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SEMANTICS - KARITIANA KINSHIP SYSTEM

INTRODUCTION

Kinship has been the subject of anthropological analyses for a long time. Anthropologists agree about the fact that the only way one can go about studying a kinship system is, first of all, to analyze the terminology involved. In 1962 Frake pointed out ~~to~~ the existence of a serious methodological problem human (as opposed to ?) scientists face when "discerning how people construe their world of experience from the way they talk about it". According to Frake, anthropologists have frequently failed to understand the cognition of their subjects because they generally did not give importance for linguistic analysis. The methodology Frake (1962) proposes to deal with terminology systems (i.e., the classification of plant or animal species or kinship systems) of a given culture in his opinion will reveal a great part of that culture's cognition. If we take Frake's idea to an extreme, linguistics should be considered a subarea of anthropology, since ethnographies cannot be produced without a serious analysis of terminological systems. This approach to linguistics and anthropology was spread and is still practiced to this day by followers of Boas. In 1967, in his book entitled "Kinship and Marriage", Fox makes a comparison of kinship terminology and social organization in different human populations and concludes

but isn't he saying also not we don't just look at what people say

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that " reality changes faster than language, Which is very conservative" He mentions that "sometimes, distinctions are built into the language which have no bearing on reality". It is important to note that the distinction between language and cultural reality is not in contradiction with Frake's idea that terminological systems reveal a culture's cognitive system. On the contrary, Fox and Frake's theoretical approaches to kinship complement each other to such a point that we can start to imagine what kinds of use can be made from this knowledge. In this paper we will, making use of the ideas discussed above, analyze a specific kinship system according to a model of terminological classification and propose ways to develop further research on the interface between linguistics and social organization. The population we chose to study were the Karitiana, speakers of the last surviving language of its family (Karitiana: Arikem family, Tupi stock) who live in their own indian reservation located at 95 Km from the city of Porto Velho, Rondonia state, Brazil.

good intro.

LITERATURE ON KINSHIP CLASSIFICATION

In this section we intend to discuss in detail some of the methodologies proposed for the study of kinship terminological systems.

Frake (1962) proposes a hierarchy of terminological classes semantically distinguished from more general to more specific which could be visualized as classes and subclasses of the "objects" they classify. The concepts he uses to describe these

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classes are basically the following: "Segregate", "contrast sets", "taxonomy" and "attributes". Segregates are semantic units which play a key role in speech situations; they denote a terminologically distinguished array of objects. For instance, the word "father" is a segregate of the English speaking world of kinship classification (Eskimo kinship system) which has only one member; in other kinship systems a similar segregate could contain those "objects" which we call one's "father's brothers" or "cousins". To analyze a segregate the researcher should be careful not to jump from morphological and syntactic analysis directly to cognitive relations. For instance, the category "Eskimo pie" is not to be classified as a subgroup of the "pie" segregate, but as a subcategory of the "ice cream" segregate. The notion of contrast sets comprises a series of terminologically contrasted segregates. Contrast is here used only between two categories whose differences are significant for defining their use. For instance, "father" and "mother" constitute a contrast set as male and female versions of the segregate "parent", but "father" and "husband" do not, since their differences are clear in every kinship system. The notion of taxonomy is used to define a system of contrast sets related by inclusion. Here again, the linguistic forms should not be dissociated from their use; it is the distribution of each term that is used as a criterion for inclusion of a contrast set in a given taxonomy. Frake points out that the use of taxonomic systems is a "fundamental principle of human thinking", and not just a tool created by his theory. The final notion, attribute, is what will be used to define two

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contrastive sets. As mentioned before, the attributes, or defining characteristics of "objects" must be determined empirically to avoid the transfer of notions from the researcher's culture into the classification system under analysis.

The methodology proposed by Frake introduces important ideas such as 1) the grouping of classificatory categories according to a hierarchy, capturing the universal that linguistic terminologies reflect the systemic characteristics of language as a whole; and 2) the distinction between the researcher's cognitive reality and the cognitive reality of the culture being studied. These facts about classificatory systems will be used in our analysis of the Karitiana kinship terms. The specifics of Frake's methods, however, will prove inadequate for the analysis of more complex kinship systems, since not only hierarchical sets, but rules expanding them are needed in their description.

Another scholar who dealt with kinship classification and proposed methods of describing them is Lounsbury (1954 and 1964). He first proposed the use of a methodology called componential analysis to describe any kinship system through the division of the universe of relatives into categories by means of a few distinctions. These distinctions ("generation", "lineal" vs. "collateral", "cross" vs. "parallel") can basically be seen as universal features of kinship classification systems which relate each element with other elements in the system. It is possible to make an analogy between these "semantic features" of kinship systems with linguistic "distinctive features". In 1964 Lounsbury

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enriched his componential analysis with rules, which he found had to be added to the features, to extend some kinship categories. The finding that rules had to be part of a universal account of kinship terminology became clear when Lounsbury realized that in the Pawnee kinship system, apart from the basic categories described by features (for instance, "father" = 1st generation lineal kinsmen to Ego), there was a need for extensions of these categories to other elements who were not described by those features. Pawnee men call their agnatic great-great-grandfather - their father's father's father's father - by the term "father" because in their society there is an identification between Ego and fourth generation agnatic kinsmen of the same sex. We will not discuss Lounsbury's analytical tools here to avoid complicating this paper with formalisms which we will not be using in our own analysis of karitiana. It is important to mention, though, that the extension rule analysis proposed by Lounsbury will be one of the theoretical tools we will be considering important in a universal account of kinship systems.

Finally, we intend to adopt a model which we believe provides a universal account of the differences in kinship systems. The model was proposed by Woolford (1984), who describes it as a combination of componential analysis, extension rule analysis and relational analysis. The latter, Woolford explains, was developed by Atkins, Greenberg and Wallace in an attempt to characterize each category of a kinship system by means of a concatenation of two relational functions. These functions are "parent of" and "child of", and follow from our intuitive

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approach to describing kinship terms; whenever two people start talking about kinship they can make use of these two basic relational functions in order to explain any term in a system. The merit of Woolford's model is to synthesize the above described ideas into a formal generative system which can be constrained according to universal patterns.

The model consists of three basic generative modules hierarchically related; this ordering restricts the combinations of rules, resulting in a system which generates only the existing kinship categories. The rules used are limited and standardized and a certain combination of rules is proposed to be expected for each one of the four basic typological kinship types. The first module, called **base component**, is formed by **relational products** and **extension rules**. The former can be defined by the following relations: "Father/mother of", "sibling of", "child of" and "parent's". The extension rules are responsible for the expansion of the membership of kinship categories. All but one of them are optional, but certain combinations of rules frequently happen and should be expected in each of the four kinship types: Eskimo, Iroquois, Dravidian and Crow/Omaha. We will avoid going into a detailed explanation of each one of these systems, since our goal with this paper is to test Woolford's model against the Karitiana kin classification only, which has been described (R. Landin 1989) as Dravidian. One rule which can be mentioned as universal is the Full-Sibling Axiom, which says that one's brother can be defined as one's parent's son and one's sister as one's parent's

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daughter (B --> PS; Z --> PD) . Table 1 represents[1] the rule combinations expected for other systems. The second component of Woolford's model is the reciprocals component. As it had already been noticed by Lounsbury (1964), some kinship categories can be derived as reciprocal to others. For instance, the category "child" is derived as a reciprocal to the category "parent". Since "parent" is generated in the basic component, the generation of the category "child" has to be ordered after the basic component; to determine a reciprocal one has to take the reverse path of the relation determined in the base component, beginning with alter and ending with Ego. So if "parent" is "parent of" Ego, "child" will be "child of" alter. The reciprocal rule is a universal that must have precedence over other rules, and for that reason is ordered before the ones in the third component. Table 2 represents the basic and reciprocals component in Woolford's model. The third and last module of the model is the **partitions component**. There the superordinate categories generated in the base and reciprocal component undergo divisions into terminal named categories by means of componential analysis. The features that are described by Woolford as dividing categories in languages are: sex of alter, sex of Ego, sex of alter vs. sex of Ego, sex of first relative in the kinship chain (for instance, if you are taking about your grandmother, maybe the sex of your parent who is her child matters for the choice of terminology), sex of first versus sex of second relative in the

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1. Where B means "brother", P means "parent", S means "son" Z means "sister" and D means "daughter".

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Table 1.

Eskimo - Type

Table 4. Kin-term grammar for Turkish consanguineal categories.

Base component
1 Parent: {mother, father}
4 Nuncle: sibling of (Parent)
5 Ancestor rule (Extension)
9 Grandparent: parent's (Parent and Nuncle)
12 Sibling: child of (Parent)
15 Cousin: child of (Nuncle)

Reciprocals component
2 Child: reciprocal of (Parent)
6 Nibling: reciprocal of (Nuncle)
10 Grandchild: reciprocal of (Grandparent)
16 Merge "reciprocal of (Cousin)" with Cousin

Partitions component
13 Divide by relative age of ego versus alter: Sibling
14,11,7,3 Divide by sex of relative: Parent, Nuncle, Grandparent, Elder Sibling, Child
2 Divide by sex of first linking relative: Nuncle

Iroquois - Type

Table 6. Kin-term grammar for Seneca consanguineal categories.

Base component
1 Parent: {mother, father}
2 { Full-Sibling axiom; Same-Sex Sibling rule; Linking Sibling rule } — Parallel kinsmen of +1G → parent category
4 Nuncle: sibling of (Parent) — cross kinsmen of +1G → uncle category
7 Grandparent: parent's (Parent and Nuncle)
11 Sibling: child of (Parent)
14 Cousin: child of (Nuncle)

Reciprocals component
2 Child: reciprocal of (Parent)
5 Nibling: reciprocal of (Nuncle)
8 Grandchild: reciprocal of (Grandparent)

Partitions component
12 Divide by relative age of ego versus alter: Sibling
6,3 Divide by sex of relative: Parent, Nuncle, Grandparent, Sibling, Child, Nibling, Grandchild
10 Divide by sex ego: Nibling

9,13,15

Table 10. Kin-term grammar for Baniata consanguineal categories.

Base component
1 Parent: {mother, father}
2 { Full-Sibling axiom; Same-Sex Sibling rule; Ancestor rule; Crow Skewing rule: FaMo = FaSi }
5 Nuncle: sibling of (Parent)
7 Sibling: child of (Parent)

Crow - Type

Reciprocals component
3 Child: reciprocal of (Parent)
6 Nibling: reciprocal of (Nuncle)

Partitions component
8 Divide by sex of ego versus sex of relative: Sibling
4 Divide by sex of relative: Parent

from Woolford (1984)

Table 2

Table 1. The base component.

Parent: {mother, father}
Full-Sibling axiom
• Same-Sex Sibling rule
• Ancestor rule
• Linking Sibling rule
• MBD Dravidian rule
• FZD Dravidian rule
• Crow Skewing rule: FaMo ∅ FaSi
• Omaha Skewing rule: MoFa ∅ MoBr
• Alternate Generations Crow rule: FaMo ∅ FaSiDa
• Alternate Generations Omaha rule: MoFa ∅ MoBrSo
Nuncle: sibling of (Parent)
Full-Sibling axiom
• Ancestor rule
• Linking Sibling rule
Grandparent: parent's (Parent and Nuncle)
• Ancestor rule
Sibling: child of (Parent)
• and child of (Nuncle)
Cousin: child of (Nuncle)

Note: • signifies options that may or may not be part of a particular kin-term grammar.

Table 2. The reciprocals component.

Child: reciprocal of (Parent)
Nibling: reciprocal of (Nuncle)
• merge Nibling into Nuncle
Grandchild: reciprocal of (Grandparent)
• merge Grandchild into Grandparent
Merge "reciprocal of (Sibling)" into Sibling
Merge "reciprocal of (Cousin)" into Cousin

Note: • signifies options that may or may not be a part of a particular kin-term grammar.

from Woolford (1984)

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example?

kinship chain, and the relative age of Ego and alter. She mentions that a universal in this component is the fact that the parent category is always divided by sex.

Rachel Landin's M.A. thesis dealt with the Karitiana naming and kinship system. She has lived among the karitiana as an SIL missionary for five years during which she gathered her data and cooperated with her husband David in the description of the Karitiana language. We will use her description of the Karitiana kinship categories in this paper because the data gathered on the subject in our two-month field work is highly incomplete and unanalyzed. Also, we intend to suggest guidelines for future research with the Karitiana which may help us understand some aspects about the nature of linguistic classification.

THE KARITIANA KINSHIP SYSTEM - DRAVIDIAN WITH AN EXTRA RULE

In this section we intend to apply Woolford's model to the case study of the Karitiana kinship terminology. The claim of universality Woolford makes for this model can be corroborated if it successfully generates all 30 kinship terms used by the Karitiana. We should keep in mind that it is impossible to prove a theory; all one can do is offer evidence to either falsify or corroborate a given hypothesis.

& only generates them (don't want too much power)

We believe to have given evidence to the reader that Woolford's model is able to generate all 30 Karitiana kinship categories. The following is a step-by-step discussion of this process.

wait, have you done that yet?

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1. In the base component the "parent" category is generated by the relational product "parent of Ego". The extension rules needed for Karitiana are the three rules expected for a Dravidian kinship system (1 to 3 below), plus and extra idiosyncratic rule (rule 4 below):

1) Full-Sibling Axiom (universal):

B --> PS

S --> PD

2) Same-Sex Sibling Rule:

F --> FB

M --> MZ

3) Dravidian Rule:

Ego's mother's male cross-cousin = father

Ego's father's female cross-cousin = mother

4) Karitiana Rule:

Ego = same-sex agnatic grandparent (father's parent of the same sex as Ego).

It is worth explaining each one of these rules in more detail, since they characterize the whole extension of the superordinate categories in Karitiana. Every time a superordinate category is generated as a relational product in the base component, it undergoes the extension rules 1 to 4. Rule 1 is a straightforward description of what happens in all kinship systems with the parent category: Ego's parent's female child is his/her sister and Ego's parent's male child is his/her brother. Rule 2 is more complex: the "father" category is extended to include Ego's father's male siblings and Ego's mother's female

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siblings. Rule 3 is the most complex rule we will be dealing with in Dravidian kinship systems: Ego's mother's male cross-cousins (those male cousins who are sons of Ego's maternal "grandfather"'s siblings or of Ego's maternal "grandmother"'s "brothers") are identified and equated with Ego's father, and Ego's father's female cross-cousins (those female cousins who are daughters of Ego's paternal "grandmother"'s siblings or of Ego's paternal "grandfather"'s "sisters"). This happens because the Karitiana and all other Dravidian kinship systems have a rule of preferential marriage with a cross-cousin; since Ego's parents' cross-cousins are the potential spouses of his/her (Ego's) parents, the term for these elements will be "father" and "mother". The notion "cross" describes an alter whose kinship chain to Ego is not parallel (agnatic = linked through a male chain or uterine = linked through a female chain). Rule 4 is idiosyncratic to the Karitiana and equates Ego with his/her paternal grandparent of the same sex. These two individuals are identified by means of kinship terminology. This kinship distinction reflects the naming system of the karitiana according to which a child is given his/her same-sex agnatic grandparent's name. Since in Karitiana society people's names are taboo words, the use of kinship terms as a form of address and reference is common. The term used for a boy's paternal grandfather is **ombyj**, which means "big chief", and that boy calls the male children of his **ombyj** (his "fathers") by the term 'it, which is the term a father uses for his children. The same term **ombyj** is used by a girl to her paternal grandmother. The term a girl calls her

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"father", though is **syp**, which means "semen", and for that matter reflects the semantics expected: "semen" = "child of". If we recall what Frake said about not taking the morphemic structure of kinship categories as literal explanations of their meaning, the analysis above seems to fit well with the Karitiana notions of kinship expressed by rule 4.

2. In the reciprocal component the category "parent" will generate the category "child".

3. In the partitions component both categories generated up to now will be divided. "Parent" is first divided by sex. Then "father" is divided by sex of Ego generating the terminal categories **syp** for a female ego and 'it for a male Ego. "Mother" is not divided: ti. The category "children" is divided by sex of ego: Female Ego uses 'et and male Ego uses 'it.

4. In the base component another superordinate category is generated: "Nuncle" (uncle and aunt), or the "sibling of parent". Here we should keep in mind that the "parent" category has been extended to include FB and MZ as well as Ego's mother's male cross-cousins and Ego's father's female cross-cousins. The siblings of all these elements will be considered Nuncle.

5. In the reciprocal component the category Nibling will be created as a reciprocal of Nuncle (Ego calls "Nibling" for an alter who calls him/her "Nuncle").

6. In the partitions component "Nuncle" will be divided first by kind of linking relationship to Ego: Agnatic or cognatic. Then, "Agnatic Nuncle" will be divided by sex of alter: **sokit** is the terminal name for agnatic aunt. "Agnatic uncle" will be divided

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by age of alter: older agnatic uncle will be called **sypyty**. "Younger agnatic uncle" will be divided by sex od Ego: **sypy'et** will be used for a male ego and **sypysin** for a female Ego. "Cognatic Nuncle" will be divided by sex of alter; "cognatic uncle" will the be further divided by sex of Ego: A male Ego will use the term **ta'it** and a female Ego will use the term **syky'et**. "Cognatic aunt" will be divided by relative age of alter: An older "cognatic aunt" will be called **tiity** and a younger "cognatic aunt" will be called **ti'et**. The "Nibling" category is divided first by linking relationship with Ego - agnatic vs. cognatic - and then by sex of Ego: A man's agnatic "nephew" will be called **itogot** and his agnatic "niece" will be called **tiogot**. All other man's "Niblings" are his **saka'et**. A woman's agnatic "niece" is also her **tiogot** and all her other "Niblings" are further divided by the relative age of her "sibling": her older "sister"'s children will be called **haja'et** and her younger "sister"'s children will be called **koroj'et**.

why is this? what is, is there a cultural reason or some distinctions & for others?

7. The "grandparent" superordinate category is derived in the base component.

8. The "grandchild" component is created as a mirror image of the "grandparent" category in the reciprocals component.

9. Terminal categories are created with the division of the "grandparent" category first by linking relationship with Ego and then by sex of alter: **ombyj** is the term used for same-sex agnatic "grandparent". The term **owoj** is used by Ego for a male alter and **timoj** for a female alter referring to Ego's "grandparents" who are not his same-sex agnatic "grandparents" (remember the latter

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have a special status because they are those who gave Ego his/her name). The "grandchild" category is divided first by linking relationship with Ego and then by sex of Ego: **ogot** is the term used by Ego to a same-sex agnatic "grandchild", who is his/her namesake. For all other types of "grandchildren", the term **sokite'et** is used by a male Ego and **ete'et** by a female ego.

10. The superordinate category "sibling" is created in the base component. "Siblings" are "offspring of parents". Remember that the parent category has undergone extension.

11. In the reciprocals category "sibling" will call his /her "siblings" by "sibling".

12. A partition of the "sibling" category will first divide it by sex of Ego and alter; then, same-sex "sibling" will be divided By age of alter: Older alter is called **haj** and "younger alter" is divided by sex of Ego: male Ego's young same-sex sibling will be called **ket** and female Ego's young same-sex sibling will be called **kypeet**. Opposite-sex "sibling" will be divided by sex of Ego: male Ego's opposite-sex sibling will be called **pa'in** and female ego's opposite-sex sibling will be called **syky**.

Rachel Landin points out that there is no kinship term to describe cross-cousins in Karitiana. She explains that this is probably due to the fact that cross-cousins are preferential spouses, and traditionally they might have been called "wife" or "husband", depending on sex of alter. The words for these categories are **soy** and **man** respectively.

how does one refer to them now given that names are taboo)?

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AGNATIC Vs. UTERINE* KINSMEN
(CONSANGUINEALS)

TABLE 3

* UTERINE = COGNATE

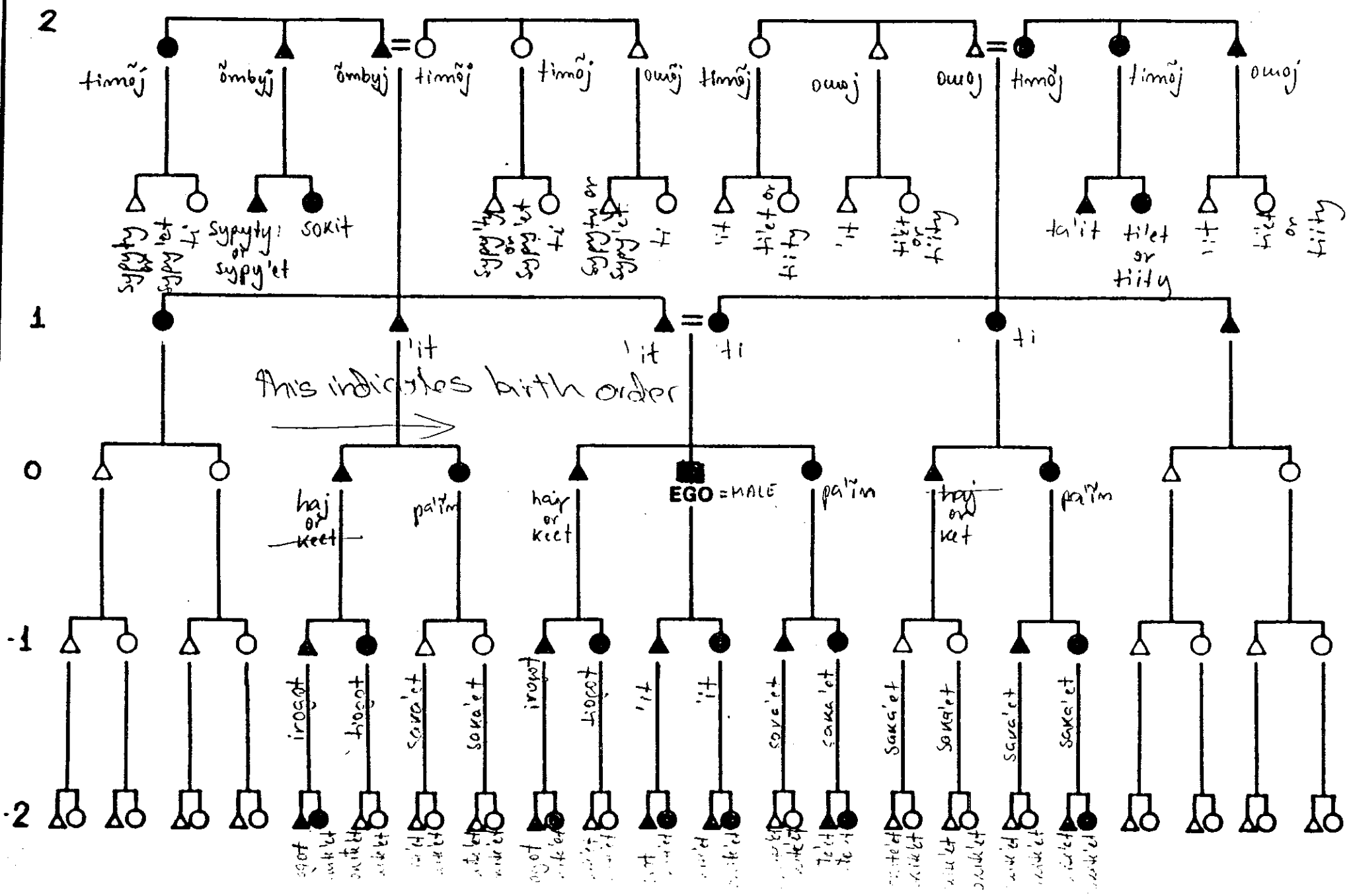

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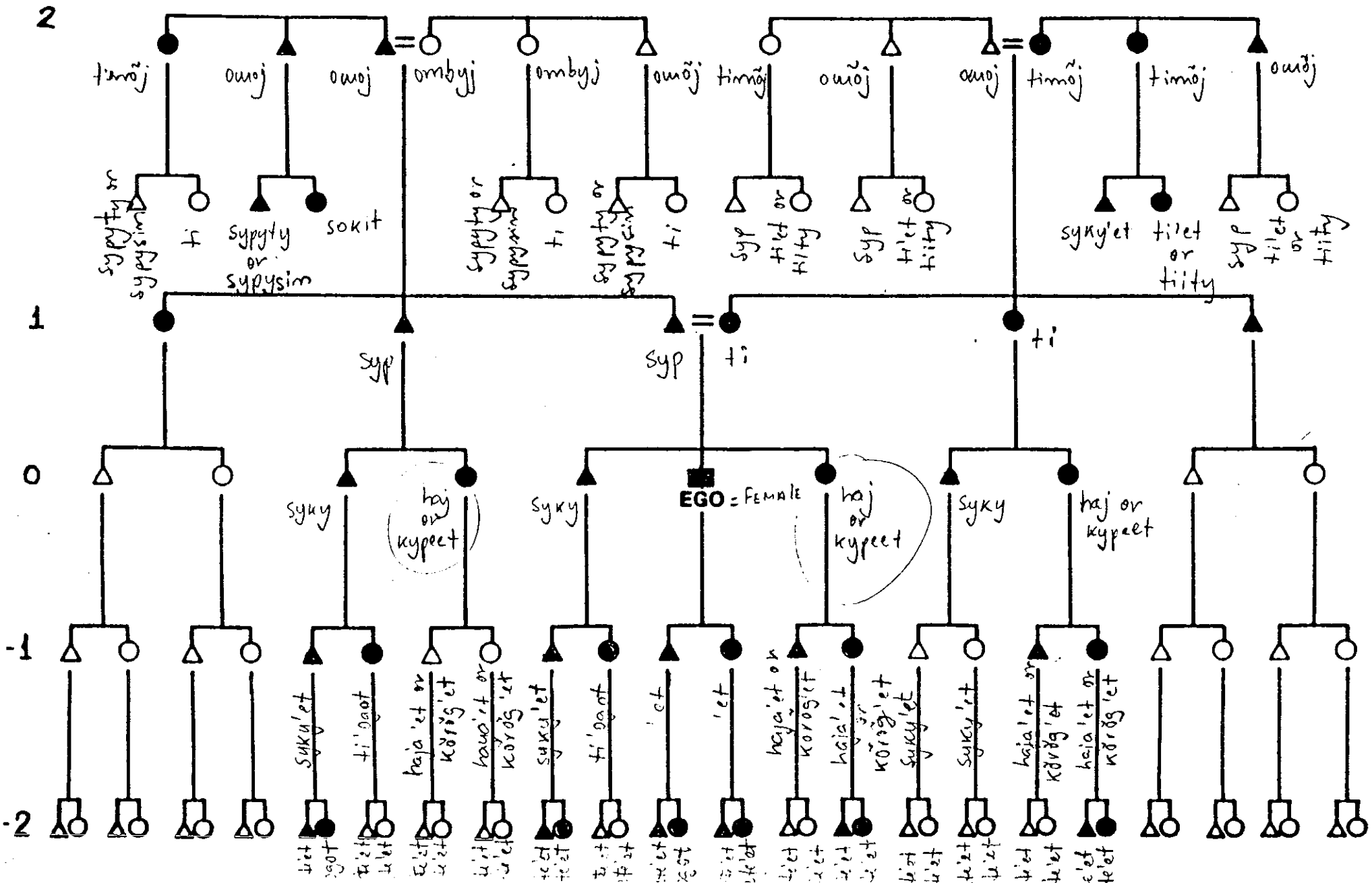
Table 4

AGNATIC Vs. UTERINE* KINSMEN

(CONSANGUINEALS)

* uterine = cognatic



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IDEAS FOR FUTURE RESEARCH ABOUT THE KARITIANA KINSHIP

There are many points of interest in the study of a language's classification system. As Fox pointed out, languages do not always reflect the present cognitive patterns of those who speak them since they are more conservative than reality, and tend to crystalize (or in linguistic vocabulary "lexicalize") distinctions which are no longer productive. For instance, gender marking in the Romance languages may once have been highly productive, reflecting sex of the lexical item; today, however, side by side with a productive gender system many Romance languages have gender as a semantic features that has to be specified for each noun, requiring memorization on the part of the speakers. However, it is clear that linguistic classificatory systems almost always show resquices of once productive systems which did reflect traditional ideas. These systems retained in languages can serve as a window to the study of the speakers' beliefs and cognition. Lakoff (1987) mentions that the Dyirbal language of Australia described by Robert Dixon retained classifiers which marked all "objects" which had the features of women, fire or dangerous things in the same category, marked by the classifier balam. He mentions that the description of the distribution of this classifier may reveal something about the cognition of the people who use such a classification. We might hypothesize that these three elements (women, fire and dangerous things) might be related in the mythological world of the Dyirbal speakers, or at least that they might have been significative to

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their culture once. Or we might say that they are the result of historical accidents just like the gender system of some Romance languages; as frozen accidental forms those categories women fire and dangerous things might have been grouped together and nevertheless not reflect any past or present cognitive reality of their speakers. We believe that it is possible to follow the decline of classificatory systems and document evidence to support either one of the hypothesis above. Personally, we believe that the processes described within both hypothesis do take place in languages. The task of the linguist is to document their occurrence in different languages and try to draw some generalizations about linguistic social changes. Lakoff mentions that with the process of language death, Dyirbal is loosing some of the features of the classification described above; young people's Dyirbal classifies only women with the classifier **balam**. The superordinate categories "fire" and "dangerous things" were lost.

The Karitiana kinship system seems to be an ideal object for a longitudinal study of categorization systems. Since the Karitiana are in increasing contact with the outside world and are gradually giving up their traditional rules of preferential marriage, the kinship system is starting to face a challenge. A child of a Karitiana woman with a non-Karitiana man is not considered a Karitiana, because he/she does not have a Karitiana agnatic "grandparent" of the same-sex to give him/her a Karitiana name and kinship identity. How would such a child be called by the members of the community? How would the relationships between

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the superordinate and terminal categories in the kinship system change to adapt to new situations? Also, what will happen to the relationship between kinship and naming system when children start to call each other exclusively by their Brazilian names, which are not taboo words such as the Karitiana are? Will the kinship terms be faded to disappear? What kinship terms will be lost first and how does this relate to their place in the classification system? Will the terms related to preferential marriage disappear first reflecting the decreasing pattern of marriages with cross-cousins? Will the Dravidian patterns of Karitiana kinship be substituted by the patterns of an Eskimo (Brazilian) system?

Our own hypothesis is that, due to acculturation, the Karitiana kinship system will become increasingly less of a reflection of the Karitiana cognitive system, to a point where certain terms will disappear when the older people who know them start to die. If the motivation for a classification is not kept alive, the terms crystalize or lexicalize and in this way they have to be memorized by the speakers (since they can no longer be productively derived by the classificatory system). That kind of memorization of kinship terminology seems to be unlikely due to their extreme complexity. For these reasons, we believe that most of the terms will eventually disappear and a modified system (maybe similar to the Eskimo type) will gradually replace the old one.

To test the hypothesis above, we intend to do a long term research where we will elicit the kinship terminologies for all members of the tribe (154) from two speakers (one adolescent - around 11 years old - and one adult -around 30 years-old) every

you are contradicting yourself: if the terms die out then the system is remaining a reflection of culture. if the terms remain, then the system is no longer reflective of the (changing) culture.

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two years. Each time two new speakers will be chosen, so we will be eliciting data of increasingly younger people as time passes. Hopefully, we will be able to identify a pattern of change in the kinship classification.

Another different research we intend to carry on is the investigation of the metaphoric extensions of kinship terms. For instance, how would different people in the village call an outsider who came to live there for a few years? If shown pictures of his/her family, how would the Karitiana classify the outsider's extended family? Would all outsiders be called by the same kinship term or would it vary according to ego and alter's age, sex, and degree of emotional attachment? Can kinship terms be used ironically and if so how and in what situations?

Our main goal with the questions and guidelines for future research above is to better understand the relations between language and culture - how one influences the other and what predictions can be made about language change in classificatory systems as a result of language contact. This field of Semantics is a specially rich one and seems to be in need of further exploration.

A-

Good solid description of the language, good grasp of different descriptive methods (altho I'd like to see you justify your choice of the Wodford theory) and some subtle rich ideas for further research. Careful, however, of how you talk about the lg - culture (- cognition) link: you must be clear about which direction you believe the influence (over)

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Table 1

Gloss	Arikém B + * Phonetic	Arikém N ● Phonetic	Arikém Phonetic	Karitiana Phonetic
armadillo		tsosyi	tsosyi/tsosi	sosi/tsotsi
blue	taquerí [takeri]	i-kero	-ket	ket
bow	odéua [odewa]	odeba	ot + ep/?ep +a	ot ?ep
breast	nouo [nowo]	nomo	nõm + o	nõm
carás		oho	oho	oho
deer	de	de	de	de/nde
duck	kuku [kiki]		kiki	kiki
earth	éio [eyo]	eya	ey + a/o	ey
egg	ixipí [išipi]	i-syipi	šipi/syipi	sipi/tsipi
elbow	naquîu [nakîi]	nakiñõ	nãkîñî/õ	nãkîñî
hair (generic)	çouo [sowo]		sop+o	sop/tsop
head	ó [o]	i - o	o	?o
husband	iman [iman]		-mãn	mãn
moon	oti	oti	oti	oti
mortar	ámo [amo]	amo	ãmo	ãm
neck	hut'evo [hit?ewo]	idebo	(h)it (?)ep	hit ?ep
pan	buró [biro]	mbiro	bit/mbit + o	bit/mbit
parrot	gu [gi]	ĝgi	gi/ĝgi	gi/ĝgi
path	pa	paa	pa	pa
red	taxomí [tašomi]	isoma	-s/šõm	sõm/tsõm
saliva	cucê [kise]		kise	kise
smoke	xombí-nhingá [šombi ñîĝga]	somi niño	šom(b)i ñîĝ o/a	iso ñîĝã
sugar cane	temo		tẽm + o	tẽm
sun	go	ĝgo	go/ĝgo	gokip/ĝgokip

* list by Barbosa

● list by Nimuendajú

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Gloss	Arikém B + Phonetic	Arikém N Phonetic	Arikém Phonetic	Karitiana Phonetic
to escape	tatau [tataw]		-tat	tat
to walk (ideof.)	tarak		tarak	tarak
to sleep	cataua [katawa]		-kat	kat
to die	popau [popaw]		-pop	pop
tooth	nhóiôn [ñõñõn]	ñõñã	ñõñ + a/o	ñõñ
tree/wood/bone	évo [?ewo]	ebo	ep /?ep +o	?ep
ugly/bad	taçaranê [tasarane]	ta-sarana-í	-sarana/e	sara/tsara
urucu	ecú [eki]	eki	eki	eki
water	exê [eše]	ese	ese/eše	ese/etse
wing	ipapú [ipapi]	i-papi	papi	papi

The Proto-Arikem Phonological Inventory

Consonants:

p t k ?

m n g̃

s/tš h

(w) y

r

Vowels:

i/ĩ ɨ/ɨ̃

e/ẽ o/õ

a/ã

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The Distribution of Nasal Consonants in Arikem and Karitiana

In Karitiana voiced stops [b], [d], [g] occur only as allophones of nasal stops /m/, /n/, /g̃/:

1.[b], [d], [g] /# __ v

(voiced stops and post-oralized nasal stops - represented in 1 and 2 - are in free variation word initially)

2.[mb], [nd], [g̃g] / # __ v

/ṽ __ v

3.[bm], [dn], [gg̃] /v __ ṽ

/v __ #

4.[bmb], [dnd],]gg̃g] /v __ v

The Karitiana and Arikem Lenition Rule

1a.[-cont] --> [+cont] / v __ # v Karitiana lenition rule
[+vd]

1b. p/m w(ß)/w̃((ß)

t/n ----> r/r̃ / v __ # v

k/g̃ ɣ/ɣ̃

2a.[-cont] --> [+cont] / v ___ + v Arikém lenition rule
[+vd]

b. p/m w(ß)/w̃(ß)

t/n ----> r/r̃ / v __ + v

k/g̃ ɣ/ɣ̃

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Table 2

Gloss	Karitiana	Arikém	Gavião	Karo	PTGuarani	PTupari	Mundurukú	Others
alligator	osɨ	oši	davo	wayo		*gwaYto		
armadillo	sosɨ	tsosyɨ		yayo	*tatu	*ndayto	daydo	saho S sa?ho M dusa X
bark/ shell	opa	ep#opa	sabee	peodn	*pe	*ape?	i+be	yape S
breast	nom	nom	nam		*kam (?)			nam S
breast milk	nom+se	nom+se	nam+ei					
deer	de	de	iitii	itɨ		*itsɨɨ		itɨ S
egg	sɨpi	i+šipi (B) i+syɨpi (N)	-kap (?)	yoga (?)	*upi?a	*upi+?a	dopsa	hopia S
father	sɨp		sop		*ub			
fear	pi	pi	pi				pi	
feather/ wing	papɨ	i+papɨ			*pepo	*pep+?o		pope S
foot	pi	pi	pi		*pɨ	*mbi	i	i+pɨ S
fruit	?o	o	aa	?a?	*?a			
hair	sop	opišap+a (B) opisap+a (N) sop (gener.)	sep	cap	*?ab	*Dap	dap	-asap S taba X
hand	pɨ	pɨ (B) po (N)	-pabe	pa	*po	*mbo		i+po S ba P
head	?o	o	adaat (?)		*akaĝ (?)		?a	
heavy	pɨ?ti		patii	pi?ti	*pociy	*potsi	poši	i+potɨy S

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Gloss	Karitiana	Arikém	Gavião	Karo	PTGuarani	PTupari	Mundurukú	Others
husband	mãn	mãn	mẽt	men	*men	*mẽt		mena X
jaguar	õmbaki	omeki (B) omaki (N)	neko	ameko	*yawar (?)	ameko T		aweto S abe?k P
leaf	sap	ep+o #sap+o	-sep			*Dep		
louse	gep	gep+o	git	nãp	*kib	*ãgĝip	kip	ĝip S kipa X
moon	oti	oti	kati		*yaci		kašie	wati S
mortar	ãm	ãmõ				*ẽndzi	ẽ	
mother	ti	ti	ti		*ci		ši	i+ti S
neck	hit	hit#ep+o		ot	*ayur (?)	*gwotkip		
owl	pipiip	pipip+a	booraa	pobo		*popoβa		
path	pa	paa	pe	na?pitpe?	*pe	*pee	e	
peccary	soytša	šošesoy (B) tsosesoy +a (N)	bebe	yate		*Daotse	daje	uza X
pro. 1p.sg.	ĩn	ohõn (B) iĩn (N)	õot	õn			õn	
pro. 2p.sg.	ãn	ehẽn (B) ããn (N)	ẽet	ẽn	*ene	*ẽt	ẽn	en S
skin	pa	pa		peodn		*pe	šee	i+pe S tabe P
termite	gip	giyip+a	goovaa			*ĝgub+i		
to say	?a		?e		*ye?eĝ		?e	
to fall	?ot		-?ala (?)		*ar		?at	ta?at S
to sleep	kat	katap+a	-ket	ket	*ker		-šet	-ket S

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Gloss	Karitiana	Arikém	Gavião	Karo	PTGuarani	PTupari	Mundurukú	Others
tree	?ep	ep+o	?iip	?ɨp	*?ɨb	*kɨp	ip	?ɨp S hiipa X
wasp	gop	gop+a (B) g̃gop+o (N)	gap	nãp (?)		*g̃gap		g̃aap S kapa X
water /river	ese	eše (B) ese (N)	ii	icɨ	*ɨ	*ɨgɨ	idibi	ɨ?ɨ S

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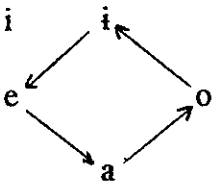
LANGUAGES OF THE TUPI STOCK (BY FAMILIES)

Arikém	Awetí	Jurúna	Mawé	Mondé	Munduruká	Puruborá	Ramarama	Tuparí	TGuaraní
Arikém	Awetí	Juruna	Mawé	Gavião	Munduruká	Puruborá	Itogapuk	Tuparí	Tupinambá
Babixiana		Xipaya		Suruí	Kuruaya			Mekéns	Guarani
Karitiana				Mondé				Ayuru	etc.
								Makurap	

Proto-Tupi > Proto-Arikém vowel shift:



VOCALIC CORRESPONDENCES AMONG LANGUAGES

Table 3

P-Ari	Kari	Ari	Gavi	Karo	PTG	PTpa	Mund	Oths	PTpi
*a	a	a	e	e	*e	*e	e	e S e X e P	*e
*o	o	o	a	a	*a	*a	a	a S a X a P	*a
* ɨ	ɨ	ɨ	o	o	*o	*o/u	o	o S	*o
*e	e	e	i	ɨ	* ɨ	* ɨ	i	ɨ S	* ɨ
*i	i	i	i	i	*i	*i	i	i/ɨ S	*i

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CLOSURE AND RELEASE - PRE AND POST ORALIZATION OF NASAL STOPS IN KARITIANA (ARIKEM FAMILY, TUPI STOCK)

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(Preliminary work - please do not quote without author's consent)

Steriade (1993) proposes a representation of nasality as a privative feature, which by its nature can only create contours when associated to two position segments, such as plosives. The idea that plosives are formed by two phases (closure and release) to which nasality or glottalic spread can associate is also central to her theory of phonological representation. This paper aims to discuss the ideas above in light of data which does not seem to conform to Steriade's model. Arguments for and against the theory will be presented when I examine two different analysis of the data.

I will analyze the allophones of voiced plosives in one dialect of Karitiana, the last surviving language of the Arikem family, Tupi stock. Their distribution suggests a process of partial assimilation of oral features into the closure of nasals when contiguous to oral vowels. Not only one [+ oral] or [- nasal] feature seems to be assimilated either to the closure or to the release phase of a nasal, but actually a nasal stop can be both pre and post oralized when between oral vowels, yielding a three-phasic nasal stop, or a bi-phasic closure. If this analysis is correct, then the ideas that stops are formed by two phases and nasality is a privative feature need to be revised. Steriade (personal communication) suggests a different interpretation to the Karitiana

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data which will be exposed and discussed in this paper. Arguments for and against each interpretation will be presented and possible changes in the theory will be suggested.

The phonemic inventory of Karitiana consistes of 13 consonants (/p/, /t/, /k/, /?/, /m/, /n/, /ŋ/, /s/, /h/, /t$\overset{\vee}{s}$/, /w/, /y/, and /r/) and 10 vowels (/a/, /e/, /i/, /o/, /ɨ/, /$\tilde{a}$/, /$\tilde{e}$/, /$\tilde{i}$/, /$\tilde{o}$/, /$\tilde{ɨ}$/). Since I will be arguing for the possibility of a [-nasal] feature spread from oral vowels to nasals, I believe it is important to offer evidence of the existence of a distinction between nasal and oral vowels:

opĩ	'to cut'	opi	'earing'
o?i	'sloth'	õ?ĩ	'no'
ererɨ	'cotton'	mẽrẽrɨ̃	'sifter'
okɨ	'to kill'	okɨ̃	'latex'
dopĩ	'ant'	porãsĩ	'trap'
sokõ?ĩ	'to tie'	kãrãy	'to wonder'
pasẽn	'grasshopper'	ohĩ	'lizard'

There are no oral voiced stops in the language, except as pre and post oralization to the nasal sounds when contiguous to oral vowels. The distribution of the nasal phonemes is the following:

$\tilde{V}$ __ ## ## __ $\tilde{V}$ $\tilde{V}$ __ $\tilde{V}$	[m]	[n]	[ŋ]
$\tilde{V}$ __ V	[mb]	[nd]	[ŋg]

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V ~ V V __ ##	[bm]	[dn]	[gŋ]
V __ V	[bmb]	[dnd]	[gŋg]
## __ V	[b]	[d]	[g]/[ŋg]

Examples:

/m/		/n/		/ŋ/	
ãm	'mortar'	ĩn	'1ps. pro'	ĩĩŋ	'bird'
mãrãm	'fly'	nõrõy	'snail'	nẽwã	'to suck'
pẽnẽmõ	'thin'	?ĩnã	'small'	sõŋõ	'firewood'
ãmbi	'house'	korõnda	'ribs'	jĩŋgɨtɨ	'cameleon'
hɨbmã	'to twinkle'	hadnã	'story'	jɨgŋã	'stand up'
dibm	'tomorrow'	tɨsodn	'aspect mkr'	pitagŋ	'to steal'
apibmbik	'to pierce'	kidnda	'thing'	sopagŋgɨy	'eyebrow'
borotɨ	'paca'	dopĩ	'ant'	gop	'wasp'

The data forces us to pose nasal stops as phonemic in Karitiana, since their oral counterparts only occur in between them and an oral vowel, except in word initial position followed by an oral vowel where complete oralization took place (however, in a

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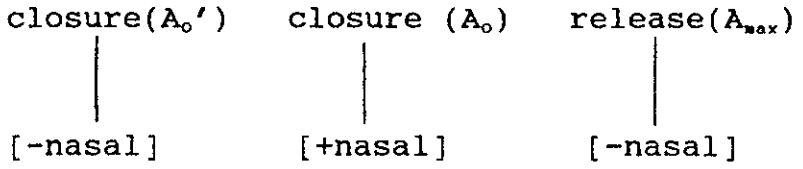
more conservative dialect still spoken by the elders we find the forms [**mboroti**], [**ndopĩ**] and [**ŋgop**]). The oral voiced stops cannot be posed underlyingly because words such as **apibmbik**, **kidnda** and **sopagŋgiy** would make no sense since a homorganic nasal would have to be inserted and subsequently oralized between oral vowels for no apparent reason. Therefore, the most straightforward solution to the allophonic variations would be to pose nasal stops underlyingly. This analysis has intresting theoretical implications, since it pressuposes the existence of a feature [-nasal] which spreads from oral vowels to nasal stops creating partially oralized nasal sounds. In terms of articulation, what happens with the pre and post oralized nasals is the fact that their closure has both an oral and a nasal phase or a contour, and their release is oral. This might suggest that the representation of stops proposed by Steriade should be revised in that the aperture node should be allowed to project two phases, where in Karitiana the feature [-nasal] associates: a pre closure and a release:



Steriade offers a possible alternative analysis for the facts in Karitiana which has the advantage of keeping the theory simple. However, after weighting the arguments on both sides, I conclude that the solution where voiced stops are underlyingly nasal is preferable.

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Steriade's suggestion is that voiced oral stops are the underlying phonemes in Karitiana. The presence of nasal sounds is explained by the fact that a [+nasal] feature associates to the stops for ease of articulation. In this way, the voiced oral stops would become partially realized as nasals, specially in nasal environments. She also suggests that the pre-oralized allophones could be accounted for by a delay in the nasal gesture after an oral vowel.

There are two arguments which can be made in favor of this solution. Steriade claims that the reason why the oral velar stop is in free variation with the prenasalized velar stop word initially is because voicing during closure is harder to maintain at the velar point (since the cavity is small and the pressure is greater than in the bilabial and alveolar places of articulation). However, the same fact can be used as an argument for the hypothesis of underlying nasals, since one could say that the spread of [-nasal] features from the neighboring vowel to the nasal is more difficult in the velar environment, where the pressure built by the oral closure is greater. Therefore, it seems to me that it is natural to expect the velar sound to take longer to change into a full oral stop word initially when the bilabial and alveolar nasals have already done so.

The second argument which can be used in favor of Steriade's interpretation of the Karitiana stops is the fact that there does not seem to exist words in which more than one of the sounds I call pre and post oralized nasals occur. This should be expected,

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because Karitiana has monomorphemic trisyllabic words which contain exclusively oral vowels, but none of these words presents the form VbmbVdndV or any other variation of pre and post oralized allophones. We cannot pose a rule that nasalizes a vowel between two nasals, since words such as ĩmbodnõ exist in the language. I believe such sequences do not occur because of the difficulties envolved in their articulation in proximity to one another. This suggests there should be constraints on the projection of aperture. Finally, the absence of more than one pre and post oralized nasal stops in a word also poses a problem for the hypothesis of underlying oral stops, which should be expected to be associated to a nasal feature and undergo a delay in nasalization after an oral vowel whenever the environment is met. Even though this is Steriade's best argument against the existence of underlying nasals in Karitiana, it does not falsify that hypothesis.

The hypothesis of underlying oral voiced stops becomes increasingly weaker on closer inspection. First, there is a very strong argument against Steriade's solution which in my opinion clearly falsifies her hypothesis. This is the existence of sounds which present an oral and nasal closure followed by an oral release. Why would these sounds be articulated at all if the underlying phoneme which they stand for is a complete oral voiced stop? This behavior goes against all expectations since, instead of a plain oral stop what is articulated is a much more difficult sound, with three phases. In face of this data, the argument that the association of a nasal feature occurs to ease the articulation

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of voiced plosives seems unacceptable.

The major problem I see with Steriade's proposal is that it greatly complicates the account for the data in Karitiana - which seems to be a compelling case for the existence of a [-nasal] feature (at least phonetically) - in order to adequate it to a theory. Also, the process of spread of a [-nasal] feature has been described in other Brazilian languages (Guarani, Apinaye, Kaingang), and should be better examined before discarded. A counter-analysis proposed by Steriade for languages such as Kaingang (which also presents simultaneously pre and post oralized nasal stops) is to interpret the nasal stops in their phonemic inventory as oral. However, as far as Tupian languages are concerned, many of them have been described to lack voiced oral stops while none that I know of lack a complete nasal series. Since the languages of Brazil are among the least known languages of the world we should not be surprised if the processes which they seem to undergo point against some well established linguistic principles. Most Brazilian languages haven't been seriously considered in typological studies exactly because good quality descriptions of these languages are largely unavailable.

In face of the arguments presented it is clear to me that if we accept the existence of an equipolent nasal feature and allow apertures to project two phases (a closure and a release) - instead of one (Steriade 1993) - the data from Karitiana can be accounted for in a much more natural and less costly way.

..*.*.*.*

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Basic word order in Karitiana (Arikém family, Tupi Stock)

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Introduction

The aim of this paper is to propose a preliminary analysis of the phenomenon of constituent order variation in Karitiana, a language spoken today by 154 people who live in "Area Indígena Karitiana", in the state of Rondônia, Brazil. The language has previously been studied by David and Rachel Landin, missionaries of the Summer Institute of Linguistics who lived among the Karitiana for five years. In an article based on his masters thesis D. Landin poses SVO as the basic word order of Karitiana (1984:221). However, no structural argument was ever given to support this hypothesis. D. Landin bases his choice on Greenberg's suggestion that the basic word order in a language should be elicited from the most frequent order used in declarative transitive sentences with overt nonpronominal arguments. Considering that SVO is only one of the 6 word orders found in Karitiana and since it is not the most common one, we have no reason to accept D. Landin's description[1]. Also, SVO is the basic word order in Portuguese, the Brazilian national language, spoken fluently by most of the Karitiana for at least half a century. It is not clear that the use of this word order in translations of transitive sentences out of context is free from influences from Portuguese.

Another problem with posing SVO as the basic constituent order in Karitiana has to do with the parametric characteristics of the language, which are consistent with OV and not VO order: noun-postposition, genitive-noun, noun-adjective. Even though the latter is slightly inconsistent with OV order, it follows a pattern found in genetically related Tupi-Guarani languages, which are OV (Moore 1991:1).

Furthermore, most other Tupian languages of which reliable studies are available are consistently OV. The word order in some of the best studied languages of the Tupi-Guaraní family (by far the larger of the Tupian families) are: Kaapor: SOV; Kamayurá: SOV; Tupinambá: SOV; Asuriní of the Trocará: OVS; Guajajára: SOV in embedded clauses and VSO in matrix clauses. Other Tupian families show the same pattern: Mundurukú (Mundurukú family): SOV; Gavião (Mondé family): OV; Xipáya (Jurúna family): possibly nonconfigurational, but presents OV constructions; Káro (Ramaráma family): SOV; Ayurú (Tuparí family): SOV. According to Moore, these facts "tend to confirm some earlier speculation that in their past stages the Tupian languages had the basic word order Object-Verb (OV) rather than Verb-Object (VO)". He points out that Landin's analysis of Karitiana as an SVO language poses the most serious claim to VO order for a Tupian language (Moore 1991:2-3).

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[1]It is worth mentioning that my definition of word order is the underlying order of constituents in a language. This idea is certainly closer to Chomsky's notion of D-Structure than to Greenberg's criteria of frequency of occurrence.

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Methodology

In an attempt to solve the problem, I elicited and analyzed from a corpus of texts all sentences which presented at least a two place predicate with overt nonpronominal arguments. Pronominal arguments were not considered because I am not completely certain about the rules that regulate their distribution. However, whenever needed in the explanation, I used data which exemplifies the occurrence of free pronouns and personal verb prefixes. The texts utilized consist of mythological tales, historical narratives and dialogues.

Results

From a total of 62 sentences analyzed, the proportion of word order variation found was:

VOS: 27
OVS: 13
SVO: 9
VSO: 9
SOV: 2
OSV: 2

VOS and OVS: The majority of the texts analyzed are mythological tales or reported stories. This fact seems to have influenced the results above, since transitive subject final clauses are much more frequent in narratives than in conversations. A more careful analysis of the data might prove that the sentence final position has a semantic function of agentivity in story telling. R. Landin (1982:3-8) suggested that this position is reserved for the discourse theme. Her evidence, however, is not conclusive since what she describes as the discourse theme almost always coincides with the subject of the sentence[2].

1. Na-pisorok-∅ miĵo Botỹj
erg-gather-nf nut Botỹj
'Botỹj gathered the nuts'

2. Ga y-ti-m-'a-t
field 1p-top-caus-make-nf
'I made (prepared) the field'

3. Sal na-pitan-ta'ãt opok
salt erg-share-evid white man

---

[2]The abbreviations used on this paper are: nf:non-future tense; f: future tense; top: topicalizer; erg: ergative case; abs: absolutive case; 1p: 1st person singular prefix; 1p.pron: 1st person singular free pronoun; caus: causative; evid: evidential marker;co.3p.poss.: 3rd person singular anaphoric possessive pronoun; asp: aspect; asp.sup: aspect (supine); neg: negation; progr: progressive.

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'The white man shared the salt'

VOS and VSO are very common word orders in texts, in contexts where the action is being emphasized. Sentences 4-7 are extracted from a myth where the activities performed by the main character are being described:

4. Na-petet-∅ Botỹj mi͡jo ket
erg-cook-nf Botỹj nut unripe
'Botỹj cooked the unripe nuts'

5. Dok Byjyty
seat (ideophone) Byjyty
'Byjyty sat'

6. Na-ambo-t kendo ohyn Byjyty
erg-seat-nf coconut above Byjyty
'Byjyty sat on the coconut'

7. Na-mynira-t ta-iso Byjyty
erg-lit-nf co.3p.poss.-fire Byjyty
'Byjyty lit his fire'

OVS and OSV word orders sometimes present the verb prefix **ti-** which Rachel Landin describes (1982:15) as a marker of topicalization of the object. Whenever this prefix occurs on a verb, the object is the first constituent in the sentence. However, not every instance of topicalization of the object is marked by this morpheme, as first noted by Rachel and David Landin. R. Landin correctly noted that this topicalizer occupies the same position in the verb that the ergative/absolutive markers do. She also noted that **ti-** never occurs in the narrative portion of a text, being restricted to "monologues, conversation, and speech quotes in narratives" (1982:11). D. Landin did not make use of this information in his thesis, posing an optional rule (1984:233) that deletes the case prefixes and inserts the topicalizer **ti-** when there is uncertainty as to the syntactic functions of the arguments in a sentence. However, from the examples below it is clear that **ti-** is not a disambiguator of syntactic function, since it is present even when the subject is dropped:

8. Moramon a-ti-m-'a-tykat, y-ta'it
what 2p-top-caus-do-asp 1p-uncle
'What are you doing, uncle?'

9. Tykỹ ti-m-'a-tykat, y-saka'et
palm heart top-caus-do-asp 1p-nephew
'I am taking (gathering) palm hearts, my nephew'

10. Pom ememo ti-m-'a-t

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nambu black top-caus-make-nf
'(He=pro) created the black nambu'

11. Ese i-ti-m'-a-t Ora
water ?-top-caus-make-nf Ora
'Ora created the water'

12. Y'it kyry y-ti-'y-tysypak?
1p-son liver 1p-top-eat-asp.sup.
'Am I eating my son's liver?

13. Atykiri naka-sot-∅ [ese-ty Ora ti-m'-a]
then erg-exist-nf [water-big Ora top-caus-do
'Then there was the river which Ora created'

Also, the characterization of this morpheme as a topicalizer seems to be inadequate because it marks the fronting of elements whose referent is "unknown" such as WH words generated in object position. It is clear that in WH sentences movement is not motivated by pragmatic factors similar to the ones that characterize topicalizations.

Furthermore, **ti-** is restricted to a certain sentential type used to express direct speech or embedded sentences and it indeed occupies the same structural position filled by the morphemes which indicate ergative/absolutive case in the narrative sentential type. These morphemes (**na(ka)/ta(ka)**) were shown by D. Landin (1984:223-227) to be in ergative/absolutive distribution, where **ta(ka)** marks transitive verbs preceded by objects or intransitive verbs preceded by subjects while **na(ka)** marks everything else[3]. In a parallel fashion **ti-** marks movement of accusative, as opposed to nominative arguments (which are unmarked) to sentence initial position in direct speech and embedded sentences. That is, the presence of the morpheme **ti-** reflects a nominative/accusative system in the direct speech sentential type while the morphemes **na(ka)/ta(ka)** reflect an ergative/absolutive system in narrative sentences. In face of this evidence I suggest that Karitiana has a split ergative system.

14. Sosy i-ti-oky-t põrãsi
armadillo 3p-top-kill-nf trap
'The trap killed the armadillo'

15. Põrãsi i-oky-t sosy
trap 3p-kill-nf armadillo
'The trap killed the armadillo'

Data recently elicited in the field shows that the ergative/absolutive markers also occur

---

[3]The allomorphs **naka** and **taka** prefix stress-initial verbs while **na** and **ta** prefix verbs with all other stress patterns.

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in contrast in identical environments:

16. Taso na-oky-t ombaky
man erg-kill-nf jaguar
'The man killed the jaguar'

17. Taso ta-oky-t ombaky
man abs-kill-nf jaguar
'The man killed the jaguar'

According to two fairly sophisticated informants tested independently, sentences 16 and 17 convey the same meaning, but the latter is used as "a warning, when you know something will happen as a consequence of the action". In my opinion the absolutive marking is demoting the subject in its characteristics of agentivity (control and intentionality) in order to emphasize the action. The process above could perhaps be described as semantic ergativity.

The obvious conclusion concerning the consituent orders OSV and OVS is that since they get marked for object movement, they must be deviations from the basic word order.

SVO: This is the typical word order used in translations of transitive declarative sentences from Portuguese:

18. Taso na-oky-j ombaky
man erg-kill-f jaguar
'The man will kill the jaguar'

19. Y-hay naka-kip-∅ sosy
1p-old brother erg-open-nf armadillo
'My older brother opened the armadillo'

This order also occurs in both the narrative and the direct speech sentential types. Semantically, it appears to be unmarked.

The most striking fact we observed about the word order variation, is that the **SOV and OSV** word orders were found to occur only in subordinate clauses. It is a widely accepted fact that the word order in embedded clauses has a tendency to be more conservative than the one in main clauses, since the former are less subject to influences of pragmatic nature than the latter. This generalization could be used as an argument for the hypothesis that a sequence with the form NP NP V is the basic word order in Karitiana. I am inclined to think that SOV is the basic word order in the language due to the fact that it is morphologically less marked or simpler than OSV, where **ti-** sometimes indicates movement of the object (as in example 13). However, the latter seems to be by far the most used word order in subordinate clauses, SOV being more common in mythological tales. Other examples of embedded clauses are given below:

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20. [ombaky taso oky tykiri] y-taka-hyryp-∅ yn
[jaguar man kill when] 1p-abs-cry-nf 1p.pron.
'When the man killed the jaguar I cried'

21. [Ahoy byhip tyki-oot] na-pa'ira-t jonso
[arroz cook when-progr] erg-angry-nf woman
'The woman was angry when she was cooking rice'

22. Atykiri Botỹj naka-m-'a-'ot hyryp [Ora ta-'it
then Botỹj case-caus-do-first cry [Ora co.3.poss.-son
byhot tykiri]
transform when]
'Then Botyj cried first when Ora transformed his son'

23. [Ambi Joana ama tykiri] naka-tat-∅ Maria
[house Joana buy when] case-go-nf Maria
'When Joana bought the house, Maria left'

24. [Dinheiro y-ahit-iki tykiri] y-taka-tat-∅ yn
[money 1p-get-neg when] 1ps-case-go-nf 1ps
'[When I did not receive the money] I left'

In an analogy with the analysis proposed for German and all other Germanic languages other than English, I suggest that Karitiana might be a verb second (V2) language. It is a widely accepted fact that the word order in German is that of the embedded sentences (SOV) and that the tensed verb (verb/Infl) has to raise to the COMP position in main clauses (the second structural position in the sentence)in case there is no lexical item occupying that position for the sentence to be well-formed. The COMP node in V2 languages such as German is interpreted as the head of the sentence - an inherently tensed position which needs to be lexically realized in order to assign nominative case to the subject (Platzack 1986).

A consequence of the analysis proposed for constituent order in Karitiana indicates that verbs will always be in final position in embedded sentences and never so in main clauses. This is indeed the distribution I have found in my preliminary analysis of the data.

The V2 hypothesis for Karitiana will not be fully developed in this paper because I do not completely understand the distribution of certain crucial morphemes such as pronominals and case, topicalization and tense markers. However, an interesting fact which seems to support this hypothesis is the absence of several inflectional morphemes in subordinate sentences. These clauses present either no tense marker at all or the unmarked verb suffix which indicates present or past tense. The presence of a future tense suffix in subordinate clauses is considered ungrammatical, which could indicate that COMP is the structural position where future tense is assigned to the verb since narrative main clauses always require a tense marker. Unlike main clauses, embedded sentences do not present aspect markers suffixed to the verb. Subordinate sentences which semantically bear aspect have it expressed in VP internal adverbials as in example 21.

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If the V2 phenomenon is a reality in Karitiana, then the structural description of sentences will be such that the SPEC of CP position can be occupied by WH words or any argument noun phrase, while the COMP position is always occupied by either the verb or the tensed auxiliary in main clauses. The morpheme ti- seems to mark exactly this fronting of arguments generated in object position to SPEC of CP. A pre-sentential position has to be posed, where conjunctions which function at a level above the clause and ideophone (onomatopoetic) phrases occur. Also, there has to be a clause-final position where the subject can move in certain discourse environments.

Although I am not in a position to give compelling evidence for the V2 phenomenon in Karitiana, the data seems to point to SOV as the basic constituent order in the language. Finally, I hope to have persuaded the reader that at least further analysis is needed before we accept David Landin's claim that SVO is the basic constituent order in Karitiana.

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625-18-1186

MA PAPER IN LINGUISTICS

ADVISOR: DR. BARBARA BULLOCK

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PITCH ACCENT IN KARITIANA (ARIKEM FAMILY, TUPI STOCK)

INTRODUCTION

This paper aims to propose an analysis of the assignment of pitch accent in Karitiana, the last surviving language of the Arikem family, Tupi stock. Even though Karitiana has been previously studied by David and Rachel Landin, SIL missionaries who lived among the Karitiana from 1972 to 1977, no description of the language's prosodic processes has ever been published. The framework adopted here is the one suggested by Pulleyblank (1986).

Karitiana presents a pattern of pitch accent whose domain is the subject will be discussed in the course of this paper. A low tone (L) is always assigned to the last TBU (Tone Bearing Unit, which coincides with a syllable) in declarative utterances. A different pattern is true of imperatives, interrogatives, vocatives and other constructions which carry ~~similar~~ pragmatic functions. The emphatic nature of these syntactic forms requires a high tone (H) finally. This regularity indicates that the directionality of tone assignment in the language is from right to left.

The evidence we present suggests that pitch accent patterns in Karitiana are a result of tonal spread assigned on the basis of stress. The status of the latter is not completely clear at the present stage of our analysis of the language, although there are some indications that stress too is predictable in Karitiana on the basis of phonological and morphological structure. If this proves to be truth, Karitiana will be the first example of such a language. As described by Poser and Leben and modified by Inkelas and Zec (1988), the typology proposed for pitch accent languages on the basis of tone and stress is: 1) languages which have stress underlyingly, and tone assigned on the basis of stress (Norwegian), 2) languages which have tone underlyingly and stress assigned later, independent of tone (Japanese), 3) languages which have tone underlyingly

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and stress assigned on the basis of tone (Serbo-Croatian). There is a chance that Karitiana belongs to a fourth type of languages: those which have tone assigned on the basis of stress, where stress is predictable from phonological and morphological information.

The data analyzed consists of recordings of a basic word list of 495 lexical items and a grammatical list of 52 sentences elicited in the course of our field work among the Karitiana. The tone patterns of the examples used as data in this paper were also whistled by the informants and recorded on tape. Although a much larger corpus of Karitiana texts is available to me, it will not be considered for the purposes of this paper, since no specific tonal data was documented.

NOUN PHRASE PATTERNS

Monomorphemic disyllabic words present HL tone regardless of whether their stress is word initial or final: (j = [y], ## = word boundary, # = weak morpheme boundary, + = strong morpheme boundary, . = syllable boundary, ' = stressed syllable follows)

(1) je.'kĩ HL 'jaw' 'ki.rik HL 'mosquito'

kĩ.'nda HL 'thing' 'i.rip HL 'tapir'

o.'hĩ HL 'lizard' 'nõ.rõj HL 'snail'

pi.'piip HL 'owl' 'gi.rij HL 'earthworm'

i.'ri HL 'açaí palm

However, when combined with a monomorphemic free adjective in a NP, the following pattern emerges:

(2) je.'kĩ ẽm 'dirty jaw' LHL

kĩ.'nda ?ok 'lazy thing' LHL

o.'hĩ ?ok 'lazy lizard' LHL

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pi.'piip ?ok 'lazy owl' LHL

i.'ri ẽm 'dirty açaí palm' LHL

(3) 'ki.rik ?ok 'lazy mosquito' HHL

'i.rip ?ok 'lazy tapir' HHL

'nõ.rõj̃ ?ok 'lazy snail' HHL

'gi.rij ?ok 'lazy earthworm' HHL

At first inspection we seem to have two possible conditioning environments associated with the tonal pattern HHL in (3): the identical quality/quantity of the vowels in the head nouns which end in closed syllables or the initial stress of the head nouns. In face of the data to be presented in (4) - (7), it is clear that stress is the relevant factor in determining tonal spread. Nevertheless, an account of the relationship between stress, vowel quality/quantity and syllabic structure might shed light on other important prosodic patterns of the language such as predictability of stress from segmental phonological and morphological information. Such questions will be discussed in the section on the section entitled "interaction between tone and morphology", although a definite conclusion cannot be reached before we conduct further research on the matter.

The patterns of ~~bi~~ mono- morphemic words (examples (4) - (6)) when combined in NPs with the same adjectives used in the examples (2) and (3) are represented in (7):

(4) i.'pok HL 'white fish (species)'

ip#pok

fish#white

(5) i.'si.p HL 'my father'

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i.+si.p

1ps+father

(6) 'e.dnã HL 'pregnant'

et+nã

child+bearer of

(7) i.'pok ?ok LHL 'lazy white fish (species)'

i.'si.p ẽm LHL 'my black father'

'e.dnã ?ok HHL 'lazy pregnant woman'

One generalization that can be made about examples (5) and (6) is that affixes do not carry their own stress, nor do they affect the stress pattern of the stems they attach to. The difference in the outputs of (7) has to be explained in terms of stress, since the tone pattern of stess initial words when combined with a monomorphemic adjective is distinct from the one of stress final words in exactly the same environment.

Monomorphemic trisyllabic words present HHL tone when they have word final stress as in (8), and bimorphemic ones preserve the stress pattern of the stem when they are the result of affixation:

(8) bo.ro.'ja HHL 'snake'

pi.pi.'rĩ HHL 'hawk'

õ.mba.'ki HHL 'jaguar'

a.pi.'kõm HHL 'your-monkey'

(9) a+pikõm

2ps-monkey

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(10) pi.'kõ.mõ HLL 'monkey'

pi'kõm+o

monkey-nominal disambiguator

(11) pi.'piipo HLL 'owl'

pi.'piip+o

owl-nominal disambiguator

The combination of these trisyllabic words with a monosyllabic adjective in NPs results in the following tone patterns:

(12) bo.ro.'ja ?ok LLHL 'lazy snake'

a.pi.'kõm ?ok LLHL 'your lazy monkey'

pi.pi.'rĩ ?ok LLHL 'lazy hawk'

õ.mba.'ki ?ok LLHL 'lazy jaguar'

(13) pi.'kõ.mõ ?ok LHHL 'lazy monkey'

pi.'piipo ?ok LHHL 'lazy owl'

A solution to tone assignment in Karitiana which accounts for the data analyzed so far (disyllabic and trisyllabic nouns combined with monosyllabic adjectives) would be possible if we take every morphological word as a domain for stress, where even monosyllabic words are to be considered stressed. Also, each phonological phrase is underlyingly LHL. Then, the following tone assignment procedure can be applied:

(14)

1. R --> L

2. assign first available tone to 1st TBU (notice that first means first from R to L)

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Depressor consonants.

3. spread until you meet a stressed TBU (if 1st TBU is stressed do not spread)

4. assign next tone to next available TBU

5. repeat procedures 2 to 4 until all TBU's are saturated

You need to classify these rules. Tone cannot spread from a stress σ.

(15) X 'X X je'kĩ ?ok

i'pok ?ok

L H L

(16) 'X X X 'irip ?ok

'ednã ?ok

L H L

Does the ' mark indicate stress or is it a mark of a separate domain?

(17) X X 'X X boro'ja ?ok

api'kõm ?ok

L H L

It seems as if last TBU (associated with morpheme /?ok/) cannot spread.

(18) X 'X X X pi'kõmõ ?ok

pi'piipo ?ok

L H L

If we accept that the universal principles of prosodic association hold - that is, association lines may not cross and no equal underlying tones may be contiguous (Goldsmith 1990, Pulleyblank 1986) - then the language particular rules listed in (14) are all we need to generate the correct pitch accent patterns within the phonological phrase we have examined so far. Stating the rules informally, spreading of tones can be said to occur only from and through association to an unstressed TBU, being blocked by a stressed one, to which a tone is linked.

Further evidence:

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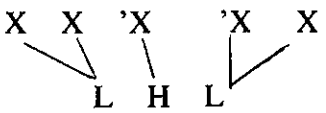
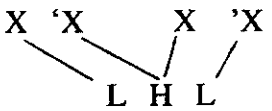
(19) eje.'po '?ĩnã 'little rock'

rock##little



(20) e.'se o.'pã 'up river'

water#up



INTERACTIONS BETWEEN TONE AND MORPHOLOGY

Compounds

The Karitiana compounds in (22) and (23) should be considered as formed by two separate prosodic domains, since the stress of each lexical item forming a compound has to be accessible to the tone rules. These minimal domains for prosody, to which we will refer as p-domains (Inkelas 1990), coincide with the morphological word. Independent motivation can be offered to corroborate this assumption by post-lexical rule of lenition (approximantization of a word final stop before vowels = loss of closure and assimilation of aperture and voicing of vowel), which also applies to the words of a compound:

(21)

Lenition Rule: p/m t/n k/ŋ ---> ß/ß r/r̃ γ/γ̃ / V ___ ## V

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UR: /taso#nã+akat#engenheiro/ 'The man is an engineer'

[taso nãkar engenheiro]

man case-is engineer (borrowing from Portuguese)

(22)

i'rip HL 'tapir'

o'hɨ HL 'potato'

'iriß o'hɨ {irip#ohɨ} HHHL 'caju (fruit) = tapir's potato'

(23)

sa'ep HL 'leg'

otɨit HL 'protuberance'

sa'eß o'tɨit LHHL 'knee'

Therefore, in Karitiana we seem to have the elements of a compound as separate p-domains since even though they constitute a single lexical item, they still bear stress in the same syllables they did when in isolation. Also, the compound is itself a p-domain, because after the morphological operation of compounding we have a phonological rule applying which results in a slight change in stress patterns: the second element of the compound bears primary stress ('), while the first element bears secondary stress ('). The tone assignment rules proposed for noun adjective combinations do not need to be changed as long as either primary or secondary stress will count as a barrier for tone spread. This analysis will have to be extended to the compound **ip#pok** in (7) and (15) (even though the results of the tone rule for this word will not change with the additional representation of secondary stress) so that we can have a consistent account of the relationship between tone and morphology:

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(24) 'X 'X 'X — i'pok '?ok {ip#pok}##?ok

L H L

(25) 'X 'X X — 'ej 'bɨdnã {ej#(bɨt+nã)} 'clay pan'

L H L

(26) 'X X X 'X — 'iriß o'hɨ

L H L

(27) X 'X X 'X — sa'eß o'tɨɨt

L H L

Stress Patterns

In this section we intend to offer evidence for the hypothesis that stress is predictable in Karitiana. Examining the 495 lexical items of which we have reliable tone information, the following stress patterns were encountered [1]:

(28) Disyllabic words which are monomorphemic and end in a closed syllable are stressed in the first syllable when all the vowels in the word have the same quality and quantity. Otherwise, the last syllable is stressed.

Ex:	e'gŋgɨ	'to vomit'	'mã.rãm	'fly'
	sɨ'poj	'tail'	'ta.rak	'to walk'
	pi'hop	'to dry'	'õ.rõm	'black monkey (species)'
	so'?oot	'to see'	'sa.ra	'alligator'
	o'koot	'again'	'gɨ.rɨj	'earthworm'

[1] There are 8 words of the 495 which do not conform with the stress rules. We attribute these apparent exceptions to our lack of knowledge of their internal structure which is probably derived.

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pɨ'pɨɨp	'owl'	'ba.kap	'hanging'
i'ri	'açaí palm'	'i.rip	'tapir'
kɨ'rɨ	'liver'	'kɨ.rɨk	'mosqito'
gɨ'sɨ	'wind'	'o.tõm	'lid'

(29) Monomorphemic trisyllabic (or longer) words have final stress. . . even with long vowels

Ex:	bi.ki'pa	'seat'	mẽ.ʃẽ'ɦĩŋ	'rat'
	a.sɨ.rɨ'tɨ	'banana'	i.ri.'ra	'to tickle'
	po.ko.'ho	'white yam (species)'	bo.ro.'tɨ	'paca'
	e.re.'rɨ	'cotton'	pa.pa'ep	'wing'

(30) Derived words keep the stress of their stem.

Ex:	'?õ.mõ.ɾã	'fake'	'o.bmã	'pierced'
	?õm#Vra		op+nã	
	fake-adjectivizer		hole-bearer of	

CLAUSAL PATTERNS

The same rules of tone assignment described in (14) are able to account for the facts at the clausal level, with the difference that clauses can contain more than one phonological phrase. Phonological phrases other than the last in declarative sentences are underlyingly H final. The break between phrases is obvious in (31) when a H tone is assigned to the last syllable of the subject phrase, where the spreading rules would predict a L tone. Since it is not clear whether there is a break between the verb and object, we represent both forms (a and b) in brackets:

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(31)

ɨ'sɨp nã+o'kɨt õmba'kɨ 'My father killed the jaguar'

1ps-father case-kill-nonfuture jaguar

a:(LH) (LLH HHL)

b:(LH) (LLH) (HHL)

In order to define the scope of a phonological phrase we will examine the syntactic structure of each sentence, starting with constituents of the X-bar schema, which have been described in the literature to frequently determine the scope of prosodic domains (Hale and Selkirk 1986, Hale1992).

There is overwhelming evidence that subject and verb belong to different phonological phrases. When the subject occurs as the first constituent of the clause a break between phonological phrases is always evident (except in copula constructions such as (37), which have the structure of a NP, where the verb functions as an adjective).

(32)

ɨ'sɨp nã+okɨ+t õmba'kɨ+tɨ 'My father killed the large jaguar'

1ps-father case-kill-nonfuture jaguar-big

a:(LH) (LLH HHLL)

b:(LH) (LLH) (HHLL)

(33)

ɨ'sɨp nã+o'kɨ+t õmba'kɨ pa'ʔira 'My father killed the angry jaguar'

a:(LH) (LLH) (LLH HLL)

b:(LH) (LLH) (LLH) (HLL)

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(34)

ta'so na+o'pĩ+t õmba'kɨ 'The man cut the jaguar'

man case-kill-nonfuture jaguar

a:(LH) (LLH HHL)

b:(LH) (LLH) (HHL)

(35)

ta'so naka+'seka+t ' pikɨp 'The man dried the clothes'

man case-dry(borrowing)-nonfuture clothes

a:(LH) (LLHH LL)

b:(LH) (LLHH) (LL)

(36)

ta'so naka+m+'kat õ'wã 'The man made the child sleep'

man case-caus.-sleep child

a:(LH) (LLH HL)

b:(LH) (LLH) (HL)

(37) õmba'kɨ 'pop 'The jaguar is dead'

a:(LLH L)

b:(LLH) (L)

(38)

õmba'kɨ na+a'ka+t i +'pop 'The jaguar is dead'

a:(LLH) (LLH HL)

b:(LLH) (LLH) (HL)

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(39)

' pɨkɨp na+a'ka+t i+'pok 'The clothes are clean'

a:(HH) (LLH HL)

b:(HH) (LLH) (HL)

(40)

õmba'kɨ 'kat an+ta+o'kɨ+t ta'so 'The man killed the sleeping jaguar'

jaguar asleep top-case-kill-nonfuture man

a:(HHL H) (LLLH HL)

b:(HHL H) (LLH) (HL)

(41)

'ỹã 'bɨt a'ka+tɨ ɨ+ta+pɨ'tĩŋ ' ɨn 'I want that pan'

det. pan det-obj. 1ps.-case.want 1ps

a:(H L LHH) (LLLH L)

b:(H L LHH) (LLLH) (L)

The tone configuration of the object NP in (41) indicates that there is a need for redefinition of some of our proposals: either 1) a phonological phrase has to be underlyingly different from LH(L) (possibly HLH(L)) or 2) NPs are not domains for tonal spread (if the bracketing is found to be (H) (LH)). Without the availability of conclusive data it is impossible to choose between these explanations. However, since we have no examples of NPs that clearly did not constitute a phonological phrase, and given the fact that there is no pause in the pronunciation of the object phrase in (41), we believe 1) above to be more plausible than 2).

At first, it is not clear from most examples whether verbs and objects belong to the same

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phrase because there is no evidence of a break between verb and object, ~~because~~ the tone output predicted by the (14) is the same whether or not the verb phrase is a single constituent for the purposes of pitch accent. However, ~~since~~ there are two examples in which the verb and object clearly constitute two different phrases (33) and (50) we cannot consider the VP as a constituent that can be used to define a domain for tone spreading rules. The assumption that the lack of evidence for a break cannot be taken as proof for the existence of a single phonological phrase can be corroborated by examples (42) and (43). In the latter the presence of the interrogative clitic **-hin** allows a question to be stated in declarative form, that is, with a L tone clause finally, which changes the tone patterns of the sentence from what it would be without the presence of the clitic. Semantically this construction functions as a tag question, where both an assertion and a question are implied.

(42)	Mõrã'mõn	i+'kat	'who is asleep?'
	(LLH)	(LH)	
(43)	Mõrã'mõn	i+'kat#hĩn	'who is asleep?'
	(LLH)	(HLL)	

Spec of CP

Verbs and objects clearly belong to separate phonological phrases in examples of topicalization of the object and in WH sentences. However, argument WH words always form separate phonological phrases, independent of their origin (object or subject), which might suggest that the structural position Spec of CP where WH words land is itself always domain of a phonological phrase. The status of adjunct WH words is not certain in the sentences available to us:

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(44) mõrã'mõn i+'?it ti+o'ki+t#hĩn 'What did my father kill?'

what 1ps-father top-kill-nonfuture#int.

(LLH) (LH) (HHLL)

(45) mõrã'mõn i+'?it ti+o'ki+t 'What did my father kill?'

what 1ps-father top-kill-nonfuture

(LLH) (LH) (LLH)

(46) mõ'rã i+o'ki õmba'ki 'Who killed the jaguar?'

(LH) (LLH) (LLH)

(47) mõ'rã i+o'ki õmba'ki#hĩn 'Who killed the jaguar?'

(LH) (LLH) (HLL)

(48) ti'ho a+'kat#hĩn 'Where did you sleep?'

where 2ps-sleep-int.

a (LH HLL)

b

(49) mõrã'sõn a+'kat#hĩn 'Why did you sleep?'

a (LLH HLL)

b

Other Constituents

The only example available of a clausal time adverb cannot be used as evidence that this constituent is a separate phrase in itself:

(50)

i +'si p nã+o'ki +t õmba'ki 'kiri 'My father killed the jaguar today'

a:(LH) (LLH) (LLH LL)

b:(LH) (LLH) (LLH) (LL)

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CONCLUSION

Since there are examples of both object and subject as separate phonological phrases from the verb we must conclude that the VP is not a minimal domain for tone assignment and therefore represent all sentences as in b, where verbs are bracketed separate from objects. Verb words, NPs and Spec of CP constitute the domains of tonal spread (phonological phrase) in Karitiana, which is assigned according to the rules stated in (14). Tones available underlyingly for assignment alternate between H and L, and every phonological phrase has a H tone at its right edge. Declarative utterances (including words pronounced in isolation) require a L tone finally in their rightmost phrase.

..*.*.*

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