into the concord-classes 9, 14, 15, all of which,in the case of count nouns, are used to 'spell' [-singular] in the 'regular pairings': 9/10, 14/6, 15/6. One solution to this would be to assume, with traditional Bantuists, that mass nouns in Bantu are inherently (by a lexical feature) singular. There is, however, some evidence to suggest that just as in English, these nouns in Bantu share some features of plurals. Thus, for example, the quantifying adjective -ingi 'much, many' can never modify singulars, not even abstract ones, so that:

*umu-ana ϕu-ingi '*many child' *ulu-imbo lu-ingi '*many song'
aba-ana ba-ingi 'many children' iny-imbo shi-ingi 'many songs'

*ici-imbilo cyaakwe ci-ingi '*his many reason for singing'
ifi-imbilo fyaakwe fi-ingi 'his many reasons for singing'

*i-fito li-ingi '*many lump of charcoal'
ama-fito ya-ingi 'much charcoal, many lumps of charcoal'
*ili-inshi li-ingi '*many drop of water'
ama-inshi ya-ingi 'lots of water', 'many drops of water'

In contrast, mass nouns, abstract or concrete, can take this adjective:

ama-ka ya-ingi 'lots of strength' (4)
uku-imba kwaakwe ku-ingi 'a lot of his singing'(15)
ubuana bwaakwe bu-ingi 'much of his childhood' (14)
ubu-fumu bwaa-kwaa-Nkole bu-ingi 'much of Nkole's chiefliness'(14)
'many periods of Nkole's chiefhood'
ubu-ushi bu-ingi 'lots of honey'(14)
in-soni ɸi-ingi 'much shame'(9)
imi-su ɸi-ingi 'lots of urine'(4)
im-fwa ɸi-ingi 'much death', 'many deaths(?)'(9)

In short, general linguistic considerations (as in Gruber(1967a) as well as some facts of ChiBemba suggest that mass nouns are not 'count-nouns which do not take the plural', but rather 'inherent plurals which do not take a singular'. And for the many of those which fall into concord-classes that usually 'spell' the plural, this analysis will suffice. We are still left with mass-nouns which fall into classes 9, 14 and 15, which usually 'spell' the combination of genders 9/10, 14/6, 15/6, respectively, and [+singular]. There are two ways of dealing with those:

(a) One could assume that for all mass-nouns two inherent-lexical features are always involved; a semantic one which is responsible for the meaning and phenomena such as quantification. This 'inherent semantic plurality' is the one that shares much of its contents with the plurality (or in our format, [-singular] feature of the Nominal). In addition, all mass nouns will also have some purely-syntactic feature whose sole function would be to trigger the assignment of the correct concordial gender to the noun. The fact that in most cases the semantic 'mass' feature may converge with a 'syntactic' assignment into a 'usually plural' concordial class, may be viewed (if one adopts this solution) as a mere coincidence.

(b) An alternative solution is to leave our Rules 4.,8.(Table 1.) as they are and thus assume that it is the semantic feature [-singular] or [+plurality] which triggers the assignment of a noun to a 'usually plural' concordial class. The blocking of [+singular] by the inherent feature [+plurality] of mass-nouns will also be preserved. Then:

(b1.) Mass nouns falling into the concord-class 9 will be given a purely syntactic exception feature, say an inherent [+singular], which, in combination with the inherent feature [+gender 9/10] will trigger the correct concord.

(b2.) There is a good reason why the exception features for classes 14 and 15 should be assigned in just the opposite fashion. Unlike class 9/10, which contains mostly paired count-nouns and relatively few mass nouns, there are only a few 'original' paired nouns of gender 14/6 or 15/6. Most nouns nowadays in 14 are abstract nominalisations from nouns, adjectives and verbs (as, for example ubu-ntu 'manhood', 'humanity' or buu-mu-ntu 'state or fact of being a person', both from umu-ntu 'person' (1/2)). And except for five 'paired' count nouns (body parts), all the nouns nowadays in class 15 are infinitive-nominals of verbs (such as uku-imba 'sing', 'to sing', 'singing'). It then seems that the 'purely syntactic' exception feature [+plural] should be given to the few count nouns in these two classes, a feature that will override the semantic feature [+singular] assigned by the Base Rules, and thus in combination with inherent gender [+14/6] or [+15/6] will trigger the 'spelling' of a usually-plural concordial class (14, 15, respectively).

In this work solution (b) above has been adopted. It seems to capture much better, at least for this author, the regularities in-

volved in assigning concord-classes to ChiBemba nouns. Further, it violates only a little what is known to us about the features of plurality and mass in Universal Grammar. Finally, it seems to assign 'purely-syntactic' exception features only where exceptions to the seemingly general rule appear.*)

In addition to mass nouns, Guthrie's 'one-class genders' also include some regularly-paired count nouns, thereby citing glosses that, at least according to my own informants, seem a bit implausible(see Guthrie,1948b, p. 851):

*i-sabi li-bili 'two fish'

*ubu-luungu bu-bili '*two bead'

*cilemba ɸu-bili '*two bean'

The difficulty may have partly arisen from a more traditional approach to acceptable linguistic evidence, by which 'any utterance which has been pronounced by the native speaker is grammatical'. In my own experience, if a native speaker of ChiBemba is presented with these forms and asked for his judgement, he would reject them as ungrammatical or 'ill formed', even if he may have at times produced them himself.

1.1.2. Inherent and derived noun gender

Preoccupation with the concordial facts seems to have also motivated Guthrie in setting up 'multi-class genders', a case of which was illustrated with (ibid, p.852):

*) Further, concrete mass nouns in 14 (ubu-ali 'gruel',ubu-ushi'honey' ubu-luba 'flower-dew') will behave as all regular mass nouns concording in 'normally plural' concord classes; they will possess the inherent lexical (semantic) feature [+plurality], marking them as mass nouns.

Bemba: i-silu 'madman'/ama-silu 'madmen'/ubu-silu 'madness'(5/6/14)

Swahili: m-zee 'old man'/wa-zee 'old men'/u-zee 'old age' (1/2/14)

The pairs isilu/amasilu(5/6) and mzee/wazee(1/2) are regular count nouns of the inherent genders indicated above. Both ubu-silu and u-zee, however, are noun-to-noun nominalisations, derived from stems inherently in classes 5/6 and 1/2, respectively, into the derivational gender-class 14 of 'abstract quality' nouns. The derivational use of the Bantu noun-class system in noun-to-noun, adjective-to-noun and verb-to-noun rules is one of the most characteristic and significant features of Bantu grammar, a fact that is completely overshadowed by Guthrie's analysis. Carrying the practice ad absurdum, one may as well set up the following 'multi-class gender' in ChiBemba:

umu-ana 'child'(1) aba-ana 'children'(2)
ubu-ana 'childhood', 'childishness'(14)
buu-mu-ana 'state/fact of being a child'(14)
ici-ana 'big child'(7) ifi-ana 'big children'(8)
aka-ana 'small child'(12) utu-ana 'small children'(13)

and the list is by no means exhaustive yet.

It is unfortunate that the full description of derivational rules in ChiBemba cannot be included in this work, especially since the available derivational channels are both numerous and highly productive. Some discussion of derived noun gender and its implication to the concordial system is found in Part (2.) It will be there shown that a noun in ChiBemba may acquire a derivational gender feature without necessarily losing its own inherent gender.

1.1.3. Prepositional ('locative') gender

In the traditional Bantuist terminology the 'locative' concordial

classes 16, 17, 18 (PA, KU, MU) are treated as 'noun classes', much like the rest. This is in spite of the fact that, as 'noun' classes, they have no lexical membership at all. Rather, any concrete noun (for the locative use of these prepositions; as we shall see later on, they can also express non-locative prepositional relations) may be affixed with these agreement-determining prefixes. They can be prefixed on both singular and plural forms of nouns. Unlike some derivational noun genders, PA, KU or MU never replace the original noun prefix.

As we will show in Part (2.), although noun-gender is initially inherent in lexical nouns, at a certain point in the process of concordial agreement it becomes also a feature of the Nominal. Prepositional gender can be, likewise, viewed as initially inherent in the Preposition, but later becoming a feature of the nominal governed by it. The full analysis of preposition-governed agreement in ChiBemba will be deferred with until Part (2.), while their semantic structure will be analyzed in Part (3.). While prepositional gender clearly has concordial consequences and some of those closely resemble the concordial consequences of noun-gender, the traditional practice of labeling PA, KU and MU as 'noun classes' is misleading and indefensible.

1.1.4. The concordial affixes in a tabular form

For convenience of reference throughout the remainder of this part, the various surface forms of the concordial elements (morphemes) are listed in Table 2. below, according to the grammatical environments in which they appear. The noun prefixes used in 'citation forms' are found in column 1., there. A note about the 'so called' class 1a/2a

may perhaps be helpful. This is a sub-group of inherent gender 1/2, exhibiting the same concordial agreement throughout, but with a number of morphological 'peculiarities'. The VCV singular-noun prefix is /Ø-/ and the VCV plural-noun prefix is /baa-/. The CV(V) forms (see col. 2, Table 2.) are/ni-Ø-/ and /ni-baa-/, respectively. When PA, KU or MU appear before 1a/2a nouns, they require the 'stabiliser' /-li/ suffixed to them. An -A- link ('possessive') apearing before 1a/2a nouns incorporates an additional morpheme /kwaa/ suffixed to it. Some of these irregularities are also shared, to varying degrees, by Demonstratives, personal pronouns and personal names, as well as by nouns of class 9/10. In a formal treatment, nouns in 1a/2a all possess the inherent gender feature 1/2, which fully controls their agreement. They clearly possess also an added lexical feature of morphological exception, which triggers their own 'irregular' forms in the particular environments specified.

1.1.5. Semantic unity of the noun-gender classes

Finally, one must at least raise the question of the possible semantic significance of the seemingly 'purely morphological' noun genders. Although at present the gender features seem to be largely empty semantically, it is nevertheless reasonable to assume that at some stage in the history of Bantu these features must have consisted of a semantic sub-categorization of the noun lexicon. Traces of this imputed sub-categorisation have survived in most Bantu languages to this very day. Thus in ChiBemba, for example, nouns in 1/2 are almost always human nouns; those in 1a/2a include most kinship terms; all surviving

TABLE 2. SURFACE FORMS OF CONCORDIAL MORPHEMES

	(1)	(2)	(3)	(4)	(5)	(6)
	Noun		Adjective		Emphatic Subject-Relative	Ordinal, -A- link, Subject-Relative
class	V-CV	CVV	V-CV	CVV	EE-CV	V-CV
1.p.s.	(i-ne)	(niine)				
1.p.p.	(i-fwe)	(niifwe)				
2.p.s.	(i-we)	(niiwe)				
2.p.p.	(i-mwe)	(niimwe)				
1	u-mu-	muu-	u-mu-	muu-	EE-ɸu-	u-ɸu-
2	a-ba-	baa-	a-ba-	baa-	EE-ba-	a-ba-
1a	Ø-	niØ-				
2a	baa-	nibaa-				
3	u-mu-	muu-	u-ɸu-	ɸuu-	EE-ɸu-	u-ɸu-
4	i-mi-	mii-	i-ɸi-	ɸii-	EE-ɸi-	i-ɸi-
5	(il)i-*)	lii-	i-li-	lii-	EE-li-	i-li-
6	a-ma-	maa-	a-ya-	yaa-	EE-ya-	a-ya-
7	i-ci-	cii-	i-ci-	cii-	EE-ci-	i-ci-
8	i-fi-	fii-	i-fi-	fii-	EE-fi-	i-fi-
9	i-N-	niN-	i-ɸi-	ɸii-	EE-ɸi-	i-ɸi-
10	i-N-	niN-	i-shi-	shii-	EE-shi-	i-shi-
11	u-lu-	luu-	u-lu-	luu-	EE-lu-	u-lu-
12	a-ka-	kaa-	a-ka-	kaa-	EE-ka-	a-ka-
13	u-tu-	tuu-	u-tu-	tuu-	EE-tu-	u-tu-
14	u-bu-	buu-	u-bu-	buu-	EE-bu-	u-bu-
15	u-ku-	kuu-	u-ku-	kuu-	EE-ku-	u-ku-
16	(PA)		a-pa-	paa-	EE-pa-	a-pa-
17	(KU)		u-ku-	kuu-	EE-ku-	u-ku-
18	(MU)		u-mu-	muu-	EE-mu-	u-mu-

*) The ili-/i- prefix variation in nouns (singulars) of class 5/6 will be discussed later on in this part, as well as in Part (2.).

TABLE 2. (continued)

class	(7) Numeral, Intensif. 'secondary' CV	(8) Object-Relative CV-ntu	(9) Obj.-Rel. VCV-o	(10) Emphat. Obj.-Rel. EE-CV-o	(11) 1 VCV	(12) 2 VCV-o	(13) 3 CV-no	(14) 4 CV-lya
1	¢u-	¢u-ntu	u¢o	EE-¢o	uyu	uyo	¢u-no	¢u-lya
2	ba-	ba-ntu	abo	EE-bo	aba	abo	ba-no	ba-lya
3	¢u-	¢u-ntu	u¢o	EE-¢o	u¢u	u¢o	¢u-no	¢u-lya
4	¢i-	¢i-ntu	i¢yo	EE-¢yo	i¢i	i¢yo	¢i-no	¢i-lya
5	li-	li-ntu	ilyo	EE-lyo	ili	ilyo	li-no	li-lya
6	ya-	ya-ntu	ayo	EE-yo	aya	ayo	ya-no	ya-lya
7	ci-	ci-ntu	icyo	EE-cyo	ici	icyo	ci-no	ci-lya
8	fi-	fi-ntu	ifyo	EE-fyo	ifi	ifyo	fi-no	fi-lya
9	¢i-	¢i-ntu	i¢yo	EE-¢yo	i¢i	i¢yo	¢i-no	¢i-lya
10	shi-	shi-ntu	ishyo	EE-shyo	ishi	ishyo	shi-no	shi-lya
11	lu-	lu-ntu	ulo	EE-lo	ulu	ulo	lu-no	lu-lya
12	ka-	ka-ntu	ako	EE-ko	aka	ako	ka-no	ka-lya
13	tu-	tu-ntu	uto	EE-to	utu	uto	tu-no	tu-lya
14	bu-	bu-ntu	ubo	EE-bo	ubu	ubo	bu-no	bu-lya
15	ku-	ku-ntu	uko	EE-ko	uku	uko	ku-no	ku-lya
16	pa-	pa-ntu	apo	EE-po	apa	apo	pa-no	pa-lya
17	ku-	ku-ntu	uko	EE-ko	uku	uko	ku-no	ku-lya
18	mu-	mu-ntu	umo	EE-mo	umu	umo	mu-no	mu-lya

TABLE 2. (continued)

class	(15) Subject-concord CV	(16) anaphor.-object-pronoun CV	(17) anaphor.-assoc. pronoun NA-CV-o	(18) anaphor.--A-linked pronoun -A-CV-ko
1.p.s.	N-	-N-	naine*)	-andi
1.p.p.	tu-	-tu-	naifwe	-eesu
2.p.s.	¢u-	-ku-	naiwe	-oobe
2.p.p.	mu-	-mu-	naimwe	-eenu
1	a-	-mu-	na¢o	-akwe
2	ba-	-ba-	nabo	-abo
3	¢u-	-¢u-	na¢o	-a¢uko
4	¢i-	-¢i-	na¢yo	-a¢iko
5	li-	-li-	nalyo	-aliko
6	ya-	-ya-	nayo	-ayako
7	ci-	-ci-	nacyo	-aciko
8	fi-	-fi-	nafyo	-afiko
9	¢i-	-¢i-	na¢yo	-a¢iko
10	shi-	-shi-	nashyo	-ashiko
11	lu-	-lu-	nalo	-aluko
12	ka-	-ka-	nako	-akako
13	tu-	-tu-	nato	-atuko
14	bu-	-bu-	nabo	-abuko
15	ku-	-ku-	nako	-akuko
16	pa-	-po**)	napo	-apako
17	ku-	-ko	nako	-akuko
18	mu-	-mo	namo	-amuko

*) For further discussion of the forms of the NA-associative anaphoric pronouns, see in Sharman(1963b, p.177). The forms for 2nd person sg./pl. and 3rd person sg./pl. cited here are those associated with the conjunction NA ('and').The forms associated with the preposition NA ('with') are: noobe 'with you', neenu 'with you'all', naankwe 'with him', naabo 'with them'. These are -A-linked pronoun forms which have also survived in equi-gender relational nouns, where the corresponding 1st person forms are also found: umu-naandi 'my friend(of the same sex)', umu-neesu 'our friend(of the same sex)'.

**) The prepositional suffixes of verbs, -PO, -KO and -MO, will be discussed in some detail in Part (3.).

count nouns in 15/6 are body parts; many surviving concrete nouns in 14/6 are mass nouns; many concrete mass or liquid nouns fall into class 5/6. For most inherent lexical genders, however, any initial semantic significance has been largely destroyed by now. A much higher degree of semantic predictability can be found in the derivational uses of the noun-class system. In ChiBemba, for example, class 7/8 adds augmentative or pejorative meanings to nouns, class 12/13 adds diminutive or pejorative senses; 'quality', 'tenure', 'state/fact' abstracts are derived into class 14 from both nouns and adjectives. 'Type' nominalisations of subject-agentive go into class 1/2, while 'token' (non-generic') nominalisations of the same go into 1a/2a. Infinitive nominals fall into class 15. Manner nominalisations, with an added suffix, go into class 4. Cause, reason, purpose or place (of action) nominalisations, with an added suffix, fall into class 7/8; 'act/instance' or 'cognate object' nominalisations fall into 3/4 or 11/10; 'abstract quality' nominalisations go mostly into class 14. Ultimately, then, one could not dismiss the Bantu noun-gender system as 'having only concordial but no semantic import', although this position has been often adopted by Bantuists.

1.2. RESTRICTIVE AND NON-RESTRICTIVE MODIFIERS

A distinction which seems to be made in ChiBemba grammar (and is expressed initially in our rules 5.,7., Table 1.) is that of Restrictive (R) vs. Non-Restrictive (NR) modifiers. Sharman(1963b) has recognized it on the morphological level and labeled it 'strong bond'(R) vs.'weak

bond'(NR). In four noun modifiers of ChiBemba, the R/NR distinction may fully converge, at least superficially, with the morphological distinction of CV/VCV prefix forms.

A few examples will illustrate the R/NR contrast, in this case using Relative Clause modifiers, in which the R/NR and CV/VCV contrasts do indeed converge:

(R) aba-Bemba abaa-shipa beekala muZambia
'the Bemba who're brave live in Zambia'
implied: '...while the Bemba who're cowardly may live elsewhere'

(NR) aba-Bemba, abaa-shipa, beekala muZambia
'the Bemba, who're(all) brave, live in Zambia'
implied: 'All the Bemba are brave, they all live in Zambia'

The R modifier narrows the domain of what is modified by it, or further 'restricts' it. The NR modifier does not. One consequence of this appears when a chain of several modifiers follow the same head noun:

(R)
(a) aba-Bemba baa-shyuuka baa-shipa beekala muZambia
'the Bemba who're lucky who're brave live in Zambia'
implied: '...while those who're lucky but cowardly may not...'

(b) aba-Bemba baa-shipa baa-shyuuka beekala muZambia
'the Bemba who're brave who're lucky live in Zambia'
implied: '...while those who're brave but unlucky may not...'

A change in the relative order within the chain of R modifiers, it seems, results in a corresponding change in interpretation.*) This is so

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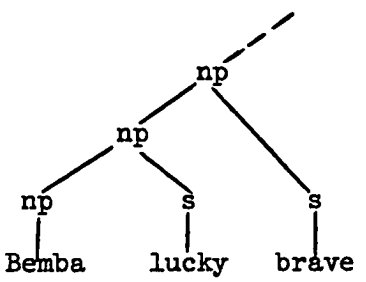
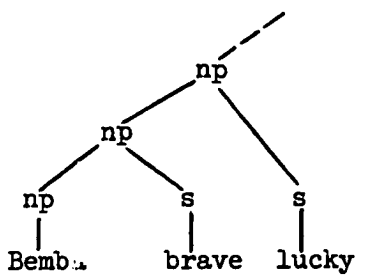
*) The nature of the change in interpretation involved is still controversial, and there are many linguists who do not accept a 'stacked' interpretation of R modifiers and thus do not recognise that a change of meaning is at all involved when the relative order within an R chain is changed. Some hold that the contrastive use of different orders of R chains imparts a change of 'emphasis' rather than of 'meaning'.

because the modifiers are not on a par with each other -- the first one modifies (or 'narrows the domain of') the head noun, while each of the next modifies the entire R phrase preceding it. This 'stacking' effect is indeed expressed by our Rule 7.(Table 1.), which characterizes (a) and (b) above as:

(a)



(b)



In contrast, changing the relative order within a chain of NR modifiers does not give rise to this 'contrastive' change in meaning:

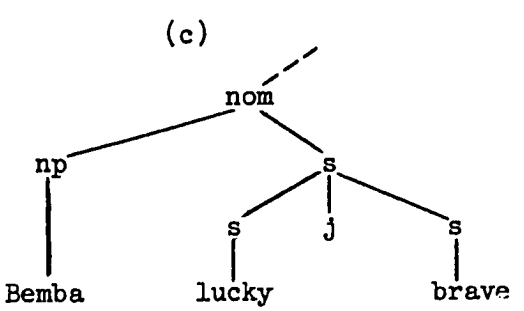
(NR)

(c) aba-Bemba, abaa-shyuuka, abaa-shipa, beekala muZambia
'the Bemba, who're(all) lucky, who're(all) brave, live in Z.'

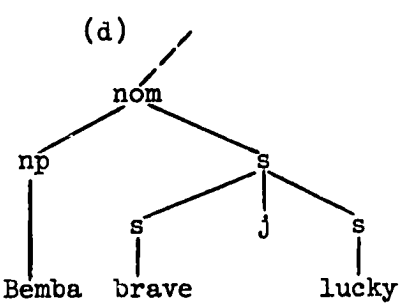
(d) aba-Bemba, abaa-shipa, abaa-shyuuka, beekala muZambia
'the Bemba, who're(all) brave, who're(all) lucky, live in Z.'

The modifiers in a NR chain are on a par with each other, each modifying in the same fashion the head noun(or, rather, the R nominal phrase which precedes them all). We shall assume that their recursivity arises from conjunction(Rule 1., Table 1.), and that, given also Rule 5.(ibid), (c) and (d) above are correctly characterized as:

(c)



(d)



While in English (c) and (d) above can be also paraphrased by (c') and (d') below, respectively, i.e., with the conjunction and appearing on the surface:

(c') 'the Bemba,who're(all) lucky and brave, live in Zambia'

(d') 'the Bemba, who're(all) brave and lucky, live in Zambia'

in ChiBemba the superficially similar construction produces an altogether different interpretation:

(c'') aba-Bemba, abaa-shyuuka na abaa-shipa, beekala muZambia
'the Bemba, those who're lucky and those who're brave,....'

This is due to the fact that in ChiBemba, the NR and the anaphoric forms of a Relative are identical (and, as we shall argue later, NR modifiers always involve anaphora). Indeed, (c) and (d) above are systematically ambiguous with respect to their English translation:

(c) aba-Bemba, abaa-shyuuka, abaa-shipa, beekala muZambia
(1)'the Bemba, who're(all) lucky, who're(all) brave,...'
(2)'the Bemba, those who are lucky, those(the same ones)who're brave,...'

In ChiBemba, just like in English, a NR modifier may not be inserted in the midst of a chain of 'stacked' R modifiers:

*aba-Bemba baa-shipa, abaa-shyuuka baa-ceenjela, beekala muZambia
'*the Bemba who're brave, who're(all) lucky who're wise, live...'

This restriction is insured in our grammar by the fact that Rule 5.(Table 1.) precedes Rule 7., and is not recursive, although Rule 7. is.

1.2.1. Restrictivity, recursivity and deep sources of modifiers

We have noted earlier that semantic considerations are by no means the only ones to decide the source of a noun modifier.Strong support to a postulated sentential/transformational source of a modifier is obtained from the fact that a modifier may appear in a R chain -- and

show a change in meaning as a result of shifting its relative position within the chain. Of this were not assumed, then our Rule 7.(Table 1.) would have to be repeated in substantially the same form for each of the eight classes of modifiers showing 'stacking'. Clearly, a grammar engaging in such a repetition is bound to have missed a generalization about the language, having not identified all eight instances of the same type of recursivity as being all manifestations of the same rule of grammar. For this reason, if a modifier discussed below shows the consequences of 'stacking', we shall consider this a strong proof for its having arisen from a sentential ('embedded') source.

1.3. MEANING CONTRASTS INVOLVING THE PREFIX-INITIAL VOWEL

Contrasts involving the presence vx. absence of the initial vowel of Bantu concordial prefixes (henceforth IV), have been treated in the past mostly on the level of morphology or morphophonemics. This has resulted in considerable confusion as to the operation, distribution and meaning-correlates of this contrast. In particular, confusion tends to reign as to the grammatical contexts in which a VCV/CV contrast:

(a) may occur as in independent semantic contrast

(b) or may converge with other semantic contrasts

(c) or may not occur at all.

In the discussion below, an attempt will be made to show how only by keeping a sharp distinction between (a), (b) and (c) above, is it at all possible to arrive at some understanding of this extremely intriguing device in ChiBemba morphology and of its meaning correlates.

1.3.1. Environments of independent VCV/CV semantic contrast

1.3.1.1. Noun and adjective predicates

(a) VCV imfumu ili UMU-puupu
'the chief is a proven, known, thief'

(b) CVV imfumu MUU-puupu
'the chief is by nature, inherently, a thief'

(a) above thus tags the chief as a thief by virtue of deed and known fact. We shall label this token or generic.

(b) above tags the chief as a thief by type and nature, regardless of proof or fact. We shall label this token or specific. In some instances the type/token distinction may in English translation converge with the contrast between def./indef. articles, but this convergence is at best partial and many times misleading. For the rendition of (a) and (b) above it can be indeed used, to give reasonably correct renditions:

(a) 'the chief is the thief' vs. (b) 'the chief is a thief'

An objection may be raised that the contrast is not quite legitimate, since in (b) above the copula /-li/ is missing from the surface. While it is true that an obligatory deletion or incorporation of the copula occurs in the present tense before CVV (type) predicates, the type/token contrast can be shown in other tenses, where the copula remains on the surface:

VCV imfumu yaali UMU-puupu 'the chief was the thief'(token)
CVV imfumu yaali MUU-puupu 'the chief was a thief'(type)

VCV imfumu ikaba UMU-puupu 'the chief will be the thief'(token)
CVV imfumu ikaba MUU-puupu 'the chief will be a thief'(type)

Sharman(in private correspondence, but see also(1963b)) argues that morphologically the contrast in all but the present tense is not VCV/CVV but VCV/CV́. He labels the present-tense CVV 'stable variant'.

Sharman may be correct, or a dialectal variation between informants may have been involved, but at any rate, it is clear that the same semantic contrast is involved whether in present or other tenses. When the predicate is a noun in class 1a/2a, which cannot show CVV-CV alternations, and identical type form appears in all tenses:

VCV imfumu ili kaleemba 'the chief is the writer'(token)
CVV imfumu nikaleemba 'the chief is a writer'(type)

VCV imfumu yaali kaleemba 'the chief was the writer'(token)
CV imfumu yaali nikaleemba 'the chief was a writer'(type)

The type/token contrast may still appear if the subject is deleted as in:

VCV ali UMU-puupu 'he's the thief'(token)
CVV MUU-puupu 'he's a thief'(type)

The same VCV/CVV contrast appears in predicate adjectives:

VCV umuana ali UMU-suma 'the child is good, proven known to be'(token)
CVV umuana MUU-suma 'the child is by nature, inherently good'(tp.)

VCV umuana aali UMU-suma 'the child was good'(token)
CVV umuana aali MUU-suma 'the child was good'(type)

VCV ali UMU-suma '(he) is good'(token)
CVV MUU-suma '(he) is good'(type)

1.3.1.2. Transposed predicates

In this environment seemingly only CVV nouns or adjectives show up, but it can nevertheless be shown that a type/token contrast does appear as in, where the token nominal contains a Demonstrative:

(VCV) ni-uyu-muana à-à-ishile 'it's this child who came'(token)
CVV MUU-ana à-à-ishile 'it's a child who came'(type)

There are good reasons not to analyse these as 'kernel' structures but rather as transposed predicates. The tone on the subject-concord of the verbal is LOW, indicating that it is indeed a relative clause. This is

also supported by the fact that tenses which cannot appear in Rel. clauses cannot appear in these verbals:

*ni-uyu-muana à-ÁLÍ-ishile

*MUU-ana à-LÀ-isa

The non-transposed source of these constructions can be readily identified in sentences such as:

(a)VCV uɸwàaishile ni-uyu-mu-ana

'(the one) who came is this child'(token)

(b)CVV uɸwàaishile MUU-ana

'(the one) who came is a child'(type)

The presence of a Rel. clause as subject of the constructions above raises an interesting question with regard to concord. A subject noun ordinarily does not impose agreement on a predicate noun, but in these constructions, with an anaphoric Rel. subject, gender identify seems to be required, and the same is also true for transposed predicates.In the case of human nouns in class 1/2, such as muana 'child', one could still argue that the deleted head noun is perhaps umuntu 'person', so that the fuller rendition of (a) and (b) above was:

(a') umuntu ɸwàaishile ni-uyu-muana 'the person who came is...'

(b') umuntu ɸwàaishile MUU-ana 'the person who came is...'

However, with the great number of concordial classes in Bantu, an argument of this kind is sure to break down, since after umuntu 'person' and icintu 'thing' one runs out of generalised nouns to plug in. Further, umuntu (1/2) is not even appropriate for humans in other class-genders, such as ishilu(5/6), imfumu(9/10) or icikolwe(7/8), while icintu(7/8)

is equally inappropriate for umuti 'tree'(3/4) indalama 'money'(9/10) or akapili 'mountain'(12/13). The situation is further complicated by the fact that at least in some cases of non-transposed predicates with Rel.(anaphoric) subjects, gender non-identity is allowed, as in:

(c) u¢waaishile ili imfumu 'the one(person) who came is the chief'
(1/2) (9/10)

though the same is not allowed in what we have so far analysed as transposed-predicates, i.e.:

(d) *ni-iyi-mfumu a-a-ishile 'it's this chief who came'
(9/10) (1/2)

There are two ways out of this difficulty:

(1) One could assume that transposed predicates such as in (d) above are not derived from constructions such as (c) above;

(2) One could assume that referential identity of the (later anaphorised) noun heading the Rel. clause and the predicate noun is needed in order for the Transposition T-rule to proceed.

Clearly, more data will be needed to resolve this issue. Hopefully, it could be still demonstrated that the interpretation (2) is correct.

It is of course natural that the same problem would not arise with respect to Adjectives, since adjectives must agree with the gender of the subject noun, and the equi-gender in either (e) or (f) below can be ascribed to simple predicate agreement:

(e) u¢waaishile MUU-suma 'the one who came is good'(type)

(f) MUU-suma aaishile 'it's a good(type)(one) who came'

To sum up, if the transposed-predicate analysis is adopted, then the source for the token/type VCV/CVV contrast found in this construction has already been described once, and is still specified in the upper

portion of Rule 19., (Table 1.).

1.3.1.3. Embedded nouns and adjectives

If adjectives and nouns modifying nouns arise from embedded sentences in which they are predicates, as will be argued later on, then would be reassuring if the specific/generic (token/type) contrast involving the IV, could be also shown to exist in the embedded environment. This is indeed the case:

R VCV umuana UMU-puupu aaliile 'the token-thief child left'

CV umuana MU-puupu aaliile 'the type-thief child left'

If the modifier is non-restrictive, however, only a VCV form is allowed:

NR VCV umuana, UMU-puupu, aaliile 'the child, the thief, left'

CV *umuana, MU-puupu, aaliile

It will be later argued that this corresponds to neutralization on the morphological level, rather than a semantic selection of token but not type in this position. A similar problem arises with modifiers used anaphorically.

The situation with regard to modifying adjectives is much the same:

R VCV umuana UMU-suma aaliile 'the token-good child left'

CV umuana MU-suma aaliile 'the type-good child left'

NR VCV umuana, UMU-suma, aaliile 'the child, the good(one), left'

CV *umuana, MU-suma, aaliile

1.3.1.4. Direct object nominals following negative verbs

This seems to be the second independent source of a type/token CV/VCV contrast. It is given in the lower portion of Rule 19.(Table 1.).

This contrast does not appear following non-negative forms of verbs:

VCV naalimweene UMU-ana 'I saw the/a child'

*CV *naalimweene MU-ana

But only:

VCV nshiamweene UMU-ana 'I didn't see the child' (token)

CV nshiamweene MU-ana 'I didn't see any child'(type)

It may be argued that a semantic contrast does exist but gets morphologically neutralized after affirmatives, so that only VCV prefixes can appear. This would presumable account for seemingly similar surface neutralizations in English, such as:

'I am looking for some(specific)students'

vs. 'I am looking for some(any member of the genus)students'

To this author this seems not to be a specific/generic distinction, but rather one between known vs. unknown, a distinction that can be also made by the def./indef. articles. This is a referential rather than a type/token distinction. Further, it seems to this author that IchiBemba does make in this instance a strong value judgement, namely something like: 'if something can be the object of an act, it must at least potentially have specific 'identity'. This is not an onthological proof of philosophy, but rather an onthological view which the grammar seems to express. Note that the following sentence of ChiBemba has three possible renditions in English, and neither is really generic:

naalimweene ABA-ana 'I saw children', 'I saw some children'

'I saw the children'

As we shall see later on, neutralization may indeed characterise the

situation of prepositional objects following negative verbs, an environment in which on the surface only CV may occur.

Further support for our interpretation should be sought in constructions of verbs in which negativity or uncertainty is inherent rather than overtly expressed. It should thus be of interest to see if a CV (type) direct object can appear and contrast with the VCV(token) one below:

VCV ndeetwiishika nga J. aamweene UMU-ana

'I doubt if J. saw the child'

CV(?) ndeetwiishika nga J. aamweene MU-ana

'I doubt if J. saw any child'

VCV A-ba-mona UMU-ana... 'had they seen the child...'

CV(?) A-ba-mona MU-ana... 'had they seen any child...'(?)

Unfortunately at the moment these data are not available to me.

If a type/token distinction appears in dir.objects following a negative verb, can it also appear in an embedding of this construction as a Relative Clause? It turns out that it cannot; the rel.obj. pronoun cannot, morphologically, accomodate a VCV/CV semantic contrast:

umuana ϕU-ntu naamweene... 'the child I saw...'

umuana ϕU-ntu nshiamweene... 'the child I didn't see...'

This may reflect a universal constraint, namely, that the deleted 'equi-identity' noun in the relative clause must be specific, even if the head noun's generic (which is not the case above). One should note that ChiBemba, similarly, no semantically independent type/token contrast is found in subject rel. pronouns, following either specific or generic

head nouns. The VCV/CV contrast converges with the NR/R contrast, so that for R modifiers:

nshiamweene ABA-ana BA-aleeisa 'I didn't see the children who were coming'

*nshiamweene ABA-ana ABA-aleeisa

nshiamweene BA-ana BA-aleeisa 'I didn't see any children who were coming'

*nshiamweene BA-ana ABA-aleeisa

1.3.1.5. Seeming type/token contrasts in other predicates

On the surface, a VCV/CV token/type contrast may also appear in three items which ordinarily are noun modifiers, but can also appear in utterances in predicate position:

Subject relatives:

VCV umuana aali U¢U-a-ishile 'the child was the one who came'(token)

CV umuana aali ¢U-a-ishile 'the child was one who came'(of the tp.)

-A link 'possessives':

VCV umuana aali U¢U-andi 'the child was(a specific one of)mine'

CV umuana aali ¢U-andi 'the child was one(any) of mine'

Ordinals:

VCV umuana aali U¢U-acimo 'the child was the(very)first'(token)

CV umuana aali ¢U-acimo 'the child was one(of several)first(ones)'

All of these examples, however, can be paraphrased by sentences in which a head noun is supplied and the VCV/CV contrast reverts to it:

VCV umuana aali UMU-ana ¢waaishile

'the child was the(known)child who came'

CVV umuana aali MUU-ana ¢waaishile

'the child was one child (of many) who came'

VCV umuana aali UMU-ana ¢waandi

'the child was the known child of mine'

CVV umuana aali MUU-ana ¢waandi

'the child was one child (out of several) of mine'

VCV umuana aali UMU-ana ¢waacimo

'the child was the very first child'

CVV umuana aali MUU-ana ¢waacimo

'the child was one first child (out of many)'

It will also be shown later on that the source of these three modifiers could not be predicate. With respect to Rel. clauses this is of course more ovbious. Other instances of accomoodating a VCV/CV contrast at a point which usually does not carry it, or 'shifting' of the contrast can be readily cited. For example, if nouns of classes 1a/2a, 5/6 (singular) or 9/10 are embedded as modifiers of other nouns, and the head noun is preceded by a Demonstrative, then ordinarily only a CV can follow a Demonstrative. However, since the modifying nouns are in one way or another 'morphologically anomalous' and difficult to accomoodate a VCV/CV contrast themselves, the contrast 'migrates' to the head noun, itself obligatorily token (since it is preceded by a Demonstrative):

VCV uyu-UMU-ntu kaleemba...'this man who's the (token) writer...'

CV uyu-MU-ntu kalemba...'this man who's a (type) writer...'

VCV uyu-UMU-ntu ishilu...'this man who's the (known) lunatic...'

CV uyu-MU-ntu ishilu...'this man who's a (type) lunatic...'

VCV uyu-UMU-ntu mfumu...'this man who's the (known) chief...'

CVV uyu-MU-ntu mfumu... 'this man who's a (type) chief...'

1.3.2. Environments in which the VCV/CV and NR/R contrasts converge

Involved are the three embedded noun modifiers already mentioned:

Subject rel. pronouns:

R/CV umuana ¢U-aishile aaliile 'the child who came left'

NR/VCV umuana, U¢U-aishile, aaliile 'the child, who came, left'

-A-link 'possessives':

R/CV umuana ¢U-andi aaliile 'my child left'

NR/VCV umuana, U¢U-andi, aaliile 'the child, mine, left'

Ordinals:

R/CV umuana ¢U-acimo aaliile 'the first child left'

NR/VCV umuana, U¢U-acimo, aaliile 'the child, the first, left'

A somewhat similar case is that of the Intensifier -ine 'itself', 'by itself'. However, it will be later shown that while this modifier when NR has a VCV prefix, the CV prefix does not imply Restrictivity, and it is not an embedded modifier, though superficially the 'strong bond' (lack of pause) appears morphologically identical to the one which characterizes R modifiers.

1.3.3. Environments in which no VCV/CV contrast occurs

Sharman(1963b) divides these environments into those 'in which IV (VCV) occurs obligatorily', those in which 'replacement of the IV in nominals normally having IV' occurs, and those in which 'non-occurence of the IV in nominals normalling having IV' is observed. This description is basically morphological. However, perhaps intuitively it is also meant to imply that 'replacement' and 'non-occurence' of the IV are

surface realisations of specific, even though only the CV form appears. Whether this is what Sharman has in mind or not, we shall attempt to show that it is the case.

1.3.3.1. Environments of obligatory VCV form

(a) Subject noun:

UMU-ntu aali-ishile 'the man/a man came'

*MU(U)-ntu aali-ishile

(b) Direct Object noun:(affirmative verb)

naalimweene UMU-ana 'I saw a/the child'

*naalimweene MU(U)-ana

Is a judgement expressed here again, namely 'that all subjects or direct objects(non-neg. verbs) of specific acts cannot be generic'? Or is it a case of morphological neutralisation? And if subjects in ChiBemba cannot be generic, how can the language express presumed generic statements such as:

'dogs are animals' 'water is liquid'

If these are indeed generic then the following must be ambiguous:

imbwa niinama (a) 'these dogs are animals'

(b) 'dogs are animals'

Again, it seems to me that the sentence may be indeed ambiguous with respect to known/unknown, but both are specific. (b) above could be paraphrased easily by: 'all dogs are animals' or 'all the dogs in the world are animals'. The subjects definitely have specific referents, though those may not be individually known. This author therefore prefers to

go on assuming that IchiBemba indeed judges all subject nouns to be obligatorily specific.

1.3.3.2. Environments of 'replacement' or 'non-occurence' of IV

1.3.3.2.1. Morphologically anomalous noun classes

The case of these is improperly cited, since although morphologically 'problematic' classes may vary in the surface representation they assign to the VCV/CV contrast, the type/token distinction is expressed in them at exactly the same environments as it is expressed in 'normal' nouns.

Class 1a/2a:

VCV umuana aali kaleemba 'the child was the writer'(token)

CVV umuana aali nikaleemba 'the child was a writer'(type)

VCV umuana-kaleemba aaliile 'the (token) writer-child left'

CV umuana-nikaleemba aaliile 'the (type) writer-child left'

Class 9/10:

VCV umuana aali imfumu 'the child was the chief'(token)

CVV umuana aali niimfumu 'the child was a chief'(type)

VCV umuana-imfumu aaliile 'the (token) chief-child left'

CV umuana-mfumu aaliile 'the (type) chief-child left'

Class 5/6:

VCV umuana ali i-shilu 'the child is the lunatic'(token)

CVV umuana aali lii-shilu 'the child was a lunatic'(type)

VCV umuana-ishilu aaliile 'the (token)lunatic-child left'

CV umuana-lishilu aaliile 'the (type)lunatic-child left'

1.3.3.2.2. Emphatic predicates

The emphatic particle EE- or its negative TEE-, we will attempt to prove below, are associated with a Relative clause form of the predicate. The easier example is that of EE- directly preceding a subj. rel. pronoun:

umuana EE-ϕù-a-ishile 'the child is-indeed(the one)who came'

umuana TEE-ϕù-a-ishile 'the child is-indeed-not(the one) who came'

The tone on the concord-pronoun is LOW, as it always is in Rel. clauses. Further, tenses excluded from Rel. clauses, cannot appear in this construction:

*umuana EE-ϕù-ÀLÍ-ishile

*umuana EE-ϕù-LÀ-isa

It also seems that the Rel. clause involved is Restrictive; NR rel. clauses cannot appear in this context, even if the missing head noun is supplied:

R. umuana EE-mu-ana ϕù-aishile 'the child is-indeed the child who...'

NR *umuana EE, uϕu-aishile '*the child is indeed,(the one)who came'

*umuana EE-mu-ana, uϕu-aishile '*the child is indeed the child, who came'

Also involved in this construction is an identity clause (probably referential identity), since the Rel. clause following EE- must always be of the same gender as the subject noun:

umuana EE-ϕù-aishile 'the child is indeed (the child) who came'

*imfumu EE-ϕu-aishile

imfumu EE-ϕì-aishile 'the chief is indeed (the chief) who came'

The fact that only the CV form of the Rel. pronoun may appear, then, is the result of the condition allowing only R modifiers after EE-.

The same generalisation will explain the CV forms of 'possessives' and ordinals:

umuana EE-ɸu-andi 'the child is indeed my(child)'

*umuana EE-uɸu-andi '*the child is indeed, my(child)'

umuana EE-ɸu-acimo (ukuisa) 'the child is indeed the first(child) (to come)'

*umuana EE-uɸu-acimo (ukuisa)'*the child is indeed, the first(to come)

A superficially similar restriction applies to nouns and adjective predicates following EE-. Thus note:

uyu-muntu EE-MU-puupu 'this man is indeed the thief'(token)

'*this man is indeed a thief'(type)

In spite of the fact that a CV prefix appears on the noun, it is obligatorily specific, and cannot be generic. This can be also shown by the use of one of the 'morphologically anomalous' genders, such as 9/10:

umuana EE-m-fumu 'the child is indeed the chief'(token)

*umuana EE-niim-fumu '*the child is indeed a chief'(type)

Similarly with adjectives:

umuana EE-MU-suma 'the child is indeed the good(one)'(token)'

*umuana E '*the child is indeed good'(type)

All this suggests that EE- cannot be well translated by English 'indeed'.

There appear to be two separate restrictions involved:

(a) Noun or adjective predicates after EE cannot be generic.

(b) Modifiers of a (present or deleted) predicate noun after EE- cannot

be Non-Restrictive.

The first restriction may hint at the deep nature of EE-, perhaps a marker of emphasis on specific identity. The second restriction is part of a growing body of evidence suggesting that there are very severe restrictions in the grammar on the distribution of NR modifiers, restrictions so far handled by our grammar. This problem will be discussed later on.

For the moment, it seems that we need to add a context sensitive feature rule, by which EE- be specified as an optional element of MODALITY. The context restriction also involved the present tense of the copula -LI, since it seems that we never get any but present-tense interpretation on these constructions. One must then assume that the copula is deleted or incorporated when EE- is present (for incorporation during lexical attachment, a process having Transformational power, see Gruber (1967a)). The rule can be of the form (using the angled brackets in a way described by Schane(1969):

16'. $[+\text{MODALITY}] \rightarrow \langle([+\text{EE}])\rangle[+\text{Fm}] \quad / \quad \langle \begin{matrix}[\text{-------}] \\ [+\text{pres.}]\end{matrix} \text{ '-LI'}[\text{-type}] \rangle_{\text{pred}}$

One may also note that EE- may be followed by a (restrictive) obj. relative, giving the concordial form seen in column 10., Table 2. As for example in:

umuana EE-ϕo naamweene 'the child is indeed the one that I saw'

*umuana EE-ϕo, naamweene '*the child is indeed the one, I saw'

The same restriction with regard to NR modification seems to hold.

1.3.3.2.3. Following 'strongly bound' personal pronouns

Sharman(1963b, p.119) notes that personal pronouns 'replace' the IV in prefixes of nouns, adjectives, 'possessives', relatives which follow them. There seem to be two separate restrictions involved here:

(a) A distributional restriction on R/NR modifiers:

Subj. rel. pronouns:

fwe-BA-boomba... 'we who work...'(R)

*fwe-ABA-boomba...

ifwe, ABA-boomba,... 'we, who work,...'(NR)

'possessives':

mwe-BA-amuZambia... 'you of Zambia...'(R)

*mwe-ABA-amuZambia...

imwe, ABA-amuZambia,... 'you, of Zambia,...'(NR)

Ordinals:

ne-ɸU-acimo... 'I the first one...'(R)

*ne-UɸU-acimo...

ine. UɸU-acimo,... 'I, the first one,...'(NR)

In short, involved here is a restriction on the form of the 'absolute' personal pronouns: they lose their prefixal /i-/ if modified by an R modifier, i.e., in a morphological 'strong bond'.

(b) Morphological neutralisation of nouns and adjectives modifying the personal pronouns:

Although we have seen the R-modifyer nouns or adjectives can be either CV(type) or VCV(token) when modifying nouns, when they modify the personal pronouns they seem to take only the CV form. However, the

use of 1a/2a nouns reveals that the CV form is a 'replacement' case of the IV, rather than a 'true' CV:

ne-kaleemba... 'I(who am) a writer...'(type) 'I(who am) the writer'

*ne-nikalulu

Support for the fact that the CV for here is a neutralisation, and that the interpretation is really ambiguous with respect to type/token, comes from the fact that the personal pronouns can be the subjects, in 'kernel' sentences, of both type and token predicates:

naali UMU-puupu 'I was the thief'(token)

naali MUU-puupu 'I was a thief'(type)

naali UMU-suma 'I was the good(one)'(token)

naali MUU-suma 'I was good'(type)

It is improbable, I think, that the distinction is lost; rather, it is morphologically neutralised:

ne-MU-suma... 'I(who am)(token/type)good...'

1.3.3.2.4. Following Demonstratives

Nouns preceded by pre-noun Demonstratives show only a CV prefix. Sharman(1963b) again labels this 'replacement', perhaps implying that the nouns are specific. Again the use of nouns in 1a/2a would reveal that the nouns are indeed obligatorily specific:

uyu-MU-ntu... 'this man...'

*uyu-UMU-ntu.../ *uyu-MUU-ntu...(this last one is unprovable)

uyu-kaleemba... 'this writer...'

*uyu-nikaleemba...

This is of course not very startling, since a Demonstrative is

inherently an absolute specificity marker to begin with

When adjectives used as anaphoric pronouns follow a Demonstrative, only CV prefixes appear:

uyu-MU-suma... 'this good(one)...'

*uyu-UMU-suma...

but here, as we shall argue in many other cases of Anaphora, there is a good case for assuming that surface neutralisation is involved, since when the missing noun is present, both type/token adjectives can modify it:

uyu-MU-ntu MU-suma... 'this good(type) person...'

uyu-MUntu UMU-suma... 'this good(token) person...'

As to subj.Relatives, Ordinals and 'possessives' used as anaphoric pronouns after Demonstratives, only CV appears in their prefixes, but then one does not expect a type/token contrast here; they are either derived from an R clause and take a CV, or from a NR clause and take a VCV:

uyu-ϕU-aishile... 'this one who came...'(R)

uyu, UϕU-aishile,... 'this one, who came,...'(NR)

1.3.3.2.5. Nouns following the -A link ('possessive' link)

Nouns following the -A-link are obligatorily CV, but again the use of 1a/2a nouns show that they are specific:

umuana ϕu-a MU-luungi... 'the child of the hunter...'

*umuana ϕu-a UMU-luungi...

umuana ϕu-a kaleemba... 'the child of the writer...'

*umuana ϕu-a NIkaleemba

This needs not be a surprise. We have already noted that subjects and objects of (non-negative) verbs in ChiBemba are obligatorily specific. Since, as we shall attempt to show later on, the -A-linked noun must come from an embedded (sentential) source in which it is either the object or the subject of some verb, it is expected to be specific.

As to anaphoric adjectives following the -A-link, they take only CV prefixes, but must be considered surface-neutralisations with regard to the type/token distinction, for reasons already mentioned in section (1.3.3.2.4.) above:

umuana ɸu-a MU-suma... 'the child of the(token/type)good one...'

1.3.3.2.6. Noun Prefixes following PA,KU,MU

The superficial rule is that only CV appears after prepositions. But the use of 1a/2a or 9/10 nouns shows that the prep.noun is specific:

ali MU-MU-shi 'he's in the village'

*ali MU-UMU-shi

aapeele icilya KUli kaleemba 'he gave the food to the writer'

*aapeele icilya KUli NIkaleemba

aamoneshya icitabo KU-MU-ana 'he showed the book to the child'

*aamoneshya icitabo KU-UMU-ana

KU-MU-ana kwaali-tumiike icitabo 'to the child was sent a book'

*KU-UMU-ana kwaali-tumiike icitabo

The specificity is again not surprising here, since Prep.nominals are either objects (of verbs or 'be') or subjects of sentences. Further, one could demonstrate that under conjunction, when the noun is not contiguous with PREP, a VCV prefix may appear:

naalimoneshya icitabo KU-MU-ntu na-UMU-ana

'I showed the book to the man and the child'

(As we shall see below, it would be erroneous to assume that the VCV prefix is here dictated by the preceding NA, since in appropriate environments NA need not be followed by VCV prefixes.)

One would also expect to find a token/type VCV/CV contrast in PREP-objects following negative verbs. The contrast is of course neutralised ordinarily, in the morphological contiguity of PREP:

nshiatumine CI-tabo KU-MU-ana 'I didn't send any book to the child'

'I didn't send any book to any child'

*nshiatumine CI-tabo KU-UMU-ana

However, one could force the contrast out by conjunction again:

nshiatumine FI-tabo KU-MU-ntu NA-UMU-ana

'I didn't send any books to the man and the child'(tokens)

nshiatumine FI-tabo KU-MU-ntu NA-MU-ana

'I didn't send any books to any man and any child'(types)

Whether one conjoins a token with a type object cannot at the moment be answered. What is clear, nevertheless, is that in all the environments where one expects a type/token semantic contrast in object nominals, one could obtain it in PREP nouns too, though surface-neutralisation always occurs if PREP is continuous to the noun.

1.3.3.2.7. Noun prefixes following NA

It is customary to assume that only VCV noun prefixes may appear after NA (see for example Sambeek(1955), Sims(1959)), though we have already shown one example in which this was not true. In fact, following

negative verbs, VCV/CV token/type contrast appear after NA, whether it is the conjunction, the 'comitative' preposition, the 'instrumental' preposition or the 'possession' particle:

nshiamweene UMU-ana na UMU-ntu 'I didn't see the man and the child'

nshiamweene MU-ana na MU-ntu 'I didn't see any child and any man'

taalwiile na UMU-anakashi 'he didn't fight with the woman'

taalwiile na MU-anakashi 'he didn't fight with any woman'

taaboombele na ULU-kasu 'he didn't work with the hoe'

taaboombele na LU-kasu 'he didn't work with any hoe'

taali na ULU-pya 'he didn't have the money'

taali na LU-pya 'he didn't have any money'

aali niimfumu na lii-shilu 'he was a chief and a lunatic'(types)

aali imfumu na i-shilu 'he was the chief and the lunatic'(tokens)

1.3.3.2.8. Vocatives and names

Whichever way vocatives are eventually treated in a grammar, they always represent 'the use of nouns as names'. Sharman(1963b) notes that IchiBemba nouns lose their IV when they are used as vocatives. Again, perhaps he implies that they remain inherently specific.But this is precisely the nature of names to begin with. The vocative forms of nouns in gender 1a/2a further support this assumption:

kaleemba! 'O writer!' but: *NIkaleemba!

The fact that IchiBemba names, even when not related to any synchronic lexical noun, always appear with CV prefixes, further supports their kinship to vocatives:

MU-ana! 'O child!' UMU-ana 'a child' *UMU-ana!

CI-lufya! 'O Chilufya!' ICI-lufya 'a loser' *ICI-lufya!

LU-saka luu-suma 'Lusaka is nice'

*ULU-saka luu-suma (as a noun, lu-saka (11/10) means 'bush' in Soli, a language of the Ila-Tonga cluster)

1.3.4. Generalisations

It is now possible to summarise the situation with regard to the type/token (generic/specific) contrast in ChiBemba, as well as the extent to which the VCV/CV (i.e, the presence or absence of the prefixal IV) function in the morphological expression ('spelling') of this contrast.

(a) There seem to be only two source-environments where generic nouns or adjectives may appear, as expressed in our Rule 19., Table 1..

(b) In these two limited environments, the VCV/CV morphological contrast usually (given no other intervening factors) is used to 'spell' the token/type contrast.

(c) In all other environments nouns are obligatorily specific.

(d) In those environments, there is no correlation between CV:generic or VCV:specific.

(e) As the result of anaphora or contiguity of PREP to nouns or pronouns a type/token semantic contrast may neutralise sometimes to CV, in other cases to VCV, pending a variety of morphological or other considerations.

(f) Finally, the case of the 'convergent' contrasts VCV/CV: NR/R will be discussed later, but at any rate it has nothing to do with the type/token contrast.

On the semantic level, therefore, it seems that the feature token is the general, unrestricted or unmarked case, while type or generic is the restricted, limited or marked case. Our Rule 19., (Table 1.) seems therefore justified in selecting [+type] as the marked feature. Although a redundancy rule is thus assumed, by which 'all nominals or adjectives elsewhere are obligatorily [-type]'. Both rules can be collapsed with the use of angled brackets, to give:

$$19'.\ \left\{\begin{matrix}[+ADJ]\\[+NOMINAL]\end{matrix}\right\} \rightarrow \left\{\begin{matrix}<[+type]>\\[-type]\end{matrix}\right\} \ /\ <\left\{\begin{matrix}a.\ NEG...[-----]\\b.\ [------]_{pred}\end{matrix}\right\}>$$

Clauses a.,b. in the environment statement right of the slash are disjunctively ordered with respect to each other.

1.3.5. The prefixal IV and modifiers used as anaphoric pronouns

The phenomena involved in the shape of VCV or CV prefixes of noun modifiers used as anaphoric pronouns will be discussed below, in preparation for re-analysis of the problem of NR modifiers.

1.3.5.1. Adjectives

While R adjective modifiers show a type/token:CV/VCV contrast if preceded by a head noun, they lose it when the head noun is deleted through anaphora, and on the surface only VCV appears:

umuntu MU-suma aaliile 'the good(type) man left'

umuntu UMU-suma aaliile'the good(token) man left'

UMU-suma aaliile 'the good(type/token) one left'

*MU-suma aaliile

This must be considered a surface neutralisation, probably prompted by the fact that the subject noun is obligatorily token:VCV. Now notice

that virtually the same restriction has already been noticed for NR adjective or noun modifiers:

umuntu, UMU-suma, aaliile 'the man, the good(type/token?) one,...'

*umuntu, MU-suma, aaliile

umuntu, UMU-puupu, aaliile 'the man, the thief(type/token?), left'

*umuntu, MU-puupu, aaliile

A more complex case of neutralisation happens in an environment which does allow a type/token:CV/VCV contrast in the head noun:

(a) nshiamweene UMU-ana MU-suma 'I didn't see the child that's type-good

(b) nshiamweene UMU-ana UMU-suma'I didn't see the child that's token-good

(c) nshiamweene MU-ana MU-suma 'I didn't see any child that's type-good'

(d) nshiamweene MU-ana UMU-suma'I didn't see any child that's token-good

When the head noun is anaphorised, however, the pronoun-adjective expresses only the type/token contrast of the head noun, but remains perforce ambiguous with regard to the type/token contrast of the adjective:

(a,b) nshiamweene UMU-suma 'I didn't see the one who's good(type/token)'

(c,d) nshiamweene MU-suma 'I didn't see any one who's good(type/token)'

This demonstrates very clearly that at the root of these neutralisations lies the fact that a pronoun, if at all capable of a VCV/CV morphological contrast, will express by them the type/token contrast -- or lack of contrast -- of the head noun itself. So that in subject position, where nouns are obligatorily specific, the pronoun will show VCV; while in environments in which nouns can show a generic/specific contrast, an adjective can appear as either CV or VCV, carrying that contrast for the missing head noun.

1.3.5.2. Subj.Relatives, 'possessives', Ordinals and '-ine'

We have earlier noted that the VCV/CV variation of these modifiers does not involve a type/token contrast. As R modifiers they are all embedded (except for '-ine'), and thus subject to the probably-universal condition that the equi-nouns in Rel. clauses are always specific. When they function as anaphoric pronouns of a head-noun that was obligatorily specific (VCV), they show a VCV form:

umuntu ¢U-aishile... 'the man who came...'

U¢U-aishile... 'the one who came...' but: *¢U-aishile...

umuntu ¢U-acimo ukuisa... 'the man first to come...'

U¢U-acimo ukuisa... 'the one first to come...' but: *¢U-acimo...

umuana ¢U-andi... 'my child...'

U¢U-andi... 'mine...' but: *¢U-andi

umuana ¢U-ine... 'the child himself...'

UMU-ine... 'he himself...' but: *¢u-ine...

As in adjectives, this closely duplicates the situation of these modifiers used as NR modifiers:

umuana, U¢U-aishile,... 'the child, who came,...'

*umuana, ¢U-aishile,...

umuana, U¢U-acimo ukuisa,... 'the child, who came first,...'

*umuana, ¢U-acimo ukuisa,...

umuana, U¢U-andi,... 'the child, mine,...'

*umuana, ¢U-anadi,...

umuana, UMU-ine,... 'the child, he-himself,...'

*umuana, ¢U-ine,...

When these anaphoric pronouns 'pro' for nouns in grammatical environments where a type/token contrast is possible, their VCV/CV alternation is employed to 'spell' this distinction:

nshiamweene U¢U-aishile 'I didn't see the one who came'(token)

nshiamweene ¢U-aishile 'I didn't see any one who came'(type)

aali U¢U-acimo ukuisa 'he was the(very)first one to come'(token)

aali ¢U-acimo ukuisa 'he was one(of the)first one to come'(type)

nshiaba U¢U-andi 'I don't have mine'(1/2)(token)

nshiaba ¢U-andi 'I don't have any of mine'(1/2)(type)

nshiamweene UMU-ine 'I didn't see him by himself'(token)

nshiamweene ¢U-ine 'I didn't see any by himself'(type)

One could perhaps begin to make some generalisations about the full morphological parallelism between the behaviour of NR modifiers and the behaviour of anaphoric subject pronouns:

(a) Both involve anaphora.

(b) Both involve anaphora of subject noun, which is obligatory VCV token.

Seemingly supporting this analysis are the paraphrases below pertaining to NR modifiers. They are compatible with an anaphoric interpretation:

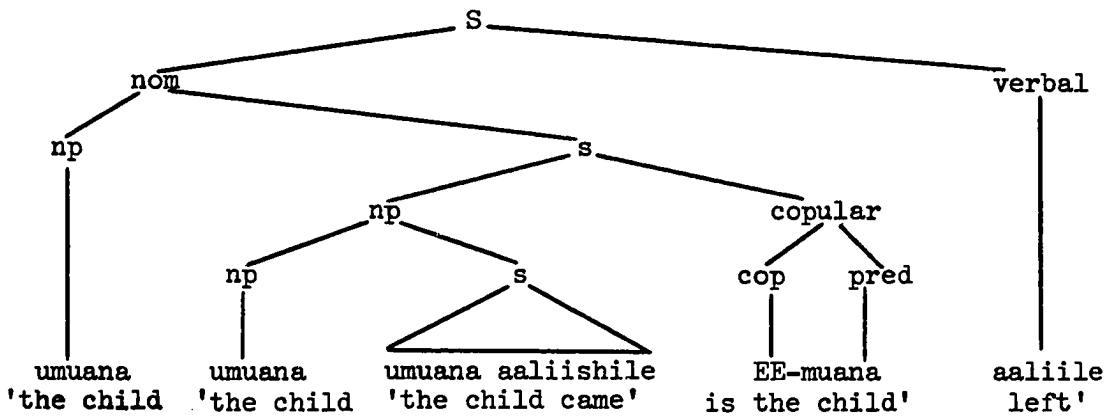
(1) umuana, U¢U-aishile, aaliile 'the child, who came, left'

(2) umuana, umuana ¢U-aishile EE-muana, aaliile
'the child, the child who came is indeed the child, left'

(3) umuana, UMU-suma, aaliile 'the child, who's good, left'

(4) umuana, umuana UMU/MU-suma EE-muana, aaliile
'the child, the good(type/token) child is indeed the child, left'

It seems that the 'parenthetic' clauses in (2), (4) above capture precisely the sense of the NR clauses (1), (3), respectively. That is, by means of an equational predicate expression, they identify the subject of 'the child left' with the subject of 'the child came'(1,2) or with the subject of 'the child is good'(3,4). It will therefore be suggested here that somewhere in the transformational history of NR clauses, a tree-structure such as the one below has perhaps existed:



Whether NR modifier-clauses ultimately come from conjoined sentences, as has been often suggested, is not the issue here. It is clear that at some stage in the derivation in both IChiBemba and English, the NR clause gets attached as a 'parenthetical afterthought' behind the noun. What is suggested by the data of ChiBemba morphology is only that:

(a) The deep structure of the NR clause is an equational identity sentence of a form comparable to the above;

(b) The subject of that equational sentence is modified by an R modifier.

(c) There is both relative pronominalisation and anaphoric pronominalisation involved in a NR modifier-clause, while only Relative pronominalisation is involved in R modifier-clauses.

1.4 NOUN MODIFIERS AND THEIR SOURCES

Some of the noun modifiers and their potential sources have already been mentioned in the discussion above. In this section a more systematic exposition of the pertinent evidence will be undertaken.

1.4.1. Adjectives

The purely semantic motivation for wishing to derive modifier adjectives from predicate adjectives has already been mentioned. Briefly, it involves the claim about the interpretation of:

(a) umuana ali umusuma 'the child is (token) good'

(b) umuana aaliboombele 'the child worked'

(c) umuana uaboombele ali umusuma 'the child who worked is good'

and the assumption that the sense of (c) above combines both that of (a) and (b).

An added support for the embedded source of adjectives in ChiBemba comes from the fact that the type/token:CV/VCV contrast is found in both predicate and embedded adjectives. If modifying adjectives were not embedded, then, the same semantic and morphological rules will have to be repeated in substantially the same form. Further, rule of concordial agreement will also have to be formulated twice.

Finally, as indicated earlier, we will consider a change in meaning paralleling a change in order within a R modifier chain, to be strong evidence for the embedded status of a modifier. This is indeed observed in adjectives:

abaana ba-suma ba-kalaamba baboomba saana

'good big children work a lot'

implied: '...while good small children may not...'

abaana ba-kalaamba ba-suma baboomba saana

'good big children work a lot'

implied: '...while bad big children may not...'

The concordial element of adjectives is given in Table 2., columns (3,4). For further discussion of the concord, see Part 2.. The class Adjective is an intriguing grammatical category in Bantu. Many present day Bantu adjectives can be shown to have diachronically derived from nouns or verbs, and it is still an open question in my mind whether a lexical category 'adjective' at all existed in Proto Bantu. The number of seemingly underived adjectives in most Bantu languages is extremely small. Derivational channels Verb-➤ Adjective are still synchronically active in many Bantu languages (for some examples, see Givon(1969)). Adjectives commonly found in ChiBemba are:

-suma 'good,pretty,desirable'	-bi 'bad,ugly,undesirable'
-ipi 'short'	-pya 'young,new'
-ingi 'many,much'	-bishi 'unripe, raw, green'
-umi 'alive'	-kali 'wild, fierce'
-kalaamba 'big, large'	-tali 'long, tall'
-noono 'small, few, a little of'	-tuuntulu 'whole, complete'
-nya 'baby'(human)	-ce 'small'

-yaaweyaawe 'ordinary, unimportant'

-lume 'male'(animal) (P.B. *lume 'man', *lum- 'cohabit')

-kota 'female'(animal) -mbi 'other, different'

-kulu 'adult, fully grown, big' (-kula 'grow')

-fuuke 'good tempered' (-fuuka 'behave calmly')

-kabe 'hot' (-kaba 'be hot, tasty')

-kote 'old' (-kota 'be/become old')

-ana 'child'(animal) (umu-ana 'child' (1/2))

-a-ume 'male,man' (P.B. *lume 'man')

-ana-kshi 'female, woman'(umu-ana-kashi 'woman'(1/2))

-a-ice 'childish,child' (umu-aice 'baby'(1/2, -ce 'small')

The adjective -mbi 'other, different' requires an added note. Overtly it can take only a GV prefix of the 'secondary' type (see Table 2.,.., col. (7)), but the type/token distinction can nevertheless be accommodated by it, through an irregular morphological device:

'VCV' ulya-muntu aali na-ϕU-mbi 'that man was the other'(token)

CVV ulya-muntu aali ϕUU-mbi 'that man was different'(type)

'VCV umuana na-ϕU-mbi... 'the known-other child...'(token)

CV umuana ϕU-mbi... 'another child...'(type)

1.4.2. Nouns as modifiers

The same reasons for deriving modifier-adjectives from sentential sources also apply to nouns(except for the concord, since predicate or modifying nouns need not agree with the gender of the subject or head noun). Again, a meaning-change associated with order-change within a R chain, can be here demonstrated:

umuana-mfumu-ishilu muu-bi 'a child who's chief who's mad is bad'

implied: '...while one who's chief but sane may be alright'

umuana-ishilu-mfumu muu-bi 'a child who's mad who's chief is bad'

implied: '...while one who's mad but not a chief may be alright'

In contrast with English, where N-N compounds may express on the surface a wide range of deep structures -- much like 'possessive' constructions --, N-N compounds in ChiBemba express only 'equational' identity statements, i.e., they arise only from predicate nouns. Some similarities exist in what seems to be in ChiBemba, an optional -A-link transform of N-N compounds:

(1)IM-fumu-muana I-aliile 'the chief-who-is-child left'

(2)uyu-MU-ana-waa-mfumu Aaliile(a) 'this child of the chief left'

(b) 'this child-of-a-chief left'

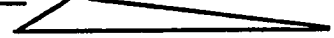
While (a) above is the regular 'possessive' interpretation ('the chief has a child'), (b) paraphrases the N-N compound above it.

A vexing problem arises from interpretation (b). It seems that while in (1) chief is both the semantic and concordial head noun, in (2b) chief is only the semantic but not the concordial head noun. The rub may not be apparent so far, since one could argue that all that is required here is to assume that the optional T-rule which 'restructures' the embedded sentence (1) into (2b) must surely precede the rules of concordial agreement in the grammar of ChiBemba. However, it is shown conclusively in Part 2. that this could not possibly be the case, and that the T-rules involved in embedding and the construction of -A-links must follow the rule of agreement spreading(feature spreading).

At the moment I can see no ideal solution to this paradox or seeming paradox. There is perhaps room for arguing that in (2b) above

child is indeed the semantic and concordial head from the start, so that (1) and (2b) both arise from embedded equational sources, but the equi-identity relation is reversed. That is:

(1') this chief #S#....



the chief is a child

(2') this child #S#...

the chief is a child

Thus (1) and (2) indeed share the same equational embedded sentence, but when the embedding is under subject identity, N-N compounds and transforms are regularly obtained, while if the embedding is under object identity, N-of-a-N transforms are regularly obtained. This is certainly a feasible solution, though at the moment it is hard to judge how it can be proved. Its feasibility is perhaps enhanced by the fact that the only structural interpretation ever given to N-N compounds involves embedding under subject identity. While, as we shall see below, -A-link embedding can arise from either subject or object identity.

One is still faced with the problem that in (2b) above there is a discrepancy between the semantic and syntactic subject. This is particularly damaging in a grammar which assumes the unity of syntac and semantics, and in particular that 'semantic interpretation hinges upon the 'syntactic' deep structure'. At the moment I have no answer to this. Note that in a superficially similar construction in English, the concordial situation is different:

this tiger-woman, she's dangerous

this tiger-of-a-woman, she's dangerous

but never: this tiger-of-a-woman, it's dangerous

This implies that in English the construction may have already undergone re-analysis, so that perhaps N-of-a is by itself already analyzed as a pre-noun embedded modifier. But this is clearly not the case in Chi-Bemba.

1.4.3. Numerals

By reasons of semantic interpretation, again, as well as of concordial agreement, we must assume that in:

(a) abaana bali ba-bili 'the children were two'

(b) abaana baaliboombele 'the children worked'

(c) abaana ba-bili baaliboombele 'the two children worked'

sentence (c) combines the meanings of (a) and (b). Meaning change resulting from order-changing in a R chain can also be shown:

abaana babili basuma baaliile 'the two children who were good left'

implied: '...while the two who were bad may have not'

abaana basuma babili baaliile 'the two children who were good left'

implied: '...while the three who were also good may have not'

We shall therefore assume that Numerals arise from a predicate-embedded source, as given in our Rule 15., Table 1..

IchiBemba numerals take only a CV 'secondary' concord (see Table 2., column 7.). Of the numeral stems listed below, only 1 through 5 must agree with the head noun:

-mo 'one' -bili 'two', -tatu 'three', -ne 'four', -saano 'five', mutaanda 'six', cine lubali 'seven'('four on one side'), cine koonse

koonse 'eight' ('four even'), pabula 'nine' ('with(one)missing'),

i-kumi 'ten'(by itself a noun in class 5/6)

umu-taanda 'hundred'(by itself a noun in class 3/4)

For counting purposes 'neutral' 7/8 concord is used:

ci-mo, fi-bili, fi-tatu,... 'one,two,three,...'

When 'ten' or 'hundred' are involved in 'neutral' counting, they impose their own concord:

ama-kumi ya-bili na fi-sano '25' ('two-tens and five')

imi-taanda ¢i-tatu na amakumi ya-bili na ci-mo'321'

('three hundreds and two tens and one')

When used as modifiers, -kumi and -taanda again behave as nouns and impose their gender concord on their own numeral modifiers:

aba-ntu i-kumi na ¢u-mo '11 people'('people ten and one')

ifi-puna imi-taanda ¢i-bili na (ifipuna) ama-kumi ya-sano na (ici-puna)ci-mo '251 stools' ('stools two-hundreds and (stools)five-tens and one(stool)')

The head noun of the entire construction continues to control the concord of the singles 1-5, but it is clear from the concordial situation that while 1-9 can be described as Numeral predicates, ten and hundred are at least structurally embedded predicate nouns.

1.4.4. Relative clauses

The reasons for deriving Relative Clause modifiers from embedded sentences are perhaps more obvious, and have been already discussed. The form of subject. rel.pronoun concord and the VCV/CV contrast have already been described. Problems of pronominalisation and embedding will

be given some consideration in Part (2.).

1.4.4.1. Demonstratives as subject Rel. pronouns

An interesting contrast is obtained when a Demonstrative is used as a Subject Rel. pronoun:

umuana ¢Ù-aishile... 'the child who came...'

umuana ÚYÙ à-aishile... 'the child this-who came...'

umuana ÚLYÀ à-aishile... 'the child that-who came...'

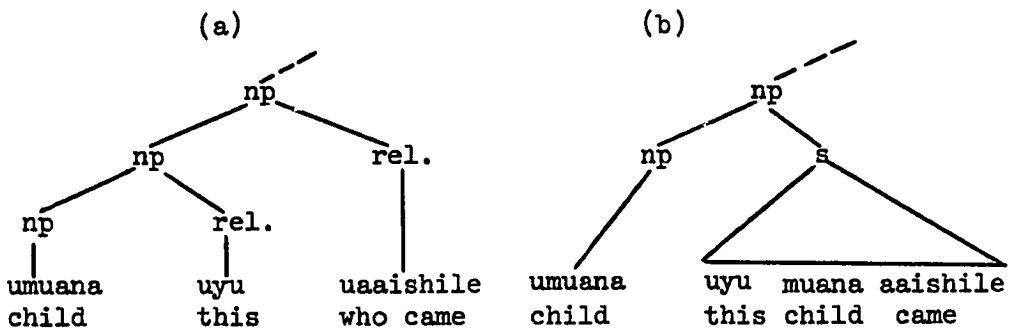
etc.

Sharman(1963b, p.116) point out that there is a clear tonal difference between the 'regular' post-noun Demonstrative, and a Demonstrative used as Rel. pronoun:

(a) umuana ÙYÚ ¢ù-aishile... 'this child who came...'

(b) umuana ÚYÙ à-aishile... 'the child this-who came...'

(The English rendition 'this-who' is of course rather awkward, but there seems to be no other way available to render this contrast). In gender 1/2 this is of course also accompanied by a difference between the normal Subj.Rel. pronoun/¢U-/ and the Subj. concord /a-/. Thus while in (a) above both DEM and REL are two independent R modifiers of the head noun, in (b) DEM is part of a single REL modifier. Further, one could not describe DEM in (b) as a 'mere Rel. pronoun', since the same 4 way contrast of deictic categories obtains there as does for Demonstratives in general. (a) and (b) above can be thus characterized by:



One could perhaps suggest that when an embedded R sentence contains a (non-embedded) pre-noun Demonstrative, the Rel. Pronoun is formed around that Demonstrative, rather than independently.

This solution by no means removes all difficulties. To begin with, note that an embedded DEM modifier and a DEM functioning as Rel. pronoun cannot co-exist in the same Nominal:

umuana ÙYÚ ¢U-aishile... 'this child who came...'

umuana ÚYÙ a-aishile... 'the child this-who came...'

*umuana ÙYÚ ÚYÙ a-aishile... '*this child this-who came...'

though a non-embedded pre-noun Demonstrative can:

ùyú-muana ÚYÙ a-aishile... 'this child this-who came...'

However, these are not the only restrictions on the distribution of Demonstratives. For example, note that both pre-nom(unembedded) and post-nom(embedded) Demonstratives cannot co-exist in the same nominal:

uyu-muana... 'this child...'

umuana uyu... 'this child...'

*uyu-muana uyu...'

It is clear that some blocking conventions will be needed in order to constrain the distribution of DEM, but similar ones are needed to constrain the distribution of many other embedded(or non-embedded)modifiers:

umuana uyu uyu...'this this child...'

umuana mu-suma mu-suma...'the child who's good who's good...'

*umuana ¢uaishile ¢uaishile... *'the child who came who came...'

etc.

1.4.4.2. Object Rel. pronouns/clauses

The forms of object. rel. pronouns are given in Table 2., columns 8,9,10.. The VCV-o(9) and CV-ntu(8) forms are identical in meaning and their choice seems to be optional. The form under col.(10) is the emphatic Obj. rel. pronoun, already discussed.

Here again Demonstratives can be used to replace the regular pronoun forms:

umuana u¢o naamweene... 'the child whom I saw...'

umuana ÚYÒ naamweene... 'the child that-whom I saw...'

umuana ÙYÓ u¢o naamweene... 'that child whom I saw...'

We will here again assume that the Dem.Rel.Pronoun arises from a non-embedded DEM in the equi-identity Nominal object. Several restrictions are also observed here:

ÙYÓ-muana u¢o naamweene... 'that child whom I saw...'

ÙYÓ-muana ÚYÒ naamweene... 'that child that-whom I saw...'

umuana ÙYÓ ÚYÒ naamweene...'that child that-whom I saw...'

*ÙYÓ-muana ÙYÓ... *'that that child...'

1.4.5. Ordinals

The concordial elements (Rel.pronouns) associated with Ordinal modifiers are the same as those of Subject Rel. pronouns or -A-link Rel.

pronouns, all given in Table 2., col.(6). The convergence of their VCV/CV contrast with NR/R has already been discussed. Morphologically, an ordinal is an -A-link whose second member is a numeral:

¢U-A-cimo 'first' ('of one')

Since ordinals show a change of meaning arising from an order change in a Restrictive chain, we shall assume they must arise from an embedded source:

umuana mu-suma ¢u-acimo(ukuisa)...'the first good child(to come)...'

implied: 'but not the second...'

umuana ¢u-acimo(ukuisa) mu-suma... 'the first good child(to come)...

implied: 'but not the first bad one...'

As to the 'kernel' sentential source of Ordinals, two possibilities come to mind:

predicate ordinals:

umuana aali U¢U-acimo ukuisa/¢U-acimo ukuisa

'the child was the first to come(token)/a first(of several)to come'

This source presumably would make a type/token distinction.

adverbial ordinals:

umuana aa-ishile U¢U-acimo 'the child came first'

This source makes no type/token distinction.

Although the issue is by no means settled, the Predicate source seems in many ways less desirable.

(1) It presumably shows a type/token distinction which does not appear in embedded ordinal modifiers (where the VCV/CV contrast converges with that of NR/R).

(2) It can be paraphrased, by supplying a missing head noun, in a way that would trace the type/token contrast to a predicate noun, and will leave the ordinal as an (embedded) modifier used as anaphoric pronoun:

umuana aali UMU-ana ¢U-acimo(ukuisa)

'the child was the first child(to come)'(token-child)

umuana aali MU-ana ¢U-acimo(ukuisa)

'the child was a first child (to come)'(type-child)

(a better rendition of this distinction is: 'a child who came first' (type) vs. 'the child who came first'(token)).

(3) A more serious objection arises from the semantic interpretation. Note first that an Ordinal by itself is multiple ambiguous with regard to 'first what?':

The first child was beautiful: 'the child who came first'
'the child who left first'
'the child I saw first'
etc.

In short, the verbal structure concerned must be specified, if one seriously aims to have Deep Structures characterize semantic interpretation. Now, notice how the disambiguation is done in both embedded and 'predicate' ordinals:

umuana ¢u-acimo ukuisa... 'the child first to come...'

umuana aali U¢U-acimo ukuisa... 'the child was the first(child)to...'

The infinitival form of the verb is not a kernel structure. Rather, it is a reduced, nominalised structure. It does not, by itself, capture the important fact of semantic interpretation that child is the subject of come, and that a sentence containing at least the information:

'the child came' must be involved in the deep structure of either the embedded or 'predicate' ordinal. But this is precisely the information preserved in our adverbial sententtial source for ordinals:

umuana ¢U-acimo ukuisa... ⟸ umuana #S#

'the child first to come...' umuana aaishile U¢U-acimo

'the child came first'

Note further the paraphrase relations in English:

'the first child to come left'

'the child who was first to come left'

'the child who came first left

The first two seem to be optional stylistic transforms of the third. Similarly in ChiBemba:

'umuana ¢U-acimo ukuisa' ('the child first to come')

'umuana ¢U-aishile u¢u-acimo' ('the child who came first')

To sum up, then, it seems to me that depicting ordinal modifiers as coming from ordinal adverbs within an embedded sentence is much preferable. This is by no means to imply that ordinal adverbs do not need much more complex deep structure. They must, for example, express the deep fact that 'first' means 'first among the group...'. But this is a problem of Universal Grammar which we will not attempt to solve here.

1.4.6. -A link modifiers('possessives')

The term 'possessive' is as misleading in Bantu as it is in English, since of the great variety of structural-sentential relations which can all reduce into this surface construction, only a small part can be

construed as 'possession'. In a grammar purporting to characterize deep semantic relations by 'deep structures', a surface construction as multiply ambiguous as the 'possessive' must be a prime example of what is not Deep Structure. The few illustrations below are by no means exhaustive:

indalama ɸyaa-muana...'the money of the child...'(N_2 has N_1)

abantu baa-mfumu...'the people of the chief...'(N_2 rules N_1)

imfumu ɸyaa-bantu...'the chief of the people...'(N_1 rules N_2)

umuntu ɸwaa-mano 'a man of wisdom'(N_1 has N_2)

abantu baa-mu-Zambia 'the people of Zambia'(N_1 live in N_2)

umuana ɸwaa-pa-mumana 'the child at the river'(N_1 is at N_2)

imfumu shyaa-Lubemba 'the chiefs of Lubemba'(N_1 rule N_2)

imfumu shyaa-mu-Lubemba 'the chiefs in Lubemba'(N_1 live in N_2)

icipuna cyaa-cimuti 'a wooden stool'(N_1 is made of N_2)

umusukupala ɸwaa-meenshi 'a bottle of water'(N_2 fills N_1)

abantu baa-Bemba 'the Bemba people'(N_1 are members of N_2)

ibuma lyaandi 'my group' (N_2 is member of N_1)

umuana ɸwaa-cimo 'the first child'(see discussion above)

ili-ishilu-lyaa-mfumu 'this lunatic-of-a-chief'(N_2 is N_1)

In addition, notice the -A-links derived from nominalised sentences:

imfwa ɸyaa-kwaa-Nkole 'the death of Nkole' (Nkole died)

uku-imba kweetu 'our singing' (We sing)

uku-ipaaya kwaa-nkalamo 'the killing of(the)lions' (Lions kill...)

etc. etc. (...kills lions)

Regardless of how Nominalisations are eventually treated in the grammar,

the -A-link which follows them cannot be construed as a Base Structure.

The analysis of 'possessives' is still a controversial point in Linguistic Theory. Fillmore(1968) has suggested that most 'genitive' constructions be Transformationally derived from embedded sentences, while making 'inalienable possessions' an exception to this. At the moment it is unclear what is the scope of 'inalienable possession' in Chi-Bemba. Many kinship nouns are obligatorily possessive; 'complex locatives' (see section 1.5.2, below) may also be 'inalienable possessions'.

Describing most 'possessives' as arising from embedded sentences by no means alleviates the enormous difficulty involved in formulating transformational rules by which such a great variety of Deep Structures are all transformed into the same surface structure. In spite of this, I feel that the semantic reasons for adopting the embedded solution are compelling. Semantic grounds are be no means the only ones, though. Note that the Relative Pronoun of the -A-link is morphologically the same as that of Subject Relatives, which are embedded. Note further that a change in the relative order of a 'possessive' within an R chain, will produce the characteristic change in meaning:

umuana mu-kalaamba ɸwaandi... 'my big child...'(vs. your big one)

umuana ɸwaandi mu-kalaamba... 'my big child...'(vs. my small one)

1.5. LOCATIVE-PREPOSITIONAL NOMINALS

We have already noted the misleading reference to the 'locative' or prepositional genders in Bantu as 'noun classes'. Much like the feature [singularity], locative gender features are not inherent in any

noun but rather, are added to nominals by the optional choice of a PREP-OSITION in the Base Rules, as described in our Rule 3., Table 1. As we shall see in Part (3.), the term 'preposition' is more appropriate than 'locative', since of the great variety of prep.relations involved, only a sub-set can be characterized as concrete or locative.

In this section, except for treating the vast problem of locative-prepositional concord, we will concern ourselves with the relation between two of our Base Rules, Rule 3.:

NOMINAL -> (PREP) NOM

and Rule 15.:

PRED -> (NOMINAL, $NOMINAL_{loc}$, ADJ, NUM, NA+NOM, S)

Locative predicates in copular expressions in ChiBemba are, for example:

umuana ali MU-mushi 'the child is inside the village'

umuana ali KU-mushi 'the child is there-at the village'

umuana ali PA-mushi 'the child is at the village'

A more complete analysis of the semantic features underlying locative prepositions is found in Part (3.).

For the moment, note that the item $NOMINAL_{loc}$ in Rule 15.(Table 1.) is really unnecessary, since Rule 3.(ibid) already specifies this possibility, so that NOMINAL predicate can cover both PREP and non-PREP nominals. The particle NA (as in NA+NOM, Rule 15, ibid) will be also analysed as a PREP later on. Notice that it is in complementary distribution with other prepositions:

ali KU-mushi 'he's at the village'

ali NA-umuana 'he has a child' ('he is with a child')

*ali NA-KU-mushi

*ali KU-NA-umuana

The predicate construction 'be with' 'have' utilising a copula and the associative NA, is characteristic of many Bantu languages. Fillmore(1968) as well as others have pointed out a deep semantic relation between 'be' and 'have' even in languages possessing a lexical verb 'have'. The interesting relation between the 'preposition' and 'conjunction' NA will be discussed in Part (3.). For the moment, if we accept the 'associative' NA of predicates as a Preposition, then Rule 15.,(Table 2.) can be revised to read only:

15'. PRED -> (NOMINAL,ADJ,NUM,S)

This treatment differs from that offered by Gregersen(1967, p.4, Rule 6.), who introduces Prepositions in his grammar only in a very restricted environment -- following the copula -- as for example, in Swahili (where only one locative postposition appears):

mwana ni soko-NI 'the child is in the market'

His rule is not really adequate even for Swahili, where locatives can appear in subject position:

nyumba-NI ni PA-zuri 'in the house (it) is good'

In Swahili as well as in ChiBemba, the 'it-Transformation' is not at all necessary, so that (for ChiBemba now):

MU-mushi MUU-suma 'in the village is good'

KU-mushi KUU-suma 'there-at the village is good'

PA-mushi PAA-suma 'at the village is good'

Fillmore(1968, p.42-44) derives in English 'it is hot in the studio'

from a Base Structure: '*in the studio is hot'. The typological difference between English and Bantu seems to be that in English a PREP nominal cannot occupy the subject position (without losing the PREP), while in Bantu it can. The 'dummy subject' It in English is probably a consequence of this restriction, plus a requirement to keep the subject position filled.

1.5.1. The concordial agreement of Prep.-nominals

The investigation in this section will be informal, but the results will be formalized in Part (2.). In order to understand the problems of concord associated with prep.nominals, one needs first to summarise the concordial behaviour of non-prep. nominals:

The subject nominal of a sentence imposes gender/number agreement in the following predicate categories:

(a) verb or copula ('subject concord'):

ili-bwa li-ali-funiike 'the stone broke'

ili-bwe li-li kuno 'the stone is here'

(b) adjective and numeral:

ilibwe lii-suma 'the stone is pretty'

amabwe ya-li ya-tatu 'the stones are three'

(c) ordinal adverb:

ilibwe li-ali-funiike ili-acimo 'the stone broke the first'

The head noun of a nominal imposes gender/number agreement on all its modifiers(with the exception of Nominal modifiers which have an inherent gender):

ili-bwe li-afuniike... 'the stone that broke...'(REL)

ili-bwe li-ntu naamweene... 'the stone I saw...'(OBJ.REL)

ili-bwe li-andi ... 'my stone...' (-A-link)

ili-bwe li-mo... 'one stone...'(NUM)

ilibwe li-kalaamba... 'the big stone...'(ADJ)

ili-libwe... 'this stone...'(DEM, pre-noun)

ilibwe ili... 'this stone...'(DEM, post-noun)

ilibwe li-ine... 'the stone itself...'(I)

ilibwe li-acimo... 'the first stone...' (ORD)

1.5.1.1. Locative-prep. concord

Subject imposed concord:

PREP nominals impose only PREP concord on the categories requiring subject concord,(a,b,c) above:

MU-mushili MU-ali-boondolweeke

'in-the-village (it) was (all) destroyed'

MU-mushili MU-li UMU-suma 'in the village (it) is good'

MU-mushili MU-ali-boondolweeke UMU-acimo

'in the village (it) was (all) destroyed first'

(A suitable example for a Numeral predicate cannot be found, and I suppose there must be some severe restrictions on the quantification of Prep. nouns).

Head-noun imposed concord:

The concord of modifiers modifying prep.nouns differs in some interesting ways from subject concord. There are two asymmetrical groups of modifiers with respect to their concordial behaviour:

(A) Modifiers showing 'double concord':

As we shall argue later, these are the embedded modifiers. When following a PREP-noun, they can take either PREP gender, or NOUN gender/number concord, with a characteristic meaning distinction involved:

(a) Subj. Relative clauses:

MU-mushi MU-aboondolweeke... 'in the village that got destroyed (the inside of it got destroyed)

MU-mushi ϕU-aboondolweeke... 'in the village that got destroyed' (the village got destroyed)

(b) Obj. relative clauses:

MU-mushi MU-ntu naamweene... 'in the village that I saw...' (I saw the inside of the village)

MU-mushi ϕU-ntu naamweene... 'in the village that I saw...' (I saw the village)

(c) Ordinals:

MU-mushi MU-acimo uku-moneka... 'in the village first to appear...' (the inside of the village appeared)

MU-mushi ϕU-acimo uku-moneka... 'in the village first to appear...' (the village itself appeared first)

(d) -A- link:

MU-mushi MU-andi... 'in my village...'(I own the inside of it)

MU-mushi ϕU-andi... 'in my village...'(I own the village)

(e) Numerals:

MU-mushi MU-mo MUU-suma 'in one village (it) is good' (one inner part of the village is good)

MU-mushi ɸU-mo MUU-suma 'in one village (it) is good'

(f) Adjectives:

MU-mushi MU-suma... 'the good inside of the village...'

MU-mushi ɸU-suma... 'in the good village...'

(g) Post-noun Demonstratives:

MU-mushi UMU... 'here-in in the village...'

MU-mushi UɸU... 'inside this village...'

(The evidence that post-noun DEM is embedded will be discussed in section (1.6.2.) below).

Rendering the PREP/non-PREP contrast in modifiers into English is extremely difficult, and it is not unnatural that the translations above seem rather forced, perhaps not even fully grammatical. This can be again traced to the restriction in English on PREP subjects.

(B) Modifiers showing only PREP concord:

This group indcludes two classes of modifiers:

(h) Intensifiers:

MU-mushi MU-ine... 'in the village itself...'

*MU-mushi ɸU-ine...

MU-mishi MU-onse... 'in all the villages...'

*MU-mishi ɸI-onse...

MU-mushi MU-ena... 'only in the village...'

*Mu-mushi ɸU-ena...

MU-mushi MU-eka... 'in the village alone...'

*MU-mushi ɸU-eka...

(i) Pre-noun Demonstratives:

Pre-PREP:

UMU-MU-mushi... 'here-in in the village...'

*u¢u-MU-mushi...

Post-PREP:

*MU-UMU-mushi

MUli u¢u-mushi... 'in this village...'

The Loctative-Demonstratives (Pre-PREP) will be discussed in section (1.6.1.) below. There are some reasons to assume they are PRO elements rather than mere Demonstratives in a PREP environment. This is reinforced by the fact that one could indeed get:

UMU MUli iyi-mi-shi... 'in-here in these villages...'

In the analysis in section (1.6.1.), we would like to claim that the pre-PREP 'loc.-demonstrative' is an apositional pro-locative, while the post-PREP demonstrative is the one derived from expansion of NOM, see Rule 5., Table 1..

1.5.1.2. Summary of locative concord:

(a) For all non-embedded concordable categories in the sentence, PREP gender supplants noun gender/number concord; the sole exception to this is DEM, where noun gender/number control remains; at any rate, non-embedded modifiers or categories never show double concord.

(b) All embedded modifiers show double concord.

There are essentially two ways of accounting for double concord shown by embedded modifiers.

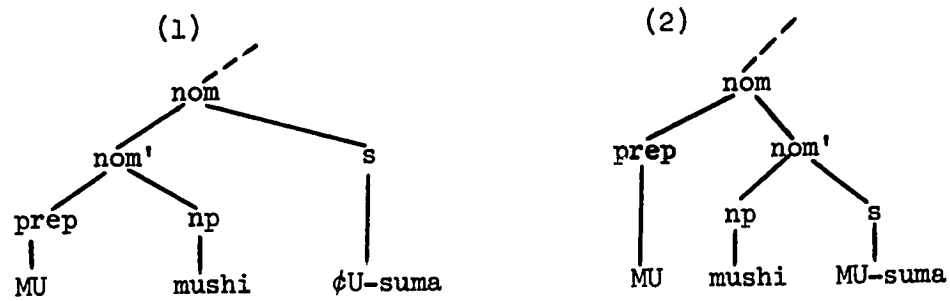
(A) A solution through the rules expanding NOM itself:

A solution of this type would attempt to characterize the difference between:

(1) MU-mushi ¢U-suma... 'inside the good village...'

(2) MU-mushi MU-suma... 'the good inside of the village...'

in some way such as:



Many alternatives of the same general type are possible, and all of them share extremely severe drawbacks:

(a) They predict the generation of double prepositions;

(b) They allow much more embedded structure that is attested (three nodes for branching embedded S's rather than two);

(c) They provide no way of restricting the appearance of PREP in the embedded sentences themselves, thus requiring more blocking rules to eliminate counter factual junk;

(d) They do not really account for the meaning contrast between (1) and (2) above, i.e., 'the house is good' vs. 'inside of the house(it)is good'; so that they account -- poorly -- for the mechanics but not for the meaning contrast involved;

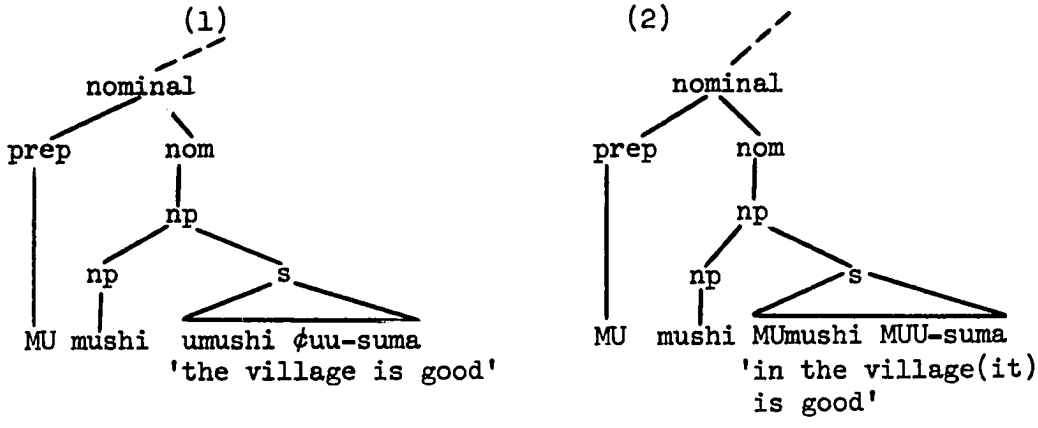
(e) Most damaging perhaps, they make a powerful claim that the mechanism controlling the concord of an embedded predicate is different from the one controlling its concord within the 'kernel' structure. This is very undesirable, <u>if</u> one could show that a <u>less powerful</u> solution will

do just as well or better;

(f) Finally, the solution does not avail itself of the interesting fact that all modifiers showing double concord are embedded;

(B) A solution within the embedded sentence:

Under this solution, one simply assumes that the equi-identity nominal within the embedded sentence had the normal optional choice -- PREP or non-PREP, so that (1) and (2) are simply characterised as:



This solution is much preferable with respect to all the points mentioned above. Its greatest advantage is that, while correctly accounting for the meaning-contrast involved in double concord, it requires no special powers to do so, and does not depict the concord of embedded predicates as being governed by different mechanisms than that of 'kernel' predicates. This is particularly crucial because, as we shall see later on, the rules of agreement spreading must precede the T-rules of embedding and the reduction and deletions involved.

As desirable as solution (B) is, it has not solved all problems. One intriguing complication arises from the fact that there seems to be a requirement of agreement in kind within a chain of R or NR modifiers, following a PREP-nominal. That is:

R: MU-mushi MU-andi MU-suma...

MU-mushi ¢U-andi ¢U-suma...

*MU-mushi MU-andi ¢U-suma...

*MU-mushi ¢U-andi MU-suma...

NR: MU-mushi, MU-andi, MU-suma,...

MU-mushi, ¢U-andi, ¢U-suma,...

*MU-mushi, MU-andi, ¢U-suma,...

*MU-mushi, ¢U-andi, MU-suma,...

This seems to destroy or at least damage our contention that concord can be handled within the 'kernel' sentence, without reference to structures outside the sentence boundaries.

As to agreement-in-the-chain of R modifiers, it may be due to universal conditions, such as identity requirement for equi-nom. deletion. As was mentioned earlier, each R modifier in a chain modifies the entire R phrase before it. So that the R modifier before it had a PREP equi-nominal, must show an identical structure. Unfortunately the same cannot be argued for NE modifiers, which independently modify the same head nominal or PREP-noun. So that here perhaps an 'extra-kernel' condition on 'agreement within a chain' may be required.

1.5.2. Locatives as noun modifiers

Locative nominals, themselves capable of being predicates, can therefore also be embedded, as in:

umuana MU-mushi... 'the child in the village...'

which can be paraphrased by:

umuana ɸu-li MU-mushi... 'the child who is in the village...'

1.5.3. The structure of Complex Locatives

Since the range of prepositions for locative expressions in Bantu is usually limited to PA 'at', KU 'at-direction', MU 'in', it is perhaps not surprising to see the development, in many Bantu languages, of a supplementary system expressing additional spatial relation. This is usually done by the use of 'prepositional nouns' which combine with the existing PA,KU,MU prepositions in what will be here labeled 'complex locative constructions'. These constructions superficially resemble the -A link, but their concordial properties are rather different: no double concord is possible in them, and only noun gender/number concord is allowed, but never PREP concord:

icitabo cili PA-isaamba lyaa-busaanshi 'the book is under the bed'

*icitabo cili PA-isaamba PAa-busaanshi

The implication of this concordial restriction will be discussed later on. The 'prep. nouns' found in ChiBemba are given in Table 4. below.

Of the 'prep.nouns' given, the last three do not require -A-link but rather the 'associative' NA link. This is natural in view of the fact that these three are not derived from gender bearing noun stems, but rather, from adjectival or numeral stems which bear no inherent gender. The -A-link requires concordial agreement with the noun preceding it, while the NA link does not.

There are two possible ways of introducing 'prep.nouns' into the grammar and assigning structural description to Complex Locatives.

TABLE 3. PREPOSITIONAL NOUNS

noun	original meaning	prep.form	prep.noun meaning
i-saamba(5/6)	'bottom'	PA-isaamba	'under', 'at the bottom'
		KU-isaamba	'downward', 'to the bottom'
		MU-isaamba	'in the bottom'
umu-ulu(3/4)	'sky', 'upside'	PA-muulu	'up'
		KU-muulu	'upward'
aka-ti(12/13)	'middle', 'center'	PA-kati	'between', 'among'
		MU-kati	'in the midst'
in-taanshi(9/10)	'face', 'front'	PA-ntaanshi	'in front', 'at the front'
		KU-ntaanshi	'forward'
in-numa(9/10)	'back'	PA-nnuma	'behind', 'at the back'
		KU-nnuma	'backward'
		MU-nnuma	'in the back part'
in-se(9/10)	'outside'	PA-nse	'outside'
		KU-nse	'to-outside'
		MU-nse	'in the outside part'
im-bali(9/10)	'shade', 'the quiet side'	KU-mbali	'alongside', 'on the side', 'secretely'
in-shi(9/10)	'ground', 'floor', 'earth'	PA-nshi	'down', 'on the ground'
		KU-nshi	'downward', 'to the floor'
i-shilya(5/6)	'the other side of the river'	KU-ishilya	'across the river'
-ipi (adj.)	'short'	PE-epi(na)	'close', 'near'
-tali(adj.)	'long'	tali (na)	'far from'
-mo (num.)	'one'	PA-mo(na)	'together(with)'

(A) A lexical solution: Under this solution, one would assign the entire construction of a 'complex' locative to the lexicon, as a preposition. So that, (for both English and ChiBemba):

icitabo cili PA-bussanshi 'the book is on/at the table'

icitabo cili PA-muulu ɸwaa-busaanshi 'the book is on-top-of the table'

'on' and 'on top of' will be thus both considered lexical prepositions. There are two strong drawbacks to the lexical solution. First, it is repetitious and makes no generalisation about the fact that top or umuulu is a lexical noun, or that PA or 'on' is a lexical preposition, and it seems that the meaning of "PA-muulu ɸwaa' and 'on top of' can be derived in a fairly regular manner from the combination of both. Second, this solution disregards the structural facts concerning the 'possessive' or -A- link form of this construction, at least on the surface.

(B) A Base Rule solution: Under this solution we shall continue to view the 'complex locative' construction as made of a PREP-noun modified by an embedded -A-link (or in English 'possessive') modifier. This would presumably take care of the two drawbacks listed above.

While solution (B) seems superficially more attractive, there seem also to be heavy penalties to be paid if it is adopted. Note, first that unlike all embedded modifiers (and particularly an embedded -A-link modifier), we obtain no double concord, and in fact no PREP concord in 'complex locatives'; they thus behave like unembedded pre-noun DEMonstratives:

PE-esaamba li-a-busaanshi... 'at the bottom of the table...'

*PE-esaamba PA-a-busaanshi...

Further, while other embedded -A-link modifiers can change their relative position within a (R) chain, the -A-link construction following the PREP-noun in 'complex locatives' must remain continuous to that PREP-noun:

PA-muulu ¢waa-busaanshi bwaandi... 'on top of my table...'

*PA-muulu buaandi ¢waa-busaanshi...

PA-muulu ¢waa-busaanshi PA-suma... 'on the good 'top of my table'...

PA-muulu PA-suma ¢waa-busaanshi...'on the good top 'of my table'...

*PA-muulu PA-suma PAa-busaanshi...

*PA-muulu ¢u-suma ¢waa-busaanshi...

PA-muulu ¢waa-busaanshi bu-suma... 'on top of the good table...'

In short, although superficially PA-muulu 'on the top' is the syntactic head of the noun phrase, concordially PA.....bu-saanshi is the head. This again leaves umuulu as a mere part of the complex preposition.

The inseparability of PA and umuulu is also demonstrated by the fact that it is impossible to insert a Demonstrative between them. Thus:

PA-bushaanshi... 'on the table...'

PAli ubu-busaanshi... 'on this table...'

but: PA-muulu ¢waa-busaanshi... 'on top of the table...'

*PAli u¢u-muulu ¢waa-busaanshi... '*on this top of the table...'

PA-muulu ¢waa-kwaa-UBU-busaanshi... 'on top of this table...'

The same goes for post-noun Demonstratives:

PA-muulu ¢waa-busaanshi UBU... 'on top of this table...'

PA-muulu ¢waa-busaanshi APA... 'on to of the table here...'

but: *PA-muulu UɬU ɬwaa-busaanshi... '*on this top of the table...'

*PA-muulu APA ɬwaa-busaanshi... '*on the top here of the table...'

To sum up then, despite surface similarity to N-of-N constructions, and despite the fact that the prepositions PA,KU,MU and most 'locative nouns' exist as independent lexical items in ChiBemba — and to a large extent a semantic relation between the noun-meaning and the prep.-noun meaning is still quite apparent, the syntactic and concordial facts make it reasonably clear that:

(a) the 'prep.noun' is not the head of the construction;

(b) The -A-linked noun is not an embedded modifier or a modifier;

(c) The PREP-noun-A combination functions as a single unit preposition;

Our solution (A) must be therefore adopted.

Fillmore(1968), in discussing inalienable possession and also Prepositional Nouns in English, as observed:"...Discussion of inalienable possession almost always contains lists of nouns whose grammatical classification is the opposite of what one could notionally expect..."(ibid, p.63). He suggests that 'locative nouns' in English, as in: 'behind the house', 'ahead of the car', 'next to the tower'(ibid, p.81) be derived not from embedded sources but rather from the Determiner. The natural node to derive 'prep.nouns' from in ChiBemba should be the PREP node itself, and we shall discuss this further later on. In general, it seems that a very similar situation in both ChiBemba and English arose as a result of a linguistic change. Original lexical nouns were used in 'possessive' constructions in order to supplement the prepositional system. Eventually these nouns got specialised and syntactic reanalysis followed, with the result that although superficially the construction many

times may still resemble the old syntactic pattern, in some other respects a new lexical sub-class, of 'complex prepositions', has emerged.

1.6 DEMONSTRATIVES

It was suggested above that pre-noun (not pre-PREP) Demonstratives arise from non-embedded sources, while post-noun Demonstratives are enbedded. We shall attempt to justify both claims, and in addition also to probe into the possible source of pre-PREP (locative) Demonstratives.

Our Rule 6., Table 1., enumerates four deictic grades for ChiBembas demonstratives. The concordial forms corresponding to those are given in Table 2., Cols. 11,12,13,14. Without here going into the more complex system of features that underlie these four grades, the distinctions made are:

1.(VCV) 'close to both speaker and hearer,'

2.(VCV-o) 'close to hearer';

3.(CV-no) 'close to speaker';

4.(CV-lya) 'remote from both speaker and hearer';

1.6.1 Locative Demonstratives

The Demonstrative forms of PA,KU,MU (prepositional genders) are used as locative pronouns, much like English 'here', 'there', except that the range is much wider here (3x4= 12). Since exactly the same four deictic categories appear, it is clear that a demonstrative must be involved in the deep structure of pro-locatives:

umuana ali PA-no 'the child is at-here' (at this place near me)

umuana aaile KU-lya 'the child went to-there'(to that remote place)

umuana ali UMU 'the child is in-here'(in this place near us)

umuana ali UMo 'the child is in-there'(in that place near you)

etc.

One could then assume that, much like in English, a structure involving a deep place noun underlies the formation of these pro-locatives:

PAli iyi=nceende ==> APA

PAli iyo-nceende ==> APO

PAli ino-nceende ==> PAno

PAli ilya-nceende ==> PAlya

If this analysis, which intuitively seems to support the correct semantic interpretation, is adopted, then one must assume one of two things about the pronominalisation involved; either.

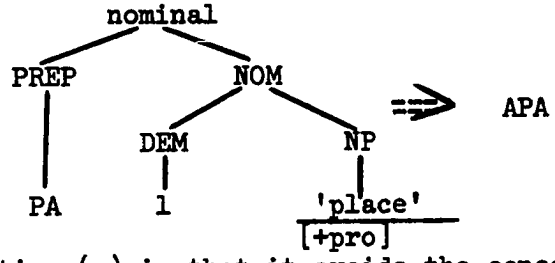
(a) The pronominalisation must precede agreement-spreading, since the emergent pro-locative is a PREP-gender demonstrative, while if pronominalisation had not occurred, the Demonstrative, as above, agrees with the head noun gender/number. Or:

(b) If pronominalisation of this specific type occurs, it is accompanied by concordial overrule, by which the PREP gender feature rather than the noun gender/number features control the agreement of DEM;

Both solutions are problematic. (a) goes against a claim made in Part (2.), namely that the deletions associated with pronominalisation follow agreement spreading. (b) requires a special rule with special powers to operate, during agreement spreading, only if pronominalisation

also occurs. Both (a) and (b) then require special provisions. An alternative solution to both could be:

(c) Assume that the internal structure underlying the surface 'pro-locatives' is the same as claimed before, but that not the specific noun inceende 'place'(gender 9/10) or any other specific noun is inserted, but rather a deep noun 'place' which has no lexical realisation:



The advantage of solution (c) is that it avoids the concordial problems raised by (a) and (b). However, one must still characterize the appearance of 'pro-locatives' in both pre-PREP and post-NP position:

(1) UMU MU-mushi... 'here in the village...'

(2) MU-mushi UMU... 'in the village here...'

This can be done by assuming that in (1) above UMU is a pro-locative head, while MU-mushi is an embedded R modifier, while in (2) this is just the reverse. The embedded sentence is then in both (1) and (2) equational, but the reverse in each case:

(1') UMU muli MU-mushi 'in-here is in the village'

(2') MU-mushi muli UMU 'in the village is in-here'

While this solution may seem semantically at least plausible, much more data will need to be collected in order to support it, so that at the moment the subject is left to rest on rather tentative grounds.

1.6.2. Post-noun Demonstratives

We have already noted that the possibility of double concord in these Demonstratives may be related to their being embedded ones. Further support for this arises from the fact that order changes involving post-noun demonstratives in an R chain of modifiers, result in the characteristic ('contrastive') change in meaning:

umuana uyu mu-suma... 'this good child(but not this bad one)...'

umuana mu-suma uyu... 'this good child(but not that good one)...'

If post-noun Demonstratives are embedded, then what is the sentential source from which they arise? One solution would have this source in predicate Demonstratives; such as, for the two phrases above:

umuana ali ni-uyu 'the child is this(one).'

In this way DEM may be viewed as a possible predicate, just like ADJ or NUM. This raises several problems. First, while ADJ and NUM predicates require subject concord, DEM does not -- although it is not a gender bearing category. So that one finds:

imfumu ili ni-uyu 'the chief(9/10) is this(1/2)'

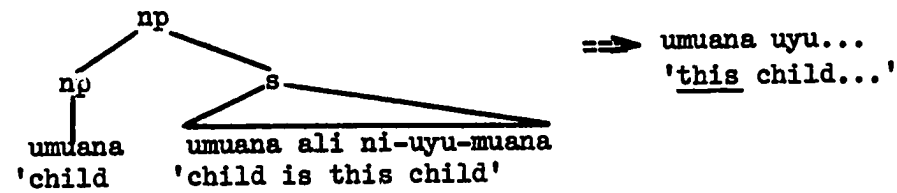
which can be paraphrased by:

imfumu ili ni-uyu-muntu 'the chief(9/10) is this person(1/2)'

It thus seems that the gender of a seeming predicate DEM is not determined by the subject, but rather by a missing head noun . DEM is therefore not an independent Predicate by itself, but may appear in Predicates as an anaphoric head or a pronoun.

Returning to the question of source for the embedded post-noun Demonstrative, one could simply say that a pre-noun DEM in a nominal predicate is the source. With the embedding taking place under the

condition of subject-predicate noun identity:



1.6.3. Pre-noun Demonstratives

In contrast with post-noun DEM and other embedded modifiers, pre-noun DEM cannot take double concord, but only noun gender/number concord (although, as we have seen, a pre-PREP 'pro-locative' may take PREP-gender concord. So that:

UMU MU-mushi... 'here in the village...'

MUli uɸu-mushi... 'in this village...'

*MUli UMU-mushi...'*in here village...'

Since this type of a demonstrative precedes the noun, it does not participate in R chains and its order is fixed. In short, we have no reason to assume that it is an embedded modifier, and have stipulated its source in the expansion rules of NOM, as given in Rule 5., Table 1..

1.6.4. Demonstratives as anaphoric and NR modifiers

The problems of 'pro-locatives', a structure which includes a 'deep' DEM, have already been discussed above. In addition, Demonstratives (or 'determiners') are the most natural anaphoric pronouns in Chi-Bemba, used extensively, as in:

iyi ili iɸi-suma 'this(one)(9/10) is good'

Since DEM has no inherent gender, the deep-structure presence of the gender bearing noun must be always assumed. An interesting -- and for

the moment probably unanswerable question, is whether the anaphoric DEM was originally an embedded(post-noun) or non-embedded (pre-noun) demonstrative. For the sake of sheer expediency, I am afraid, the second alternative will be here assumed. The adopting of the first may involve us in <u>infinite recursivity</u>, since the source of the embedded DEM is also an anaphoric DEM.

Likewise, NR demonstratives can be also viewed as anaphoric, arising from similar sentential sources:

MU-mushi, UMU,... 'in the village, in-here...'
(in-here is in the village)

MU-mushi, u¢u,... 'in the village, this(one),...'
(this village is the village)

Here we shall again assume, merely to avoid infinite recursivity, that the source for the anaphoric DEM is non-embedded(pre-noun).

Finally, we have already mentioned the use of DEM as a <u>Rel. pronoun</u>, as in:

MU-mushi[úmù naamweene]... 'in the village[in-which I saw]...'
(I saw the inside of the village)

MU-mushi [ú¢ù naamweene]... 'in the village [that I saw]...'
(I saw the village)

1.7. INTENSIFIERS

According to our Rule 7., Table 1., this group of modifiers is non-embedded. This is supported by two facts:

(a) They show no double concord (but only PREP concord) if modifying PREP

nominals:

MU-mushi MU-ine... 'in the village itself...'

*MU-mushi ¢U-ine...

(b) In contrast with all the embedded modifiers discussed above, this is the only type of post-noun modifier which shows a considerable degree of order rigidity within an R chain. Even if several orders are possible, no change in meaning is obtained, so that both (a) and (b) below mean the same:

(a) abantu ba-suma be-eka baaliile 'only the good people left'

(b) abantu be-eka ba-suma baaliile 'the good people alone left'

The meaning of the four Intensifiers in ChiBemba is:

-onse 'all'

-ine 'itself', 'the very one', 'by itself'

-eka 'only, alone'(token)

-ena 'only, alone'(type)

The type/token distinction between 'ena' and 'eka' can be illustrated by:

abantu beena baaliile 'only the people left(but not animals)'

abantu beeka baaliile 'only these people left(but not other people)

-ena thus distinguishes between different types, while -eka between different tokens of the same type.

1.7.1. Intensifiers as anaphoric and NR modifiers

While the non-embedded or 'strongly bound' Intensifier takes a CV prefixal concord. the anaphoric or NR Intensifier takes, in the

case of -ine, which is the only one capable of a VCV/CV contrast, a VCV prefix. The behaviour of -ine as an anaphoric or NR modifier fully parallels that of embedded modifiers in similar positions (such as subject-Rel. pronouns, -A-link pronouns or Ordinal Rel. pronouns).

Finally, since within a chain of R modifiers, Intensifiers usually keep the final position,(furthest from the noun), one must assume -- if one accept stheir status as unembedded -- that they require a special T-rule of reordering. They therefore look like R modifiers, in the sense of showing a 'strong bond' (no pause), but the 'strong/weak bond' here is a contrast between non-embedded/embedded (NR), rather than between R/NR, as it is with all other post-noun modifiers.

1.8. PRONOUNS

The 1st and 2nd personal pronouns will be discussed later on in Part (2.). As can be seen from Table 2., IchiBemba does not possess the entire range of 'absolute' or 'independent' referential pronouns for the various noun classes. Although their reflexes are still found in the -A-linked (Table 2., col. 18) or NA-linked(ibid, Col. 17) forms:

ndi NA-icitabo ==> ndi na-cyo

'I have the book' 'I have it'

amaano yaa-fi-kolwe ==> amaano yaa-fi-ko

The infix-object pronoun is also a reflex of the same:

naamweene icitabo ==> naa-ci-mweene

'I saw the book' 'I saw it'

A more expanded discussion of Pronominalisation will be found in Part (2.).

TABLE 4. <u>BASE RULES, SECOND VERSION</u>

1. $S \rightarrow \left\{\begin{matrix} S(j\ S)^n \\ S'(ADV_s) \end{matrix}\right\}$ (where $n \geq 1$)

2. S' → NOMINAL PREDICATE

3. NOMINAL → (PREP)NOM

4. [+NOM] → ([+sg.])

5. NOM → (DEM) NP (S)

6. DEM → (1,2,3,4)

7. $NP \rightarrow \left\{\begin{matrix} NP\ S \\ N(I) \end{matrix}\right\}$

8. [+N] → [[+gender], ([+plur.]),...]

9. I → ('eka', 'ena', 'onse', 'ine')

10. $PREDICATE \rightarrow MODALITY\ (NEG) \left\{\begin{matrix} VERBAL \\ COPULAR \end{matrix}\right\}$

11. $VERBAL \rightarrow V \left(\left\{\begin{matrix} S \\ NOM \end{matrix}\right\} \right) (NOMINAL)\ (ADVERBIAL)$

12. ADVERBIAL → (MANNER., INTENS., ACCOMP., INSTR.,BENEF.,ORD.,...)

13. COPULAR → COP PRED

14. $COP \rightarrow \left\{\begin{matrix} 'LI' \\ 'BA' \end{matrix}\right\}$

15. PRED → (NOMINAL, ADJ, NUM, S)

16. $MODALITY \rightarrow \langle([+EE])\rangle\ [+F_m]\ /\ \langle \underset{[+pres]}{[\text{-------}]}\ 'LI'\ [-type]_{pred} \rangle$

17. ADV_s → (TIME, PLACE, DUR., FREQ., COND., PURP., CAUS.,...)

18. j → ('na', 'naangu', 'noomba', 'kabili', ...)

19. $\left\{\begin{matrix} [+ADJ] \\ [+NOMINAL] \end{matrix}\right\} \rightarrow \left\{\begin{matrix} \langle[+type]\rangle \\ [-type] \end{matrix}\right\}\ /\ \left\langle \left\{\begin{matrix} a.\ NEG...[\text{-----}] \\ b.\ [\text{-----}]_{pred} \end{matrix}\right\} \right\rangle$

2.0. CONCORDIAL AGREEMENT

2.1. PRELIMINARIES

In the preceding part we have established, albeit informally, several facts concerning concordial agreement:

(a) It was first established that there was no need to assume that the rules of agreement operate across the boundaries of the 'kernel' sentence. It was shown how 'double concord' (following PREP-nouns) of embedded modifiers can be accommodated within this framework, so that the agreement between a head noun and an embedded modifier can be handled as a normal case of subject agreement within the embedded sentence itself.

(b) It was suggested that 'agreement in kind' among R modifiers following a PREP-noun can be also handled within this framework, by invoking a general linguistic principle, namely the identity requirement for embedding R modifiers. (We have already noted that the same principle cannot handle the 'agreement in kind' of NR modifiers).

(c) The domain of agreement(or the concordable categories)within the kernel sentence has been defined as:

Demonstratives, Intensifiers(head-modifier agreement)

Verb, copula, adjective, numeral, ordinal (subject-pred. agreement)

A more comprehensive analysis of concordial agreement must in addition deal with the following phenomena, all of which have strong bearing on the ultimate formal solution:

(d) Concordial problems arising from conjunction;

(e) Concordial problems arising from pronominalisation;

(f) Concord-overrule by PREP-gender within the 'kernel' sentence;

(g) The concord of 'pro-locatives' (loc.Demonstratives);

(h) The concordial implications of derived gender;

(i) The concordial behavior of the Personal Pronouns;

2.2. THE TWO COMPONENTS OF CONCORDIAL AGREEMENT

As we have pointed out earlier, while the feature gender is an inherent lexical feature of nouns, the feature singular (or plural) is an option specified by the Base Rules. What are traditionally referred to as the concordial classes of Bantu, are really specific combinations of an inherent noun feature and a chosen Nominal feature.

Gregersen(1967, p.9) has characterized agreement rules as Transformations. An attempt will be made here to discover whether this designation is by itself sufficient. In particular, it will be shown that concordial agreement involves two separate components, one which is indeed Transformational and integrated within the Transformational Cycle, the other post-cyclic and not transformational at all.

When agreement is viewed as a single process, there are obvious similarities between its rules and T-rules:

(a) Both are context sensitive;

(b) Both follow the Base Rules of the grammar;

(c) Both, presumably, do not change meaning;

For this single process, Gregersen (ibid) has proposed the following T-rule:

24b. A*P-N-X ⟹ A*P-N-A-X

where A is the leftmost noun prefix, P is another 'inner' noun prefix, if present, N is the gender-bearing noun and X the concordable or 'agreeing' category. The process is thus viewed as prefix copying.

The assumptions underlying Gregersen's formulation deserve careful attention:

(1) He assumes that the noun itself receives its prefix prior to the time when agreement rules apply. However, as we have seen, the noun could not have come from the lexicon with anything but the abstract gender feature, since the prefix cannot be determined until after lexical insertion -- in the environment of the feature sg./pl. of the Nominal -- has taken place. Bantu nouns are therefore prefixless in the lexicon.

(2) In conjunction with (1) above, it is implicit in Gregersen's format that the prefix already bears gender/number features, but no provision is made to explain how an abstract Noun feature and an abstract NOM feature have become attached to the prefix.

(3) The process of agreement is viewed as a single process, of copying a prefix which presumably already has its phonological shape. However, it will be shown below that the process of copying or 'spreading' cannot occur at this stage of the grammar, and that only agreement features but not phonologically specified prefixes are spread or copied.

2.2.1. The case for two components

Notice first that the process of concord spreading must precede a variety of deletion T-rules. For example, the optional but universal Bantu subject deletion cannot precede the spreading, since then the gender of the subject could not be determined:

umuana a-ali-ile ⟹ a-aliile

'the child left' '(he) left'

Likewise, the deletion associated with anaphoric pronominalisation cannot occur before 'spreading', since otherwise the pronoun concord could not be determined:

naalimweene iei-puna ⟹ naali-ci-mweene

'I saw the stool' 'I saw it'

uyu-muntu aaliile ⟹ uyu aaliile

'this person left' 'this(one) left'

ndi NA-indalama ⟹ ndi na-ɸyo

'I have the money' 'I have it'

umuana ɸwaa-mfumu ⟹ umuana ɸwaa-ɸi-ko

Further, if our assumption that agreement operates within the 'kernel' sentence is accepted, then the deletion involved in Relative pronominalisation also cannot occur before 'spreading':

umuana #umuana aaliishile#... ⟹ umuana ɸu-aishile

'the child #the child came#...' 'the child who came...'

icitabo #naamweene icitabo#... ⟹ icitabo cintu naamweene...

'the book #I saw the book#...' 'the book that I saw...'

It is then reasonably clear that Transformations of Deletion and embedding cannot precede the 'spreading' aspect of agreement. On the other hand, the following examples will show that the determination of the phonological shape of the concordial morphemes-- or the 'morphological spelling' aspect of agreement -- cannot occur before these very same rules have applied. The evidence is as follows:

(1) Predicate adjectives or nouns, with the feature [+type], show a CVV prefix; when embedded as modifiers they show a CV prefix; the final shape of the prefix cannot then be determined before embedding;

(2) Subject and object nouns show VCV prefixes; relative pronouns may also show CV prefixes; the final form again cannot be specified before embedding;

(3) The verb subject concord in 'kernel' verbals carries a HIGH tone for all the noun classes; the Rel. subject pronoun carries a LOW tone; here is one phonological feature of the segment that could not be specified before embedding;

(4) The subject agreement on verbals within the 'kernel' sentence, for class 1/2 sg., is /a-/ but the shape of the subject Rel. pronoun for this class is /(u)ɸu-/. The final shape clearly cannot be determined before embedding.

(5) The personal pronouns have varying forms pending upon, in many cases, the Transformational environment they are found in. Thus:

	anaphoric	subject	inf.object	before R modif.	-A-link	NA-link
1.p.s.	i-ne	n(i)-	n(i)-	ne-	-ndi	-ndi/ine
1.p.p.	i-fwe	tu-	tu-	fwe-	-esu	-esu/ifwe
2.p.s.	i-we	ɸu-	ku-	we-	-obe	-obe/iwe
2.p.p.	i-mwe	mu-	mu-	mwe-	-enu	-enu/imwe

The final form of the pronouns cannot be determined until post-transformationally.

All the data above can of course be also handled within a format in which agreement spreading precedes embedding and deletion rules, but only if special post-transformational repair rules were introduced.

In addition to the evidence cited above, there is also a different type of evidence which suggests, specifically, that agreement spreading could not involve the spreading of morphemes (i.e., phonologically specified morphemes), but only the spreading of agreement features:

(6) In class 1/2, sg., the basic form of the concordial morpheme is MU or ɸU, but the subject concord is /A-/. Clearly it was not the basic CV form that was spread here. In class 9/10, pl. the basic noun prefix has the cardinal shape of N(I) or ɸI, but all the agreement morphemes have the basic shape SHI. Clearly it was not the prefix itself (but only the features) that was spread. Class 1a/2a have irregular noun prefixes (ɸ/BAA), but their agreement morphemes conform with the general shape of 1/2 concord (MU/BA). Clearly not prefixes but only agreement features were spread.

As above, all these data could be handled within the framework of one-process agreement (prefix copying), but only if post-transformational repair rules were also used. Since some of the concordial prefixes cannot receive their phonological shape pre-transformationally, and since there is no evidence to suggest that any of them must receive it then, a solution in which the 'spelling' of the concordial morphemes is a post-transformational component is then the least powerful adequate solution, and must therefore be preferred. It can be summed up as:

(a) Concordial morphemes must be 'spelled' (or given phonological shape) somewhere in the grammar, since nouns cannot be listed in the lexicon with their prefixes;

(b) If one assumes a single process of prefix-copying, then the spelling rules must precede it;

(c) A single-process 'prefix-copying' solution cannot operate without additional, post-transformational, repair rules;

(d) The position of those presumed repair-rules within the grammar is highly specific -- between the Transformational component and the rules of Phonology; this is precisely the point at which the second lexical reading or the 'second lexicon' (see for example in Gruber(1967a)) is located;

(e) Given that a solution of two-components to agreement -- feature reading and spelling -- is preferable, then the spelling aspect of concordial agreement has indeed its natural locus within the grammar -- the second lexicon, which is responsible for giving phonological shapes to all 'morphemes' or 'bundles of features' that could not receive their phonological shape in the first lexicon.

2.3. THE FEATURE SPREADING COMPONENT

We will now turn to probe into the specific properties of the first component of concordial agreement, feature spreading. The first rule is that which specifies the domain or 'concordable categories'. We shall simply assume that the feature [X] is shared by all these categories:

(DEM,I,VERB,COP,ADJ,NUM,ORD) $\rightarrow$ [X]

The rule of feature spreading can be now given its initial formulation:

$$X \Longrightarrow \frac{X}{\begin{bmatrix}\alpha\,\text{gend.}\\ \beta\,\text{sg.}\end{bmatrix}} \quad / \quad \begin{array}{ll} \text{a.} & [\text{----} \ \frac{N}{[\alpha\,\text{gend.}]} \ \ldots]_{\frac{\text{nom}}{[\beta\,\text{sg.}]}} \\ \text{b.} & [\ldots \ \frac{N}{[\alpha\,\text{gend.}]} \ \text{----}]_{\frac{\text{nom}}{[\beta\,\text{sg.}]}} \\ \text{c.} & [[\ldots \ \frac{N}{[\alpha\,\text{gend.}]} \ \ldots]_{\frac{\text{subj}}{[\beta\,\text{sg.}]}} \ \ldots\text{----}\ldots]_{S} \end{array}$$

The environments a.,b.,c. are disjunctively ordered with respect to each other, that is, a rule may apply only if the rules preceding it did not. Sub-rule a. accounts for Demonstrative agreement with the head noun, sub-rule b. for Intensifier agreement with the head-noun, and sub-rule c. for subject agreement of the various predicate categories.

A comment about the morphological locus of spread agreement features is perhaps in order. When lexical stems receive their agreement features from the appropriate nominal, those features eventually are spelled by a CV, CVV or VCV phonological shape which has a definite locus vis-a-vis the stem itself, i.e., it is prefixed to it. This locus must at some stage of the grammar be specified. A natural point for the rules specifying the locus of agreement prefixes would be either the point of feature spreading, or that of the spelling rules of the second lexicon. For the moment I see no data which could support or falsify either of these alternatives. It will be for the moment assumed that the first alternative is to be followed, so that the feature spreading rules also have the power to place the spread gender/number features at the correct locus vis-a-vis either stems or other hitherto-unspelled bundles of features.

2.3.1. Conjunction and feature spreading

The following examples are all instances in which a change from singular to plural concord has occurred as a result of conjunction. We shall assume, following Schane(1966) that the conjoined Nominals in all these cases arise from sentence conjunction through the process (a sequence of Transformational operations) of conjunction reduction:

umuana uyu na umuana ulya ba-aliile

'this child and that child left'

umuaume na umuana baa-suma

'the man and the child are good'

umuaume na umuana ba-aishile abaacimo

'the man and the child came first'

The change from singular to plural concord as a result of conjunction reduction is of course not unique to Bantu languages. More specific to them, however, is the additional adjustment required -- of gender

umuana, imfumu, ishilu na umuabi fi-aliipaayiwa
1/2 9/10 5/6 3/4 7/8

'the child, the chief, the lunatic and the eel got killed'

In this case except for number resolution from singular to plural, the conflict in gender was also resolved, into the 'thing' gender 7/8, one which in many other instances in ChiBemba functions as the 'neutral' gender.

One could approach the concordial adjustment of gender and number in several different ways:

(a) Assume that feature spreading precedes conjunction reduction. A solution of this kind necessitates agreement repair rules, whose general format could be:

$$X \Longrightarrow \underset{\left[\begin{smallmatrix}-\text{sg.}\\ +7/8\end{smallmatrix}\right]}{X} \quad / \quad [[\ldots \text{NOM} \ldots]^{n>1} \text{---}]_s \quad \text{and } N_i \neq N_j$$

The point at which the repair is done is the agreeing category itself.

(b) Assume that conjunction reduction precedes feature spreading. Further, assume that the changes from [+sg.] to [-sg.] and from any non-

identical genders to 7/8 gender occurs during conjunction reduction. There are some reasons to support the assumption that this is in fact a universal condition for grammars. First, note that number is not a feature of the Noun but of the nominal to begin with. That conjoined subjects impose plural concords is probably a universal fact. That conjoined Nominals give rise to plural pronouns is probably equally universal. No number repair rules will be needed if one simply assumes that any time two or more NOM nodes are conjoined through conjunction reduction, the NOM node deminating them automatically gets the feature [-sg.]. That the individual conjoined nodes under it must retain their own [+sg.] original features is clear, since they still impose singular concord on their own un-conjoined modifiers.

Within this framework, the problem of gender adjustment is, at least superficially, more complicated. However, note again that the neutralized 7/8 gender of the conjoined NOM could not be assigned to the individual NOM nodes under it, since they again maintain their own gender for concord of their separate modifiers. A NOM node cannot then carry only a number feature, but only a gender feature, which is originally inherent in nouns:

$$[[\text{uyu-}\underset{1/2}{\text{muana}}]\ \text{na}\ [\text{iyi-}\underset{9/10}{\text{mfumu}}]]_{\underset{7/8}{\text{nom}}}\ \underset{7/8}{\text{fi-aliile}}$$

'this child and this chief left

Further, it was suggested by Chomsky(1966) that all features of a Noun are, by a universal condition, also features of the NOM node directly dominating it. If this condition is accepted, as here it will be, then one could view both number and gender adjustment as occurring at the

same NOM node and at the same time -- during conjunction reduction. This can be handled within a single rule, with the use of angled brackets:

$$\text{NOM} \rightarrow \underset{\langle[+7/8]\rangle}{\overset{\text{NOM}}{[-\text{sg.}]}} \quad / \quad [\text{-------}]^{n>1} \langle \text{gend.}_i \neq \text{gend.}_j \rangle$$

2.3.2. Pronominalisation, Cyclic T-rules and feature spreading

When pronominalisation occurs together with conjunction, further insight is obtained into the relative position of feature spreading within the transformational component of the grammar. In the following section a number of examples will be analysed. Of these, the first two (a, b) involve conjunction and anaphoric pronominalisation within the same cycle. The next two (c,d) involve relative pronominalisation within a lower cycle and conjunction within an upper cycle. Example (e) involves both relative and anaphoric pronominalisation within the lower cycle, and conjunction in the upper cycle. The last two (f,g) involve various combinations.

(a) naalimweene umu-ti na ili-bwe ==> naali-fi-mweene
'I saw a tree(3/4) and a stone(5/6)' 'I saw them(7/8)'

(b) ndi na ici-puna na-ubu-saanshi ==> ndi na-fyo
'I have a stool(7/8) and a bed(14/6)' 'I have them(7/8)'

(c) ishilu na-inkalamo fi-aishile fi-aliile
'the lunatic and the lion who came left'

(d) ishilu na-inkalamo fi-ntu naamweene fi-aliile
'the lunatic(5/6) and the lion(9/10) whom(7/8) I saw, left(7/8)'

(e) ishilu, inkalamo na aba-ana ba-fi-ko fi-aliile

'the lunatic, the lion and their children left'

(f) ishilu liine na inkalamo ɸiine fialiile ⟹ ifi-ine fialiile

'the lunatic himself and the lion itself left' '(they)themselves ..'

(g) ishilu lisuma na inkalamo ɸisuma fialiile ⟹ ifisuma fialiile

'the good lunatic and the good lion left' '(the)good(ones)left'

An attempt will be made below to show that only if one assumes a highly specific ordering of feature spreading relative to other rules within the transformational component, can the examples above be correctly accounted for.

A most immediate suggestion arising from the evidence of pronominalisation above, is that feature spreading must follow pronominalisation. However, as we have already shown, it must precede the T-rules of deletion and embedding associated with pronominalisation.

Alternatively, then, one may attempt to fractionate pronominalisation into various sub-components, some of which must precede feature spreading, while others must follow it. In addition, several other assumptions will be made concerning the cyclic, pre-cyclic or post-cyclic status of some T-rules, as well as about the specific ordering of T-rules within the cycle itself.

(1) Pro-tagging: This is the first element in pronominalisation and through it a noun to be pronominalized acquires the 'tag' [+pro]. It is a pre-cyclical, pre-transformational rule, and its existence will be simply assumed here. It is presumably governed by whatever universal convention is responsible for either anaphoric or relative pronominalisation.

The 'tagging' is clearly obligatory in Relative pronominalisation, though its status is not clear to me in the case of anaphoric pronominalisation. At any rate, we shall here assume that in the input strings going into the Transformational components, all nouns to be pronominalised are 'tagged'.

(2) The cyclic T-rules: This battery of T-rules applies cyclically, from the bottom up, as defined by Chomsky(1965). Within each cycle we shall assume the following order of the rules:

(2a) Conjunction reduction: This schema of rules applies first in each cycle. The rule of gender/number adjustment operates within the schema. We shall assume that not only features such as gender, number 'migrate upward' to the top NOM node, but also features such as [+pro], [+subj.] or [+obj.].

(2b) Pro-copying: There are two possible ways of viewing pronominalisation: (1) the 'pro-ed' noun gets depleted of all except the relevant agreement features; or (2) the relevant agreement features get copied on to a new locus established for PRO, and then the old noun gets deleted. At the moment I cannot tell whether the two are anything but notational variants of each other. (2) has been chosen here, but admittedly not on very strong grounds. At any rate, through pro-copying the feature [+pro] and possibly features such as [+obj./subj.] gets copied from the 'tagged' noun to the new locus where the pronoun is to be formed. In some instances the features are copied onto an existing morpheme or bundle of features, such as a modifier, while in other instances, when no modifier is used as a 'base', the pro-copying rule copies the relevant features

into the new pronoun locus. This rule of pro-copying must precede the rule of feature spreading.

(2c) Feature spreading: It is here argued that feature spreading from a noun to concordable categories, and feature spreading from a 'tagged' noun to the pronoun locus, is the same process and occurs at the same point in the transformational cycle. The two operations are obviously similar in their function -- the copying of agreement features. They shall therefore be considered as manifestations of the same rule, until evidence to the contrary be discovered.

(2d) Deletion and embedding: The last element in pronominalisation are the rules of deletion, reduction, pruning and embedding, through which the original pro-tagged nouns are deleted altogether. The place of these rules at the end of the T-cycle is certain only with regard to Relative pronominalisation. There is really no clear cut evidence to suggest that anaphoric deletion must also be a cyclical rule, especially if one assumes that pro-tagging is done pre-cyclically.

(3) Second lexicon: The second component of agreement is post-cyclic and in fact post-transformational; here the concordial morphemes get their phonological realisation, together with other hitherto 'unspelled' bundles of features.

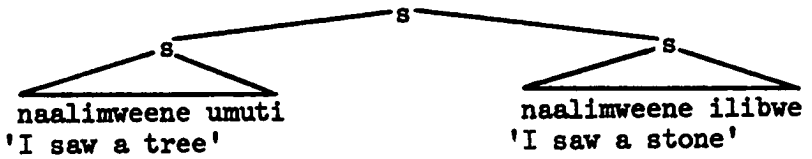
2.3.3. Examples

Examples (a) to (e) will be now analysed, in order to check the assumptions made above about the relative order within the T-cycle.

(a) naalimweene umuti na ilibwe ⟹ naali-fi-mweene

'I saw a tree(3/4) and a stone(5/6)' 'I saw them(7/8)'

We shall assume that the original conjoined Deep Structure of this string was (with pro-tags already present):



The first cyclic rule, conjunction reduction, now applies and we obtain:

naalimweene[[umuti]$_{[+3/4]\ nom\ [+sg.]}$ na [ilibwe]$_{[+5/6]\ nom\ [+sg.]}$]$_{nom}$ [+7/8] [-sg.] [+pro] [+obj.]

Next the pro-copying rule applies, to yield(only relevant features):

naali$_{[+pro]\ [+obj.]}$ mweene [[umuti] na[ilibwe]]$_{nom}$ [+7/8] [-sg] [+pro] [+obj.]

Now feature spreading applies, to yield(only relevant features given):

naali$_{[+pro]\ [+obj.]\ [+7/8]\ [-sg.]}$ mweene [umuti na ilibwe]

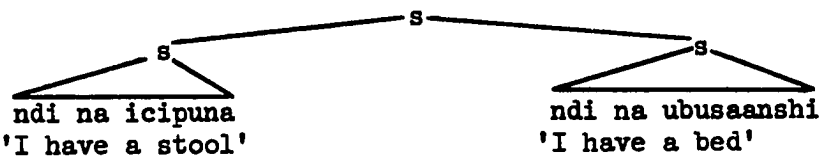
Finally anaphoric deletion occurs, to yield the string ready for the spelling rules:

naali$_{[+pro]\ [+obj.]\ [+7/8]\ [-sg.]}$ mweene

(b) ndi na ici-puna na-ubusaanshi ==> ndi na-fi-o

'I have a stool and a bed' 'I have them'

The original conjoined deep structure is here presumably:



Following conjunction reduction we obtain(with only relevant features given):

ndi na [[icipuna] na [ubusaanshi]]$_{\text{nom}}$

[+7/8]
[-sg.]
[+pro]
[+obj.]

Now pro-copying applies, to yield:

ndi na _____ [[icipuna] na [ubusaanshi]]$_{\text{nom}}$

[+pro]
[+obj.]

[+7/8]
[-sg.]
[+pro]
[+obj]

The next rule is feature spreading, by which we obtain:

ndi na _____ [[icipuna] na [ubusaanshi]]$_{\text{nom}}$

[+pro]
[+obj]
[+7/8]
[-sg.]

[+7/8]
[-sg.]
[+pro]
[+obj]

Finally the last cyclic rule, deletion, applies to give:

ndi na
[+pro]
[+obj.]
[+7/8]
[-sg.]

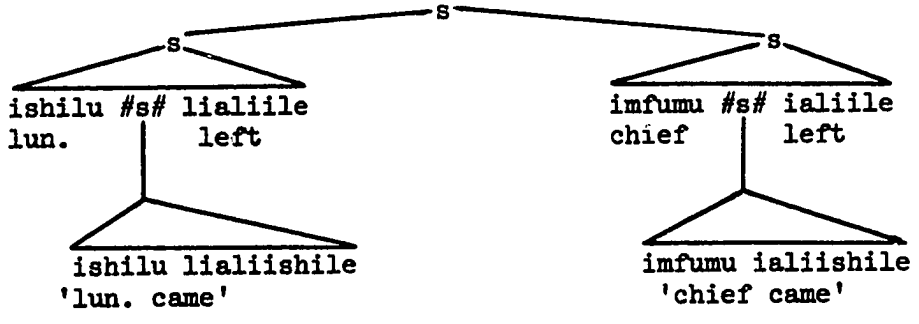
And now the string is ready for 'spelling' of the concordial morpheme.

(c) The next example involves <u>two cycles</u>:

<u>i</u>shilu na <u>im</u>fumu <u>fi</u>-aishile <u>fi</u>-aliile

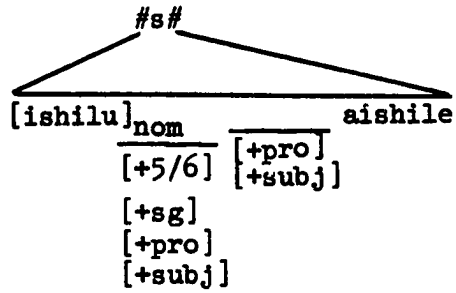
'the lunatic and the chief who(both) came left'

We shall assume the deep structure involved to have been:

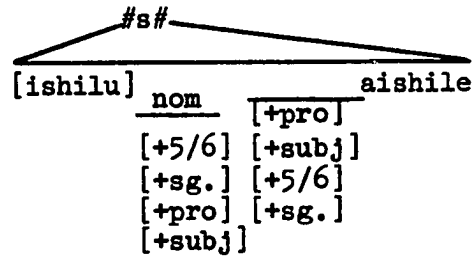


(In the treatment below we shall disregard the modality and will simply attach it as part of the verb stem itself. Modality morphemes <u>per se</u> do not exist with phonological specification at this stage of the grammar, since like concordial morphemes they get 'spelled' in the second lexicon only).

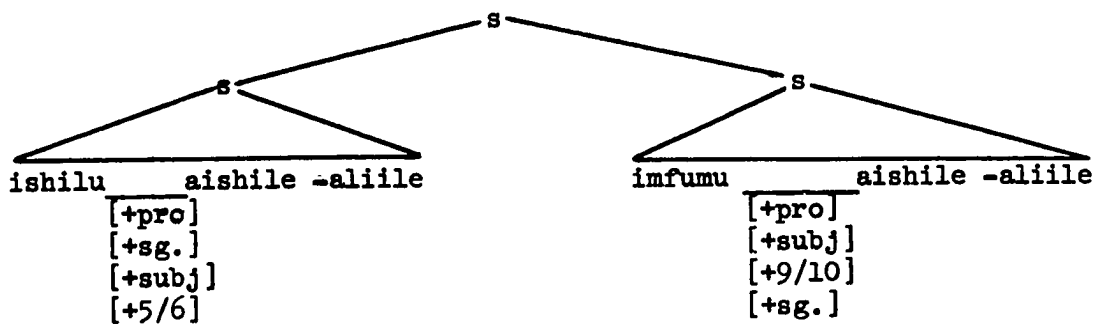
The first cycle concerns only the two embedded sentences. It begins with pro-copying (there is no conjunction in the lower cycle) which we will give for only one of the two:



Feature spreading now follows to yield:



The rules of deletion and embedding now proceed, to yield:



The first cycle ended. The second cycle opens with conjunction reduction:

[[[ishilu]nom [+5/6] [+sg.]] na[imfumu]nom [+9/10] [+sg.]] aishile]nom [+pro] [+subj] [*7/8] [*sg.] [+7/8] [-sg.] -aliile

Here, however, we have run into a problem. Since agreement spreading occurred already in the lower cycle, the subject pronouns were each

already concorded for the appropriate gender and singular combination. As a result of conjunction reduction, however, the single Rel. subject pronoun left must now be concorded for gender 7/8, plural. How was this achieved?

There are two ways this could have come about:

(1) Our ordering assumption may be wrong, and agreement must follow embedding and thus be the last cyclical rule. Or alternatively it is a post-cyclic rule altogether. However, we have already given strong reasons why agreement must precede the deletion rules involved in embedding.

(2) Our ordering assumption was correct, but conjunction reduction has not only the power to affect number/gender adjustment on NOM nodes, but also on PRO nodes. This is not an unreasonable assumption. To begin with, PRO stands for a NOM node. Further, it is bracketed by a higher NOM node which, in this case, dominates the conjunction. Only a minor adaptation in the gender/number adjustment rule is necessary, with the proposed new rule now being:

$$\text{NOM} \rightarrow \underset{\substack{[-\text{sg.}] \\ \langle[+7/8]\rangle}}{\text{NOM}} \quad / \quad [\ldots \underset{([+\text{pro}])}{\quad} \ldots]^{n>1} \langle \text{gend}_i \neq \text{gend}_j \rangle$$

Since this solution does not increase the powers of conjunction reduction by very much, but only enlarges (or 'adjusts') the domain of those powers, it seems preferable, especially when the alternative is much more problematic. The only additional assumption required is that PRO also retains the feature NOM, and this is really redundant, since we have already assumed that it retains features such as SUBJ or OBJ, which are

features of NOM to begin with.

(d) ishilu na inkalamo fi-ntu naamweene fi-aliile

'the lunatic and the lion whom I saw(both) left'

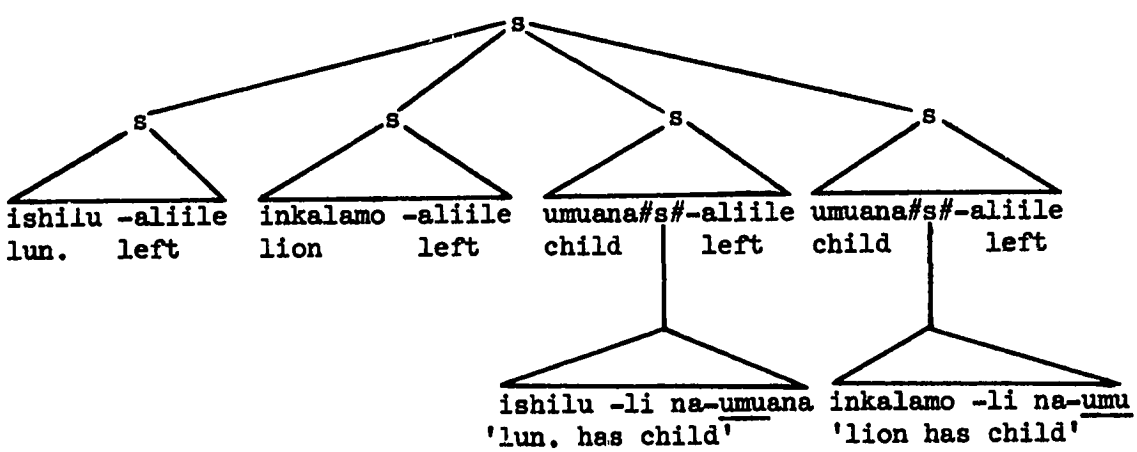
The analysis of this example is identical to that of the preceding one. The same order of operation is followed and the same problems of number/ gender adjustment on the Rel.pronoun are raised. The only difference is that pro-copying involves PRO,OBJ instead of PRO,SUBJ as in (c) above.

(e) The next example involves two cycles as well as both Relative and Anaphoric pronominalisation, both within the lower cycle.

ishilu, inkalamo na abaana ba-a-fi-ko fi-aliile

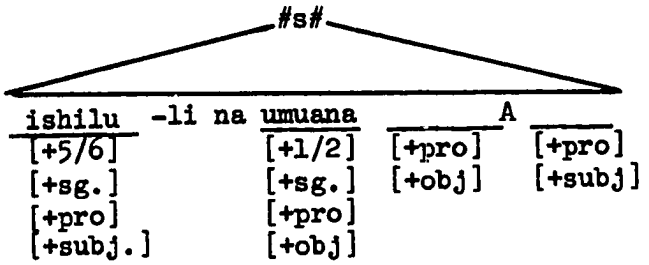
'the lunatic, the lion and their children left'

Of the several possible deep structures that could underlie this surface string, we shall assume the following:



The first cycle involves no conjunction, but two kinds of pronominalisation. For lack of evidence to the contrary, we shall assume that both relative pronominalisation (which gives the Rel. pronoun preceding the -A- link), and the anaphoric pronominalisation (which gives

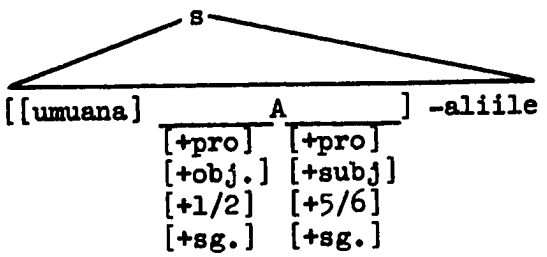
the anaphoric pronoun following the -A- link) occur at the same point in the cycle. Pro-copying is the first rule applying, and it yields (with only the operation for one of the embedded sentences given):



(For clarity we shall maintain the symbol A to signal the yet non-existent -A- link; the phonological 'spelling' of the /A/ does not occur before the second lexicon). At this point feature spreading can apply, to yield:

ishilu	lili na	umuana	A	
[+5/6]		[+1/2]	[+pro]	[+pro]
[+sg.]		[+sg.]	[+obj]	[+subj]
[+pro]		[+pro]	[+1/2]	[+5/6]
[+subj]		[+obj]	[+sg.]	[+sg.]

Deletion and embedding now close the first cycle, to give (with only the relevant parts of one sentence given):



At this point the second cycle can begin, with conjunction reduction. The number adjustment on abaana (from umuana) and on the Rel.pronoun, as well as the number/gender adjustment on the anaphoric pronoun, are

all presumably within the power of this schema, as is the number/gender adjustment on the top node of the conjunction:

[[ishilu] , [inkalamo] na [[abaana] A] $_{nom}$ -aliile
[+1/2] [+1/2][+7/8] [+7/8]
[-sg.] [-sg.][-sg.] [-sg.]
[+obj.][+sub]
[+pro][+pro]

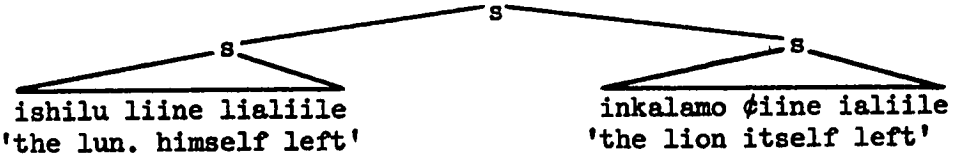
Feature spreading in this cycle involves only the verb concord, which is governed by the top NOM node of the conjunction (7/8, -sg.).

(f) This example involves conjunction and anaphoric pronominalisation within one cycle, with the pronoun this time attaching itself to an existing noun modifier.

ishilu liine na inkalamo ¢iine fi-aliile ⟹ ifi-ine fi-aliile

'the lun. himself and the lion itself left' '(they)themselves left'

We shall assume the original deep structure to have been:



The first cyclic rule to apply is conjunction reduction, by which we obtain:

[[[ishilu] na [inkalamo]]$_{nom}$ -ine] -aliile
[+I] $_{nom}$
[+7/8] [+7/8]
[-sg.] [-sg.]
[-pro] [-pro]
[+subj] [+subj]

The next rule to apply is pro-copying, through which we obtain:

[[[ishilu] na [inkalamo]]-ine] nom -aliile
[+I] [+7/8]
[+pro] [-sg.]
[+subj] [+pro]
[+subj]

Next feature spreading applies, to give (only relevant sections given):

[[[ishilu] na [inkalamo]] -ine] nom -aile
[+I]
[+pro]
[+subj]
[+7/8]
[-sg.]

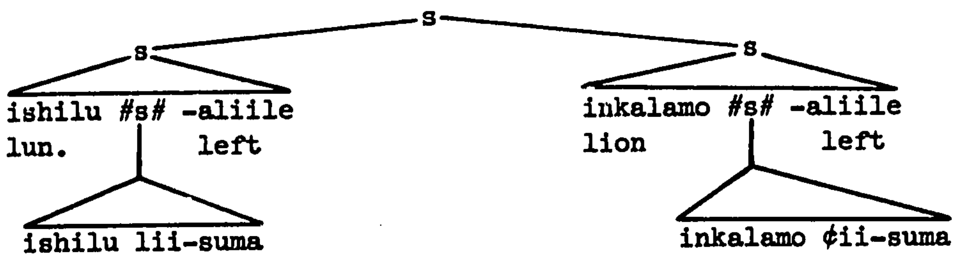
Now deletion can apply, to yield the string ready for 'spelling' in the second lexicon:

[-ine] nom -aliile
[+I]
[+pro]
[+subj]
[+7/8]
[-sg.]

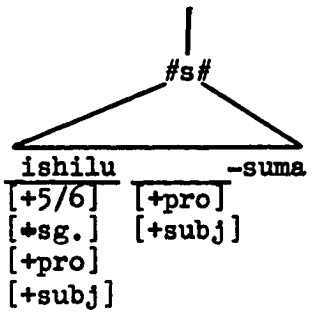
(g) The last example involves again two cycles, in the first of which relative pronominalisation occurs, and in the second anaphora -- both utilising the same modifier stem for forming the pronoun. One must thus consider the resulting pronoun a 'double-PRO':

ishilu lisuma na inkalamo ¢isuma fi-aliile === ifi-suma fi-aliile
'the nice lunatic and the nice lion left' 'the nice(ones) left'

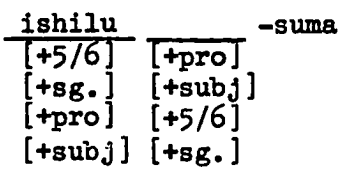
The deep structure involved is assumed to have been:



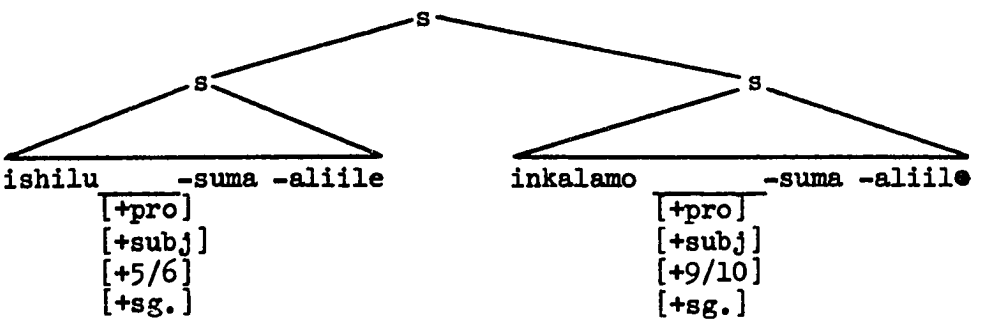
Since the lower cycle does not involve conjunction, we shall start with the rule of pro-copying (shown only for one of the embedded sentences):



Next the rule of feature spreading applies:



The cycle ends with deletion and embedding:



The second cycle opens with conjunction reduction. We again assume that it has the power to affect number/gender adjustment on the modifier pronoun as well:

[[[ishilu] na [inkalamo]] -suma] -ALIILE

[+pro]	nom
[+subj]	[+7/8]
[+7/8]	[-sg.]
[-sg.]	

Pro-copying applies next, and the Rel. pronoun acquires another [+pro, +subj] feature:

```
[[[ishilu] na inkalamo]]nom  ______-suma]-aliile
                        ___  [+pro]
                      [+pro] [+subj]
                      [+subj][+7/8]
                      [+7/8] [-sg.]
                      [-sg.] [+pro]
                             [+subj]
```

Feature copying/spreading now occurs, and for the pronoun this is redundant, since it already has the correct gender/number features as a result of secondary conjunction. Deletion ends the cycle.

2.3.4. Summary of the process of feature spreading

In the discussion above we have assumed the existence of several linguistic principles that are presumably universal in nature:

(1) The existence of cyclic T-rules, as suggested in Chomsky(1965);

(2) The convention of features migration upward, as suggested by Chomšky (1966), by which features of the head of a phrase are also features of the phrasal node;

(3) The schema for conjunction reduction on lines generally described by Schane(1966), with powers to affect both gender and number adjustment on conjoined nodes or on modifiers dominated by the top conjoined node.

With the help of these general principles and the facts of concordial agreement in ChiBemba, we have arrived at the formulation of several other general principles that may as well be universal too:

(4) The cyclic nature of feature spreading, which applies one within the boundaries of a 'kernel' sentence.

(5) The following relative order of cyclic transformations:

1. conjunction reduction
2. pro-copying
3. feature spreading
4. embedding and deletion

(6) The post-cyclic nature of the 'spelling' or 'second lexicon';

(7) The idea that there seems to be no evidence that 'normal' feature-spreading and feature spreading from 'tagged' noun to a pronoun are two different processes;

Our feature spreading rules can be now revised, tentatively, in the following way:

(DEM,I,V,COP,ADJ,NUM,ORD,PRO) --> [X]

$$X \Longrightarrow \underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{sg.}\end{smallmatrix}\right]}{X} \quad / \quad \begin{array}{ll} \text{a. } \ldots \underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{sg.}\\ +\text{pro}\end{smallmatrix}\right]}{\text{NOM}} \ldots [\text{------}]_{[+\text{pro}]} & \\ \text{b. } [\text{------}]_{[+\text{pro}]} \ldots \underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{sg.}\\ +\text{pro}\end{smallmatrix}\right]}{\text{NOM}} & \\ \text{c. } [\ldots[\text{-------}]\ldots.]\underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{sg.}\end{smallmatrix}\right]}{\text{NOM}} & \\ \text{d. } [\underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{sg.}\end{smallmatrix}\right]}{\text{NOM}} \ldots\ldots [\text{------}]\ldots]_{S} & \end{array}$$

Sub-rules a., b., deal with pronoun agreement. They cannot be formulated in a more specific manner, since for the moment I see no constraint on the position or 'distance' of a pronoun vis-a-vis its referent noun. Sub-rules c., d., are our regular agreement rule. a.,b.,c.,d., are

disjunctively ordered with respect to each other.

2.3.5. The personal pronouns and feature spreading

The concord of the personal pronouns (1st and 2nd person sg./pl.) is bound to raise special problems, as a quick look in Table 2. will convince one. The concord of these pronouns seems to follow a double pattern: in some environments a pronoun (person/number) concord is found, in other environments a class 1/2 (gender/number) concord is found.

As to the deep-structure source of the personal pronouns, there are a number of reasons why they should not arise from the lexicon:

(a) As we have seen earlier, their phonological shape many times cannot be determined pre-transformationally; that is, they receive their 'spelling' in the second lexicon.

(b) The plural feature of these pronouns may arise as a result of conjunction, as in:

'I and this man' -> 'we'

which again suggests that the number feature of these pronouns behaves just like it does elsewhere -- it is a feature on NOM and subject to the rules of number/gender adjustment operating during conjunction reduction.

(c) Further, the person feature itself may change by conjunction reduction; as we shall see below, this must lead us to enlarging the powers of the adjustment rules operating during that schema:

'he and you' -> 'you'all' 'you and I' -> 'we'

We shall assume therefore that bundles of features such as [pro,

speaker] or [pro,hearer] arise somewhere in the Base Rules, where they also pick up the NOM feature [+/-sg.]. But where?

The most natural node to derive the personal pronouns from is the DEMonstrative node. This is the IchiBemba equivalent of a DETerminer node. Notice that DEM is the only modifier which the personal pronouns cannot take, it is thus in complementary distribution with them. Further, both the personal pronouns and DEM expand further into deictic categories such as speaker or hearer. Postal(1966) has also suggested that the personal pronouns, in English, be derived from the Determiner node. If this solution is accepted, Rule 6., Table 4.(Base Rules, Second version), may be ammended to read:

$$[\text{DEM}] \rightarrow \begin{Bmatrix} (1,2,3,4) \\ [+\text{pro}] \end{Bmatrix}$$

$$[+\text{pro}] \rightarrow \begin{Bmatrix} [+\text{speaker}] \\ [+\text{hearer}] \end{Bmatrix}$$

One may argue that a solution of this kind fails to capture one of the most crucial generalisations about the personal pronouns -- namely that in environments where they require a gender/number concord, the concord is of gender 1/2(human). The validity of this generalisation may be however questionable. To begin with, it seems to be an assumption about a human oriented universe rather than about the personal pronouns as such, or about the structure of grammars. Thus note, for example, that if the speaker in, say, a Bemba folk tale is a cow or a lion, one could well envision a class 9/10 concord for modifiers of the pronouns:

fwe-shi-suma... 'we who are good...'

ne-ɸi-boomba saana... 'I who work a lot...'

Further, if the hearer in the tale is a cow or a lion, one could very

well envision even a human speaker addressing it with:

mwe-shi-suma... 'you who're good...'(9/10)

we-ɸi-boomba... 'you who work...'(9/10)

Notice further that by providing the PRO node to branch from DEM but not from the NOUN node (as is many times done), we have allowed precisely for the characterisation of this very phenomenon. A specific noun must now be always inserted. That noun carries its inherent gender. If it is a human noun, it must also carry the semantic feature [human]. This is necessary because nouns like ishilu(5/6), imfumu(9/10) or icikolwe(7/8) ("lunatic', 'chief', 'ancestor', respectively) are not in the human class (1/2), but nevertheless one expects them as speakers or hearers to show 1/2 concord (in contrast to cows):

imfumu iati: 'fwe-ba-boomba...' 'the chief said:we who work...'

inoombe i-ati: 'fwe-ɸi-boomba... 'the cow said: we who work...'

In order to characterise this difference, one must resort to the presumably concord-irrelevant semantic feature [+human].

Since we have assumed an obligatory pronominalisation of any noun 'tagged' by PRO, this would also provide for pronominalisation in case of the personal pronouns. Since, further, we have assumed that feature-spreading precedes deletion, this would also account for the inherent gender or [human] features of the noun being available to determine the class of the concord of modifiers which require gender/number concord.

The grammatical environments in which person/number concord supplants gender/number concord in ChiBemba are as follows:

independent('absolute') pronoun (Table 2., col.1,2)

anaphoric('infix') object pronoun (ibid, col.16)

NA-linked anaphoric pronoun (ibid, col.17)

A-linked anaphoric pronoun (ibid, col. 18)

subject concord (ibid, col.15)

Notice that except for the last one, all are pronoun environments, that is, they are not environments into which agreement features are spread, but rather environments in which the person features [+prp], [+speaker/hearer] have been generated by the Base Rules. Could this also be the case with the subject 'concord' of personal pronouns? There are indeed some reasons to suggest that this is precisely the case there.

(a) Subject nominal anaphora in ChiBemba seems to be an optional rule for nouns of the various noun classes:

umuana A-aliile 'the child left'

A-aliile '(he, the child) left'

For the personal pronouns, however, this is an obligatory rule, unless the 'subject' is pre-posed:

*ine n-aliile

n-aliile 'I left'

Ine, n-aliile 'I, I left'

*ifwe tu-aliile

tu-aliile 'we left'

ifwe, tu-aliile 'we, we left'

(In fact, this phenomenon in the personal pronouns is probably what led Gorman(1950) to the conclusion that all subject nouns in Bantu are apositio, a conclusion that cannot be supported).

(b) While the tone on all subject concord prefixes of the 'third person' nouns is HIGH, the tone on the personal pronoun 'subject concord' is LOW. Notice further that the tone on Rel. pronouns for the noun classes is also LOW:

umuana Á-aliile 'the child left'

abaana BÁ-aliile 'the children left'

but: Ǹ-aliile 'I left'

ɸÙ-aliile 'you left'

TÙ-aliile 'we left'

MÙ-aliile 'you'all left'

That this is not the function of the sentence-initial position can be readily shown:

Á-aliile '(he) left'

BÁ-aliile '(they) left'

While for Rel. pronouns:

imfumu ɸÍ-aliile 'the chief left'

imfumu ɸÌ-aile... 'the chief who left...'

The tonal contrast also shows with pre-posed subjects:

abaana, BÁ-boomba saana 'the children, (they) work a lot'

ifwe, TÙ-boomba saana 'we, we work a lot'

For ChiBemba, therefore, we shall accept a solution by which the 'subject concord' on verbs, in the case of the personal pronoun, is not 'concord' but the pronoun itself. If this solution is accepted, then a very natural way emerges for solving the person/number vs. gender/number concord of the personal pronouns:

(a) The features [+pro], [+speaker/hearer] are never spread.

(b) Only the features of gender/number are ever spread.

(c) Concordial overrule of the feature gender by the feature's [speaker] or [hearer] always occurs.

(d) The environment in which this concordial-overrule occurs are the only environments in which the personal pronouns can occur -- nominal environments as specified by the Base Rules.

(e) Since speaker/hearer features are never spread, the concordial overruling involved is in no way associated with the feature spreading rule. Rather, it is a problem for the 'spelling' rules of the second lexicon, and will be discussed there.

Finally, the person resolution rule can now be integrated into the general number/gender resolution rule which operates during conjunction reduction. The integrated person/number/gender resolution rule is:

a. $\text{NOM} \rightarrow \underset{[+\text{speaker}]}{\text{NOM}} \; / \; [\text{----}]^{n\ 1}$ and $\text{nom}_i = [+\text{speaker}]$

b. $\text{NOM} \rightarrow \underset{[+\text{hearer}]}{\text{NOM}} \; / \; [\text{-----}]^{n\ 1}$ and $\text{nom}_i = [+\text{hearer}]$

c. $\text{NOM} \rightarrow \underset{\substack{[-\text{sg.}] \\ <[+7/8]>}}{\text{NOM}} \; / \; [\text{------}]^{n\ 1} <\text{gend.}_i \neq \text{gend.}_j>$

Sub-rules a. and b. are disjunctively ordered with respect to each other that is, b. applies only if a. did not apply. Sub-rule c. is conjunctively ordered with respect to a. and b.; that is, it always applies

2.3.6. Prepositional concord and feature spreading

As we have suggested earlier, the 'double concord' of embedded modi-

fiers can be best explained by insisting that the domain of feature spreading is the 'kernel' sentence itself. Or, put differently, that the rule is a cyclic rule. Within that sentence, it was indicated, the concordial-overruling of noun gender/number by PREP gender is absolute, with the exception of DEMonstratives, a subject discussed below. There is of course one more obvious exception, the noun itself, where the original gender/number features do determine the shape of the concordial prefix even in the presence of PREP. But this is not a 'spreading' problem, but rather involves the 'spelling' rules of the second lexicon. In fact, so far as I know, there is no reason to assume that noun-gender features are not spread in the presence of PREP -- together with PREP gender. The concordial overrule may be altogether considered a 'spelling' problem rather than a 'spreading' problem. Since, as we shall later show, the second lexicon is precisely the place where morphological idiosyncracies of the language find their manifestation, it would be only natural, in the absence of evidence to the contrary, to keep the feature spreading rule more universal, while allowing the second lexicon to account for idiosyncracies. We shall therefore consider this problem there.

A problem which must be dealt with or at least mentioned here, is that of PREP gender conflicts in conjunction-cum-pronominalisation. There are three prepositional 'genders' in ChiBemba, receiving their morphological expression as: PA,KU,Mu. A gender conflict may arise under a situation such as the following:

aaliile KU-ŋaanda PA-mushi MU-lubeemba MU-onse aatemeenwe saana
KU-onse
*PA-onse

'he went to the house at the village in Lubemba, all of which he loved'

Although much more data of this kind is not at the moment available, it seems that another potential gender resolution rule -- for PREP gender, might be required. In the case of complex-locatives ('complex prepositions'), the resolution seems to go into gender 7/8, i.e., not into any of the PREP genders:

aaliikeele PA-kati-kaa-mpaanga PE-epi no-omumana MU-isaamba-lyaa-
'he lived in the middle of the forest near the river underneath
ŋaanda KU-muulu-ɸwaa-lupili, ifyo-fyoonse aatemeenwe saana
the house on top of the hill, all of which he loved very much'

Finally, note that PREP identity, unlike some form of Noun identity, is irrelevant for the equi-identity condition for Relativisation:

(a) MU-ŋaanda UMO njikala... <== MU-ŋaanda #njikala MU-naanda#...
'in the house in-which I live' 'in the house#I live in the house#...'

(b) MU-ŋaanda IɸYO naamweene... <== MU-ŋaanda#naamweene INaanda#...
"in the house that I saw...' 'in the house#I saw the house...'

Sentence (a) above might also have a variant(c) in which the PREP is suffixed on the verb, rather than affecting the Rel.pronoun gender; though the interpretation seems to be very much the same as (a):

(c) MU-ŋaanda IɸYO njikala-MO <== MU-ŋaanda#njikala MU-ŋaanda#...
'in the house that I live in...' 'in the house#I live in the house'

One could therefore consider the suffixal -PO,-KO and -MO, at least in this type of construction , as part of the discontinuous Rel. pronoun morpheme.

2.3.7. Pro-Locatives and feature spreading

We have earlier considered pro-locatives or 'loc.demonstratives'

such as in:

(a) UMU MUli iyi-mushi... 'here in this village...'

(b) MU-mushi MUlya... 'in the village there...'

(c) PA-mushili,APO,... 'on the floor, there near you,...'

We have suggested that the internal structure of the pro-locatives themselves should involve the structure: $[[PREP[DEM\ NP]_{noun}]_{nominal}$
At that point we also noted that this raises a serious problem with regard to agreement control, since as seen in (a) above, in the sequence PREP-DEM-NOUN the gender of DEM is controlled by the Noun, not by PREP.

That this is not the same kind of pronominalisation as the Personal Pronouns is already obvious from the fact that DEM is here present, while we have noted that DEM and the personal pronouns are in complementary distribution. One may consider an alternative source for the feature [+pro] here, namely the 'tag' already mentioned for anaphoric pronominalisation. There is a crucial respect, however, in which loc.pronouns differ from the regular anaphoric pronouns: In the normal pronominalisation we have established that feature spreading must precede the deletion rule. Here, however, if the same cyclic order is maintained, then we will obtain a Demonstrative concorded by noun gender/number, rather than by PREP gender.

Another alternative coming to mind is a special provision, by which PREP concord rather than noun gender/number concord will operate if both PREP and DEM are present -- and also if a[pro]'tag' is there.

Another alternative is to assume that a Pro-Locative has the form suggested above (PREP-DEM-NP), but that no Noun is inserted under the NP node; this would again require special provisions, since the 'tag'

convention by itself only insures pronominalisation, but does not block and in fact should not block lexical attachment.

The last solution, which will be tentatively adopted here, is made possible by the format for Lexical Attachment ('insertion') developed by Gruber(1967a). A central assumption of this format is that some T-rule may, and indeed must, occur at the time of lexical attachment. Since this is a pre-cyclic stage of the grammar, the concordial problem is alleviated, since only the structure:

$$[[\text{PREP}[\text{DEM}[+\text{pro}]_{np}]_{nom}]_{nominal}$$

will be available to the rule of agreement spreading, which is a cyclic rule. In Gruber's format, T-rules operating at the time of lexical attachment are 'lexical T-rules', rather than 'grammatical transformations'.

2.3.8 Derived gender and feature spreading

It was noted earlier that the noun-class system of Bantu is used extensively for (lexical) derivation rules. One category of these rules is nominalisation, involving Verb-to-Noun or Adjective-to-Noun changes; the original category had no inherent gender, but it acquires one through the Derivation Rule, since it must go into a specific noun-gender 'class'.

A concordial problem arises when the derivation is Noun-to-Noun. This is so because the derivational (added) prefix assumes full concordial control over feature spreading. But in many derivations the original noun-prefix is also retained, which means that in the process of 'spelling' during the second lexicon, both the derived and original noun

genders must be available. Gregersen's one-step agreement rule has disregarded that problem, even though in Swahili double prefixes do occur as a result of some derivations (ki-ji-ti 'a small tree'). One may of course argue that in Swahili the 'inner' (or 'previous') prefix can be considered as a 'frozen' part of the stem. This is not the case in Chi-Bemba when double prefixes occur. Thus note:

aka-ana 'small child' utu-ana 'small children'

aka-mu-ana 'small, ugly child' utu-ba-ana 'small, ugly children

Here it is clear that the original prefix cannot be frozen into the stem, since it changes pending on lexical attachment under a singular or plural NOM node.

As far as the feature-spreading rules are concerned, Gregersen's stipulation of concordial concord by the outermost prefix, or any equivalent provision, is adequate. The convention of 'outermost' may be unnecessary; we have until now, mostly for the sake of easier notation, listed features merely as unstructured bundles. As Gruber(1967a) has shown, however, features have very much the same internal tree structure as do P.S. categories. The 'outermost' gender feature, resulting from the derivation, probably has a quite different branching point on the feature-tree than that of the original noun gender.

2.4. THE 'SPELLING RULES' OF THE SECOND LEXICON

In this section the form, function and internal structure of the rules in the second lexicon responsible for giving phonological shape to the concordial morphemes/features, will be investigated. One may

first note that concordial features are by no means the only ones which receive their phonological expression at the second, rather than first lexicon. In ChiBemba there is some evidence that the Modality (tense-aspect) morphemes prefixed to the verb stem cannot receive their phonological expression pre-transformationally. Some pairs of 'tense-markers' neutralise into one member of the pair in Rel. clauses or subordinate constructions:

umuana a-ÀLÍ-boombele 'the child worked'

umuana a-À-boombele saana 'the child worked a lot'

umuana ɸu-À-boombele(saana)...'the child who worked(a lot)...'

*umuana ɸu-ÀLÍ-boombele(saana)...

The infinitive morpheme uku- in verb complements such as:

ndee-fwaaya uku-mona umunaandi 'I want to see my friend'

Sequential or 'narrative' tenses receive their final shape only after the T-rules:

a-KÀ-isa, a-KÀ-laanda, a-Á-boomba 'he'll come, he'll talk, he'll work'

a-ÀLÍ-isa, a-ÀLÍ-laanda, a-Á -boomba 'he came,he talked,he worked'

Conditional tense markers and subjunctive tense markers may have also to receive their phonological shape post-transformationally. Much of the structural (HIGH,LOW) tone in both the verbal and nominal system cannot be assigned pre-transformationally, although lexical tone of noun and verb stems must be assigned in the first lexicon. In this section, however, we will confine the discussion mostly to that part of the second lexicon which is responsible for determining the phonological shape of the concordial morphemes/features.

2.4.1. First and second lexicon

Gruber(1967a) has shown that on purely semantic grounds it is impossible to find a natural cutting line between semantic structure specified by the Base Rules and that specified in the lexicon. However, it may very well be that the division between first (pre-T-rules) and second (post T-rules) lexicon provides a morphological criterion for that very cutting line. This criterion, since it is not semantic, is of course highly language specific. Thus, on the purely semantic level languages may treat categories such as 'auxiliaries', 'modality', 'tense', 'aspect', 'preposition','pronoun', 'demonstrative', 'article' in a highly similar fashion; while on the morphemic level, enormous typological differences between languages arise from the balance between categories/features receiving 'spelling' in the first lexicon, and those receiving 'spelling' in the second lexicon. To the extent that one is interested not only in Universals of human language, but also in the systematic study of typological diversity of languages, the distinction (morphemic, to be sure) between 'lexical' and 'base' semantic categories/features, is perhaps a valid one.

2.4.2. Internal structure of the second lexicon

It is perhaps to be expected that in many respects rules of the second lexicon will resemble those of the first. (Our concern is here of course only with non-semantic rules). Both consist of more regular components, ones expressing a higher degree of generality, which can be labeled morpheme structure rules ('morpheme redundance rules'); both

also consist of less systematic components, ones expressing little or no generality, which may simply 'spell', in a rather arbitrary manner. These 'mere spelling' rules are really a coupling lexicon, in which certain bundles of semantic features are coupled to phonological matrices.

One could also expect that at some points the first and second lexicon may diverge. For example, the more systematic morpheme structure rules for lexical or non-lexical categories may differ. In general, as a result of both lexical borrowing and sound change, it seems that in many instances the morpheme structure rules of the first lexicon are less stringent (less restricting) than those of the second lexicon. Further, while in the first lexicon morpheme structure rules may require specified environments only in terms of the lexical categories N,V,Adj etc., it seems that morpheme structure rules of the second lexicon require many times the mentioning of higher and deeper grammatical categories, as well as larger chunks of the grammatical environment.

Finally, the kinds of morphological irregularities found in the second lexicon, may be quite different from those found in the first. This is of course a function of the two points mentioned above: more stringent redundancy rules, and wider dependency on the grammatical context.

2.4.3. 'Cardinal Shape' or morpheme-structure rules

The most obvious generalisation about the morphemic shape of the concordial affixes, involves the seeming prevalence of the CV- cardinal shape. Since the shapes which may regularly vary from it involve the

duplication of the vowel (VCV or CVV), the most general first rule seems to be:

$$\frac{\quad}{\begin{bmatrix}\text{gend.}\\ \text{sg.}\end{bmatrix}} \rightarrow \frac{CV}{\begin{bmatrix}\text{gend.}\\ \text{sg.}\end{bmatrix}}$$

all along assuming that two extra rules of lesser generality may later specify:

$$CV \rightarrow CVV \;/\; \text{in environments}_{y-z}$$

$$CV \rightarrow VCV \;/\; \text{in environments}_{n-x}$$

(Note that in the discussion throughout we shall use C and V as abbreviations for the phonological features [+consonantal] and [+vocalic], respectively).

Except for the 'more-regular' CV/CVV/VCV variation, another type of variation is found throughout much of the Bantu field, the one usually referred to as primary vs secondary concord. This involves mostly the nasal based concordial classes (of nouns but not of PREP gender, as the prepositional MU never shows this variation), and is reflected in ChiBemba by the following diversity of 'basic'(CV) forms:

class 1/2, sg. MU (noun, adj, infix obj. pronoun)
YU (DEM 1,2)
A (verb-subject concord)
ϕU (all other concordial environments)

class 3/4, sg. MU (noun)
ϕU (all other environments)

class 3/4, pl. MI (noun)
ϕI (all other environments)

class 5/6, pl. MA (nouns)

YA (all other environments)

class 9/10, sg. N/Ɪ̃/M/NY (homorganic nasal; nouns)

¢I (all other environments)

classes 9/10, 11/10, pl. N/Ɪ̃/M/NY (homorganic nasal; nouns)

SHI (all other environments)

The forms were given above in the 'surface' or 'systematic phonetic' form, with the exception of the symbol /¢/, to be discussed later.

In the space below we shall attempt to discover if any portion of these variations can be described in a 'more regular' or 'systematic' way; in particular if these variations can be integrated into a more comprehensive overall view of the phonology of this and other Bantu languages.

Gregersen(1967), taking on the same problem in Swahili, has suggested that the secondary (non-nasal) prefix forms be listed as basic, and then the primary forms derived from them:"...The tentative shape listed for the prefixes may be surprising to Bantuists because pronominal ('secondary';T.G.) forms have been given rather than the actual noun-adjective prefixes('primary';T.G.). Although the pronominal forms have been treated as reductions of the noun-adjective prefixes, environments can be more easily stated to account for morphophonemic alternations in the present analysis than in the traditional approach..."(ibid, p.15).

One wonders how easy it might be to state, in principled morphophonological rules, alternations such as (in Swahili):

YU -> MU/M (class 1) U -> M/MU (class 3)

I -> MI(class 4) YA -> MA (class 6)

I -> NI(class 9) ZI -> NI (class 10)

With the exception of class 10, to be discussed later, the reverse direction of the alternation is much more feasible even in Swahili, since while it is fairly plausible to construct a rule for nasal loss here in a principled manner, it is impossible to construe a principled rule for the reverse gain. Thus:

MU -> YU -> U (two steps of nasal loss, class 1)

MA -> YA (only the first step, class 6)

MU ----------> U (both steps combined, class 3)

MI ----------> I (" " " , class 4)

NI ----------> I (" " " , class 9)

Thus, if one views the 'historical' loss of nasal as a synchronic rule in the phonology of Swahili, the V forms can be predicted from the NV forms by these various manifestations of virtually one rule, nasal loss in noun (not PREP) prefixes. Comparative dialectal observations in Swahili may yet relate this loss to other 'historical' consonant losses in the language.

The situation in ChiBemba is in many ways similar, except that much stronger reasons exist for positing the primary(CV) rather than the secondary (V) forms as the basic systematic phonemic forms of the nasal concordial prefixes. In ChiBemba the 'lost nasal' still manifests itself as the 'boundary' /¢/, across which vowel fusion rules cannot operate. It thus blocks the rules much like any consonant would:

/nshiaba na-u¢u-suma/ -> [nshiaba noousuma]

'I don't have the good one' (anaphoric for class 3)

/nshiaba na-ɸu-suma/ --> [nshiɛba nausuma]

'I don't have any good one' (anaphoric for class 3)

/nshiaba na-iɸi-suma/ --> [nshiaba neeisuma]

'I don't have the good ones' (anaphoric for class 4)

/nshiaba-na-ɸi-suma/ --> [nshiaba naisuma]

'I don't have any good ones' (anaphoric for class 4)

Further evidence for the consonantal status of the boundary /ɸ/ is discussed in Givon (1970). Now if one posits the primary or NV forms as the basic ones for all the nasal prefixes, then the 'consonant-like' behavior of /ɸ/ can be described by means of ordering the rules to phonology, and as a result the symbol /ɸ/ is not anymore needed in the grammar. One simply assumes that the rules of vowel fusion precede the rule of nasal loss in the ordered sequence of ChiBemba phonology.

Before turning to consider the order of other relevant rules of the phonology, we must first consider a different set of morphonemic variations; those shown by the concordial elements of class 9/10. In the singular (9), if one posits the form NI as basic, then one can predict the remaining vowel (I) in all the non-noun environments, just like it is done for the other nasal-prefix genders. In addition, in noun prefixes of this gender, a loss of vowel occurs, with the resulting formation of NC nasal clusters, and a further process of position assimilation of the nasal, which becomes homorganic:

/NI/ --> [m] / before labials (imfumu 'chief')

--> [n] / before dentals (indalama 'money')

--> [ny] / before vowels (inyimbo 'songs')

--> [ŋ] / before velars (iŋkalamo 'lion')

(The sequence /ny/ may also appear on the surface as /nj/. The relation between these two involves another nasal rule, the Meinhoff Law of nasal cluster simplification; the relative position of this rule in the phonology, however, has no bearing on the present discussion). If one still wishes to posit the form /NI/ as the basic one for class 9, then one must assume the following internal ordering of three rules:

(a) The 'gliding' /i/ --> /y/ before vowels

(b) prefix-vowel loss elsewhere in nouns

(c) The loss of the prefix nasal elsewhere

Another rule, the assimilation of nasal consonants in NC clusters to give the homorganic nasal, must follow both (a) and (b) above.

Another variation applies to class 10, which is the plural-paired class of both 9 and 11. Rules (a), (b) and 'nasal assimilation' apply in the noun-prefix environment of class 10 as well. In all other environments the basic prefixal form is /SHI/, so that we have to account presumably for a NI/SHI alternation. To account for this in a principled phonological rule is rather difficult. The variation arises from a historical change, and the P.B. reconstructed prefix of class 10 is the 'double prefix'/LI-NI-/, which is still attested in the noun prefix of class 10 in some Bantu languages (as in SiLuyana /TIN(I)-/ or in Lunda-Ndembu /JIN(I)-/). In ChiBemba the form */SHI-N(I)-/ is never attested, but only its two basic reflexes /N(I)/(in nouns) or /SHI/(elsewhere). To derive one of those from the other is totally unprincipled. One may posit a 'deep' for /SHINI/ and then two rules for the loss of either one or the other in the respective environments. This solution would probably parallel the historical process, but is not really

motivated since, for one thing, one has no data from ChiBemba itself by which to decide whether /SHI-NI/ or /NI-SHI/ is the basic form. This then seems to be a case where a 'historical' rule cannot be claimed to be still part of the synchronic phonology of the language. The change has advanced a morphophonemic irregularity to the point where it can no longer be explained as 'rule governed' or 'rule-order governed'. The NI/SHI variation must therefore be expressed as an irregularity of the 'mere-spelling' rules of the second lexicon, a completely arbitrary idiosyncrasy of class 10, bearing no deep phonological significance.

2.4.4. Ordering the relevant phonology rules

The 'more systematic' alternations in the concordial affixes can be described as arising from a specific and highly rigid order of the rules of phonology. Note that by 'solving' an irregularity through ordering rules, one does not mean to imply that the regularity does not exist, but rather, to pinpoint down the locus of that irregularity. A strict order of rules within the phonology of a language is by itself a more highly marked, and in this sense 'more irregular' statement. It does reveal, however, the ways in which 'irregular' or 'historical/morphophonemic' rules interact with the other, 'more regular' phonological rules of the language.

The rules given below are only a relevant small portion of the total phonology, and it is indeed unfortunate that a more comprehensive treatment of the subject cannot be given in this work. For some further support and discussion of some of these rules, see Givon(1970). The rules are given informally here, but the discerning reader will have no

difficulty in seeing their feature values. Rules 2,4,6 are the 'more regular' rules which are also independently attested in the phonology of ChiBemba. Rules 1,3,5,7 are the 'historical' or 'morphophonemic' rules peculiar to the nasal-based prefixes. Rule 7 is not really a morphophonemic rule, but rather a phonological rule dependent on or arising from the preceding vowel loss in rule 3.

1. Nasal change to glide:

$$[+\text{nasal}] \rightarrow /y/ \; / \; \left\{ \begin{array}{l} \text{in all non-noun environments, class 6} \\ \text{or in DEM 1,2 environments, class 1} \end{array} \right\}$$

2. Vowel gliding(only relevant portion):

$$\begin{bmatrix} u \\ i \end{bmatrix} V \rightarrow \begin{bmatrix} w \\ y \end{bmatrix} VV$$

This rule is independently attested, as in umu-aka/umwaaka 'year', imi-aka/imyaaka 'years'. Two interdependent rules have been collapsed into this rule, gliding and the ensuing vowel elongation. The first is almost universal in Bantu (unless a 'boundary' intervenes), while the second appears in some languages but not in others. In Table 2. this rule is attested in many of the CV-o forms (col.9,10,12,17), where rule 6., below, is also involved.

3. Vowel loss:

$$/ni/ \rightarrow /n/ \left\{ \begin{array}{l} [\text{-----}]_{\text{noun}} \\ [+9/10] \\ \\ [\text{-------}]\text{VERB} \end{array} \right\} \begin{bmatrix} [+\text{pro}] \\ [+\text{speaker}] \\ [+\text{sg.}] \end{bmatrix}$$

Since identical variations also apply to the form of the first person singular subject/object pronoun, one may as well include it in the

same rule. With respect to Rule 7. below (nasal assimilation), the personal pronoun var. ies slightly from the 9/10 prefix, and the rule in its present form applies only to the latter.

4. Vowel fusion (only relevant portions):

$$\begin{bmatrix} /ao/ \\ /au/ \\ /uo/ \\ /ae/ \\ /ai/ \end{bmatrix} \rightarrow \begin{bmatrix} /oo/ \\ /oo/ \\ /oo/ \\ /ee/ \\ /ee/ \end{bmatrix}$$

(ɸu-a-obe/oobe 'yours'(3))

(na-umuti/noomuti 'with a tree')

(ulu-o/ulo 'that neer you'(11))

(ba-a-esu/beesu 'ours'(2))

(na-imiti/neemiti 'with trees')

In many of the examples above a rule of vowel shortening (either rule 6. below or the rule VVV→VV given elsewhere(ibid)) is also involved.

5. Prefix-nasal loss:

$$\frac{C}{[+\text{nasal}]} \rightarrow \emptyset \; / \; [\text{-------}] \quad \begin{bmatrix} \alpha\text{gend.} \\ \beta\text{sg.} \end{bmatrix}$$

in all non-noun environments

This rule has one glaring exception, the adjective prefix of class 1 (umu- rather than uɸu-), but we shall disregard this here).

This is the basic primary/secondary variation rule, which is attested almost in all Bantu languages.

6. Vowel shortening before word boundary:

$$VV \rightarrow V \; / \; \text{---}\#$$

7. Nasal 'position' assimilation:

$$\frac{C}{[+\text{nasal}]} \rightarrow \frac{C}{\begin{bmatrix} +\text{nasal} \\ [\alpha\text{'position}] \end{bmatrix}} \; / \; [\text{------}] \frac{C}{[\alpha\text{'position'}]}$$

(If it can be shown that the facts of Bantu phonology indeed justify a system of two binary features, rather then a single 4-ary feature to render the four occlusion points for consonants, then the rule must be

revised accordingly).

To sum up this section, we have shown that 'more regular' alternations in the morpheme structure ('cardinal shape') of the concordial morphemes of ChiBemba can be effectively handled by assuming that:

(1) The cardinal shape of those morphemes is CV;

(2) Some of the 'historical/morphophonemic' rules must be still considered part of the synchronic phology of the language;

(3) These rules are strictly ordered within the sequence of 'regular' phonological rules of the language;

Our most general rule of cardinal shape, for the concordial morphemes, is then:

$$\frac{}{\begin{bmatrix}\alpha\text{gend}\\ \beta\text{ sg.}\end{bmatrix}} \rightarrow \frac{CV}{\begin{bmatrix}\alpha\text{ gend.}\\ \beta\text{ sg.}\end{bmatrix}}$$

2.4.5. Morpheme structure rules of lesser generality

The cardinal shape rule given above is of the highest generality, since it applies to the entire concordial system, irrespective of gender/number combinations or the grammatical environment. The rules deriving the VCV or CVV shapes from the basic CV, are of lesser generality. While still applying irrespective of gender/number (irregularities which crop up here will be discussed later on), the CV/VCV/CVV alternation does depend on the grammatical environment of the concordial morpheme. Other rules of a similar degree of generality are those which add the suffixal -o, -no or -lya in various contexts (Demonstratives, Rel. pronouns). Those will be discussed later on.

In stating the grammatical environments for the rules below, certain assumptions must be made about the kind of bracketing which is still available to the rules at this post-transformational stage of the grammar. In particular, one is forced to assume that many deep structure brackets/boundaries, such as sentence boundary or predicate phrase boundary, are still available. This has been already noted, for English by Chomsky(1966). More specifically with regard to Rule 1. below, we shall assume that predicate phrase boundaries are erased during embedding, but remain intact in preposed predicates.

$$1.\quad CV \longrightarrow CVV \;/\; \Big[\ \underset{\begin{bmatrix}\alpha\ \text{gend.}\\ \beta\ \text{sg.}\end{bmatrix}}{[\text{--------}]}\ \ \underset{[+\text{type}]}{\underline{\overset{\text{NOUN}}{\text{ADJ}}}}\ \ \ldots\ \Big]_{pred}$$

In the formulation of the next rule we are faced, at many points, to adopt negative environment conditions. This has also been done in Rule 1., section 2.4.4., above (phonological rules). This is not particularly surprising, since it was shown in Part (1.) that there was no strong correlation, in one-to-one terms, between the appearance of a VCV prefix and any single grammatical context. Negative environment conditions can always be converted into non-negative ones, by listing in this case the long list of exceptions as a preceding sub-rule of the form: (a) CV $\longrightarrow$ CV / in env. x,y,z

and then giving the fewer environments in a 'elsewhere' sub-rule:

(b) CV $\longrightarrow$ VCV / elsewhere

This formalism achieves very little, except leaving us with a rather meaingless rule; by itself this is a good indication that negative environment conditions are indeed involved in the rule. We shall therefore

consider pairs of rules such as (a) and (b) above, which are disjunctively ordered and the first of which is vacuous but lists many more environments than the second ('elsewhere'), as a notational variation of negative environment conditions.

It also seems that the formulation of rule (2) above requires the distinction between a pronoun arising from [anaphora] and one arising from [relativisation]. This is perhaps tantamount to assuming the availability of more deep structure brackets.

Finally, there may be a way to further simplify rule (2) below if the rules under (3), further, are to precede it. At this point we will simply ignore this possibility.

2. $\underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{ sg.}\end{smallmatrix}\right]}{\text{CV}} \rightarrow \underset{\left[\begin{smallmatrix}\alpha\text{gend.}\\ \beta\text{ sg.}\end{smallmatrix}\right]}{\text{VCV}}$ /

a. [----------]
[+DEM]
[+(1,2)]

b. [-------] $\underset{\left[\begin{smallmatrix}\text{-type}\\ \text{+pred}\end{smallmatrix}\right]}{\overset{\text{NOUN}}{\text{ADJ}}}$ / if EE- not present

c. [...[-----]ORD...]$_{\text{verbal}}$

d. [----------] $\left[\begin{smallmatrix}\text{+pro}\\ \text{+anaphor}\\ \text{-type}\end{smallmatrix}\right]$ $\left\{\begin{smallmatrix}\text{ADJ}\\ \text{VERB}\\ \text{-A-}\\ \text{ORD}\\ \text{'ine'}\end{smallmatrix}\right\}$

e. [[-------] $\underset{\text{[-type]}}{\text{NOUN}}$ ....]$_{\text{nominal}}$

Sub-rules a. to e. are disjunctively ordered with respect to each other. Rule 2. itself is disjunctively ordered with respect to rule 1. We also assume that some of the difficulties encountered in formulating rule

2. above arise from our abbreviated feature notation. Gruber(1967a) has pointed out that semantic features have tree structures much like Base Rules features/categories. Thus for example, the difference between an anaphoric and relative pronoun may be quite obvious from their respective different positions of a 'feature tree'.

The last rule in this section involves several fairly idiosyncratic rules which add phonological matrices in specific environments. Only the last sub-rule(e) has any degree of generality:

3. $\underset{\left[\begin{smallmatrix}\alpha\,\text{gend.}\\ \beta\,\text{sg.}\end{smallmatrix}\right]}{(V)CV} \rightarrow \underset{\left[\begin{smallmatrix}\alpha\,\text{gend.}\\ \beta\,\text{sg.}\end{smallmatrix}\right]}{(V)CV} +$

a. -no / $[\text{-------}]_{\text{dem,3}}$

b. -lya / $[\text{-------}]_{\text{dem,4}}$

c. (-ntu) / $[\text{-------}]_{\text{obj, rel.pro.}}$

d. -KO / $[\text{--------}]_{\text{-A-, anaph,pro.}}$

e. -o / [-------]#

Sub-rules a. to e. are <u>disjunctively</u> ordered <u>vis-a-vis</u> each other. Sub-rule c. is optional. Rule 3. is <u>disjunctively</u> ordered with respect to 1.,2. above.

2.4.6. <u>The final specification of the concordial morphemes</u>

The final specification ('filling the matrices with phonological features') of the partially specified C's and V's of the concordial morphemes, cannot be characterized as a 'rule'. Rather, 'spelling' or coupling is involved, and given the specific <u>gender/number</u> context the phonological matrices are 'filled'. The general format of these rules is: $[+\text{cons.}] \rightarrow [+F_i, -F_j, \ldots] / \underset{\left[\begin{smallmatrix}\text{gend.}_x\\ \text{sg.}_y\end{smallmatrix}\right]}{[\text{------}]}$

or: $[+\text{vocalic}] \rightarrow [+F_p, -F_q, \ldots] \;/\; \frac{[\text{-------}]}{\begin{matrix}[\text{gend.}_r \\ [\text{sg.}_z]\end{matrix}}$

2.4.7. The treatment of morphological irregularities

We have already discussed morpho-phonemic irregularities that can be traced to or accounted for by the specific order of the rules of phonology. This type of irregularity is usually due to diachronic changes. A change of similar kind occurred fairly recently in ChiBemba in the prefix of class 5 (5/6, sg.). The 'older' VCV form ili- of nouns is preserved only before monosyllabic or vowel-commencing noun stems. Otherwise the 'reduced' prefix /i-/ occurs. In all concordial environments, however, the CV base /li-/ appears. A late morpho-phonemic rule can be therefore added to the rules of phonology, without interfering with the concordial regularity of this noun class.

In contrast to irregularities such as mentioned above, other irregularities in the concordial system can be traced to the various subcomponents of the 'second lexicon' itself. That is, they violate morpheme structure rules or mere 'spelling' coupling-rules. Some of the most conspicuous ones in ChiBemba are briefly discussed below.

2.4.7.1. Irregularities in class 9/10:

The irregular CVV noun prefix /niiN-/ must be specified through a disjunctively ordered rule of exception to precede rule 1., section 2.4.5., above. The basic CV form /shi-/ in the plural concord of this noun gender must be specified by a disjunctively ordered rule of exception to precede the regular 'spelling' rules described in section

2.4.6., above.

2.4.7.2. Irregularities in class 1a/2a:

We have already noted that this sub-gender of 1/2 must have an inherent lexical feature of exception. The Ø/baa VCV noun prefixes of this class violate the general condition of cardinal shape, section 2.4.4., above; rules of exception (disjunctively ordered with respect to the general CV rule), must precede that rule. The niØ/nibaa 'CVV' prefixes violate our rule 1., section 2.4.5., and rules of exception must precede that rule (disjunctively ordered with respect to it).

2.4.7.3. Irregular forms of PREP and -A- link:

Before Demonstratives, nouns of class 1a/2a, the personal pronouns and names of persons, and prepositions appear with the 'stabilizer' -lí and the -A- link appears with the extra morpheme -kwaa-, as in:

aapeele icitabo KULi kaleemba 'he gave a book to the writer'

umuana ɸwaa-kwaa-kaleemba 'the child of the writer'

Exception rules to the effect must precede the 'spelling' rules which stipulate the shape of PREP or the -A- link.

2.4.7.4. The shapes of the personal pronouns

The various shapes of the personal pronouns must also be assigned during the second lexicon. To the extent that some generalities could be made about a CV 'basic' cardinal shape to those, the rule of cardinal shape (section 2.4.4.) must be modified to accommodate those. There is evidence, for example, that the second pers. sg. [u] has a consonantal boundary preceding the vowel, and should be given at least as /ɸu/ and probably /CU/ or /ku/. This is evidence from the blocking of vowel-fusion rules, e.g.:

/a-ɸu-boomba/ -> [auboomba/ 'had you worked...'

*[ooboomba]

Other alternations of these prefixes should also be handled during the various stages of the second lexicon.

We have stipulated earlier that when a nominal has both the features [+pro, +speaker/hearer] always supplant [gender] in the spelling rules. This can be achieved simply by recognizing that at any relevant stage of the second lexicon, the rules assigning the shape to the bundles of features [+pro, +speaker/hearer, +/-sg.] must precede those assigning shape to the noun genders. Further, the later must be disjunctively ordered with respect to the former, so that if spreaker/hearer receives 'spelling', then for the same concordial morpheme the feature [gender] cannot receive spelling.

2.4.7.5. The subject concord of class 1(1/2, sg.):

The form /a-/ here violates both the rule of CV cardinal shape, as well as the spelling rule assigning the vowel /u/. There is no principles way to derive if from the regular shape, and it must be stipulated by an early exception rule to precede each one of the rules which it violates.

2.4.8. PREP gender, derived gender and the 'spelling rules':

a. PREP gender: we have above suggested that both PREP and noun gender are always 'spread' during feature spreading, but that in all concordial environments (as distinct from Noun environment) [+PA,KU,MU] supplants the gender/number features. This suppletion can be again achived by

disjunctive ordering of the PREP spelling rules in non-noun environments to precede the gender/number spelling rules. In noun environments, provisions for double-spelling must be made, so that sequences like:

$$\underset{\substack{[+pr] \\ [+PA]}}{\text{CV}}\text{-}\underset{\substack{[+gend_x] \\ [+/-sg.]}}{\text{CV}}$$

arise from the cardinal shape rules.

An alternative to this approach is perhaps to disallow spreading of gender/number features in the presence of PREP, during feature spreading. This suppletion can again be achieved through -- and is no doubt indicative of -- disjunctive ordering of the rules spreading PREP gender to precede those spreading noun gender/number.

b. Derived gender: Here again a double-spelling provision must be made in noun environments, if the derivational prefix did not replace but rather was added to the original one. The inherent and derived gender features must therefore be ordered with respect to each other in some manner, so that the cardinal shape rules produce a CVCV secquence, and the following (CVV/VCV) rules apply only to the outermost prefix. The 'matrix filling' rules, for noun prefixes, must also be able to tell that the outermost prefix is 'spelled' for the derived gender, while the second one (only CV) is spelled for the original noun gender.

2.4.8. Agreement and Universal Grammar

Although the discussion above has been largely limited to ChiBemba, a Bantu language, there are reasons to believe that our (tentative, granted) findings may have more general validity. This is so bacause

a Bantu language, with its 'strong' gender/number agreement requirements, probably demands the most or almost the most powerful provisions to accommodate concordial agreement. So that certainly a solution laying less powerful claims than those outlined above, could not hope to be one of Universal significance.

Of the various provisions made here for concordial agreement in ChiBemba and Bantu, the following seem to have a reasonable chance of making equally valid claims about Universal Grammar:

(a) The two-phase nature of agreement: The identification of the Transformational 'agreement spreading' as against the 'post-Transformational' spelling aspect of agreement, the first dealing entirely with abstract features, while the second is part of the second lexicon.

(b) The cyclic position of feature spreading: This provision is in a way a natural outgrowth of our early contention that agreement spreading can be effectively handled within the 'kernel' sentence. The position of feature spreading within the cycle, following conjunction reduction, possibly following 'pro-copying' (if that model for prominalisation is indeed valid), but preceding deletions and embedding, is probably also universal.

(c) The adjustment powers of conjunction reduction: number and person adjustment are of course much more widespread than gender-resolution, but the powers required for either are very much the same. The 'schema' of conjunction reduction seems, as a general condition, to have the power to adjust features on NOM nodes dominating the conjunction. A corolary of this is that a NOM node must be able to carry not only a number

feature but also other features, originally of the Noun (gender) or of its affects (pro, speaker/hearer, PREP), and perhaps all features of the noun and its affects.

In addition, several issues that have been explicitly or implicitly raised during the discussion above, may also be of more general linguistic interest.

(1) Where do languages diverge on agreement?

One may perhaps suggest that while the process of feature spreading is the more universal aspect of agreement, i.e., that features of subject are always spread to predicates, and features of a head noun to modifiers, languages differ enormously as to the degree to which this universal T-rule is given overt morpho-phonological expression. The extent to which languages 'spell' the spread features,through rules of the second lexicon, is where their enormous diversity with regard to agreement can be found.

(2) Along what lines are features of agreement spread?

It is perhaps not altogether an accident that agreement features are never spread from modifiers of subjects to object nominals, from subject nominals to object nominals, from object nominals to subject nominals, or through any other mechanically quite feasible channels one could dream up. Rather, features are always spread from noun-subject to predicates, from head-noun to its modifiers, and(if the Bantu 'infix object'anaphoric pronoun can be legitimately cited) from object nominals to verbs. The generalisation is obvious: Agreement features may be spread along the dimensions of Universal Grammatical Relations.

(3) The function of agreement?

If the generalisation just made above is at all valid, then a natural explanation to the universal function of agreement rules may have emerged: Concordial agreement is one of the possible Transformational mechanisms employed in human languages to signal on the (transformed, truncated, 'pruned') surface of the utterance the deep grammatical relations holding in the meaning-supportive Deep Structure.

Another function of agreement is reflected in its wide-spread preservation in pronouns, even in languages which lost or had no agreement of other grammatical categories: Concordial agreement is one of the most effective mechanisms used in human language to signal, on the (deleted, reduced) surface of the utterance, the referential identity of anaphoric pronouns.

(4) The balance of first and second lexicon

Even accepting Gruber's contention that on purely semantic grounds there is no principles separation between Base Rules and Lexical Semantic Structure, one would still like to know what is the possible significance of the separation between first and second lexicon. It seems that pre- vs. post-transformational 'spelling' is still enormously significant for defining the ways in which languages may diverge from each other. Thus while the semantic base is presumably highly universal, on the morphemic level, where abstract features are 'chunked together' and given phonological expression, much lower universality is found. Thus the balance between semantic categories receiving their spelling pre- or post-transformationally, is of great typological interest. While it

seems to be universally true that verb and noun stems, the two large lexical classes, receive their spelling pre-transformationally, the kinds of semantic categories/features spelled in the second lexicon may vary enormously from language to language. Further, within the same language, many diachronic changes can be characterized through the shift from lexical to second-lexical status, or vice versa. While original lexical verbs may shift to 'auxiliary' or 'modal' capacity, and eventually will stop receiving their spelling in the first lexicon (as seems to have happened in ChiBemba), other, previously 'syntactic' constructions such as the 'genitive', which originally may have required post-transformational spelling, may have become 'frozen', as seems to be the case of complex-locatives in ChiBemba, so that eventually there is no reason for deferring their 'spelling' until the second lexicon.

3. THE STRUCTURE OF VERBALS AND THE CLASSIFICATION OF VERBS

3.0. PRELIMINARIES

The structure of copular predicates was dealt with, though with some omissions, in Part 1.. In this part we shall discuss mostly the implications of our Rule 11.(Table 4.), which expands the category VERBAL. Rule 12.(ibid), expanding the category ADVERBIAL, is also relevant but will be largely ignored here. This is not to imply that it is not extremely valid for further classification of the rough 'syntactic' verb types described below. At this juncture, the two rules stand as:

11. VERBAL $\rightarrow$ V($\left\{\begin{matrix}S\\NOM\end{matrix}\right\}$) (NOMINAL) (ADVERBIAL)

12. ADVERBIAL $\rightarrow$ (MANNER, BENEF., INTENS., ACCOMP.,INSTR.,ORD.,...)

It is an open question whether a distinction between nominal objects and adverbials following the verb has much validity. Fillmore(1968) in fact has ignored it altogether, so that in his format 'cases' that follow the verb may be 'direct object', 'prepositional object'(dative, locative) or 'instrumental'. Omitting adverbs from consideration below is due mostly to lack of sufficient data.

Another subject to be for the moment ignored, is that concerned with the status of derivational rules, among which verb-to-verb rules are of particular interest here. If, as Gruber(1967a) has argued, these rules can be shown to be 'lexical' rather than 'grammatical' T-rules (that is, T-rules which apply at the point of lexical attachment, then

the 'syntactic' typology arising from our Rule 11.(Table 4.) must be revised. We shall return to this subject at the end of this part.

Allowing the rule to stand for the moment as it is, ignoring Adverbials, and allowing that one (but not both) of the nominals following the verb may be a PREP-nominal, we arrive at the following syntactic classification of ChiBemba verbs:

(1) V

(2) V-PREP-NOM

(3) V-NOM

(4) V-S

(5) V-NOM-PREP-NOM

(6) V-S-PREP-NOM

In the following sections these verb types will be described, some dimensions along which further syntactic/semantic sub-classification can proceed will be suggested, and possible ground for various revisions in rule 11. as well as the Base Rules will be offered.

3.0.1. The problem of transitivity

Before proceeding to discuss class V of 'intransitive' verbs which require no object complement), one must tacle 'optionally transitive' or 'pseudo-intransitive' verbs. These are verbs which on the surface may or may not appear with an object complement. The verbs involved are in many cases the same in ChiBemba and English:

a-lee-lya umukate 'he is eating bread'

a-lee-lya 'he is eating'

a-lee-nwa ameenshi 'he is drinking water'

a-lee-nwa 'he's drinking'

a-lee-leemba inkalata 'he's writing a letter'

a-lee-leemba 'he's writing'

This seeming disappearance of the object complement is not limited to V-NOM verbs. Thus:

a-lee-isa ku-mushi 'he's coming to the village'

a-lee-isa 'he's coming'

a-lee-fuunda abaana uku-leemba 'he's teaching children to write'

a-lee-fuunda abaana 'he's teaching children'

*a-lee-fuunda ukuleemba '*he's teaching to write'

a-lee-fuunda 'he's teaching'

a-lee-shita icitabo ku-muana 'he's buying a book from the child'

a-lee-shita ifitabo 'he's buying books'

*a-lee-shita ku-muana '*he's buying from the child'

*'he's buying' *a-lee-shita

(The starred(*) forms are important, but their discussion will be for the moment deferred.)

There are several possible ways of approaching this problem systematically:

(a) Optional object complement:

Adopting this solution, one would claim that the verbs above have the following conditions for lexical insertion:

'eat' [-----(NOM)]

'come' [-----(PREP-NOM)]

'teach' [-----((S) NOMINAL)]

'buy' [-----NOM(PREP-NOM)]

This solution, however, while neatly accounting for the syntactic facts, fails to support the semantic interpretation. Thus, for example,'he is eating' is not really interpreted as objectless, but rather as 'he is eating an unspecified substance'. Similarly, 'he is teaching today' incorporates in its meaning the fact that he is 'teaching something to someone'. If this solution is pursued to its limit, one could claim that (b) below is entailed by (a):

(a) he is eating = he is eating something

(b) he is eating bread =*he is eating something bread

(b) An optional deletion T-rule:

Under this solution, one assumes that the condition for lexical insertion for verbs such as 'eat', 'drink', 'write', 'read' is:

[-----NOM]

so that in the deep structure an object is present. This would explain the interpretation. But further, an optional T-rule of deletion may apply:

V-NOM ⟹ V

A major problem arising from this solution is that the class of verbs to which the presumed T-rule may apply is extremely difficult to define. In both English and ChiBemba it applies to 'read', 'write', 'eat', 'drink', but not to 'kill', 'love', 'break', 'see'. Further, while 'teach can yield three possible deletions: 'he is teaching', 'he is teaching music', 'he is teaching(to)children', 'show' may yield 'he is showing his collection' but seemingly not '*he is showing' or '*he is showing to out-of-town visitors'. Note, further, that many times it seems that the application of this deletion rule may depend on extra-linguistic,

'cultural' considerations. Thus, if the context for 'show' is: 'he is showing the town tonight to his visiting relatives', 'neither '*he is showing', nor '*he's showing the town' nor'*he is showing to visiting relatives(tonight)' are acceptable. However, in the context of: 'the house of Dior is showing their winter collection tonight to top buyers', a well defined professional/habitual activity, it seems that: 'they are showing', 'they are showing their winter collection' and 'they are showing to out-of-town buyers tonight' are all acceptable. This seeming 'culture bound' nature of lexical as distinct from grammatical T-rules has been noted in Givon(1967).

Finally, both Gruber(1967a) and Givon(1967) have noted that even if the class to which 'lexical transformations' may apply can be defined, the definition may many times hing upon 'low level', 'purely semantic' features, in contrast with 'grammatical' transformations which seem to mention only higher, 'syntactic' nodes. Within his framework of grammatical analysis, Gruber remarks that:"...It may be just because the lexical attachment process involves certain structural changes in the base tree that most of all affect the categories lower down in the tree(commonly thought of as semantic), that transformations that apply after lexical attachment(i.e., 'grammatical' transformations;T.G.), refer only to the categories higher up in the tree (commonly thought of as syntactic)..."(1967a, p.58).

(c) Incorporation during lexical attachment:

While branding a solution of this type as 'lexical', one must note as Gruber(1967a) has, that 'structural changes' occurring during the process of lexical attachment -- or 'lexical T-rules' -- are en-

dowed with transformation powers. Gruber points out(ibid) that 'incorporation' may involve not only verb-object structures, but various others as well. He further observes that a general convention seems to hold for all cases of incorporation, by which:"...words are freely generalizable in the direction of the more deeply embedded category, but not in the other direction... A category may be freely incorporated into a word without being specifically mentioned in the environment of that word, if the category is dominated by a category specifically mentioned..."(ibid, p.98). This convention would predict, given the environments for lexical attacment mentioned below, that:

(a) 'come' [---PREP-NOM]

'he came' but not: '*he to the house'

(b) 'eat': [----NOM]

'he ate' but not: '*he the food'

(c) 'jump' [----PREP-NOM]

'he jumped the fence' but not: '*he over the fence'

(d) 'stop' [---PREP-NOM]

'he stopped by' but not: '*he stopped the house'

In each one of these cases, the category that is incorporated (or 'deleted from the surface') is incorporated into the one left of it and thus less deeply embedded; further, the category mentioned in the conditions for insertion dominates the one that is incorporated. This condition of 'sisterhood' which seems to govern incorporation, is also manifested in the condition of Chomsky-adjunction, which Gruber claims holds during the structural changes occuring at lexical attachment(ibid, p.130).

Accepting a solution along the 'Gruberian' model of incorporation' may of course depend, in part, on accepting several other conditions which he has shown to hold during the process of lexical attachment, such as multi-categorial attachment and disjunctive ordering (see ibid). The fact that the solution both accounts for the semantic interpretation, and also does so through invoking extremely general principles that seem to be independently attested in a variety of different cases of lexical attachment, seems to weigh strongly in its favor.

3.0.2. Cognate objects

This problem, again common to both English and IchiBemba and covering a surprisingly overlapping group of verbs, also muddles up slightly our already not-so-neat syntactic criteria for 'transitivity'. Some of the verbs involved may perhaps be, in some 'deep' sense, 'inherently transitive', as:

aali-imba(ulu-imbo) 'he sang(a song)'

aa-loota(ici-looto) 'he dreamed(a dream)'

aa-lila(ici-lilo) 'he cried(uttered a cry)'

aa-seka(ulu-seko) 'he laughed(uttered a laugh)'

aa-peema(umu-peemo) 'he breathed(drew a breath)'

The cognate object may not be derivationally related to the verb, though this may be due to suppletion:

aa-shyaana(ici-ila) 'he danced(a dance)'

For all these verbs, especially 'verbs of utterance' or 'verbs of expression' which may show systematically related senses in the verb classes V-NOM or V-S, one could perhaps argue that they are 'basically' V-NOM

types, but the object 'usually' gets incorporated, as in 'eat' or 'write', above. The problem is more difficult with:

aa-enda(ulu-endo) 'he walked(took a walk)'
'he did some work'/'he worked'
'he made the turn'/'he turned'
'he had some sleep'/'he slept'

As well as with transitives which can 'increase their transitivity' in this fashion:

'he slapped the man'/ 'he gave him a slap'
'he pulled the rope'/'he gave it a pull'
'he pushed the car'/'he gave it a push'

For all these, an 'inherent object' does not seem to be the answer. At this point we shall simply note that the problem does exist. Later on, at the end of the addendum to this part (3.8.), we shall suggest a rather radical solution to the problem of cognate objects.

3.1. VERB TYPE [V]

These intransitive verbs which require no object complement, may be further divided into active and stative ones. This division also appears within several other verb groups. There are several tests by which stative verbs can be separated from the active.

(a) The tensing test: This involves, most readily, the present continuous tense -LÉÉ-, and is somewhat reminiscent of a similar test in English, although the class of stative verbs in both languages does not necessarily cover the same verbs, so that:

n-dee-ishiba... 'I know...'/'*I am knowing...'

n-dee-mona... 'I see...'/'*I am seeing...'

Stative intransitives in ChiBemba cover most often the adjectival sense of English:

*n-dee-shipa... '*I am being brave...'(an 'acting' sense is OK)

*n-dee-buuta... *'I am being white...'

*n-dee-fina... *'I am being heavy...'

n-dee-shyuuka..'I am being lucky...'

All of which contrast with active intransitive, as in:

n-dee-boomba 'I am working'

n-dee-enda 'I am walking'

n-dee-ciinda 'I am dancing'

etc.

The verb 'be' uku-ba is by this test also(rather expectedly) a stative verb: *n-dee-ba umu-suma '*I am being good' (an 'acting' sense is acceptable).

(b) The 'do so' iteration test: This test divides verbs iterated by uku-ba 'be' from those iterated by uku-cita 'do'. Again, it closely parallels a similar test in English:

J. aa-boombele, na M. nao efyo aa-citile

'J. worked, and M. did so too'

*J. aa-shipile, na M. nao efyo aa-citile

*'J. was brave, and M. did so too'

J. aa-shipile, na M. nao efyo aa-beele

'J. was brave, and M. was the same way too'

(The defective verb -li 'be' can also be used to iterate stative verbs, in some tenses).

The iteration test raises several problems in ChiBemba. First, some verbs seem to be 'partially stative', so that in some tenses their meaning is 'be---', in others 'become---'. Thus:

insalu i-lee-uma 'the cloth is drying-up'

'*the cloth is being dry'

However, in past tense it is iterated by 'be':

insalu yaali-umine, na impapa nayo efyo yaa-li/*yaa-citile

'the cloth was dry/dried up, and the hide was too/*did so too'

As against in the present continuous tense:

insalu ilee-uma, na impapa nayo efyo ilee-cita/*i-li

'the cloth is drying up, and the hide is doing the same/*is the same'

And in future:

insalu ika-uma, na impapa nayo efyo ika-cita/*ika-ba

'the cloth will dry up, and the hide will do so too/*be so too'

A different case involves the verb uku-fwa 'die/be dead'. It becomes an active (i.e., 'do') verb only in future tenses:

J. aali-fwa, na M. nao efyo aa-li/*aa-cita

'J. is dead, and M. is too/*did so too'

*J. a-lee-fwa '*J. is being dead'

As against:

J. aka-fwa, na M. nao efyo aka-cita/*aka-ba

'J. will die, and M. will do so too/*will be too'

Taking into account both tests, one may set up several 'grades' of stativity:

(a) Fully stative verbs: are iterated in all tenses by 'be'; never take the -lee- tense;

(b) 'Terminative' verbs: are iterated in all tenses (which they can take) by 'do', but cannot take the -lee- tense; (This applies to a group of 'modal' verbs, discussed in section 3.4.2.4.);

(c) 'Be-become' verbs: These verbs 'mean' 'be---' in some tenses, and are there iterated with 'be', or 'do' in other tenses and are there iterated by 'do'. If at non-future tenses they mean 'be', then naturally they cannot take the -lee- tense;

(d) Fully active verbs: are iterated in all tenses by 'do' and can take the -lee- tense;

3.2. VERB TYPE V-PREP-NOM

Verbs of this type require one object complement which, in addition, must appear in a 'prepositional case'. They are further sub-divided according to the prepositions selected: gender bearing (PA,KU,MU) or non-gender bearing (NA). And among the former, also to concrete ('locative') or abstract (noun-locative). Since we have earlier indicated that prepositions are 'lexical' in ChiBemba (i.e., they receive their 'spelling' in the first lexicon), the feature system which we shall be dealing with below is technically, (for those who insist on a strict cutting line between 'lexicon' and "Base Rules" semantics), a lexical system.

As our Base Rules were given above (Table 1., Table 4.), we have

rather arbitrarily terminated the expansion of PREP with the rule:

3. NOMINAL -> (PREP) NOM

The separation of NA from PA,KU,MU is supported by many criteria. We have already noted that the latter are gendered and involve concordial agreement, while NA is genderless. There are also strong distributional differences between PA,KU,MU on one hand (both concrete and abstract) and NA on the other:

Object position: All types may appear;

Subject position: NA-nominals can never appear; LOC-nominals can, as in:

MU-mushi MUU-suma 'in the village (it) is good'

Abstract PREP-nominals may too, but under some provisions:

(a) KU-muana uko naamoneeshye icitabo ku-ali ni uyu

lit.: 'to-the-child to-whom I showed the book was this one'

Thus the 'dative/abstract-prep.' subject of this kind must either be followed by a Rel. clause, or be the subject of a derived passive or stative, as in:

(b) KU-nuana kuali-monehyeewe icitabo na J.

lit.: 'to-the-child was shown a book by J.'

(c) KU-muana ku ali-moneshyeeke icitabo

lit.: 'to-the-child was shown a book

All three examples have 'more natural' variants, in which the PREP becomes suffixed upon the verb itself; as, respectively:

(a') umuana uo naamoneeshyee-ko icitabo aali ni-uyu

'the child I showed-to the book was this one'

(b') umuana aali-moneshyeewee-ko icitabo na J.

'the child was shown-to the book by J.'

(c') umuana aali-moneshyeeke-ko icitabo

'the child was shown-to a book'

In short, 'abstract-PREP' nominals may appear in subject position, but governed by severe restrictions.

Predicate position: Na-nominals appear post-copularly, giving rise to 'have' expressions ('be with') as in:

umuanaali NA-icitabo 'the child has('is with') a book'

LOC-nominals appear readily in this position, as in:

icitabo cili PA-mushili 'the book is on the floor'

Abstract-PREP-nominals again present a problem. They may appear in predicate position only in what may be construed as complex Transforms, such as Wh-questions, and then too with some Rel. clauses involved:

ni-KU-li-aani J. aa-moneeshye icitabo?

lit.:'it's to whom that J. showed the book?'

uko J. aa-moneeshye icitabo ni KU-li M.

lit.:'to-whom J. showed the book is to M.'

uo J. aa-moneeshyee-ko icitabo ni M.

lit.: 'whom J. showed-to the book is M.'

For the moment we can sum up what we know about prepositions by proposing the following 'lexical' feature rule:

$$[+\text{PREP}] \rightarrow \left\{ \begin{array}{l} [+\text{with}] \\ ([+\text{loc.}]) \end{array} \right\}$$

We shall further assume that the feature complex [+PREP, +with] will be always 'spelled by' or 'coupled to' the phonological sequence NA. The further analysis of both the semantics as 'spelling' of PA,KU and MU will be found in the sections below.

3.2.1. VERB TYPE V-LOC-NOM

Verbs in this subgroup are all characterized by the contextual feature ('condition for lexical attachment'):

$$[\text{---} \ \underset{[+\text{loc.}]}{\text{PREP-NOM}}]$$

As to the selection of prepositions, the following preliminary subgrouping is observed:

a. Unrestricted (PA,KU,MU)

-ba/-li 'be' -sela 'move,shift' -shyaala 'remain'

-ikala 'sit,stay,live'-liinda 'spend the night'-pita 'pass'

-shyeela 'slide on buttocks' -fyaama 'be squeezed'(stative)

b. Directional to/from(KU)

-fika 'have arrived'(stative)(to) -fuma 'come'(from)

-isa 'come'(to) -ya 'go'(to) -ika 'descend'(from)

-ciluka 'leap'(from) -koonga 'bump'(into) -ciinguka 'be removed'(from) (stative)

c. Inside, state(MU)

-pata 'be stuck'(stative) -buunda 'be sunk'(stative)

d. Inside-directional(MU)

-boobela 'sink,dive'(into) -ingila 'come, enter'(into)

-nweena 'drown'(into) -ibila 'dive'(into) -ibuka 'emerge'(from-in)

-shika 'be sunk'(into) (stative)

e. Directional, optional-inside(KU,MU)

-tula 'burst, come out' (from, from-inside)

f. Optionally-direction/optional-inside(PA,KU)/(PA,MU)

-niina 'climb to'(KU) 'climb on'(PA)

-saama 'hang from'(KU) (stative) 'hang on/at'(PA)

-seela 'swing from'(KU) 'swing on/at'(PA)

-teema 'swing from'(KU) 'swing on/at'(PA)

-pona 'have fallen from'(KU)(stative) 'have fallen on/at'(PA)

-pula 'pass through'(MU) 'pass at'(PA)

The more suitable environment in which to assess only the semantic makeup of PA,KU,MU themselves, is that in which all three contrast freely, i.e., following verbs of a. above:

ali MU-mushi 'he is inside the village'

ali KU-mushi 'he is there-at the village'

ali PA-mushi 'he is at the village'

or: MU-mushi muusuma 'inside the village it is good'

KU-mushi kuusuma 'there-at the village it is good'

PA-mushi paasuma 'at the village it is good'

If all three LOC-prepositions share the feature [+10a.], then it seems that KU also has the added feature [+direction] and MU [+inside]. This brands PA 'at,on' as the less marked preposition, which is borne out by the fact that there is no verb that selects only PA, but it may be selected in addition to KU, MU or both. On the surface it also appears that MU 'spells' ambiguously either [+inside], or [+inside, +direction]. However, this turns out to be explained by the disjunctive ordering involved, see below. Further, the features [+motion] or [+to/from] seem to be inherent in the verbs themselves, rather than in PREP:

aali-isa KU-mushi 'he came to the village'

aali-fuma KU-mushi 'he came from the village'

This is further supported by the fact that inherently non-directional verbs of motion, as -enda 'walk', require special verbal specification (optionally) if the to/from dimension is to be clarified:

aa-endele KU-mushi 'he walked there-at the village'

aa-endele uku-isa KU-mushi 'he walked(coming)to the village'

aa-endele uku-fuma KU-mushi 'he walked (coming)from the village'

The fuller specification of the semantic features of PREP can be now given as:

$$[+\text{PREP}] \rightarrow \left\{ \begin{matrix} [+\text{with}] \\ ([+\text{loc.}]) \end{matrix} \right\}$$

$$[+\text{loc.}] \rightarrow \left[\begin{matrix} [+\text{dir.}] \\ [+\text{inside}] \end{matrix} \right\}$$

As we shall see later on, abstract PA,KU,MU will eventually force a slight reanalysis of these rules. Ignoring them for the moment, we can posite the following PREP 'spelling' rule (of the lexicon), in which the sub-rules are disjunctively ordered:

a. [+with] -> NA

b. [+inside] -> MU

c. [+dir.] -> KU

d. [+loc.] -> PA

Given the feature structure of PA,KU and MU, above, we can now give the contextual features for our sub-groups a. to f. as:

(a) $[\text{---} \underset{[+\text{loc}]}{\text{PREP}} \text{ NOM}]$

Verbs of this group will select any [+loc.] preposition. It further seems that the insertion condition requires non-distinctness rather than full feature identity.

(b) [--- PREP NOM]
[+dir]

(c)(d) [--- PREP NOM]
[+ins.]

Since [to/from] is inherent in the verb itself, (c) and (d) are identical with regard to PREP selection, although the verbs themselves in (d) are directional to/from, while those in (c) are not.

(e) [--- PREP NOM]
{[+dir.] / [+ins.]}

The verbs themselves (we have only one representative, so that it is hard to generalise) are inherently motion to/from verbs, with the variant into/out-of explained by their contextual, rather than inherent features.

(f) [--- PREP NOM]
[[+loc.] ([+dir.])]

[--- PREP NOM]
[[+loc.] ([+ins.])]

There are two sub-groups here, pending upon whether the additional optional feature is [+dir.](selecting then PA,KU) or [+inside] (selecting then PA,MU).

In summing up this portion, one may note that our 'contextual features' (or 'conditions for lexical attachment') can be also viewed as Fillmore's(1968) 'case' environments, with the 'subject' case omitted, (and all adverbial cases disregarded).

3.2.1.1. Locative objects vs. locative adverbs

Locative nominals may arise from the expansion of VERBAL (rule 11., table 4.) or of PRED (rule 15., ibid), but in addition also from the node sentence adverbial (rule 17., ibid). This raises a potential difficulty in the syntactic typology of verbs followed by locative complements. Thus note 'live', of our group (a) above:

(1) aali-ikeele MU-mushi 'he lived in a village'

(2) aali-ikeele MU-mushi MU-mushitu

'he lived in a village in the forest'

It seems that (2) above is ambiguous with respect to the source of the second locative:

(2a) Rel.modifier of the first:

aali-ikeele MU-mushi ɸu-ali MU-mushitu

'he lived in a village that was in the forest'

(2b) Sentence adverb:

MU-mushitu aa-ikeele MU-mushi

'(while) in the forest, he lived in a village'

Only the sentence-adverb sense can be pre-posed. The Rel. modifier is restricted from doing it by rules barring 'level raising'.

Verbs such as 'walk' or 'swim' are more vexing, since they do not require a locative, but can optionally take one -- and in that case one would like to know whether the locative arises from rule 11.(VERBAL) or rules 1./17.(sentence adverb):

aali-endele KU-mushi 'he walked there-at the village'

aali--owele MU-mumana 'he swam in the river'

At the moment, for lack of data, this problem will remain unresolved. Ultimately one could probably find syntactic tests based on specificity of transformations, by which the issue can be resolved. Many such tests discriminating between the two constructions in English are given by Hall(1965).

3.2.2. VERB TYPE V-PREP-NOM

At the moment I have insufficient data to support a complete semantic analysis of 'abstract' or non-locative PA,KU,MU. Some of the verbs appearing in this sub-group are:

-kuma 'be member of'(KU)(stative) -kuuwa 'get used to'(KU,NA)(stative)

-ciimba 'surrender to'(KU) -sena 'yield to'(KU)

-teshya 'listen to'(KU) -kutika 'listen to'(KU)

-laanda 'talk to'(KU) -cebuka 'be alert to'(KU)(stative)

-bila 'ingratiate oneself toward'(KU,NA)(stative)

In addition, some verbs of other groups may belong to this group too:

-toontoonkanya 'think about'(PA) -shiniinkishya 'be sure of'(PA)

-twiishika 'doubt about'(PA)

There are obviously some points at which the semantic structure of locative and abstract PA,KU,MU must converge. Directionality seems to be expressed by the abstract KU as well as the locative. Inside seems to also have 'more abstract' senses, as in:

MU-ciBeemba mu-soose ukuti... 'in ChiBemba you should say that...'

aa-lubile MU-kuboomba 'he failed in(his) work'

MU-muaka ɸua-pita... 'in the past year...'

The verbs -kuuwa 'get used to' and -bila 'ingratiate oneself to'

may be viewed as belonging, optionally, to either this class or to the one described below (3.2.3.). The connection may be systematic, and may have to do with potential reciprocality.

If the convention of non-distinctness (rather than full identity) holds, then obviously a contextual restriction such as:

$$[\text{---} \underset{[+\text{prep}]}{\text{PREP}} \text{ NOM}]$$

is totally inappropriate for this class of verbs, since it would admit all possible PREP's. Since we have seen that 'abstract' prepositions may in fact have features such as [dir.] or [ins.], it seems that we must alter our previously suggested rules to account for this possibility, since in those rules abstract prepositions were left to be the unmarked ones. Further, we have left no marked feature to correspond to [gendered] prepositions, but let the absence of [+with] to characterize gender-bearing PA,KU,MU as a group. This is clearly in error, since if gender ([+PA], [+KU], [+MU]) is a marked feature, it cannot branch off from the absence of a (or from an unmarked) feature. The rules will be therefore re-formulated, to read:

$$[+\text{PREP}] \rightarrow \left\{\begin{matrix}[+\text{with}] \\ [+\text{p}]\end{matrix}\right\}$$

$$[+\text{p}] \rightarrow ([+\text{loc}]) \left\{\begin{matrix}[+\text{dir.}] \\ [+\text{ins.}]\end{matrix}\right\}$$

At the moment it is not clear whether more prepositional features may be needed to characterize abstract prepositions. It may very well be that the needed features are inherent in the particular verbs themselves, much like [motion, to/from] are. The spelling rule associated with the prepositions needs to be changed too. Note that the 'spelling' rules

below are abbreviated, and thus ambiguous with respect to PA,KU, or MU, each of which stand for both an inherent gender feature, and also for the spelling of that feature:

a. [+with] : NA

[+dir.] : KU

[+ins.] : MU

b. [+p] : PA

Sub-rule b. is disjunctively ordered with respect to a.. For the characterization of the verb type taking 'abstract' prepositions, we must resort to a$[-F_i]$ specification, such as:

$$[\text{---} \underset{[-\text{loc.}]}{\text{PREP}} \text{ NOM}]$$

3.2.3. VERB TYPE V-NA-NOM

Most of the verbs in this sub-class are overtly derived with the reciprocal suffic -ana, but even those not overtly marked by it are reciprocal verbs. If we assume that verb-to-verb derivation rules are lexical, then positioning this as a sub-class, at least for the moment, is appropriate.

Overtly derived or not, verbs in this class show the following variation between conjoined (or plural) subject and comitative object (the term 'comitative' for this prepositional case is used after Fillmore (1968):

J. na M. baali-lwa 'J. and M. fought (each other)'

J. aali-lwa na M. 'J. fought with M.'

The deep-structure relation between the two structures has been noted by Fillmore(1968) and Lakoff and Peters(1966). The later argue that the

conjoined structure is the more basic, and the 'comitative' case derived from it Transformationally. This relation seems at least plausible in ChiBemba, where both 'with' and 'and' have the surface form 'NA'. It may very well be then, that the contextual feature for verbs of this sub-group is $[\underset{[+pl.]}{\text{NOM}} \text{ -------}]$ rather than $[\text{---} \underset{[+with]}{\text{PREP-NOM}}]$

The preposition NA is not limited to the 'comitative' case, however, but also characterizes the 'instrumental', 'accompaniment' or 'passive' cases, as in:

J. aa-boombele na R. 'J. worked with R.'(ACCOMP.)

J. aa-ipeeye R. na-umuele 'J. killed R. with a knife'(INSTR.)

J. aa-ipaayiwa na R. 'J. was killed by R.'(PASS.)

It could be argued that ACCOMP. is also a 'comitative' case, so that:

J. na R. baa-boombana 'J. and R. worked together'

J. aa-boombana na R. 'J. worked-together with R.'

The deep source of the instrumental NA will be discussed later on. The 'agentive' NA is appropriate as a separate case if one considers the passive to be a lexical rule, i.e., to apply during lexical attachment.

3.2.4. Stative Prepositional verbs

In the lists of classes (3.2.1.) and (3.2.2.) above, some of the verbs were marked as stative. All of them cannot take the present continuous tense -LEE-. However, while stative verbs of group(3.2.1.) are all iterated with 'do', as:

J. aa-fikile, na M. nao efyo aa-citile

'J. arrived, and M. did so too'

those of group (3.2.2.) are all iterated by 'be', as:

J. aa-kuma KU-ba-Beemba, na M. nao efyo aa-ba

'J. is a member of the Bemba, and so is M.'

For the moment sufficient data are available to decide whether the correlation between the LOC/non-LOC contrast and the DO/BE contrast here is more than sporadic.

3.2.5. The PREP/non-PREP variation

This phenomenon is limited to verbs of group (3.2.1.)(V-LOC-NOM). They have been defined above as requiring a locative object. However, some of them show the following variation:

aa-fikile KU-mushi 'he arrived at the village'

aa-fikile umushi 'he arrived at the general area of the village'

One could claim that a transformational deletion is involved. However, this is incompatible with the seemingly consistent difference in meaning involved.

Alternatively, one may argue that these verbs have only an optional PREP in their contextual features: $[\text{-----}\frac{(\text{PREP})}{[+\text{loc}]}\ \text{NOM}]$

An alternative again is to assume the incorporation of the preposition, as we have earlier suggested for English:

he jumped over the fence = he jumped the fence

he swam across the river = he swam the river

he raced with his friend = he raced his friend

This again seems an inappropriate analysis for the IchiBemba variation, since in contrast with English, where it is clear from the interpretation

that a specific PREP is involved in the Deep Structure, in ChiBemba there seems to be a meaning contrast between the presence and absence of the preposition. And the fact that the verbs preserve features such as [motion,to/from] arises from those features being inherent in the verb. Some PREP-specificity seems to be preserved even in ChiBemba;

aa-boobela umu-mana = 'he dived into the general area of the river'

≠ 'he dived out of/inside/toward/from...'

aali-fika umushi = 'he came to the general area of the village'

≠ 'he came from/into/toward...'

The discussion will not be here continued, for lack of conclusive data. Adding to the confusion is a variation observed in V-NOM verbs:

aa-mona umu-ana 'he saw the child'

aa-mona KU-muana 'he saw towards(the direction of)the child'

In contrast to the other variation, above, here the 'exact' location sense is expressed by the PREP-less variant, and the 'general area' by the PREP variant. However, the problem may be due to faulty translation and may be resolved differently when more data are obtained.

3.3. VERB TYPE V-NOM

The contextual feature for this very large group of verbs is:

[----NOM]

and the difficulty involved with possible emergence of prepositions has already been noted above. Some sub-classification of these verbs will be discussed in section(3.8.)later on, in conjunction with the causative rule.

Several verbs of this group reject the -LEE- present continuous tense. Of those, the following are nevertheless iterated with 'do' in all tenses:

-fyaala 'sire, be father of' -suula 'be ignorant of'

-tiinga 'be covered with' -tuuka 'be full of(food)'

-palama 'be close to'

Only the verb -isula 'be close to' is iterated by 'be' in all tenses.

The verb -fyaala is ambiguous, meaning either 'sire'(stative) or 'give birth to'(active):

aa-fyaala umuana (a) 'he sired a child'

(b) 'she bore a child'

a-lee-fyaala umuana (a)'*he's siring a child'

(b) 'she is giving birth to a child'

3.4. VERB TYPE V-S

As we shall see later on, there are grounds for revising our rule 11.(table 4.) with respect to the source of sentential objects. For the moment, however, we shall describe this verb type as having the contextual restriction:

[----- S]

The group is further subdivided into two sub-types labeled here 'quote' and 'modal' verbs.

3.4.1. 'Quote' verbs

These verbs are roughly akin to English verbs taking a 'that-S'

complements. The subordinating element in ChiBemba is the 'defective' verb uku-ti 'say'. Some of the verbs in this group are (many of them may belong to other groups too):

-toontoonkanya 'think'	-shiniinkishya 'be sure'
-twiishika 'doubt'	-suubila 'hope'
-tiina 'fear'	-ibukishya 'remember'
-laba 'forget'	-ti(ila) 'say'(defective)
-sobela 'predict'	-ishiba 'know'
-sumina 'agree'	-piingula 'opine'
-ibuka 'realise'	-eshya 'guess'
-tesekeshya 'notice'	-umfwa 'hear,feel,understand'
-mona 'see, realise'	-komaila 'insist'
-loota 'dream'	-piinga 'bet(to oneself)'
-soosa 'say'	-tuunganya 'suspect'

A device also seems to exist by which the contrast between direct and indirect quote can be made. The infinitive (unconcorded, un-tensed) form uku-ti is used as a subordinator for indirect, while a concorded, tenses (unreduced) form of -ti is used for direct quote. Tense agreement between the main and comp. verb is not required in either case:

J. aa-ebele ukti n-KA-isa 'J. said that I will (*would) come'

J. aa-ebele aa-ti n-KA-isa 'J. said: 'I will come''

J.aa-ebele ukuti a-LEE-isa 'J. said that he(J. or other) is coming'

J. aa-ebele aa-ti a-LEE-isa "J. said:'He is coming''

The subordinator ukuti, although a verb, is defective in several respects. In many of its 'auxiliary' functions it cannot anymore be analyzed as a 'lexical verb'. In this particular environment, however, it

could perhaps be still interpreted as a verb. In some sense, 'say' explains the 'quote' meaning of these verbs, although taken literally it is clearly inappropriate for verbs such as 'think', 'fear', 'forget', 'know' and others. There seem to be some differences in syntactic behaviour between the infinitival ukuti and the unreduced -ti. Thus:

naali-umfwa ukuti akeesa 'I heard that he'll come'

naali-umfwa ukuti ni-ulya u¢u-keesa 'I heard that it's he who'll come'

naali-umfwa ukuti ni-ulya EE-¢u-keesa 'I heard that it's he who'll indeed come'

In contrast:

naali-umfwa naati akeesa 'I heard (I)saying: 'he'll come'

*naali-umfwa naati ni-ulya u¢u-keesa

*naali-umfwa naati ni-ulya EE-¢u-keesa

In some sense, it seems, the 'neutral' (infinitive) form of ukuti has already undergone a considerable amount of syntactic re-evaluation or reanalysis.

Many verbs in this group may take either nominal or sentential complements, and this is perhaps not accidental. There seems to be some 'gradation' in the degree of nominalness in the complements of 'quote' verbs:

(a) v-nom: aali-laba uluimbo 'he forgot the song'

(b) v-nom#s#: aali-laba icyo aacitile 'he forgot what he did'

(c) v-inf.: aali-laba uku-imba (1) 'He forgot(how)to sing'

(2) 'He forgot to sing(then)'

(d) aali-laba ukuti M. aaishile 'he forgot that M. came'

Thus, without at this point going into an analysis of nominalisations, one must account for the seemingly systematic inclusion of 'quote' verbs in two other verb classes: V-NOM and 'modal' verbs. This seems to hold for English too:

I know the man/I know that...../I know how to do...

I fear the man/I fear that.../I am afraid to do...

I remember the man/I remember that.../I remember to do...

I remember how to do...

Interpreting this variation as polysemy and assigning to each of these verbs three different 'senses' seems inappropriate. In this work the approach suggested by Rosenbaum(1967) will be followed, to the extent that S-complements will be analyzed as one option of Nominal, that is, as nominalisations. There are several reasons for adopting this treatment. Note first that Predicates (or complements of the copula) can be sentential too:

ali MU-kuboomba 'he's still working'

As seen above, sentential complements can take Prepositions. They can also take Demonstratives:

aali-tena MŪli uku-kuboomba 'he failed in this work'

And they can also take Intensifiers:

aali-tena MU-kuboomba koonse 'he failed in all(his) work'

Finally, after we have seen that sentences may appear as objects and as predicates, note that they may also appear as subjects, as in:

ukuti J. aa-ishile kwaali-ishibiiwe na M.

'that J. came was known to M,'

(The class 15 concord on the verb is probably controlled by ukuti, which is at least formally an infinitive of -ti).

Sentences then can appear in all positions nouns can. As to from what node under NOMINAL to branch them, it must be as low a node as to allow for their taking PREP, DEM or I(ntensifier) affects. Which probbably means the node N itself. This will be done by changing the feature rule 8. to read:

8'. [+N] -> [[+gend.], ([+S]), ([+plur.]),...]

Further, it may very well be that the feature [+S] is identical to [+abstract], as it seems that all nominalisations, arising from reductions of sentences, are obligatorily [+abstract]. A solution of this kind probably requires an added provision to block the further concrete specification of [+S] nouns. This can be achieved by changing the rules to read:

8''. [+N] -> [[+gend.], ([+plur.]), $\left\{\begin{matrix}[+S] \\ [+concrete]\end{matrix}\right\}$]

[+concrete] -> ([+animate])

etc.

Ultimately, the solution also depends on the treatment accorded to nominalisations.

As to the contextual feature for 'quote' verbs, one could now formulate it as: $[\text{-----}\ \frac{\text{NOM}}{[+S]}]$

or, to accommodate verbs which may take either a concrete or normalised

object: [---- NOM]
([+S])

In addition, verbs of this group must also have a 'semantic' feature [+quote], to distinguish them from 'modal' verbs, described below.

Since S is now considered an option arising under the node NOM, our rules dealing with sentential complements can be simplified:

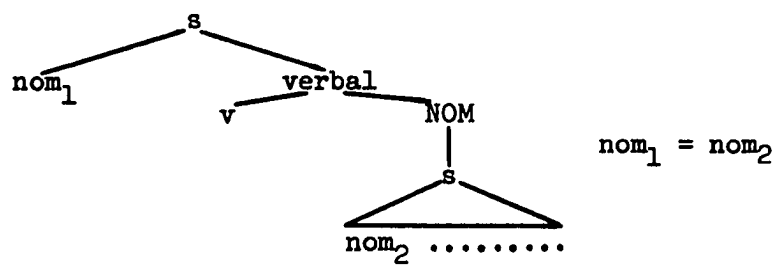
11'. VERBAL -> V (NOMINAL)(NOMINAL)(ADVERBIAL)

15'. PRED -> (NOMINAL, ADJ, NUM)

3.4.2. 'Modal' verbs

The verbs in this group share the contextual feature of (3.4.1.) above: [---- NOM]
[+S]

and to the extent that they appear systematically in other V-NOM sub-types, that contextual feature may be modified accordingly. The S-complement of 'modal' verbs appears in the 'reduced' infinitival form, with obligatory subject deletion. This is due to the condition of subject identity required by these verbs:



It is also likely that the identity of MODALITY is also required, and this would explain the fully reduced, infinitival form. Some verbs of this group are:

-sumina 'agree' -pekanishya 'get ready' -sala 'decide,choose'

-kaana 'avoid,reject' -fwaaya 'want' -fwaayishya 'insist'

-temwaa-po 'prefer' -eshya 'try' -konya 'pretend(to be)'

-kuumbwa 'desire' -saala 'admit failure' -shiima 'be reluctant'

-ibukishya 'remember' -laba 'forget' -ishiba 'know(how)'

-koonkanya 'continue' -umfwa 'understand(how)' -filwa 'fail'(stative)

-amba 'begin'(stative) -pwa 'finish,succeed (stative)

-taampa 'begin'(stative) -bala/-tala 'begin' (stative)

suka 'end'(stative) -bula 'fail' -bweekeshya 'repeat'

-paana 'be about to' -swa 'be perhaps about to'

The following verbs require a PREP-infinitival complement:

-tena 'fail, blunder in'(MU)(stative) -komaila 'insist on'(PA)

-luba'be mistaken/lost in'(MU) -supa 'insist on'(PA,KU,MU)

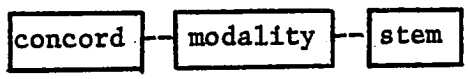
Of the verbs not requiring a PREP complement, the following take a non-reduced (concorded, tensed) form of the complement verb:

-bala/-tala 'begin', -suka 'end', -paana 'be about to', -swa 'be perhaps about to'.

The fairly consistent appearance of many verbs in this group in other sub-types has already been noted.

2.4.2.1. Modal verbs and Modality

The label 'modal' for this group was not chosen accidentally. The verbs of this type are of particular interest because they seem to be a major source for elements of 'modality', 'tense-aspects' or 'auxiliaries' in ChiBemba. These elements usually appear as morphemes sandwiched between the subject concord morpheme and the verb stem:



There are several pieces of evidence to suggest that modality morphemes in ChiBemba or Bantu arise often from 'modal' verbs.

(a) Semantic evidence:

A quick look at the list of verbs given above will reveal the presence of senses such as: 'begin', 'end', 'continue', 'repeat', 'succeed', 'fail', 'imminence', 'insistence', 'reject' (negation), 'prepare'. These are precisely the kinds of semantic entities which seem to appear in the modality system of ChiBemba and other languages.

(b) Specific identification:

Some modality morphemes in ChiBemba may be still traced to existing verbs. For example, the [continuous] morpheme -laa- or -lee- should really be described as -laaɬ-, -leeɬ- (that is, with a 'lost-consonant' boundary), since vowel fusion or vowel length rules do not operate across this segment. Now, the verb -laal- 'sleep' in ChiBemba also means 'keep on being/doing'. And the modified-base form (see Givon(1970)) of this verb is -leele, which explains the distribution of -leeɬ- rather than -laaɬ- in tenses which at least historically required a Modified Base form of the verb.

The verb -kaan- 'reject, refuse' is already used, in a morphologically variant form, as a substitute for the negative prefix ta-:

aali-keene uku-boomba 'he refused to work'

uku-kaana uku-boomba 'to refuse to work'

uku-kaanaa-boomba 'not to work'

aali-kaanaa-boobma 'he didn't work'

The verb -bula 'fail' is also used as a negative marker in hypothetical-conditionals:

a-ba-boomba... 'had they worked...'

a-ba-bulaa-boomba... 'had they not worked...'

(c) Some recent developments:

Fairly recently both uku-ya 'go' and uku-isa 'come' have joined the modality system in ChiBemba, adding to it two dimensions which cannot be simply predicated from the meanings of 'come' or 'go' as verbs:

a-ka-ya a-ka-boomba 'he'll go,(then) he'll work'

a-ka-yaa-boomba 'he'll work elsewhere'

a-ka-isa a-ka-boomba 'he'll come,(then) he'll work'

a-ka-isaa-boomba 'he'll work later on'

As modality markers, -yaa- and -isaa- take no verbal suffixes, except for the Modified Base, so that:

aali-boombele 'he worked'

aali-ishile-boomba 'he worked later on'

*aali-isaa-boombele

(d) Some evidence from Swahili:

Some facts in Swahili point to the verbal origin of most independent tense markers. Thus, the infinitival KU- appears as a 'stabiliser' on monosyllabic or vowel-commencing verb stems -- following the tense marker, as in:

a-LI-ku-ja 'he came'

a-ME-ku-ja 'he has come'

a-NA-ku-ja 'he is coming'

a-TA-ku-ja 'he will come'

If these tenses do arise, historically, from modal verbs dominating infinitival complements, then the 'stabiliser' KU- of course makes sense, since it is still the infinitive (class 15) marker in Swahili. (Two independent tenses, the unconcorder habitual tense HU-, and the present/habitual tense -A-, do not require the KU- stabiliser).

Another piece of evidence involves the relative forms of the tense markers. For the -A- tense, the rel.pronoun follows the verb as a suffix:

(a) mwana a-ja-ye.... 'the child who comes..'

For other independent tenses, however (except the -ME- tense), it follows the tense marker:

(b) mwana a-LI-ye-kuja... 'the child who came...'

(c) mwana a-NA-ye-kuja... 'the child who's coming...'

(d) mwana a-TAKA-ye-kuja... 'the child who'll come...'

Thus, if -LI-, -NA- or -TA- were originally verbals, then the 'infixed' position of the relative pronoun today reflects the verb-suffix original position, as is still the case in (a) above, and as is also shown by the use of amba- as a 'support' for the relative pronoun in the -ME- tense (optionally also in all other tenses, and obligatorily in all tenses for rel.object pronoun):

mwana amba-ye a-ME-kuja... 'the child who's come...'

Note that amba- itself is a reflex of ku-amba 'speak'.

Note further that the -TA- future tense appears as -TAKA- in the relative form (d) above, and ku-taka still means 'want' in Swahili, i.e.

a verb of the 'modal' group. There is also evidence that the -ME- tense historically derives from*-maal- 'finish', whose modified base form would have been -*meele, and a reflex of which survives in Swahili in the verb ku-maliza 'finish'. The -LI- tense is likely to have arisen from the defective verb -LI 'be', and the-NA- tense from the associative NA which, in Swahili, is used in the present tense without a copula:

a-NA chakula 'he has food'

The verbal interpretation of -NA also appears in the fact that the infinitival KU- may be used as prefixed to it, as in:

KU-NA chakula hapa? 'is there food here?'

Finally, for Swahili, the verb ku-isha 'finish' is undergoing a process right now of becoming a modality marker, so that:

a-ME-kuisha ku-enda 'he has finished walking'

a-ME-SHA-enda 'he has just walked'

a-ME-kuenda 'he has waked'

(e) Lack of cognates in Bantu:

While verb and noun morphology is fairly uniform within much of the Bantu area, with prefixes and suffixes easily reconstructed into the hypothetical Proto-Bantu(*) forms, a glaring exception are the modality morphemes, which cannot be at all reconstructed for P.B., in spite of the fact that most Bantu languages seem to have these morphemes at the same position -- between the concordial affix and the verb stem. If these morphemes were originally 'modal' verbs, however, then a natural explanation of the lack of comparability emerges: P.B. used modal or auxiliary verbs only, and the change which developed the new morpheme class post-dates the separation of the various Bantu languages. The potential

for developing the new class was already there, in the reduced-infinitival complement structure of modal verbs. But each language has performed the re-analysis independently, using different verbs—although of similar classes and covering a rather similar semantic range. The preservation, in many Bantu languages, of the infinitival KU- infixed between the modality morphemes and the verb stems, again supports this hypothesis.

2.4.2.2. Modality and Universal Grammar

Moving out of the Bantu field, one is bound to ask whether there is any universal significance in the seeming tendency for modality systems to develop from a specific group of verbs. The verb 'want' or 'will' has evolved into a future time-marker in Germanic languages, Swahili, Colloquial Arabic. The verb 'go' serves as a future-time 'auxiliary' in English, Romance Languages, Hebrew. Whether modality becomes prefixed or suffixed on the verb stem may depend on the original syntactic order, MV-S vs. S-MV. Thus in Yaqui, an Amerindian language of the Mexico-Arizona border, 'want', 'continue', 'begin', 'end', 'fail' etc. are suffixes of the verb, but not independent verbs themselves (see Lindenfeld, 1969).

It has been proposed in recent years by Ross (1966), and Lakoff and Ross (1967), that in Universal Grammar tense/aspect/modal/neg./auxiliary morphemes are all deep structure verbs. To what extent does data from ChiBemba or Bantu reflect upon this claim? Or rather--on what level is the contention meaningful?

(a) On the syntactic-morphemic level: On this level IchiBemba makes a strong distinction between lexical verbs and second lexical modality morphemes, which are set as a different syntactic/morphological class. E. Garcia (1967) in discussing English 'aspectuals' (such as 'go on', 'keep', 'continue', 'end', 'begin') has noted a graduation in the syntactic behaviour, from 'true modals' (such as 'have', 'be', 'will', 'can', 'may', 'must'), which can come only one per sentence and show a variety of syntactic and morphological restrictions, through 'aspectuals' which are much closer morphemically and syntactically to verbs, to regular lexical verbs. The morphemic level, at which languages do manifest the greatest degree of divergence, is clearly noted as the one in which the universal verb status of the modals can be observed.

(b) On the semantic level: We have already noted that 'verb-senses' such as 'begin', 'end', 'succeed', 'fail', 'continue', 'repeat','be able', 'want', 'refuse', 'persist', 'insist', 'be about to', 'be eager', 'intend' etc., which in some languages are lexical verbs or our 'modal' type, may appear as features underlying the modality system in other languages. Further, this connection is not accidental, but rather a result of the syntax/semantics of Modal verbs: the identity-of-subject condition, the reduced-infinitival complement verb, and the ensuing adjacency of the modal verb to the main verb morpheme. The mere facts of the actual morphemic position or sub-organisation seem rather irrelevant at this level. A closer look at the semantic features underlying tense-aspects in ChiBemba will raise a number of difficulties.

(1) Both past and future time in ChiBemba is divided into four:

a-ALI-ishile 'he came(before yesterday)'

a-ALII-isa 'he came(yesterday)'

NAA-isa 'he came(earlier today)'

a-A-isa 'he came(within a few hours)'

A similar division holds for future tenses. To envision the semantic features underlying this as verb features is a little difficult, since if anything they seem adverbial or nominal ('today' = 'within this day'), with deictic categories perhaps also involved.

(2) We have already noted uku-ya 'go to' which as a modality morpheme means(-yaa-)'elsewhere', and uku-isa 'come to' which as the modality morpheme -isaa- means 'later on'. Clearly a change has taken place, and although one could perhaps account for the historical process by arguing that a verb phrase such as 'go to another place' or 'come later' may have been involved. It is perhaps not wholly an accident that verbs of our V-PREP-NOM type would give rise to 'PREP-nominal' senses. It still is rather difficult to see how dynchronic adverbial senses of this kind can be still analysed as deep-structure verbs. The Ross-Lakoff hypothesis seems to have interesting explanatory powers with respect to historical processes contributing to the development of modality systems as distinct morpho-syntactic classes. Whether one wishes to go on and claim that semantic re-analysis never occurs, is still a rather open question.

3.5. VERB TYPE V-NOM-PREP-NOM

These verbs require two nominal complements, one of which is

always prepositional. This can be readily expressed by the contextual feature: [---- NOM PREP-NOM]

We will sub-classify these verbs further according to the kind of PREP they select, and will hopefully show that in all verbs of this type the deep verb 'cause' is always involved as an underlying main verb, whether overtly marked (by the causative suffix, in ChiBemba) or not. We shall therefore hopefully show that verbs of the sub-groups below are 'causatively linked' to specific V-NOM or V-PREP-NOM types already described.

3.5.1. VERB TYPE V-NOM-LOC-NOM('transfer' verbs)

It will be argued here and in the addendum to this part that verbs of this sub-group, whether overtly derived or not, involve in their deep structure the main verb 'cause' dominating a sentential complement in which the verb is of our type V-LOC-NOM(3.2.1.). Some of the verbs in this sub-group are (according to PREP selection types):

(1)

-seenda 'take from'(KU)
-leeta 'bring to'(KU)
-shitishya 'sell to'(KU)
-seshya 'remove from'(KU)
-buula 'take from'(KU)
tuunta 'carry away from'(KU)
-kuunta 'shake off/from'(KU)
-tana 'withhold from '(KU)
-leka 'let-have to'(KU)
-pa 'give to'(KU)
-shita 'buy from'(KU)
-tuma 'send to'(KU)
-poka 'receive from'(KU)
-pusula 'deprive, not give to'(KU)
-tuuntula 'cause-to-come from'(KU)
-soonka 'pay to'(KU)
-leshya 'withhold from' (KU)

(2) (PA/KU/MU)

-biika 'put on/at/in'
-teeka 'put on/at/in'
-shya 'leave on/at/in'
-poosa 'throw on/at/to/into'

(3) (PA/KU)

-patika 'load on/to'
-kaanga 'put-to-dry on/to'
-fuuta 'wipe off'
-seeshya 'make-swing on/at/from'
-soonsa 'add on/to/at'

(4) (MU)

-ingishya 'make-enter into'
-kama 'squeeze(liquid) out of'
-kuunka 'throw into(fire)'

(5) (KU/MU)

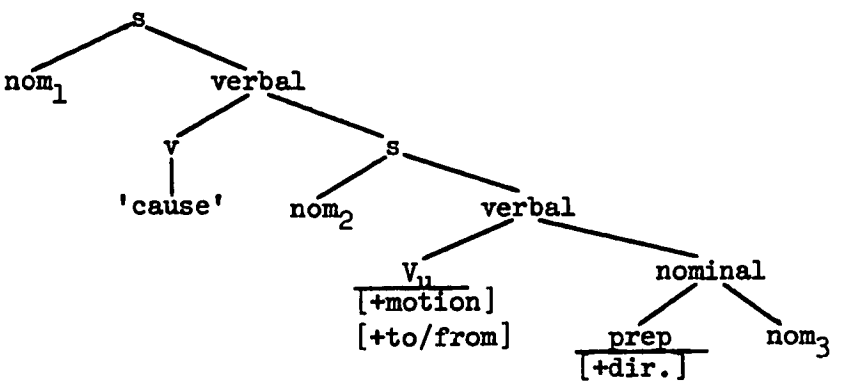
-iba 'steal from/from-in'

Almost all the sub-groups (a) to (f) of group (3.2.1.) are represented here, in terms of preposition selection. In the space below we shall attempt to show the relation between 'transfer' verbs and their non-causative correspondents.

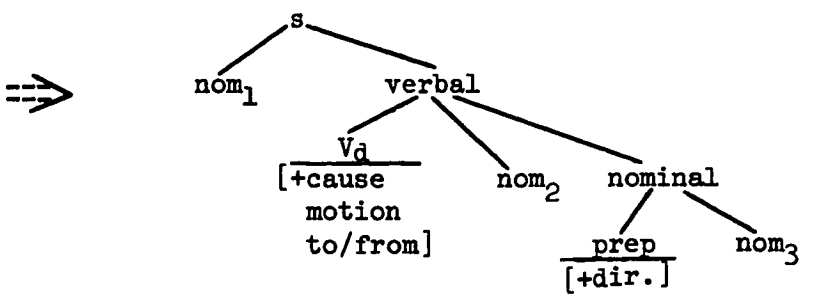
(1) Cause-motion to/from

Just like their correspondents in group (3.2.1.b.), these verbs select only the directional PREP KU-. The features of [motion, to/from] again seem to reside in the 'deep' V-LOC-NOM verb itself. Most of the verbs listed above are overtly non-derived. The ones that are overtly derived by the causative suffix, such as -seshya 'cause-move'(from -sela 'move'), are derived from verbs in group (3.2.1.b.). Further, the

application of the causative derivation to any V-LOC-NOM verb in group (b) will always result in obtaining a V-NOM-LOC-NOM verb of this(1) group. We shall therefore assume, much like Hall(1965, section 3.), that the deep (semantic) structure of these verbs is:



And that the structural change which occurs during lexical attachment, and through which a 'cause-incorporating' V-NOM-LOC-NOM verb is created, is then:



Although we have been following Gruber's(1967a) format, by which this rule is a 'lexical' rather than 'grammatical' transformation, the rule would hold as well as a 'grammatical' transformation. Our claim that all V-NOM-LOC-NOM have the deep structure given above (and undergo the same structural change if a cause-incorporating verb is attached), is merely a consequence of the fact that while the 'original' or 'derived' status of a verb in this group may be a lexical accident, all verbs in the

group share the same syntactic behavior and prepositional selection. The accidental nature of the original lexical status can be exemplified by two pairs. While in -sela/-seshya (move from/remove from) the overt derivation has gone from V-LOC-NOM to V-NOM-LOC-noun through the causative operator, in the rather identical pair -seendeka/-seenda (have been taken away/take away) the overt derivation has gone in the reverse direction, through the stative operator.

In terms of deep semantic structure, then, the direct object nominal of 'transfer' verbs is the deep subject of the underlying V-LOC-NOM verb of the embedded sentence, while the locative (PREP) object is the deep locative object of the underlying locative verb. The fact that in the case of overtly-derived 'transfer' verbs we know the actual lexical identity of the underlying V-LOC-NOM, while for 'original' transfer verbs we know only the semantic features of it (e.g., that in -seenda a verb of [motion from] was involved, while in -tuma a verg of [motion to]), is in no way relevant for analyzing their semantic structure, especially if one accepts Gruber's(1967a) arguments for multi-categorial lexical attachment.

(2) Cause-be/move on/at/in(to)

Most of the arguments given above the deep semantic structure of 'transfer' verbs, also apply here. The semantic structure and structural change involved are identical, with the exception that the deep V-LOC-NOM underlying verb corresponding to this group is of group (3.2. 1.a.), which does not restrict the preposition selected (i.e., is marked only by the selection of [+loc.] PREP's. Of the verbs listed above in this group, all are overtly underived, but -shya 'leave' illustrates

beautifully the point about lexical accidents. It is derivationally related to -shyaala 'remain' of group (3.2.1.a.), but through the stative overt derivation. The overt direction seems irrelevant, but the fact of a certain semantic structure involving 'cause' and another verb in the sentence dominated by 'cause' being involved, is what really matters. Thus Hall(1965) argues that in English a stative operation is involved in pairs such as:

John broke the window/the window broke

John opened the door/The door opened

while Lakoff(1965, 1967) argues that a causative derivation is involved in these same instances. The pathway of the overt derivation may be extremely hard to judge in English, where the derivation many times proceeds with no overt affixation. Further, the overt direction is highly language specific and notoriously given to lexical accidents. It is easier to determine in ChiBemba, where more regular suffixation is involved, as for example:

V-LOC-NOM		V-NOM-LOC-NOM
-shyaala 'remain'	stative <-----	-shya 'leave'
-ingila 'enter'	-----> causative	-ingishya 'make-enter'

What is common to both English and ChiBemba, I think, is the ability of verbs to incorporate 'cause' into their semantic structure. Or, put differently, the option of inserting a 'more complex' lexical verb over both 'cause' and another (lexical or non-lexical) verb, and the highly specific structural changes which entail from this multi-categorial attachment during the process of attachment itself. As we shall see later

on, the generalization can be extended to all two-object verbs.

(3) Cause-V-PA/KU-NOM

The verbs in this group are related by 'cause' to group (3.2.1.f.) of our V-LOC-NOM type. For discussion of the PREP selection involved, see there.

(4) Cause-V-MU-NOM

The verbs in this group are related by 'cause' to group (3.3.1.d.) of our V-LOC-NOM type. The PREP selection involved has already been discussed there.

(5) Cause-V-KU/MU-NOM

The verbs in this group are related through 'cause' to those in group (3.2.1.e.) of the V-LOC-NOM type, and for PREP selection see the discussion there.

3.5.1.1. The PREP/non-PREP variation

All 'transfer' verbs exhibit the following syntactic alternation, which is accompanied by the surface 'disappearance' of the LOC preposition. The variation is extremely reminiscent of English:

aa-tumine icitabo KU-muana 'he sent a book to the child'

aa-tumine umuana icitabo 'he sent the child a book'

aa-tumine KU-muana icitabo 'he sent to the child a book'

Thus, if the order is: PREP-NOM, NOM, the preposition may be dropped from the surface. This surface disappearance of PREP does not alter the deep status of the PREP-object nominal. Thus note that as the subject of stative or passive verb forms, only the PREP-object can ever show the preposition:

J. aa-tumine icitabo KU-muana 'J. sent a book to the child'

KU-muana kwaa-tumine icitabo 'to-the-child was sent a book'

umuana aa-tumine-KO icitabo 'the child was sent-to a book'

But not:

*icitabo cyaa-tumine-KO umuana

*KU-citabo kwaa-tumine umuana

The same can be also shown with Relativisation:

KU-muana UKO J. aa-tumine icitabo...

'to-the-child to-whom J. sent a book...'

umuana uo J. aa-tumine-KO icitabo...

'the child whom J. sent-to a book...'

But not:

*KU-citabo UKO J. aa-tumine umuana...

*icitabo icyo J. aa-tumine-KO umuana...

The function of this syntactic, prep/non-prep. variation is still not clear, as it seems to make no difference in 'meaning' in the conventional 'deep-structure' sense. Tim Shopen (in private communication) has suggested to me that the difference between the two variants may lie in topic-comment relations, with the topic context established in the preceding parts, as for example:

since it was torn, John sent the book to the child

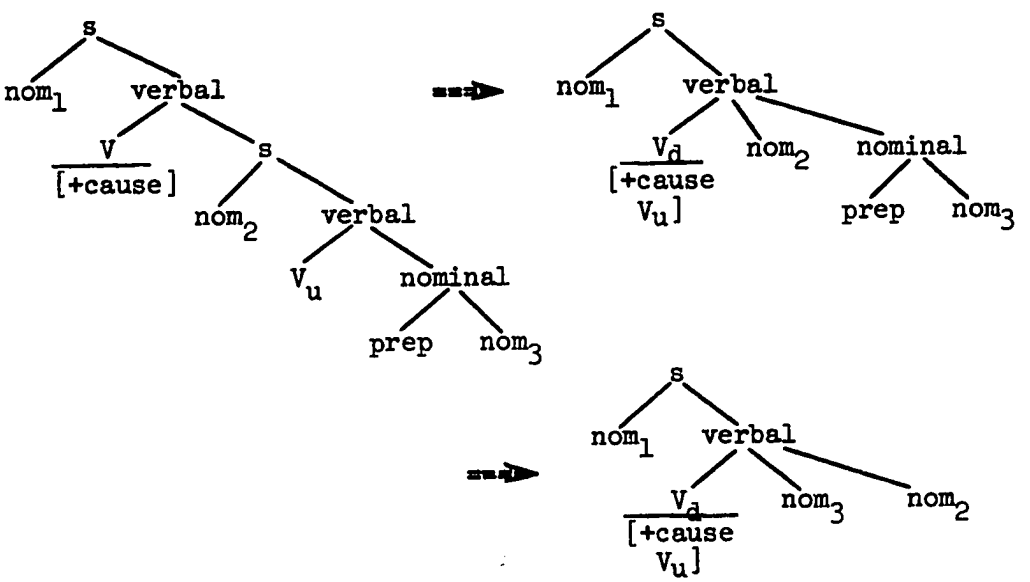
*since it was torn, John sent the child the book

since he behaved himself, John sent the child a book

*since he behaved himself, John sent the book to the child

The status of the asterisk(*) is somewhat doubtful, as it seems that with the proper intonation and stress, the asterisked sentences above

are acceptable. Nevertheless, they are 'less acceptable' than the reverse-ordered ones. Whether this solution is or is not accepted, it seems that we must accommodate both variants somehow. One could of course arbitrarily assume that the V-NOM-PREP-NOM variant is the 'more basic' one and the V-NOM-NOM variant derived transformationally from it. However, this is really unnecessary, since we have already stipulated a much deeper deep structure for both. All that is needed now is merely to recognise that two different structural changes can occur, pending on the previous topic context:



The (optional) incorporation of the preposition becomes now a natural manifestation of Gruber's(1967a) conditions on incorporation -- namely the 'sisterhood' or 'adjacency' condition. The verb can incorporate the preposition only if the deep underlying PREP-NOM is left adjacent('cousin') to the verb node as a result of the second possible structural change occurring during lexical attachment.

3.5.1.2. Why are there no stative V-NOM-LOC-NOM verbs?

So far we have seen stative verbs in all the objectless or one-object verbs described above. In contrast, there are no stative two-object verbs, not a single one. If our hypothesis concerning the presence of the deep main verb 'cause' in the semantic structure of all these verbs is accepted, then the absence of stative two-object verbs is natural: the verb cause itself is an active verb, perhaps the active verb, and any verb incorporating 'cause' cannot therefore be stative, by definition. Thus notice that the cause-derivative of -pona 'fall' which by itself is a stative verb, is active:

*umuana a-LÉÉ-pona PA-mushili

J. a-LÉÉ-poneshya umuana PA-mushili

'J.is dropping the child to the ground'

The cause-derived -poneshya can be paraphrased with the lexical verb -leenga 'cause', 'make', and a subjunctive complement, but not a continuous subjenctive form of -pona itself:

*J. a-LÉÉ-leenga umuana a-LÈÉ-pona

J. a-LÉÉ-leenga umuana a-pon-e

'J. is causing the child to fall'

3.5.2. VERB TYPE V-NOM-NA-NOM('instrumental-reversive')

This sub-group shows, on the surface, a PREP/non-PREP variation somewhat resembling the one described above. It can be characterized as:

$$[\text{----NOM}_2\underset{[+\text{with}]}{\text{-PREP}}\text{-NOM}_3] \backsim [\text{----NOM}_3\underset{[+\text{loc.}]}{\text{-PREP}}\text{-NOM}_2]$$

For example:

aa-cimine inama NA-umuele 'he pierced the animal with a/the knife'

aa-cimine umuele MU-nama 'he thrust the knife into the animal'

Some verbs in this group are:

-cima 'pierce with'(NA)
'thrust into'(MU)

-fwaanta 'bruise with'(NA)
'stick at'(PA)

-kaka 'tie with'(NA)
'tie around'(KU)

-kofya 'hook with'(NA)
'hook onto'(PA/KU)

-koonta 'hit with'(NA)
'smash onto'(PA)

-kupa 'cover with'(NA)
'spread on'(PA/KU)

-manika 'squeeze/hold with'(NA)
'clamp onto'(PA/KU)

-masa 'plaster with'(NA)
'plaster onto'(PA/KU)

-saka 'push-fill with'(NA)
'push into'(MU)

-soma 'pierce with'(NA)
'thrust into'(MU)

-suba 'rub with'(NA)
'rub onto'(PA/KU)

-tipa '....? with'(NA)
'dip into(water)'(MU)

-fiimba 'cover with'(NA)
'spread on'(PA)

-ikata 'catch with'(NA)
'clamp on'(PA)

-kamuna 'grab with'(NA)
'clamp on'(KU)

-koola 'scratch with'(NA)
'....? onto'(PA)

-kumya 'touch with'(NA)
'touch onto'(PA/KU)

-kwaika 'spear with'(NA)
'thrust into'(MU)

-loonga 'fill with'(NA)
'put into'(MU)

-poomba 'bind with'(NA)
'tie around/to'(KU)

-shiimpa '....? with'(NA)
'dip into(water)'(MU)

-lasa 'spear with'(NA)
'thrust into'(MU)

-tuumpa '....? with'(NA)
'dip into(water)'(MU)

While the equivalent variation in English almost always requires another verb -- or, in our terminology, one lexical verb cannot incorporate alternatively both prepositions, in ChiBemba the same lexical verb can be attached in both variants.(For some accounts of this variation,

see Hall(1965, p.85), Givon(1967, p.37)). The variation in English involves also some verbs that cannot easily be construed as 'instrumentals', as in:

he gave food to the men/ he supplied the men with food

he removed the dust from the table/ he cleaned the table of dust

This may be an extension of the 'instrumental-reversive' pattern to 'transfer verbs', in cases where their direct object is not agentive.

In the preceding section we have suggested that a main verb 'cause' and an underlying deep V-LOC-NOM verb are always involved in the semantic structure of 'transfer' verbs. Further, the deep subject of the underlying V-LOC-NOM verb always winds up on the surface as the direct (non-PREP) object of the 'transfer' verb. The situation is different in the case of 'Inst.reversible' verbs. These verbs seem to be 'causatively related' not to V-PREP-NOM verbs, but to V-NOM verbs. Further, the deep subject of a V-NOM verb requiring an inanimate subject becomes the NA-obj.(instrumental) of the complex two-object verb; while the deep object of the underlying V-NOM becomes the LOC-object of the complex verb. Thus take the V-NOM -kola 'intoxicate' which requires a liquid subject:

icibuku cyaa-kola umuana 'the beer intoxicated the child'

aa-koshya umuana NA-icibuku 'he intoxicated the child with beer'

aa-koshya icibuku MU-muana 'he poured the beer into the child'

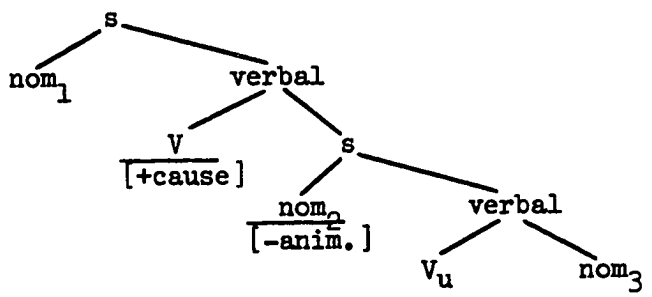
Similarly:

ulusasa lwaa-piinda umushi 'the fence encircled the house'

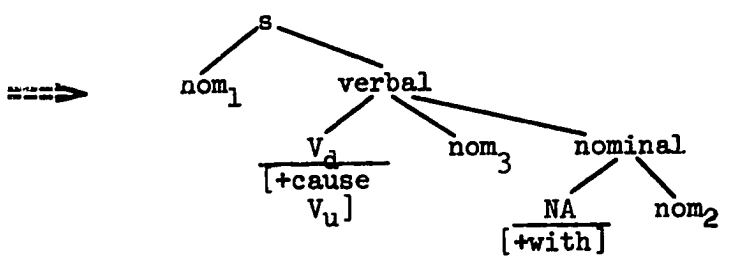
aa-piinshya umushi NA-ulusasa 'he encircled the house with a fence'

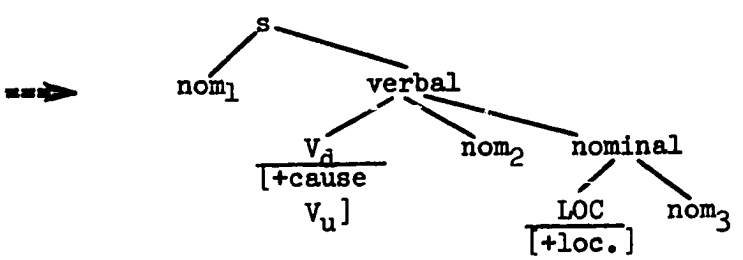
aa-piinshya ulusasa KU-mushi 'he put a fence around the house'

Any V-NOM requiring an inanimate subject will yield, if causativised, an 'inst.reversive' verb of this group. The 'original' or 'derived' status of lexical verbs may again be a lexical accident, but we would again like to claim that in all verbs of this type, whether overtly derived or 'original', an underlying semantic structure such as this is involved:



And, further, that the two possible structural changes occuring during lexical attachment are(with the variation again maybe due to topic-comment relations):





As to the appearance or disappearance of the PREP, again it conforms to the 'sisterhood' or 'adjacency' conditions suggested by Gruber

It is again of interest to see the type of verb obtained by applying the stative operator, which is the reverse-operator of 'cause', to verbs of this group. Applied to the NA-NOM variant, we observe:

J. aa-cimine R. NA-ifumo 'J. stabbed R. with a spear'

R. aa-cimiike NA-ifumo 'R. was stabbed with a spear'

*ifumo lyaa-cimiike NA-R.

ifumo lyaa-cimiike R. 'the spear stabbed R.' (V-NOM, inanim.subj.)

Applied to the LOC-NOM variant, we observe:

J. aa-cimine ifumo MUli R. 'J. thrust the spear into R.'

R. aa-cimiike-MO ifumo 'R. was thrust-into (by) a spear'

MUli R. mwaa-cimiike ifumu 'into-R. was thrust (with) a spear'

*ifumo lyaa-cimiike-MO R.

ifumo lyaa-cimiike MUli R.'the spear was thrust into R.'

(V-LOC-NOM)

3.5.2.1. Inst.reversive verbs and Fillmore's Case Grammar

Consider for a moment Fillmore's(1968) treatment of the verb 'open', to which he assigns(ibid, p.27) the following 'case environment':

+[----O(I)(A)]

with 'O' stands for object case, 'I' for instrumental case and 'A' for agentive case. For the various options given, we obtain:

---OIA: John opened the door with a crowbar
A O I

---OA: John opened the door
A O

---OI: The crowbar opened the door
I O

---O: The door opened
0

Now, notice that the relation between 'open'$_i$/'open'$_t$ is the same 'causative' relation as the one between die/kill:

---DIA: John killed Robert with a knife

---DA: John killed Robert

---DI: The knife killed Robert

---D: Robert died

Fillmore, however, treats open as a single verb, while die/kill as two different verbs, with the case environment of kill being(ibid,p.28):

+[---D(I⧸A)]

(with the crossed-parentheses standing for 'one or the other must be chosen'). While 'die' would presumably get:

+[---D]

It seems that Fillmore implicitly assigns undue weight to the lexically-accidental facts of overt morphological relation, at the expense of the underlying semantic structure. Extending this approach to ChiBemba, one would have to assign the derivationally-related -kola/-koshya 'intoxicate' only one case-description: [---D(I⧸A)], while assigning two separate case-descriptions to -fwa/-ipaaya 'die/kill' which are related in exactly the same way through 'cause': -fwa:[---D], =ipaaya: [---D(I⧸A)]. It would also implies that in the dialect of English which has the lexical verb teach, learn and teach would be recognized as two separate verbs, while in another dialect which has no teach but 'causativises' learn, as in: 'I learned him how to run', the identical semantic pair would be recognised as a single verb.

The criticism voiced above is, however, not very crucial and can be remedied well within Fillmore's format, by simply recognising that open/open or break/break are two rather than one verb. A more serious consequence of Fillmore's treatment, arises from the seeming neglect of the position of the deep 'incorporated' cause in the semantic structure of verbs. We shall return to this subject throughout the rest of this work, and will hopefully show that Fillmore's cases are not 'deep enough' in a sense that they do not characterize subject/object relation with respect to cause.

3.5.2.2. The surface prepositional cases

One fact upon which we have so far not commented, is the precise deep nature of the two prepositional cases -- NA and LOC -- shown in Instrumental-Reversive verbs. The subject is particularly intriguing since the underlying V-NOM verb shows case markings on neither its subject nor its object, i.e.:

J. aa-leengele icibuku ci-kole umuana

'J. made the beer intoxicate the child'

but the prepositional cases: NA=subject of the deep V-NOM

LOC = object of the deep V-NOM

emerge the minute cause-incorporation occurs. The reason is perhaps transparent: The structural changes involved in the lexical attachment of one verb over two, have been severe enough so that the deep grammatical relations of the various nominals to the underlying verb cannot be signaled by syntactic order any more (Subj.-V-Obj.), and must therefore be signalled by overt prep.case markings. This subject will be further

discussed in the addendum to this part(3.8.).

3.5.3. VERB TYPE V-NOM-PREP-NOM('dative-transfer' verbs)

Verbs in this group may take only abstract(non-locative) prepositional objects, overtly either KU and sometimes also PA. As is shown in the addendum(3.8.), if 'cause' as an overt operator is applied to either V-NOM verbs with animate subjects, or to V-PREP-NOM of our 'abstract' group (3.2.2.), 'dative-transfer' verbs of this group are obtained. Some verbs in this group are:

-cebula 'alert...to(KU)	-laanga 'show...to'(KU)
-seba 'denounce...to'(KU)	-ipushya 'request...from'(KU)
-pula 'beg...from'(KU)	-sosa 'tell...to'(KU)
-loomba 'beg...from'(KU)	-shimika 'tell...to'(KU)
-bishya 'prefer...over'(PA)	-buushya 'ask...about'(PA)

As an example of the underlying 'cause' in these verbs, consider -cebula 'alert to' which is morphologically related (although the direction is probably impossible to decide) to -cebuka 'be alert to':

umuana aa-cebuka KU-mufuundi 'the child is alert to the teacher'

J. aa-cebula umuana KU-mufuundi'J. alerted the child to the teacher'

Here the 'dative' object of the cause-incorporated verb -cebula is also the deep dative obj. of the underlying non-cause -cebuka. Now notice the pair -mona 'see' -moneshya 'show',(again overtly related, though we could have easily chosen -laanga 'show' which is derivationally unrelated to 'see'):

umuana aa-mweene icitabo 'the child saw the book'

J. aa-moneeshye icitabo KU-muana 'J. showed the book to the child'

Here the deep subject of the underlying V-NOM is the one which winds up on the surface as the PREP-object of the cause-incorporating verb.

From whatever source they are overtly derived, all verbs (derived as non-derived) show a PREP/non-PREP variation:

J. aa-cebula umuana KU-citabo'J. alerted the child to the book'

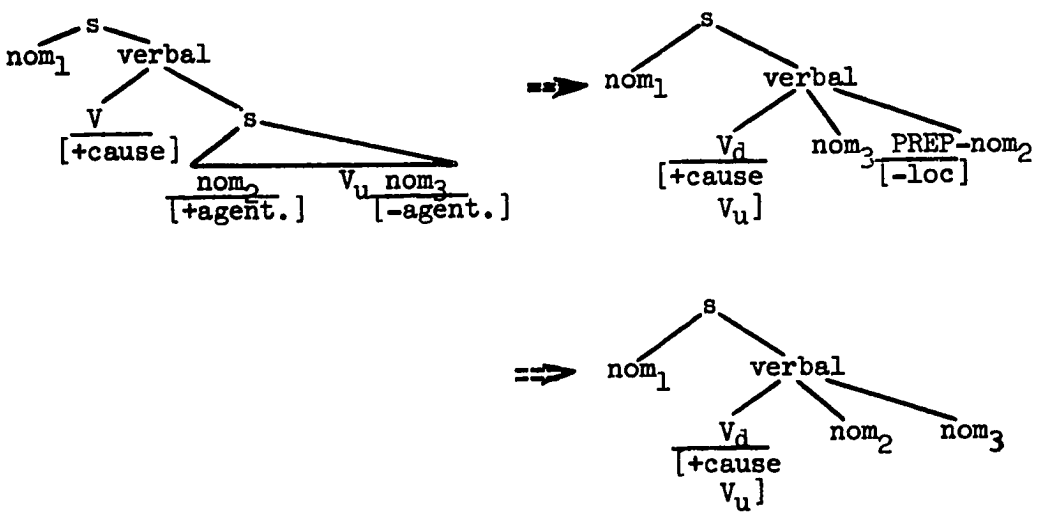
J. aa-cebula icitabo umuana

'J. brought the book (to the attention of) the child'

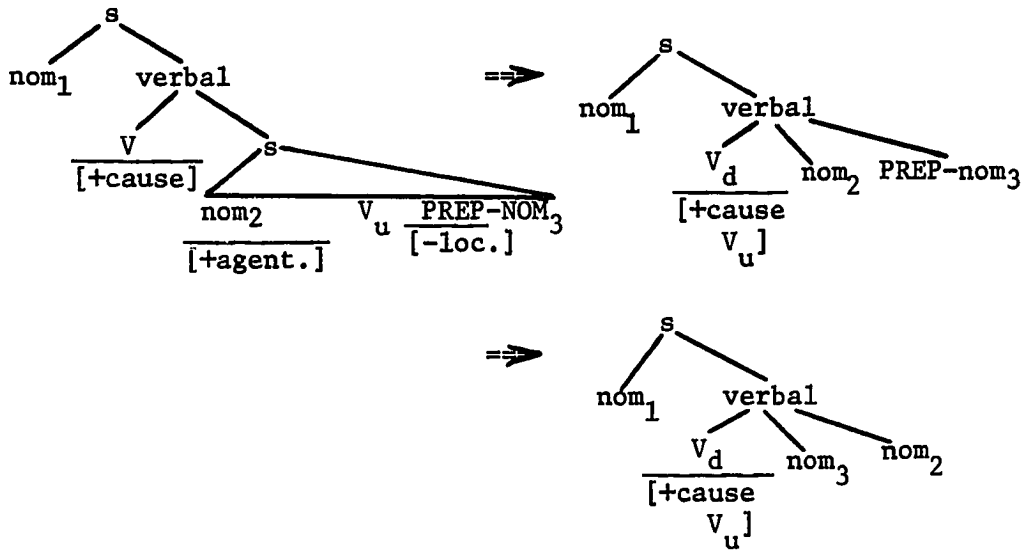
J. aa-moneshya icitabo KU-muana 'J. showed the book to the child'

J. aa-moneshya umuana icitabo 'J. showed the child a book'

The variation may again be motivated by topic-comment considerations. The incorporation of PREP again seems to conform to Gruber's 'sisterhood' or 'adjacency' condition. It seems, however, that we are here obliged to set up two separate semantic structures -- as well as structural changes occurring during lexical attachment -- to account for the two deep sources of these verbs. So that for some verbs in this group:



While for other verbs:



With more data someday available, the problem of the two deep sources for the structure of 'dative-transfer' verbs may be resolved in either of two ways:

(a) One may be able to show that there are indeed two distinct sub-types within this group, one with an underlying cause-V-NOM structure, the other with an underlying cause-V-PREP-NOM structure

(b) Alternatively, one might be able to show that the two underlying types converge in some abstract level of their deep semantic structure. Thus, take for example 'alert' and 'show':

A alerts B to C = (a) A causes B to be alert to C

(b) A causes B to know C/see C

(c) A causes C to be known/appear to B

(d) A shows C to B

These paraphrases are not in any way definitive or exact, but if they at all suggest anything, they suggest that 'alert B to C' and 'show C

to B' or, alternatively, 'see C' and 'be alert to C', are not as structurally remote from each other as the surface presence of a preposition may sometimes tend to suggest.

3.5.3.1. 'Dative-transfer' verbs and Fillmore's Dative and Agentive

Fillmore(1968, p.30) assigns 'see' the case environment:[---OD] and 'show': [---ODA]. He further remarks that case A (agentive) is active-animate, while case D (dative) is just animate. As we will show be low, there are grounds to believe that the deep subject of cause is always in case A. The preposition KU- in ChiBemba is, however, ambiguous with respect to the difference between cases A and D, since it accepts either. Thus in:

aa-moneshya icitabo KU-muana 'he showed the book to the child'

KU- marks the Dative subject of 'see'. While in:

aa-ipaayishya inama KU-muana 'he made the child kill the animal'

KU- marks the Agentive subject of kill. The term 'dative' for this preposition thus seems imprecise. However, if one assumes that Dative is less marked than Agentive (since they seem to correspond, ordinarily, to the categories animate and human, respectively; for the markedness relation of animate and human, see Gruber(1967a, pp.22-23), then one is justified in calling KU- here Dative, since as a less-marked category it should accept (or 'mark') both the dative and agentive case.

3.6. VERB TYPE V-S-PREP-NOM

As in group (3.5.) above, there is evidence that verbs of this type are related, through the operator 'cause', to the two V-S groups

(3.4.1.) and (3.4.2.), described earlier. As in group (3.5.3.) above, the 'abstract' dative preposition KU- in these verbs marks the deep subject of the underlying V-S verb.

3.6.1. VERB TYPE CAUSE-QUOTE

Some verbs in this group are:

-sumina 'agree-with...that' -soka 'warn...that'

-eba 'tell...that' -shinina 'convince...that'

-laanda 'tell...that'

This short list of 'original' lexical verbs can be greatly augmented by applying the causative derivation to 'quote' verbs (3.4.1.); so that the majority of lexical verbs found in this group, are overtly derived, as for example:

J. aa-twiishika ukuti M. akaya

'J. doubted that M. would leave'

R. aa-twiishishya J. ukti M. akaya

'R. made-doubt J. that M. would leave'

J. aa-laba ukuti M. akeesa

'J. forgot that M. would come'

R. aa-lafya J. ukuti M. akeesa

'R. made-forget J. that M. would come'

J. aa-piingula ukti M. akeesa

'J. thought that M. would come'

R. aa-piingushya J. ukuti M. akeesa

'R. convinced J. that M. would come'

etc.

Although the forms given above are 'more natural', all verbs in this group may show a PREP/non-PREP variation, involving again the 'dative' KU:

J. aa-eba M. ukuti R. akeesa 'J. told M. that R. will come'

J. aa-eba ukuti R. akeesa KUli M. 'J. told that R. will come to M.'

(or in better English: 'J. said to M. that R. will come')

The function of the variation may again be related to topic-comment. The fact that KU may disappear only if the 'dative-nominal' is adjacent to the verb, again conforms to Gruber's 'sisterhood' condition. Its PREP status can be shown again in stativisation or relativisation:

M. aa-ebeka-KO ukuti R. akeesa 'M. was told-to that R. will come'

KUli-M. waa-ebeka ukuti R. akeesa 'to-M. was told that R. will come'

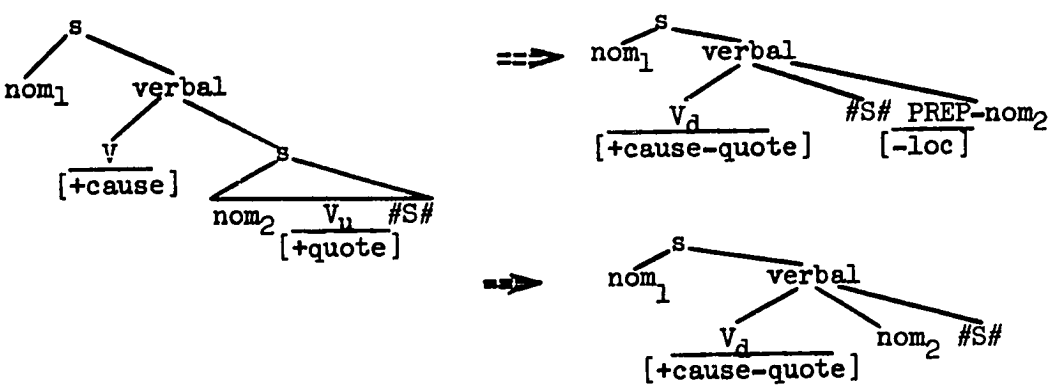
*ukuti R. akeesa kwaa-ebeka-KO M.

ukuti R. akeesa kwaa-ebeka KUli M. 'that R. will come was said to M.'

Though the latter has a 'more natural' 'it-#S#' transform:

cyaa-ebeka KUli M. ukuti R. akeesa '(it) was said to M. that R....'

The deep semantic structure of verbs of this group, and the structural changes occurring during lexical attachment, can be therefore summarised as:



As in groups (3.5.2.), (3.5.3.) above, a PREP case has here on the surface, while the underlying nominals have no case markings. The function of this is probably the same as already suggested, namely, to indicate on the surface the deep subject of the underlying non-cause verb, following the structural changes made during lexical attachment.

3.6.2. VERB TYPE CAUSE-MODAL ('coerceive' verbs)

Some verbs in this group (many of them overtly derived by 'cause') are:

-kiinkomeshya 'command...to'
-fwaaya 'want...to'
-shinina 'convince...to'
-patikishya 'force...to'
-pekanishya 'prepare...to'
-soka 'urge...to'
-eba 'tell/order...to'
-sumina 'permit...to'
-suminishya 'permit...to'
-leshya 'prevent...from'
-kaanya 'forbid...to'
-talushya 'prevent...from'
-ciingilila 'prevent...from'
-koshya 'encourage...to'
-piinda 'order...to'
-sosa 'tell...to'
-tuunka 'tempt/incite...to'
-kooshya 'pester...into'
-munyeengelela 'trick...into'

All these verbs may take either a subjunctive or infinitival complement verb. In addition, the following take only an infinitival complement:

-paamfya 'urge...to', -biinda 'forbid...to', -fufya 'prevent/hinder...from', -pekanya 'prepare...to', -fuunda 'teach...to'

The lists above can be augmented by applying the causative derivation to any verb in our 'modal' group (3.4.2.). Thus, for example, the

verb -kaanya 'forbid' above is the cause-derivative of -kaana 'refuse':

J. aa-kaana uku-boomba 'J. refused to work'

R. aa-kaanya J. a-boombe 'R. forbade J. to work'

As in group (3.6.1.) above, a PREP/non-PREP variation can occur here, as in:

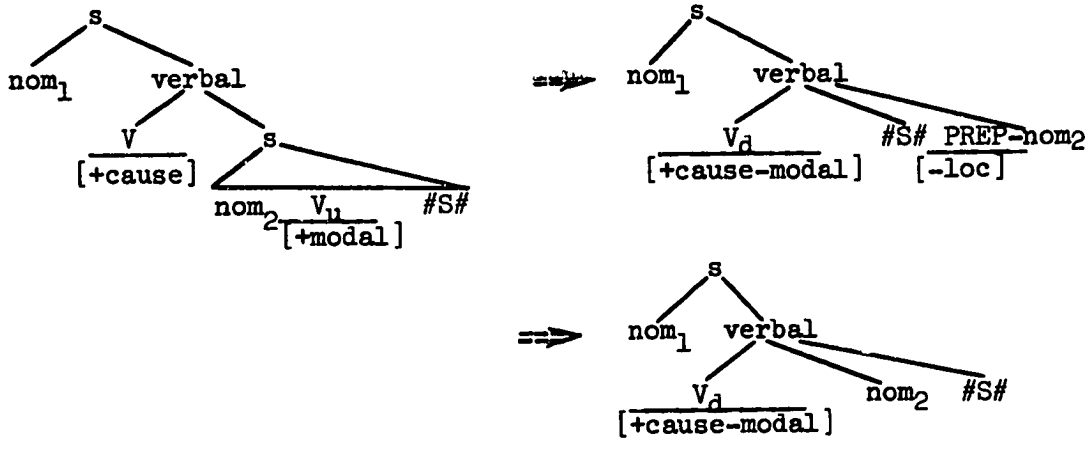
R. aa-ebele J. uku-boomba 'R. told J. to work'

R. aa-ebele uku-boomba KUli J. lit.:'R. told to work to J.'

The subjunctive complement cannot appear in the PREP variant:

*J. aa-ebele a-boombe KUli R.'*J. said that he should work to R.'

The deep semantic structure of coercive verbs, and the structural changes occurring during lexical insertion, can be given as:



Within the #S# complement, the same identity condition holds as did for 'modal' verbs, that is, the subject of that #S# must be identical with the subject of the dominating (underlying) modal verb.

3.6.2.1. The Subjunctive/infinitive/tensed variation

This variation characterises most coercive verbs:

tensed comp.:

J. aa-koonkomeshya R. a-A-boombele

'J. forced R. to work' implied: 'R. worked(long ago)'

infinitive comp.:

J. aa-koonkomeshya R. uku-boomba

'J. forced R. to work' implied: 'R. worked'(time unspecified)

subjunctive comp.:

J. aa-koonkomeshya R. a-boombe

'J. ordered R. to work' implied:'R. may or may not have complied'. While the infinitive may perhaps be construed as a reduction of the tensed form under the condition of (perhaps) tense identity, the subjunctive presents a clear contrast in meaning to either. In the same manner, the verb -kaanya may mean 'prevent' if it takes an infinitive complement, or 'forbid' if it takes a subjunctive complement.

Since one obtains at least a two-way meaning contrast, this must be accounted for somewhere in the deep structure itself, unlike the subjunctive in many other languages which may be totally predicted (and obligatorily taken) after certain verbs. One must then introduce the feature [subjunctive] in the Base Rules. This of course raises severe problems of blocking, since we would like to claim that subjunctive may appear only if dominated by a coercive verb.(This despite the seeming independent appearance of subjunctive in 'should' or 'imperative' expressions in ChiBemba. For discussions of those, see Givon(in preparation)). However, since we have already allowed context sensitive feature rules into our Base Rules, the problem can be easily handled, by adjust-

ing our Rule 16. (Table 4.) and split it into two rules, the first of which will read now:

16.'[+MODALITY] $\rightarrow$ $\langle$([+subjun.])$\rangle$ [+MOD] / $\langle \frac{V}{[+coerc.]}$ [...[----]..]$_S\rangle$

The second rule will then resemble our present Rule 16.(ibid), except that the category/feature re-written by it will not be [modality] but rather [mod].

3.7. RE-EVALUATING THE STRUCTURE OF VERBALS

3.7.1. The deep verb 'cause' and the VP expansion rules

We have started the discussion of two-object verbs by assuming the rule:

VERBAL $\rightarrow$ V(NOMINAL)(NOMINAL)(ADVERBIAL)

In the course of the discussion it has become apparent, at least to the author, that all two-object verbs, of the groups (3.5.1./2/3.) and (3.6. 1./2.) described above, involve the deep verb 'cause' as the main verb in their deep semantic structure, dominating a complement sentence in which the verb is a one-object verb of either group (3.2.), (3.3.) or (3.4.). Thus, all two-object verbs can be defined by characterising the deep one-object verb which underlies them. Whether this verb actually exists as a surface lexical verb, is both irrelevant and highly accidental. But the syntactic/semantic properties of it can be given up to a fairly deep degree of delicacy. Further, the surface-lexical verb 'cause' may not exist as such in a language, though in ChiBemba the lexical verb -leenga 'cause', 'make' very closely approximates its properties.

Nevertheless, the verb 'cause' can be defined by type as a coercive verb requiring a sentential complement or a [----S] type, i.e., a subtype of our V-NOMINAL category.

We have also suggested that, on semantic grounds, there is no justification for assigning one semantic structure to 'original' two-object verbs such as: 'give', 'take', 'put', 'receive', 'bring', 'teach', 'sell', 'buy', while assigning another semantic structure to 'derived' two-object verbs which share all their semantic and syntactic properties, but show no overt morphological relation to their non-causative counterparts.

Further, it seems important in defining 'original' cause-incorporating verbs such as 'open' or 'kill', to establish that in:

John opened the door

John killed the tiger

John must be singled out as the 'deep subject' of cause but not of die, and tiger as the deep subject of die but not of cause. Or John again as the deep subject of cause but not open, while door as the deep subject of open but not of cause.

We shall therefore propose the following modification in the VERBAL expansion rules, to account at least for the presence of 'cause' in the deep structure of two-object verbs. So that:

11'. VERBAL -> V(NOMINAL)(ADVERBIAL)

This rule by itself, given the option of PREP or S, already defines all our one-object verb classes (3.1./2./3./4.). To define the rest, we need to specify the first rule re-writing the features of VERB as:

11a'. [+V] -> ([+cause]) / [-----S]

Given these two rules, all other verb types can be predicted from the type of verb in the sentence dominated by 'cause', as we have already specified above. And since we have accepted Gruber's(1967a) format with regard to both multi-categorial attachment and the type of structural changes occurring during lexical attachment, we shall simply view two-object verbs as verbs which attach over both 'cause' and another verb, or 'cause-incorporating' verbs.

3.7.2. The deep verb 'cause' and Fillmore's Case Grammar

We have commented earlier on the fact that in Fillmore's(1968) Case Grammar format, there is no semantic justification to assign morphologically-related pairs such as $open_i/open_t$ a single case description, while assigning morphologically unrelated but semantically related pairs such as die/kill two separate case descriptions. This by itself may seem a small matter, and could be easily remedied within Fillmore's format by recognising two verbs 'open' or 'break'.

There are, however, other consequences to the present Case Grammar format which are much more damaging. And this has to do with the way deep grammatical relations are characterised in that format. We have already suggested that all 'two-object' verbs involve the deep verb cause in their semantic structure. In fact, one may also say that,for all 'causatively-related' pairs such as: 'open/open', 'die/kill', 'move/move', 'know/teach', 'see/show' etc., the causative member of the pair always has in its deep semantic structure the verb 'cause' dominating over a sentential complement in which the non-causative member is the verb. Now, when Fillmore assigns case-environments to verbs, there is no

way within his present format to indicate that the case A(agentive) is only the subject of deep 'cause' in $open_t$ or kill, but not of $open_i$ or die. While case O (object, inanimate) or case D (dative, animate) are cases of $open_i$ and die, respectively, but never of 'cause'. These crucial facts of deep semantic structure simply cannot be handled within Filmore's present Case Grammar format.

A similar problem arises with Fillmore's assignment of the case I (instrumental, inanimate). We will take the example of kill/die, which according to Fillmore gets the case assignments:

kill: [---D(I)(A)]

die: [---D]

This case assignment makes it clear that die cannot have an instrumental case, i.e.:

*the wolf dies with a gun

while kill, its causative counterpart, can have either:

John killed the wolf with a gun

The gun killed the wolf

But in no way can this format express the fact that case I is a case of cause in the verb kill. This, however, can be shown in various ways. Thus note:

John killed the wolf = John caused the wolf to die

John killed the wolf with a gun

*John caused the wolf [to die with a gun]

Similarly, in pre-posing:

it was with the gun that John caused the wolf to die

*it was to die with a gun that John caused the wolf

*it was the death of the wolf with a gun that John caused

It was the death of the wolf that John caused with a gun

A similar problem arises with regard to another case, which we shall here call case M (active manner adverb). In Fillmore's case grammar format there is no way of indicating that this is also a case of cause but never of the non-cause verb:

*John saw it very carefully

I very carefully showed it to John

I very carefully made John see it

*I made John[see it very carefully]

Or with pre-posing again:

It was only very carefully that I made John see it

*it was seeing it very carefully that I made John

Or using another test:

What I did, was using great care to make John see it

*What I did, was making John[see it with great care]

What I did with great care, was make John see it

Thus, it seems that Fillmore's cases are not deep enough, that is, they do not characterise with sufficient precision the deep grammatical relations of any cause-incorporating verb and the cases A, D, I and M. They must therefore be redefined, to read:

A animate, active (human?), subject of cause

D animate, inactive(non-human); cannot be subject of cause;

I inanimate, instrumental of cause;

O inanimate, cannot be subject of cause;

M active manner adverb of cause;

3.7.3. Revising the Base Rules

In table 5. below our Base Rules, last given in Table 4. at the end of Part (1.), will be now revised once more, in accordance with the discussion in Parts (2.) and (3.) above.

TABLE 5. BASE RULES, THIRD VERSION

1. S -> $\left\{\begin{matrix} S(j\ S)^n \\ S'(ADV_S) \end{matrix}\right\}$ (where $n \geq 1$)

2. S' -> NOMINAL PREDICATE

3. NOMINAL -> (PREP) NOM

4. [+prep] -> $\left\{\begin{matrix} [+with] \\ [+p] \end{matrix}\right\}$

5. [+p] -> ([+loc]) $\left\{\begin{matrix} [+dir.] \\ [+inside] \end{matrix}\right\}$

6. [+nom] -> ([+sg.])

7. NOM -> (DEM) NP (S)

8. DEM -> $\left\{\begin{matrix} (1,2,3,4) \\ [+pro] \end{matrix}\right\}$

9. [+pro] -> $\left\{\begin{matrix} [+speaker] \\ [+hearer] \end{matrix}\right\}$

10. NP -> $\left\{\begin{matrix} NP(S) \\ N(I) \end{matrix}\right\}$

11. [+n] -> [[+gender], ([+plur.]), $\left\{\begin{matrix} [+s] \\ [+concrete] \end{matrix}\right\}$, ...]

12. I -> ('ena', 'eka', 'onse', 'ine')

13. PREDICATE -> MODALITY (NEG) $\left\{\begin{matrix} VERBAL \\ COPULAR \end{matrix}\right\}$

14. VERBAL -> V(NOMINAL)(ADVERBIAL)

15. [+v] -> ([+cause]) / [---S]

16. ADVERBIAL -> (MANN., INT., ACCOMP., INSTR., BENEF., ORD.,...)

17. COPULAR -> COP PRED

18. COP -> $\left\{\begin{matrix} 'LI' \\ 'BA' \end{matrix}\right\}$

19. PRED -> (NOMINAL, ADJ, NUM)

20. $[+\text{modality}] \rightarrow \langle([+\text{subjun.}])\rangle [+\text{mod}] / \langle \underset{[+\text{coerc.}]}{\text{V}} [\ldots\text{---}\ldots]_{S} \rangle$

21. $[+\text{mod}] \rightarrow \langle([+\text{ee}])\rangle [+F_{m}] / \langle \underset{[+\text{pres.}]}{[\text{-------}]}\text{'LI'}[\text{-type}]_{\text{pred}} \rangle$

22. $\text{ADV}_{S} \rightarrow$ (TIME, PLACE, FREQ., DUR., COND., PURP., CAUS.,...)

23. j $\rightarrow$ ('na', 'naangu', 'noomba', 'kabili', ...)

24. $\left\{\begin{matrix}[+\text{ADJ}] \\ [+\text{NOMINAL}]\end{matrix}\right\} \rightarrow \left\{\begin{matrix}\langle[+\text{type}]\rangle \\ [-\text{type}]\end{matrix}\right\} / \left\langle\left\{\begin{matrix}\text{a. NEG...[----]} \\ \text{b. } [\text{----}]_{\text{pred}}\end{matrix}\right\}\right\rangle$

3.8 ADDENDUM TO PART 3.: SOME IMPLICATIONS OF THE CAUSATIVE VERB-TO-VERB RULE

3.8.0.1. PREFACE

In presenting the material put together in the following pages, the author has knowingly departed from some of the norms ostensibly adhered to throughout the discussion up to this point. Although some data will be presented and to an extent analyzed below, the general tenor of this last portion will remain largely speculative. A general schema will be outlined here, purporting to show the central position the deep verb 'cause' occupies within verbal systems akin to ChiBemba's. Syntactic tests to prove or falsify that Schema, however, will be conspicuous mostly for their absence. The author regrets this and can only hope that further research into the semantic structure of verbs may yet uncover such tests.

Although the issue has become recently somewhat topical, no attempt will be made here to explicitly justify the treatment of the causative 'rule' as a lexical rather than grammatical transformation. The obvious transformation powers of lexical rules have been noted by Gruber(1967a) and Givon(1967). Although Chomsky's recent work (1968) is usually cited as characteristic of the 'lexicalist' position, this author has found the extensive, broadly documented and penetrating arguments brought by Gruber (1967a), to be by far the most coherent pronouncements made on this subject. The interested reader is therefore referred to Gruber's work.

The issue of 'lexical' vx. 'transformational' treatment of rules

such as the causative, however, is not crucial for the substance of the discussion below. Since whether the operator 'cause' is introduced into the deep structure of surface-lexical verbs 'lexically' or 'transformationally' does in no way reflect upon the reality of its presence there.

2.8.0.2. MORPHOLOGICAL MARKING

The morphology of the causative suffix in ChiBemba is rather complex. This is due to a variety of morphological and phonological neutralisations. The 'regular' suffix can be given as /-i-/ or /-y-/, although on the surface it is realized as only that following only very few stem-final consonants, as in:

-mona 'see'/-monya 'show', -waama 'be pretty'/-waamya 'beautify'

In many instances the suffix is /-ishya/ or /-eshya/, with the i/e variation determined by vowel harmony with the stem (see Givon 1970)). This particular suffix also marks the intensive derivation rule, a fact that may or may not bear semantic significance.

For some intransitive (type V) verbs, the causative is marked by the suffix -ika/-eka (for vowel harmony see ibid), which normally is the stative suffix.

Further, some causative-pairings are marked by a two-suffix variation of the 'cause-reversive' -ula/-ola (vowel harmony) or its stative counterpart -uka/-oka, as in:

-peenguka 'be wide open'/-peengula 'open wide(ly)'

A similar pairing is found in verbs derived by the completive suffix and its stative counterpart, as in:

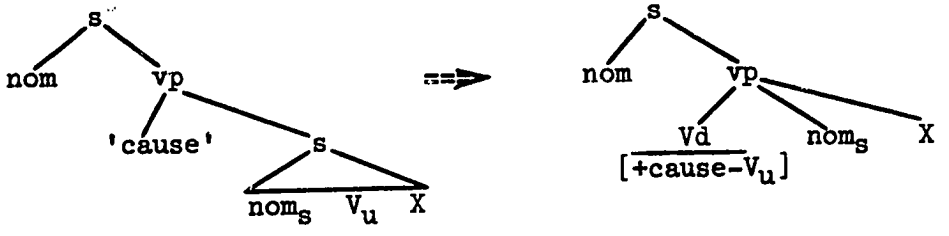
-mona 'see'/-monaula 'see completely'/-monauka 'be seen completely'

Finally, note that the 'regular' suffix /-i-/ (P.B.*/-i-/) produces morpho-phonemic changes on many stem-final consonants:

-fula 'be many'/-fush-ya 'increase', -kashika 'be red'/-kashish-ya 'redden', -tusa 'be small'/-tush-ya 'make-small', -fiita 'be black'/-fiishya 'blacken', -onda 'be thin'/-onsh-ya 'make-thin', -ceepa'be small'/-ceef-ya 'make-small', -soba 'be tasty'/-sof-ya'make-tasty'.

3.8.0.3. A GENERAL FORMULATION OF THE CAUSATIVE RULE

The structural changes obtaining during the incorporation of 'cause' in ChiBemba (and, we shall also claim, in other languages which have verbal systems of a similar type) cannot be described by one overall rule such as:



This universal formulation of the rule is impossible since, as shown earlier, the nature of the non-cause underlying verb, as well as the semantic properties of the subject or object nominals associated with it, (agentive, animate, inanimate), many times determine both the surface case marking assigned to those nominals following the structural change, as well as their surface syntactic position within the derived string. We shall therefore deal with the 'cause' rule separately for each verb type, up to a point.

3.8.1. CAUSATIVES OF INTRANSITIVE VERBS

Both stative and active verbs of our type V(3.1.) yield transitive verbs of our type V-NOM(3.3.) when derived with 'cause'. The structural change associated with the derivation conforms, in this case, to the general schema given above, with the variable X being in this case null. For example:

stative: aba-Bemba baali-fula 'the Bemba people multiplied'

leesa aa-fushya aba-Bemba 'God multiplied the Bemba people'

leesa aa-leenga abaBemba ba-fule 'God made the Bemba people multiply'

active:

J. aali-boomba 'J. worked'

R. aa-boomfya J. 'R. made-work J.'

R. aa-leenga J. a-boombe 'R. caused J. to work'

In spite of the surface similarity, one could show that the derived V-NOM verbs arising from active instransitives, are different in their properties from those arising from stative instransitives. Take for example the interpretation attached to active manner adverbs. Both stative-derived and active-derived V-NOM's take those. However, while the interpretation is unambiguous in stative-derived verbs, where the adverb always refers to cause, it is ambiguous for active-derived verbs, referring either to cause or the other underlying active verb:

R. aaboomfya J. na-amaka 'R. worked J. forcefully'

(a) R. aa-leenga J. a-boombe na-amaka

'R. made John work forcefully'

(b) R. naamaka aa-leenga J. aboombe

'R. (using)force caused J. to work'

In contrast, for stative-derived verbs:

R. aa-twiishya umuele naamaka 'R. sharpened the knife forcefully'

(a) R. naamaka aa-leenga umuele ɸu-twe

'R. forcefully caused the knife to sharpen'

(b) *R. aa-leenga umuele ɸu-twe naamaka

*'R. made the knife be sharp forcefully'

Later on we shall further pursue some of the implications of this difference.

3.8.2. CAUSATIVES OF V-NOM'S

As we have indicated earlier (see 3.5.2., 3.5.3. above), two vastly different two-object verbs arise from the application of 'cause' to V-NOM verbs, pending on whether the V-NOM requires an agentive or inanimate subject. We will deal with these two categories separately.

3.8.2.1. Causatives of Agentive V-NOM's

As a paradigm case we shall consider -mona 'see':*)

R. aa-leenga [J. a-mone icitabo]'R. made[J. see the book]

R. aa-moneshya icitabo KUJi J. 'R. showed the book to J.'

R. aa-moneshya J. icitabo 'R. showed J. the book'

The deep semantic structure and the structural change involved has already been described in section (3.5.3.) above. The prep-noun-prep variation has likewise been discussed there. The preposition which emerges

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*) Unlike English 'see', -mona is an active verb, and could be perhaps better translated as 'look at'.

during 'cause'-incorporation here is the 'dative' KU-. As we shall see later on, the same preposition emerges when V-S verbs, which are also agentive, incorporate 'cause'.

3.8.2.2. Causatives of non-Agentive V-NOM's

For the moment we shall not separate non-agentive from inanimate, although the reasons for distinguishing them in ChiBemba are probably as valid as those which led Fillmore(1968) to recognise in English both the Agentive case(animate-active, or human) and Dative case(animate). As an example let us consider again -kola 'intoxicate':

J. aa-leenga [icibuku ci-kole umuana]'J. caused[the beer to intoxicate the child']

J. aa-koshya umuana NA-icibuku 'J. intoxicated the child with beer'

J. aa-koshya icibuku MU-muana'J. poured the beer into the child'

We have already commented on the possible function of the variation, also of the possible way of handling the incorporation or PREP in either of the two variants. The structural changes involved have also been characterized in section (3.5.2.) above. The deep subject of the underlying V-NOM appears in the cause-derived verb as the Instrumental object (marked by the preposition NA 'with', 'by'). What is of interest now, however, is the LOC preposition marking the deep object of the underlying V-NOM. Notice the following contrast:

J. aa-cimine ifumo MU-muti 'J. stuck the spear into the tree'

J. aa-kakile ikaamba KU-muti 'J. tied the rope to/around the tree'

J. aa-kumya icimuti PA-mushili 'J. touched the stick on/to the floor'

Since we have argued that all these two-object 'inst.-reversive' verbs

incorporate 'cause' and a(non-agentive) V-NOM verb, the emergence of MU-(into) KU(around-to) or PA(on-to) cannot be explained by 'cause' itself, since it is the common factor involved. Further, the original V-NOM verb shows no overt prepositional complement. Still, the emerging LOC-preposition is highly specific:

J. aa-leenga[icibuku ci-kole umuana] ⟹

'J. caused[the beer to intoxicate the child]'

J. aa-koshya icibuku MU-muana

'J. poured[the beer into the child]'

J. aa-leenga[ulusasa lu-piinde umushi] ⟹

'J. made[the fence encircle the village]'

J. aa-piinshya ulusasa KU-mushi

'J. put the fence around the village'

The converse change, i.e. the 'swallowing' of a specific preposition (LOC) by stativised verbs, can also be observed:

J. aa-cimine ifumu MU-mutu 'J. thrust the spear into the tree'

ifumo lyaa-cimiike umuti 'The spear stabbed the tree'

J. aa-kakile ikamba KU-muti 'J. tied the rope onto the tree'

ikamba lyaa-kakiike umuti 'the rope tied the tree'

J. aa-kumya icimuti PA-mushili 'J. touched the stick onto the floor'

icimuti cyaa-kumyiika umushili 'the stick touched the floor'

The inescapable conclusion derived from all these data, is that the specificity of the LOC preposition resides in the V-NOM iself.It is 'forced'out' by cause-incorporation, but it is inherent, as a PREP-feature, in the V-NOM verb requiring an inanimate subject. The specifi-

city of the preposition involved can be better illustrated in English, which has a wider range of prepositions:

the cloth covered the hole; they covered the hole with cloth
the put the cloth over the hole

the beam supported the roof; they supported the roof with a beam
they put the beam under the roof;

the wall hid the sewer; they hid the sewer with a wall;
they hid the sewer behind the wall
they put a wall in-front-of the sewer;

the water filled the hole; they filled the hole with water;
they poured water into the hole;

the fence encircled the yard; they encircled the yard with a fence;
they put a fence around the yard;

the arrow pierced his arm; they pierced his arm with an arrow;
they shot the arrow into his arm;

The fact that in English the surface=lexical verb must be usually dissimilated, in no way affects the deep semantic relations involved. One must assume then that all V-NOM verbs requiring an instrumental subject (whose 'deep case-marking preposition' is then in ChiBemba NA 'with'), are basically of the type: [---LOC-NOM], but obligatorily incorporate the preposition involved. In Gruber's format of multi-categorial attachment, this is of course quite possible. These verbs will then be characterized as, for example:

'fill' = 'subject goes into object'

'encircle' = 'subject goes around object'

'support' = 'subject goes under object'

'cover' = 'subject goes on-top-of object'

'hide' = 'subject goes before object'

'pierce' = 'subject goes into object'

'tie' = 'subject goes around object'

'touch' = 'subject goes at/on-to object'

etc.

The fact that both the subject-instrumental PREP (NA) and object-locative PREP (PA,KU,MU) do not appear on the surface in these verbs, in either ChiBemba or English, may be due to two separate conditions:

(a) Gruber's condition of 'adjacency' or 'cousinhood', by which a PREP is incorporated into a verb if it is adjacent to it;

(b) A prohibition on the instrumental PREP NA in subject position;

(Note that prohibitions of PREP marking of subject nominals may vary, since English and IchiBemba share the prohibition on NA, but while English also prohibits LOC, IChiBemba does not).

3.8.2.3. Contrasting the Gruber and Fillmore formats for PREP marking

Since both Fillmore(1968) and Gruber(1967a) have applied themselves to the problem of appearance or disappearance of deep prep-case markings on the surface of verbal constructions, it is of interest to contrast their two approaches and find out wheather they may not be notational equivalents of each other.

Briefly stated, in Fillmore's system all nominals 'associated with a verb' appear in the deep structure with their specific case markers, which denote their various relations to the verb.(We have already noted that those 'relations' are, at least for our purpose of accounting for

the deepest possible semantic relations, not quite deep enough). As to surface disappearance of case markings (or PREP), Fillmore deals mostly with their disappearance in subject position in English, as in:

The key opened the door (Instrumental, 'with')

It is hot in the room (locative)

The man opened the door (agentive, 'by')

In Gruber's system deep-structure PREP's are not 'deleted' but rather incorporated into verbs during lexical attachment, under universal conditions, the more crucial of which we have here labeled 'adjacency' (but see Gruber(1967a, p.97, p.130). The two systems will be compared on the following points:

(a) The incorporation of PREP of 'dummy-instrumental subjects'

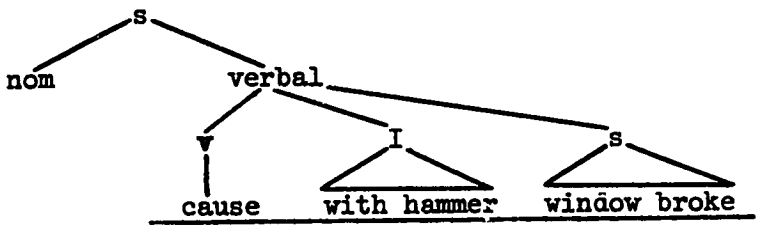
For this note:

he broke the window with a hammer
A I

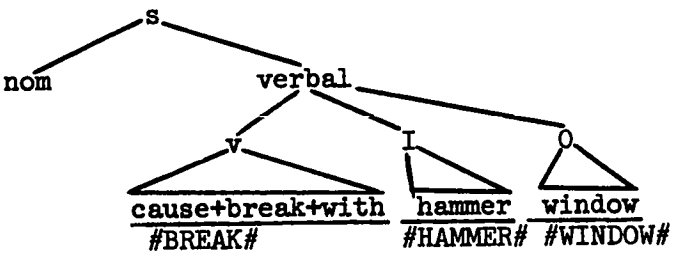
the hammer broke the window
I

*the hammer broke the window with a stone
I I

We have already noted that Fillmore is indeed remiss in not recognising that case I(instrumental) is a case of deep 'cause'. Both Fillmore and Gruber would recognise the T-rule of 'dummy subject slot filling', by which hammer above switches to subject position if the agentive is missing (i.e., Fillmore's option [---OI]). The loss of the PREP will be in Gruber's format, however, a mere consequence of adjacency in the deep(er) underlying structure. So that, given the subjectless string:



The lexical verb 'break$_t$' is incorporated/attached over cause+break$_i$+ with, to give the string:



Finally the 'dummy subject' T-rule applies, as it does in Fillmore's format.

(b) The PREP/PREP-less variation of 'dative' verbs

For this purpose note again:

(a) J. aa-peele umuana icitabo 'J. gave the child a book'

(b) J. aa-peele icitabo KU-muana 'J. gave a book to the child'

There is no provision that I know of in Fillmore's case grammar to account for this. In Gruber's format it would be handled by the same universal condition governing incorporation -- adjacency.

(c) The PREP variation of 'Instr.-reversive' verbs

For this purpose note again:

J. aa-cimine ifumo MUli R. 'J. thrust the spear into R.'

J. aa-cimine R. NA-ifumo 'J. stabbed R. with a spear'

There is no provision that I know of in Fillmore's format to account

for the disappearance of either NA or LOC in these examples. But both are handled in the Gruberian format by the same universal condition already mentioned.

(d) The incorporation of LOC into non-agentive V-NOM's

For this purpose note again:

icibuku cyaa-kola umuana 'the beer intoxicated the child'

J. aa-koshya icibuku MU-muana 'J. poured the beer into the child'

There is no provision that I know of in Fillmore's Case Grammar to account for the incorporation of LOC into verbs, but only for the non-appearance of LOC in subject position, i.e., the 'dummy-subject' IT transformation. This can be of course remedied by recognizing, within the Case Grammar format, with '$fill_i$' assigned the case description:

[---IL] and 'pour': [===ILA]

However, there is no particular reason for doing this within Fillmore's format, since it would not necessarily recognise causative relations between morphologically unrelated verbs, and certainly is not equipped to characterise those.

In Gruber's format, on the other hand, the same one universal condition will account for the 'disappearance' of an inherent LOC preposition. To sum up then, it seems that while Fillmore's format accounts only for a limited number of PREP incorporation, Gruber's accounts for all of them, invoking only one universal condition -- which is not specific to PREP incorporation, but governs all cases of incorporation. Adopting Gruber's format seems therefore highly preferable.

3.8.3 CAUSATIVES OF V-PREP-NOM VERBS

3.8.3.1. Causatives of V-LOC-NOM verbs

At this point this derivation is of no particular interest to us; we have already noted that the same LOC preposition appearing in a LOC-transfer verb appears in the V-LOC-NOM verb which underlies it. The structural changes involved with this rule thus conform to the general schema given in section (3.8.0.3.), with the variable X being in this case a LOC-object nominal.

3.8.3.2. Causatives of 'abstract' V-PREP-NOM verbs

Most of the 'original' verbs in this class require both human subject and object. The PREP involved can be identified as Fillmore's dative. The structural change involved is similar to that of group (3.8.3.1.) above. Thus note:

J. aalenga [R. a-bile KU-mfumu]

'J. made [R. ingratiate (himself) to the chief]'

J. aa-bishya R. KU-mfumu

'J. 'recommended' R. to the chief'

We have earlier suggested that, since both V-NOM's with agentive subjects and V-PREP-NOM with human PREP-objects give rise to the same type of 'dative' transfer two object verbs (V-NOM-PREP-NOM), the two contributing types may be related on a deep semantic level.

Let us take for example -umfwa 'hear, understand, feel' (an active verb in ChiBemba) and -kutika 'listen to'. In what way do they differ, except for the obvious PREP appearing in the second but not in the first? Applying the 'cause' derivation to both, we obtain:

-umfwa R. aa-leenga [J. a-umfwe M.] 'R. made[J. hear M.]'

R. aa-umfwiishya M. kuli J.'R. made-hear M. to J.'

-kutika R. aa-leenga[J. a-kutike kuli M.] 'R. made [J. listen to M.]'

R. aa-kutishya J. kuli M.

The pair does not involve the stative/active contrast found in the equivalent in English. But it seems to involve the same contrast in direction:

-umfwa X hears Y = Y is audible to X = Y's sound goes to X;

-kutika X listens to Y = X is attentive to Y = X's attention goes to Y;

Take now a similar pair, -mona 'see' (active)/-cebuka 'pat attention to':

-mona: R. aa-leenga [J. a-mone M.] 'R. made [J. see M.]'

R. aa-moneshya M. kuli J. 'R. showed M. to J.'

-cebuka R. aa-leenga [J. a-cebuke kuli M.] 'R. made [J. attent to M.]'

R. aa-cebula J. kuli M. 'R. alerted J. to M.'

Here again a contrast in direction seems to be involved:

-mona X sees Y = Y's image goes to X

-cebuka X pays attention to Y = X's attention goes to Y

This seemingly futile exercise suggests the following as at least a possibility worth considering:

(a) Some one-object verbs may contain in their deep structure an inherent feature while specifies: 'object goes to subject' (as in 'see', 'hear') or 'object goes into subject' (as in 'eat', 'drink'). This may be construed figuratively, as in 'see' or 'hear' where it is not the object itself which goes but its sense impressions. But the directionality:

'to subject' (or 'from object') is there.

(b) Other one-object verbs have a reverse inherent directionality: 'subject to object', either concretely or figuratively again.

(c) Verbs of the second type manifest themselves many times, in both ChiBemba and English, as V-LOC-NOM verbs or V-PREP-NOM verbs. The PREP may of course be incorporated, since it is adjacent to the verb. But the initial potentiality for a PREP to be manifested is there;

(d) Since in both ChiBemba and English very severe restrictions hold with regard to the appearance of an 'abstract' dative (or in English also locative) PREP-nominal in subject position, it is perhaps not an accident that the inherent 'to subject' preposition usually is not revealed on the surface in verbs of the first type;

(e) Verbs of the first type are many times likely to manifest themselves as strative verbs.

3.8.4. 'Dative' prepositions arising from 'cause' itself

We have so far dealt with 'submerged' or 'incorporated' prepositions which seemingly, were incorporated into various specific verbs. In the space below we shall attempt to investigate the possibility of a directional-dative 'to' preposition arising from cause itself. First, note that in the following examples it may appear that the KU preposition arising during 'cause' incorporation, depends upon the directionality of the underlying non-cause verbs themselves:

R. aa-leenga[J. a-sumine uku-boomba] 'R. made[J. agree to work]'

R. aa-suminishya uku-boomba kuli J. 'R. made-agree work to J.'

(or, in more intelligible English: 'R. convinced J. to work')

R. aa-leenga [J. a-ishibe ukuti M. aaya]

'R. made[J. know that M. left]'

R. aa-ishibishya ukuti M. aaya kuli J.

'R. made-known that M. left to J.'('R. informed J. that M. left')

R. aa-leenga[J. a-lye umukate] 'R. made[J. eat bread]'

R. aa-liishya umukate kuli J. 'R. fed bread to J.'

So far it may seem that the 'dative-PREP' KU- 'to' may arise from the directionality of: 'know' = 'knowledge goes into subject'

'agree' = 'idea goes into subject'

'eat' = 'food goes into subject'

The following examples, however, make it clear that at best the KU - preposition in those cases is ambiguous, but that its directionality may at times go counter to that of the underlying verb:

R. aa-leenga [J. a-ipaaye inama] 'R. made[J. kill the animal]'

R. aa-ipaayishya inama kuli J. 'R. forced-killing the animal upon J.'

('R. made J. kill the animal')

By no stretch of the imagination can one construe 'kill' as a 'to subject' verb. But a directionality-to-subject clearly emerges through the incorporation of 'cause'. Now, note that upon John above is a case of 'cause':

it was upon John that R. forced the killing of the lion

it was the killing of the lion that R. forced upon John

*it was the killing of the lion upon J. that R. forced

The 'dative-object' John is then a case of 'cause', but not of 'kill', though John is still the subject-agentive of 'kill'.

What emerges out of the discussion, I think, is the suggestion that the 'abstract' dative preposition in two-object verbs, which in ChiBemba is usually KU- and in English many times 'to'(as in see/show, know/teach, eat/feed) , is always the result of the inherent directionality of 'cause' itself: 'to object'. Since this surface-case arises seemingly to mark the deep-subject of the underlying verb -- but also the 'surface-object' of cause, it may be sometimes construed as an ambiguous case marking. This can perhaps be exemplified by cases in which the directionality involved is the reverse:

A doesn't see B (or:A is blind to B)

C makes[A not-see B] = C shields B from A

C forces not-seeing-B upon A

In contrast:

A sees B

C makes[A see B] = C shows B to A

C forces the-seeing-of-B upon A

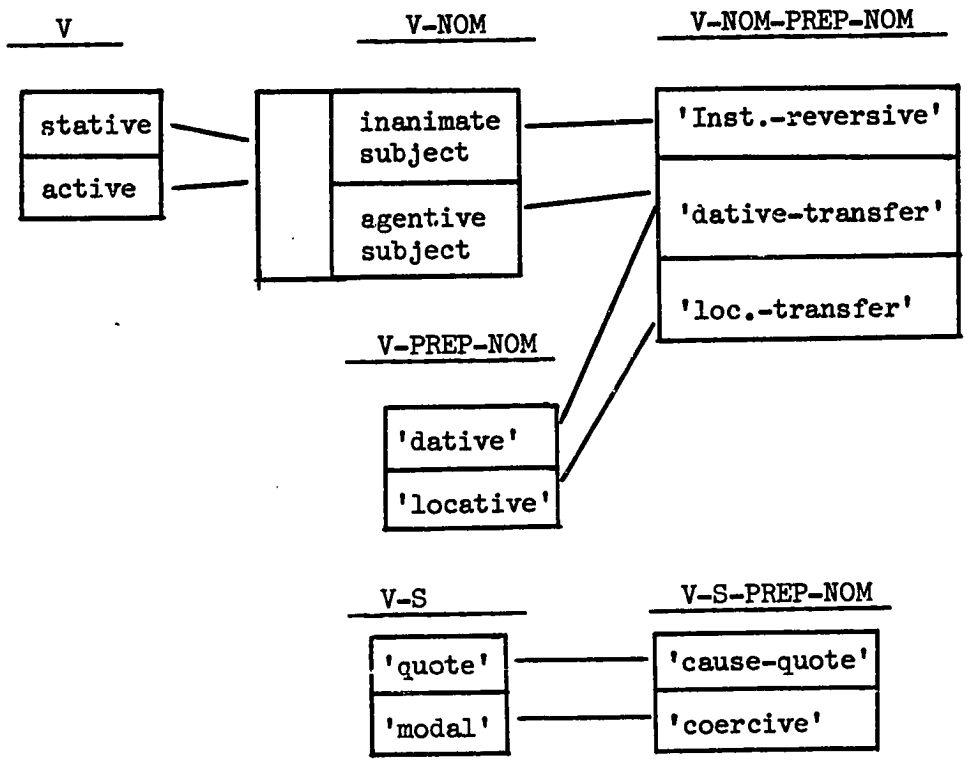
The variation upon/from and upon/to is not a variation of the same case marking, it seems. Rather, upon is the surface-case Object of cause. While to/from may be related to the inherent directionality of the underlying verb itself. (On the negative relation of to/from, see Gruber (1967a)).

A distinction between 'dative of cause' and dative of a non-cause seems therefore an important distinction. One should note, however, that within the current framework of Fillmore's case grammar, this distinction cannot be made, since deep 'cause' is not recognized.

To end this section the following speculation is offered: We have by now seen a variety of cases in which PREP-features, sometimes only directionality to/from, other times more specific, may reside within the verbs themselves. We have further seen that in many instances deep underlying 'PREP-features' of verbs emerge on the surface, and that in many instances this emergence if 'forced' by the syntactic complexity created through the incorporation of 'cause'. But this must imply, unlike the view seemingly held by Fillmore(1968), that on the deepest semantic level, the one we would eventually like to characterise, PREP-features are <u>not</u> features of nominals but, rather, of verbs. Fillmore's various PREP-cases do not, therefore, characterise the deepest level of grammatical relations but, rather, an intermediate level which is usually associated very intimately with the incorporation of 'cause' into lexical verbs.

3.8.5. REFLECTIONS ABOUT OTHER POSSIBLE CAUSATIVE RELATIONS IN VERBS

Whether the incorporation of 'cause' into lexical verbs is achieved by a morphologically-marked rule or non-affixally; whether it is done by 'lexical' or 'grammatical' transformations, it seems that in language groups such as Bantu, Indo-European or Semitic, the <u>presence</u> of 'cause' in the deep structure of many verbs. So far we have mainly suggested that it is always present in two-object verbs. Now, without reflecting on the overt direction of the morphologically-attested derivation, it seems that by surveying the causative rule in ChiBemba, we can establish causative/stative <u>relations</u> between our verb classes described above(3.1. through 3.6.):



Since the role of 'cause' in the link between one-object and two-object verbs is relatively well established, we shall in the space below concentrate upon other possible links.

3.8.5. The V---V-NOM causative link

As we have shown earlier, both stative and active intransitive verbs give rise to V-NOM verbs through the causative derivation. We have further shown that the resulting V-NOM verbs can be shown to be different in their semantic structure, for example with regard to the ambiguity or non-ambiguity of active manner adverbials (including instrumentals).

Now, one would like to go further and ask oneself whether it is not only overtly-derived V-NOM verbs which are causatively-related to intransitive verbs, but all V-NOM's, regardless of their overt morpholo-

gical structure, that are semantically 'based' upon 'cause' plus an active or stative verb of our V type. Again, this should not imply a judgement as to the overt morphologically-marked direction of actual derivation rules. Morphologically, in both ChiBemba and English, derivations in either direction may happen. Thus, -ipaaya/-fwa 'kill/dié' are morphologically unrelated. On the other hand, 'boondoka/-boondola 'be soft'/'soften' are morphologically related but in a way that makes it impossible to judge the direction. -ciinda/-ciinshya 'dance'/'make-dance' are morphologically related with the derivation going V to V-NOM. But -funika/-funa 'break$_i$'/'break$_t$' are morphologically related with the derivation going, overtly, V-NOM to V.

3.8.5.2. Reflexive-Cause

Fillmore(1968, p.31) has observed that certain relations hold between pairs of verbs such as: 'see/look at', 'hear/listen', 'know/learn', the difference between which he characteri ed as that between an agentive(A) and a dative(D) subject. He noted that case A is 'active animate' and case D 'merely animate'. We have earlier suggested that case A is always a case of 'cause'. We have also suggested above that 'cause' itself is a to-object (or from-subject) verb. We have also suggested that verbs such as 'know', 'see', 'hear' in English are from-object (or to-subject) verbs. One could perhaps bring all these facts together and claim that in the three active members of the pairs above reflexive-cause is involved. This would imply paraphrases as (at this point one needs to heed Gruber's(1967a) cautioning words concerning the usefulness and limitations of what he terms 'representationally significant para-

phrases': "...The language may be wanting in lexical items to represent certain underlying structures, or it may possess obligatory transformations which always obscure the underlying structure... That a representationally significant paraphrase exists only indicates that the language in question has appropriate means of representing underlying categorial structure; the non-existence of such paraphrases cannot by itself be taken to mean that certain underlying categorial structures do not exist in the language..."(ibid, p.61) "...In some cases it is profitable to discuss underlying categorial trees solely in terms of representationally significant paraphrases. This must be understood to be only a matter of convenience. Since complete knowledge of underlying categorial trees is not at hand, we cannot adequately discuss sentences in terms of them without making assumptions that are too bold..."(ibid, p. 62)):

'look': 'cause oneself to see'

'show': 'cause someone-else to see'

'learn': 'cause oneself to know'

'teach': 'cause someone-else to know'(also:'cause...to learn')

'listen': 'cause oneself to hear'

'...?': 'cause someone-else to hear'

('make-hear' is not a lexical verb in English, but it is in ChiBemba, derived overtly by 'cause': -umfw-ishya .)

If these paraphrases are accepted as 'representationally-significant' (though surface 'make' or 'cause' are never fully equivalent to the 'deep' verb cause), then several systematic similarities between 'look', 'listen' and 'learn', on the one hand, and 'show', 'make-hear'

and 'teach' on the other hand, find a natural explanation:

(a) Both groups require an agentive subject;

(b) Both take the 'present-continuous' tense as active verbs;

(c) Both are iterated by 'do' in 'do so' iteration;

(d) Both are to-object verbs;

(e) Both take active manner and instrumental adverbs;

Further, all these properties have already been identified earlier as properties of the deep verb 'cause'.

Fillmore(1968) also suggests that active motion verbs require an agentive(A) subject. All V-LOC-NOM in our classification are to-object verbs. Even the 'stative' or 'terminative' amongst them (such as -pona 'to have fallen') are iterated by 'do' in 'do-so' iteration. At least as far as the active ones are concerned, one may go further now and suggested that they are semantically based on cause-reflexive:

'go to' = 'cause-oneself to move to'

'jump over' = 'cause-oneself to move over'

'climb upon' = 'cause-oneself to move upon'

'run to' = 'cause oneself to be at(fast) motion to'

etc.

(Note that the surface-lexical verb 'move' itself is ambiguous, but above it is used as the non-active (nonagentive subject) move, as in: 'it moved slowly down the river'; as against: 'he moved vigorously about the house'). The usefulness of this suggestion, if adopted, is that it may explain why active verbs of motion such as 'run', 'jump', 'go', 'walk', 'swim' etc. differ from stative verbs of motion such as 'slide', 'roll', 'float', 'glide' etc. by precisely the same properties (a) to

(e) above, which are -- we have already noted -- also the properties characteristic of the deep verb 'cause'.

Ultimately, perhaps, one could extend this analysis to all active intransitive verbs, to treat them all as cause-reflexives based upon stative intransitive verbs. If this final link is established, then the entire verb system could be viewed as made of many primitive stative verbs plus the deep verb 'cause' -- which is the verb that can be taken only by human-agentive subjects. And the development of V-NOM or V-NOM-NOM or V-NOM-NOM verbs, can be then viewed as the recursive incorporation of 'cause' into the structure of surface-lexical verbs. If this can be at all established, our rule expanding the category VERBAL (VP) can be revised to read, as a universal rule for all languages:

$$\text{VERBAL} \rightarrow \begin{Bmatrix} [+V] \\ [+\text{cause}]\ S \end{Bmatrix}$$

3.8.5.3. The incorporation of 'cause' and Linguistic Typology

As noted earlier, Bantu, Indo-European and Semitic languages are all languages which incorporate the deep verb 'cause' into surface-lexical verbs. It is of great interest to see in what manner the syntax of languages which do not incorporate 'cause' likewise -- or incorporate it only optionally -- may differ from that of 'cause-incorporating'

Some languages which do not incorporate 'cause' are described by Stahlke(1969). In one of those, Yatye (a Kwa language of Nigeria), the particle aba is used as the 'cause' or 'active' marker in several constructions. Thus, for example (see ibid, p.6 and on), for stative verb

'be shut':

(a) utsi iku 'the door is shut'

(b) utsi aba iku 'the door cause shut' : 'the door shut(itself)'

(c) iwyi aba utsi iku 'boy cause door shut': 'the boy shut the door'

(d) otsi aba utsi iku 'stick cause door shut': 'the stick shut the d.'

(e) iwyi aba otsi iku utsi 'boy cause stick shut door'

'the boy shut the door with the stick'

Stahlke(ibid, p.8) further points out that (c) above is ambiguous and can be paraphrased by:

(c') iwyi aba utsi aba iku 'child cause door cause shut'

'the child made the door shut itself'

(c') is unambiguous, and cannot mean: 'the child made the door be shut' which is the other interpretation attached to (c). What we have seen in (c), then, is an optional incorporation of 'cause' into 'shut'.

Now, (e) above also shows an incorporation of 'cause' into 'shut', (with the ambiguity mentioned for (c) for the moment disregarded), and can be further paraphrased by:

(e') iwyi aba otsi aba iku utsi 'child cause stick cause shut door'

('the child caused the stick to cause the door to shut/be shut')('the boy shut the door with a s.)

One step of 'cause' incorporation gives (e) above. Another step of incorporation is now also possible, as a result of which the double-cause verb iku 'shut' remains alone on the surface, not in:

*iwyi otsi iku utsi *'boy stick shut door'

but rather as:

(e'') iwyi iku utsi ni-otsi 'boy shut door with-stick'

Thus, the only possible preposition in Yatye, the instrumental marker ni, has emerged onto the surface here as the result of the second incorporation of 'cause' into the same verb! What makes this data particularly exciting, is that it seems to confirm our earlier hypothesis about the emergence of overt PREP-case markings as the result of the incorporation of 'cause' into lexical verbs -- and the ensuing structural changes which upset the original Subject-verb syntactic order. The same 'cause' verb aba is used for verbs such as 'break' or 'tear-out' in Yatye, with the same type of constructions as (a) to (e'') above shown.

In other verbs, particularly those paralleling our two-object verbs, not a single, 'unspecialized' cause verb is used as the main verb in the 'serialised' string, but rather partially-specialised lexical verbs, which have already incorporated 'cause' into them, are used. This can perhaps be construed as an intermediary step in the typology, where a 'cause-incorporating' verb has become specialised, to the extent that it may dominate only a certain kind of non-cause verb , but not others. Thus, for Yoruba:

(f) Mo mu gbogbo awon-omode lo Eko
I took all pl.-child go Lagos
'I took the children to Lagos'

(g) Mo mu iwe wa fun ẹ
I took book came gave you
'I gave you a book'

Or in Yatye:

(h) iwyi awá inyahwe awa itywi

child took book went home

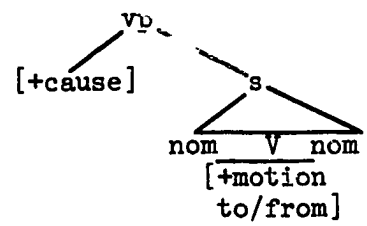
'the child brought the book home'

(i) ami awá inyahwe ibi aka awo

I took book came for you

'I brought you a book'

The verb 'take' in both languages, although translated as such, is not fully equivalent to English take. It has incorporated 'cause' and to that extent is similar. It is, further, used especially or only in 'take contexts. But it still requires another one (or two) complement verbs to follow it, in order to bring the meanings of: 'give', 'bring' or 'take' by themselves. Conversely, the verbs translated above as 'give' or 'for' are not equivalent to English 'give'. They have specialised to deal with a roughly comparable situation, but they have not incorporated the verb 'cause', and therefore still require a cause-incorporating verb such as awá (Yatye) or mu (Yoruba) to dominate them. These verbs are of course highly specialised already, but nevertheless the deep structure of the 'transfer-verb' constructions above can be still construed as, at least minimally:



which is the deep structure we have claimed exists for two object verbs of the 'transfer' type in cause-incorporating languages.

On the syntactic surface, it seems, Stahlke's 'serialising languages' show precisely the kind of structure which we would like to claim also underlies the semantic structure of verbals of cause-incorporating languages. Thus typologically, on the syntactic level, the two groups seem to differ enormously. But on the semantic level this author would like to suggest that perhaps not only 'serializing' languages but also cause-incorporating languages, share the rule:

$$VP \rightarrow \left\{ \begin{matrix} [+V] \\ [+cause] \quad S \end{matrix} \right\}$$

Another consequence of non-incorporation of 'cause' into surface-lexical verb, seems to be that the KWA languages Stahlke describes are just about devoid of prepositions. (And one of the rare exceptions to this was shown above, i.e., the appearance of ni as the instrumental marker -- if 'cause' is fully incorporated into a surface verb.) As we have suggested earlier, following repeated examples which pointed out that verbs may carry inherent prepositional features (i.e., inherent features which may in many cases be 'spelled' by separate morphemes attached to object nominals), prepositions seem to appear on the syntactic surface as a result of the incorporation of 'cause' into verbs and the ensuing structural changes which obscure the grammatical relations of the various nominals vis-a-vis deep 'cause' and the other deep-structure verbs involved. The prepositions thus function to signal those deep grammatical relations. In cause-non-incorporating languages, however, there is no comparable upsetting of the 'normal' grammatical order. So that in:

iwyi aba otsi aba iku utsi 'boy cause stick cause close door'

there is never any doubt about the subject of the first 'cause' being 'child' (which precedes it), and the subject of the second 'cause' being 'stick' which precedes it. Our hypothesis concerning the emergence of prepositional marking systems, therefore, receives further support from the fact that in non-cause-incorporating (or 'serialising') languages, such as Yatye, Yoruba or Igboo, prepositional markings have not emerged. While in cause-incorporating languages such as Bantu, Indo-European or Semitic, they did.

Finally, it is of interest to reflect that Bantu languages are genetically related, albeit distantly, to the Kwa languages of West Africa. The incorporation of 'cause' into surface-lexical verbs has wrought enormous surface-syntactic changes in the structure of the language and its morphemic categories. Under the surface, the two groups show great deep-structure similarity. The differences with regard to 'cause' incorporation, however, are crucial for comparative work. In particular, when one wishes to compare verb lists, it may very well be that the very low rate of cognates between Bantu and Kwa reflects the fact that Bantu languages either created many new 'cause'-incorporating lexical verbs, or have used many 'old'(and perhaps erstwhile 'common') verb stems, which were perhaps shared by both groups at some distant point in history, as more and more specialized 'cause-incorporating' verbs. The realisation that common semantic structure may be still shared, and the elucidation of some of the specific properties of that semantic structure, may yet make it possible to compare the verb lexicon of the two groups in a more systematic manner.

BIBLIOGRAPHIC REFERENCES

Chomsky,N., (1965), Aspects of the Theory of Syntax, The M.I.T. press, Cambridge, Mass..

Chomsky,N., (1966), English Syntax, lecture notes, Summer Institute of Linguistics, The University of California, Los Angeles.

Chomsky,N., (1968), "Remarks on Nominalisations," unpubl. mimeo, M.I.T., Cambridge, Mass..

Doke, C.M., (1935), Bantu Linguistic Terminology, Longmans, Green and Co., London, New York, Toronto.

Fillmore,C.J., (1968), "The Case for the Case," in Bach and Harms (eds.), Universals in Linguistic Theory, Holt, Reinhardt and Winston, New York, Chicago, San Francisco.

Garcia,E., (1967), "Auxiliaries and the Criterion of Simplicity," Language, 43, pp. 853-870.

Givon,T., (1967), "Transformations of Ellipsis, Sense development and Rules of the Lexicon," SP-2896, Systems Development Corp., Santa Monica, California.

Givon,T., (1969), The SiLuyana Language, University of Zambia, Institute for Social Research, Lusaka (in press).

Givon,T., (1970), "On Ordered Rules and the Modified Base of ChiBemba verbs," African Studies, Witwatersrand University, Johannesburg.

Givon,T., (in preparation), Modality in ChiBemba and Bantu.

Gorman, , (1950), Lozi Grammar.

Gregersen,E.A., (1967),"Prefix and Pronoun in Bantu, Memoir 21," IJAL, Indiana University, Bloomington, Indiana.

Gruber,J., (1967a),"Functions of the Lexicon in Formal Descriptive Grammars," TM-3770, Systems Development Corp., Santa Monica, California.

Gruber,J., (1967b), "Look and See," Language, 43, pp. 937-947.

Guthrie,M., (1948a), Bantu Word Division, International African Institute, Oxford University Press, London.

Guthrie,M., (1948b), Gender, Number and Person in Bantu Languages, Buletin of School of Oriental and African Studies, XII, pp. 847-856.

Guthrie,M., (1961), Bantu Sentence Structure, School of Oriental and African Studies, University of London.

Hall,B.C., (1965), "Subject and Object in Modern English," unpublished Ph.D. dissertation, M.I.T., Cambridge, Mass..

Hockett,C.F., (1948), A Course in Modern Linguistics, MacMillan, New York.

Kashoki,M.E., (1967), "A Phonemic analysis of IchiBemba," unpublished M.A. thesis, Michigan State University, East Lansing, Mich.. Also to appear as Zambia Paper #2, Institute for Social Research, Lusaka.

Lakoff,G., (1965), "The Nature of Syntactic Irregularity," NSF-16, Harvard Computation Laboratory, Cambridge, Mass..

Lakoff,G., (1967), "Some verbs of Change and Causation," NSF-20, Harvard Computation Laboratory, Cambridge, Mass..

Lakoff,G., and S.Peters, (1966), "Phrasal Conjunction and Symmetric Predicates," NSF-17, Harvard Computation Laboratory, Cambridge, Mass..

Lindenfeld,J., (1969), "A Grammar of Yaqui," unpublished Ph.D. dissertation, The University of California, Los Angeles.

Marconnes,F., (1931), A Grammar of Central Karanga, Johannesburg.

Postal,P.M., (1966), "On So-Called'Pronouns' in English," 17th annual rou table, Georgetown University, Institute of Languages and Linguistics, pp. 178-206.

Rosenbaum,P.S., (1967), The Grammar of English Predicate Complement Constructions, M.I.T. Press, Cambridge, Mass., Research Monograph #47.

Ross,J.R., (1966), "Auxiliary Verbs as Main Verbs," unpublished mimeo, M.I.T., Cambridge, Mass..

Ross,J.R. and G.Lakoff, (1967), "Is Deep Structure Necessary?" unpublished mimeo, M.I.T., Cambridge, Mass..

Sambeek,J. van, (1955), A Bemba Grammar, Zambia Publications Bureau, Lusaka.

Schane,S., (1966), A Schema for Sentence Coordination, MITRE Corp., Bedford, Mass..

Schane,S., (1969), "Disjunctive of Conjunctive(?) and Intrinsic or Extrinsic(?) ordered rules in Phonology," Linguistic Notes from La Jolla, 1, pp. 16-45, The University of California, San Diego.

Sharman, J.C., (1955), "The Tabulation of Tenses in a Bantu Language," Africa, 25, #4, pp. 29-46.

Sharman,J.C., (1963a), "Morphology and Meaning in the Single-Word Verb-forms of Bemba," Unpublished Ph.D. dissertation, Dept. of Bantu Languages, The University of South Africa.

Sharman,J.D., (1963b), "Nominal and Pronominal Prefixes in Bemba," African Language Studies, IV, pp. 98-127.

Sharman,J.C. and A.E. Meeussen, (1966), "The Representation of Structural tone," Africa, 26, #1, pp. 393-404.

Sims,G.W., (1959), An Elementary Grammar of ChiBemba, Mansa Mission, Fort Rosebery, Northern Rhodesia.

Stahlke,H., (1969), "Some Properties and Implications of Serialisation," unpublished mimeo, Dept. of Linguistics, The University of California, Los Angeles.