WH-TYPE CONSTRUCTIONS IN KARAJA[1]

Marcus Maia
The Federal University of Rio de Janeiro

Abstract: This paper studies the left periphery of the clause in Karaja, a Macro-Je stock language spoken by about 3,000 people on and around the Bananal Island in Central Brazil. We analyze interrogative constructions of the Wh and yes/no types, topic and focus constructions, as well as constructions with the *txibo* "whether" conditional operator in order to propose an integrated account for those structures. We follow the Principles and Parameters framework of Chomsky & Lasnik (1993), Chomsky (1995), and particularly, Rizzi (1997) in which an expanded CP system is proposed.

1 - Introduction

This paper intends to describe and analyze the complementizer system in the left periphery of the clause in Karaja, a Macro-Je stock language spoken by about 3,000 people on and around the Bananal Island in Central Brazil. We will analyze interrogative constructions of the Wh and yes/no types, topic and focus constructions, as well as constructions with the *txibo* "whether" conditional operator and with the subordinator morpheme *-my* in order to propose an integrated account for those structures.

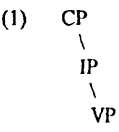
This study continues the syntactic analysis of the Karaja language presented in Maia (1998) and Maia et al (2000). We follow the Principles and Parameters framework of Chomsky & Lasnik (1993), Chomsky (1995), and particularly, Rizzi (1997) in which an expanded CP system is proposed. We review our previous work on the structure of the complementizer system in order to incorporate the analysis of the conditional operator txibo "whether" which, as we will show, occupies the same position as the interrogative words in the lowest projection of the CP system, capturing a dependence relation between this system and the inflectional specifications of the verbal system. In this sense, we also analyze embedding constructions which display basically the same dependence properties between the CP and the clause inflectional system.

The paper is organized as follows. First, a brief introduction to the relevant theoretical topics is presented. Then we describe interrogative wh constructions, yes/no interrogative structures, as well as their interaction with topic, focus, condition and embedding structures in Karaja. Finally, we present our proposal to account for these facts, considering the internal structure of wh-phrases in the

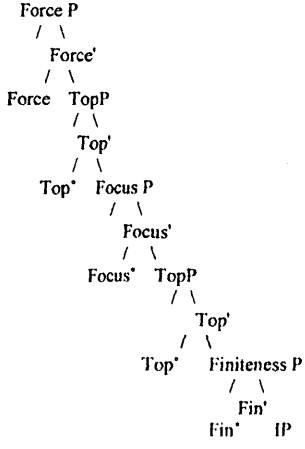
language. The data base gathered for the study includes not only the transcription of sentences in spontaneous narratives and questionnaires, but also the elicitation of grammaticality judgments.

2 – The theoretical framework

According to Rizzi (1997), the representation of clauses in Universal Grammar consists of three layers, each of these associated with a specific type of information, as illustrated in (1):

(1)


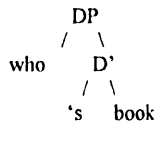
The VP system is the lexical layer, in which the verbal head assigns theta role to its arguments; the IP system is the inflectional layer, made up by the different functional heads which licence morphological features such as case and agreement; the CP system is the complementizer layer whose head is typically a free functional morpheme, the complementizer. The CP system also hosts topics and operators such as question and focus markers, etc. According to Rizzi, the CP system is made up by the articulate arrangement of X-bar projections, as illustrated in (2):

(2)


Rizzi (1997) offers evidence in favor of the expansion of the CP system in the spirit of Pollock's 1989 analysis of verb movement in which the IP system is expanded in a series of functional projections. Rizzi's proposal is that the role of the CP system is to provide an interface between a propositional content which is expressed by the IP and the superordinate strucuture, a higher clause or the articulation of discourse. Therefore in the two ends of the configuration in (2) Rizzi represents the ForcePhrase and the Finiteness Phrase, which express information on the clause type and the dependences between the CP and the IP, respectively. The Force Phrase encodes information such as the interrogative, declarative or exclamative nature of a clause that marks it to be selected by a higher selector. The Finiteness Phrase captures the properties of IP which are replicated in the CP system , such as the relation between the complementizer and the finite or non-finite nature of a predicate. Between these two phrases, Rizzi represents the topic and focus systems, reviewing a series of differences between the two types of constructions which typically involve the left periphery of the clause. A difference which is directly relevant to the purposes of this paper is the distinction between focus and topic which is established on the basis of the correlation with a resumptive clitic. According to Rizzi, only the topic construction allows the resumptive clitic, which is inconsistent with the focalized constituent.

In the Principles and Parameters framework, wh-questions are interrogative structures which involve a wh-phrase which can be non-referential or referential. Wh-phrases move from their base position to a position in the left periphery of the clause, the Spec, CP position. From this site they can bind their trace in the extraction site. According to minimalist requirements (cf. Chomsky, 1995), syntactic movement is only possible as a last resort in order to satisfy morphological requirements. Morphological features can thus be parameterized as strong or weak. Strong features must be checked via overt syntactic movement, that is , they must raise to the appropriate pre-terminal node, where a complex of abstract features match them, granting the so called convergence of the derivation. If strong features are not checked in overt syntax, the derivation will crash since the strong features cannot be interpreted in the level of Phonetic Form (PF). On the other hand, weak features can procrastinate their checking to the level of Logical Form (LF). Chomsky (1995) analyzes the phrase "whose book" as represented in (3):

(3)



Interrogative words are analyzed as possessing an abstract wh-feature and an abstract element underlying indefinite pronouns. If the interrogative Q feature instantiated in the CP is strong, such as in English, the wh-feature must raise to check the Q feature in the CP. If the wh-feature raises alone, leaving behind the referential expression that accompanies it, the result would be the crash of the derivation at PF. Therefore the whole phrase must raise in overt syntax. That is why in (3) not only the interrogative word is raised but also the residue *'s book*. It is important to note, though, that only the wh-feature needs to be raised. The rest of the phrase is automatically dragged along in the operation that became known as "pied-piping".

As we intend to show below, the Karaja language offers interesting empirical material to be checked against the fragment of Universal Grammar reviewed above. The non-fusional nature of Karaja morphology allows a clearcut segmentation of the components of the wh-word. Unlike English, in which the morpheme segmentation in (4) discussed in Tsai (1994), though intuitively interesting, has a fusional nature, the Karaja data allow us to entertain the theoretically interesting possibility that the wh-feature is the head of its phrase.

(4)	wh-words	pronominals
	Wh+at	th+at
	Wh+ere	th+ere
	Wh+en	th+en

3 – Interrogative words in Karaja

Karaja interrogative words are invariably formed by the composition of one or more indefinite roots with the wh-feature *-bo*. The data in (5) describe the basic constitution of wh or *bo*-words in Karaja.

(5)

aõ	+	bo	"what"				
thing		wh					
mo	+	bo	"who"				
person		wh					
ti	+	wàse	+	na	+	bo	"which"
		equal		nominalizer		wh	
ti	+ ki	+ bo	"where"				

	in		wh					
ti	+	u	+	bo				"when"
		time		wh				
ti	+	my	+	bo				"how"
		to		wh				
ti	+	wàse	bo					"how many"
		equal	wh					
aõ	+	he	+	re	+	ki	+ bo	"why"
thing		emphatic				in	wh	

Let it be established from the outset that wh-interrogatives in Karaja are derived via overt syntactic movement. Note that (6) is a declarative sentence displaying an SOV word order, whereas (7) is an interrogative construction with the wh-word *aõbo* left dislocated. (8) demonstrates that a grammaticality judgment contrast obtains if the interrogative word remains *in situ*.

(6) Wataju ihcto riwinyreri
3-house is making
"Wataju is making his house"

(7) Aõbo Wataju riwinyreri?
what is making
"What is Wataju making?"

(8) ? Wataju aõbo riwinyreri?
what is making
"Wataju what is making?"

Sentences (9), (10) and (11) demonstrate that adjuncts, as well as arguments, must also move to the left periphery of the clause in Karaja:

(9) Kaiboho mawaxinybenykre biurasòmy
you (pl.) will fish tomorrow
"You will fish tomorrow."

(10) Tiubo kaiboho mawaxinybenykre?
When you (pl.) will fish
"When will you fish?"

(11) ? Kaiboho mawaxinybenykre tiubo?
126 You (pl.) will fish when

As expected for syntactic movement operations, restrictions concerning the locality of movement are operative in Karaja, as demonstrated by the ungrammaticality of the sentence in (12):

(12) * Mo-my-bo Arirama a-ko relyyre tiubo tii itxirearemy Brasilia-ki?
Person - Acus-wh you-to said when he met Brasilia-in?
"Who Arirama said to you when he met in Brasilia?"

Sentence (12) demonstrates that the overt extraction of the wh-phrase *momybo* from the adjunct clause is agrammatical in Karaja, indicating that this language is sensitive to the Subjacency Condition (Chomsky, 1977). Note that sentence (12) also offers an example of an interesting grammatical pattern: the interrogative word *mobo* "who" displays inside it the accusative marker *-my*. We will turn immediately to the description of this fact.

Argumental interrogative words receive postpositional particles in their indefinite component, as exemplified below :

(13) Kai waha-my tabita
you my father-Acus saw
"Did you see my father"

(14) Mo-my-bo kai tabita?
person-Acus-wh you saw ?
"Who did you see"

(15) Aõ-my-bo kai tabita?
thing-Acus-wh you saw
"What did you see?"

Note that some verbs in Karaja mark their direct objects with the accusative suffix *-my*, as exemplified in (13). Examples (14) and (15) demonstrate that the accusative morpheme is also postposed to the indefinite roots *mo* "person" and *aõ* "thing". Besides the particle *-my*, other postpositions can also occupy this internal position either inside *mobo* "who", or inside *aõbo* "what", in Karaja, as exemplified in (16), (17), (18) and (19):

(16) mo-wyna-bo kai tohonyte kau?
person-and-wh you left yesterday
"With whom did you leave yesterday?"

(17) mo-dee-bo tii kua wyhy riwahinyra?
person-Benefactive-wh he that arrow gave
"To whom did he give that arrow?"

(18) mo-ràbi-bo kai kaa may temyta?
person-from-wh you this knife grabbed
"From whom did you grab this knife?"

(19) aõ-di-bo juwata temyta?
thing-Instrumental-wh piranha caught
"with what did you catch the piranha?"

Note also that in the referential wh-phrases, that is, those phrases in which a quantified nominal element occurs, this nominal also occurs in the same infixed position, as exemplified in (20) and (21):

(20) Aõ-utura-bo kai temyta?
thing-fish-wh you caught
"which fish did you catch?"

(21) mõ-utura-bo kaa rare?
person-fish-wh this is
"whose fish is this?"

If the quantified NP is the internal argument of a verb that requires the accusative marker or any other postpositional particle, both the nominal and the particle will be infixed inside the interrogative word, as illustrated by examples (22) e (23):

(22) aõ-ijyy-my-bo kai telyyta kau?
thing-story-Acus-wh you told yesterday
"Which story did you tell yesterday?"

(23) mõ-hawyy-dee-bo kai may tewahinyta?
person-woman-Benefactive-wh you knife gave?
"To which woman did you give the knife?"

4 - Perguntas SIM/NÃO, Construções de Tópico e de Foco em Karajá

Before we present our analysis of the interrogative words described above, we will discuss some constructions which are also related to the left periphery of the clause, namely, questions of the YES/NO type, as well as topic, focus and conditional structures.

YES/NO questions: Note that the Karaja wh-word *aõbo* is also used as an interrogative operator in order to form interrogative constructions of the YES/NO type. In this case, *aõbo* occurs consistently in the second constituent position in the clause, as exemplified by the contrast between the declarative sentence in (24) and the YES/NO interrogative in (25):

(24) a-biòwa orera-my robira ahu-ki
your friend alligator-Acus saw lake-in
"Your friend saw the alligator in the lake."

(25) a-biòwa **aõbo** orera-my robira ahu-ki?
Your friend **Q** alligator-Acus saw lake-in
"Did your friend see the alligator in the lake?"

Topic and Focus constructions: Topic constructions in Karaja are formed by the fronting of the topicalized NP to a position in the left periphery of the clause, as exemplified by the contrast between (26) and (27):

(26) Isè kua ijadoma-my robira hawa-ki
her mother that girl-Acus saw village-in
"Her mother saw that girl in the village"

(27) Kua ijadoma-my, isè **tuu** robira hawa-ki
that girl-Acus her mother her saw village-in
"That girl, her mother saw her in the village."

Note that the construction in (27) must obligatorily include the third person resumptive *tuu* , in Karaja. Without the clitic the sentence becomes ungrammatical, as shown in (28):

(28) *Kua ijadoma-my, isè robira hawa-ki
that girl-Acus her mother saw village-in
"That girl, her mother saw (her) in the village."

In complementary distribution with the interrogative particle *aõbo*, the free functional morpheme *dori* occurs consistently to the right of the NP to which it refers. We analyze *dori* as a focus particle, maybe a cleft construction, which unlike the topic construction introduces new information. The interpretation of a

sentence such as (29) differs from the interpretation of a sentence such as (27), because in (27), the NP *Kua ijadoma-my* expresses given information, whereas in (29) the Np has a focus interpretation, that is, it constitutes the new information in itself.

(29) Kua ijadoma-my **dori** isè robira hawa-ki
that girl-Acus FOCUS her mother saw village-in
"It was that girl that her mother saw in the village"

Observe that, now, as expected, it is not possible to coindex the focused NP with the resumptive clitic. As discussed above, one of the diagnostics to distinguish topic and focus is exactly the impossibility to include the resumptive clitic in focus constructions. This is exemplified in (30):

(30) * Kua ijadoma-my **dori** isè **tuu** robira hawa-ki
that girl-Acus FOCUS her mother her saw village-in
"It was that girl that her mother saw her in the village."

Consider now data as (31). This is a yes/no interrogative topic construction, in which the interrogative operator *aõbo* is in the second constituent position. Sentence (31) includes the third person clitic *tuu*. If the clitic is omitted, the structure will be ill formed, as in (32):

(31) Kua ijadoma-my aõbo, isè **tuu** robira hawa-ki?
That girl -Acus **Q** her mother her saw village-in
"That girl, did her mother see her in the village?"

(32) * Kua ijadoma-my aõbo isè robira hawa-ki
that girl-Acus **Q** her mother saw village-in
" That girl, did her mother see in the village?"

5 – The conditional operator *txibo*

Rizzi (97) proposes that the finiteness system is expressed by the lowest projection of the CP system, selecting an inflectional system with distinctions whose morphological realization can vary from language to language, but which seem to be related to free functional morphemes in the Finiteness phrase.

In Karaja, the conditional operator implies a specific morphological inflection in the verb form, which displays the suffix *-keki*, as exemplified in (33) and (34):

(33) **Txibo** kua habu ixy r-i-rubuny-**keki**, i-riorè ràma r-i-sa-õ-ke
130 if that man boar 3-theme-kill-SUBJ 3-child hunger 3-theme-feel-NEG-COND
"If that man had killed the boar, his child would not be hungry"

(34) **Txibo** kai b-i-hetcny-keki, weryry r-a-hiny-kre
if you 2-theme-hit-SUBJ boy 3-theme-cry-FUT
"If you hit him, the boy will cry."

Note about the dependence between the operator *txibo* and the verbal suffix *-keki*, the facts exemplified in (35) and (36). In (35), the idea of condition is replaced by the idea of time and accordingly the suffix *-kre* which indicates future tense must be used rather than *-keki*, as demonstrated in (36):

(35) kai b-i-heteny-kre-u , weryry r-a-hiny-kre
you 2-theme-hit-FUT-when boy 3-theme-cry-FUT
"When you hit him, the boy will cry."

(36) *kai b-i-heteny-keki-u, weryry r-a-hiny-kre
you 2-theme-hit-SUBJ-when boy 3-theme-cry-FUT
"When you hit him, the boy will cry."

In embedded clauses, txibo can also function as a complementizer, but in this case, the suffix *-keki* cannot be used. Rather, in those constructions, if the verb marks its complement NP with the accusative suffix –my, as discussed above, the embedded clause will be marked with the same suffix on the subordinate verb, as illustrated in (37):

(37) kua habu r-i-ery-õ-reri **txibo** i-hawyy r-u-ru-ra-**my**
that man3-theme-know-NEG-PRES whether 3-woman3-theme-die-PAST-ACUS
"That man does not know whether his wife died"

6 – The accusative suffix –my

Embedded clauses which are arguments of verbs such as *-bi-* "see", *-ery-* "know", *-hõtiny-* "think" , *-lyy-* "tell" and others, are generally marked in the final position of the verb by the accusative *-my*. In such constructions, the CP system may host a bo-word or it may be empty, as illustrated below:

(38) kua habu r-i-ery-õ-reri **tiubo** i-hawyy r-u-ru-ra-**my**
that man 3-theme-know-NEG-PRES when 3-woman 3-theme-die-PAST-ACUS
"That man does not know when his wife died"

(39) kua habu r-i-ery-õ-reri **aõherekibo** i-hawyy r-u-ru-ra-**my**

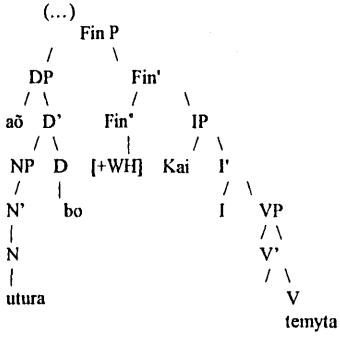
that man 3-theme-know-NEG-PRES why 3-woman 3-theme-die-PAST-ACUS
"That man does not know why his wife died"

(40) kua habu r-i-ery-ð-reri i-hawyy r-u-ru-ra-**my**
that man 3-theme-know-NEG-PRES 3-woman 3-theme-die-PAST-ACUS
"That man does not know his wife died"

7 – The internal configuration of wh-phrases and the structure of CP in Karaja

In this section we present our proposal of analysis for the internal configuration of the wh-words, both in the wh-questions and in the yes/no interrogatives, and for the topic, focus and conditional structures described above. Following Abney (1987), we explore the possibility that an NP has two projections: a lexical projection whose head is N and a functional projection whose head is D. This structure will allow us to analyze a sentence such as (20) as represented in (41):

(41)

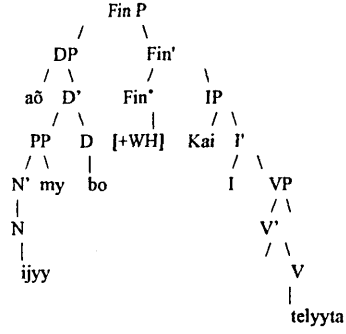


Note that this representation proposes to instantiate the referential wh-phrase *aõ-utura-bo* in the specifier positon of the Finiteness Phrase, the lowest projection of the CP complex, in contrast with Rizzi's analysis for the wh-phrases in Italian, which occupy the Spec of the Focus Phrase. Basically, our proposal intends to capture the dependency relation between inflectional properties of the IP/VP system and the CP system, as we demonstrate in the next section. We also intend to make explicit Tsai's (1994) and Chomsky's (1995) intuition that wh-words are formed by an indefinite element + a wh-feature. According to our analysis, the Karaja language would have a strong interrogative feature in the CP, requiring the overt checking of the wh-phrase (or bo-phrase in Karaja), which must rise to the position of the specifier of the relevant functional projection in the CP complex, namely, the Finiteness Phrase. As reviewed above, according to

Chomsky (1995), the Move Feature operation must take along the necessary material to guarantee the convergence of the derivation. This way, in (41) it is not only the bo-feature which rises, but the whole phrase whose head is the functional element *bo*. That is why both the indefinite [-human] *aõ*, and the object NP *utura*, which is in the complement position of *bo*, must also be raised.

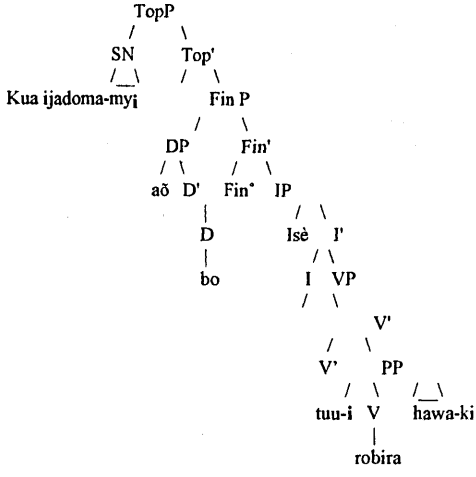
We propose now an analysis for wh-phrases such as (22), in which the postpositional marker required by the verb must also be present in the structure. Our proposal is that the position of the complement of the *bo* head inside the DP is occupied not by an NP, but by a PP, as represented in (42):

(42)



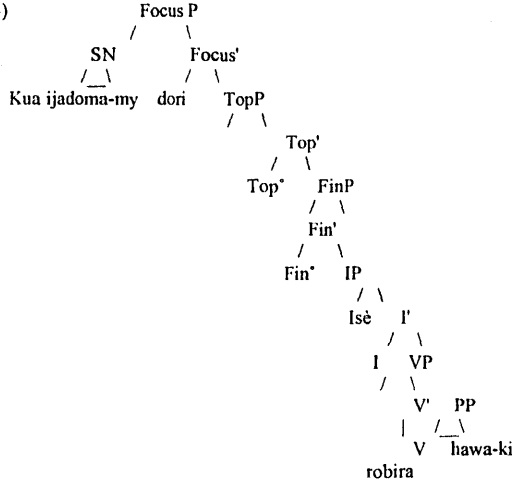
We propose the representation in (43) to analyze YES/NO interrogatives as (31), with a topic NP. Observe that in (43) we capture the syntactic and morphological symmetry between the two types of interrogatives in Karaja, the wh-interrogatives and the YES/NO interrogatives. The interrogative operator *aõbo* is represented in the same position as the wh-phrases. The difference is that the *bo* head of the YES/NO operator is an intransitive form, as it does not select any complement. The NP *Kua ijadoma-my* "that girl", occupies the functional projection immediately above, a Topic Phrase, implying that the YES/NO interrogatives necessarily topicalize the constituent followed by the interrogative operator *aõbo*. Note that the position that the NP *Kua ijadoma-my* occupies is Spec, Topic Phrase and not Spec, Focus Phrase since only the topic construction allows the resumptive clitic, as noted above.

(43)



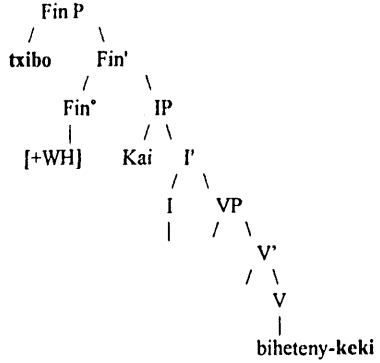
We, now, analyze in (44) the focus construction in (29):

(44)

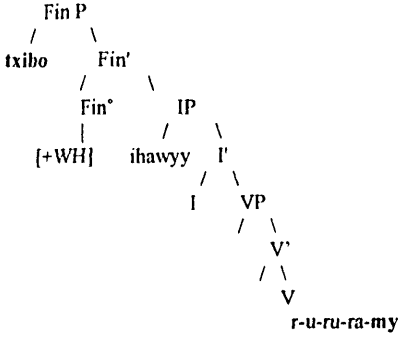


Note that the focus functional morpheme *dori* is analyzed as the head of the focus functional projection whose specifier position is occupied by the focalized NP *Kua ijadoma-my.* As we observed above, the clitic is not allowed in this construction, as expected for focus structures as (43). Finally we represent in (45) the conditional construction exemplified in (34), in which there is a dependence between the bo-word txibo, which occupies the position of Spec, FinP, and the inflectional element *-keki.* In (46) and (47), we represent the embedded clauses (37) and (40) , in which the whole embedded clauses are marked by the suffix *-my* which is attached to the verb form. (46) analyzes the specifier of the Fin Phrase filled by the txibo operator, whereas (47) demonstrates that that position can remain empty, even if related to the suffix **-my** in the embedded clause.

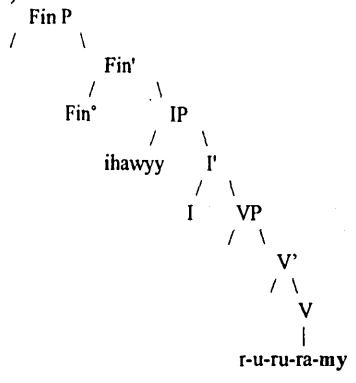
(45) (...)



(46) (...)



(47) (...)



8 - Conclusions

We investigated in this paper the structure of the interrogative wh-words in Karaja, as well as topic, focus, condition and embedding constructions, adopting an analysis which intended to provide an integrated account for these structures The Karaja language displays wh-features that, as we sought to demonstrate, allow a clearcut segmentation. Our analysis of the sublexical makeup of the Karaja bo-words proposes that the bo element be the head of its functional category, allowing us to capture syntactically the morphological parallelism that exists between those constructions. We also explored topic and focus constructions, relating them to the interrogative constructions inside the CP system. Finally we analyzed the conditional operator txibo, providing a motivation to represent the bo words in the Finiteness Phrase, the lowest projection in the CP complex, which selects an inflectional element related to the free functional morpheme txibo in Spec, FinP. We also propose an analysis for the embedded clauses which are marked by the suffix –my, capturing another dependency relation between the Fin P of the CP system and the structure of the IP/VP complex.

NOTES

[1]Paper read in the symposium on "Syntax" during the 1999-2000 Annual Meeting of the Society for the Study of the Indigenous Languages of the

Americas, held in Chicago, Illinois, on January 7-8, 2000, in conjunction with the Annual Meeting of the Linguistic Society of America. I thank the Jose Bonifacio Foundation – FUJB/UFRJ for the grant 6969-8 who made possible the research reported in the article. Please, address any questions and/or comments to maia@ufrj.br

REFERENCES

Abney, S. 1987. The English Noun Phrase in its Sentential Aspects, doctoral dissertation, MIT.

Chomsky, Noam. 1977b. On Wh-movement. In P. Culicover, T. Wasow, and A. Akmajian, eds. Formal Syntax, New York: Academic Press.

-----. A Minimalist Program for Linguistic Theory. 1993. MIT Occasional Papers in Linguistics, 1.

-----. The Minimalist Program, MITPress, 1995.

Chomsky, N., and H. Lasnik. 1993.The theory of Principles and Parameters. In J.Jacobs, A. von Stechow, W. Sternefeld, and T. Venemann, eds, Syntax:An international handbook of contemporary research. Berlin: de Gruyter.

Cheng, L. L.-S. 1993. On the typology of Wh-questions. Doctoral dissertation, MIT.

Maia, M. 1998. *Palavras Interrogativas em KarajáPeaper read* in the meeting of the Indigenous languages work group during the XIII National Meeting of the National Association of Research and Graduate Studies in Letters and Linguistics - ANPOLL , Campinas, SP.

Maia, M., A. Salanova & E. Lanes.2000*Syntaxis Comparada de las interrogativas en Karajá, Kayapó y Manchineri.* In: Hein van der Voort & Simon van de Kerke (eds.), Essays on Indigenous Languages of Lowland South America, Leiden: CNWS Publications, vol 1, ISSN 1567-813X), p. 297-308.

Rlizzi, L. 1991.Residual Verb Second and the Wh-criterion. Technical Report 2, Université de Genève.

-----. 1997.The Fine Structure of The Left Periphery. In: Haegeman, L (org) Elements of Grammar: Handbook of Generative Syntax. Kluwer:Dordrecht.

Tsai, W.-T. D. 1994. On economizing the theory of A-bar dependencies. Doctoral dissertation, MIT.