

Phrase Structure in Waimiri Atroari

Ana Carla Bruno
Instituto Nacional de Pesquisas da Amazônia
abruno@inpa.gov.br

Keywords: Waimiri Atroari Language, Phrase Structure, X-Bar Theory

1. Introduction

In this article, I assume some ideas related to the structure of phrases that have been utilized in the X-Bar approach. In particular, I assume that phrases are built around an element whose head is instantiated by a major lexical class, such as N, V, or A. Second, I assume that there are most two projections of each class, an intermediate projection X' and a maximal projection XP, and we can add adjuncts at any level. Since X-Bar Theory allows “Parameters”¹ Travis (1989:264) on the position of heads, complements, and adjuncts, I use it to explain the phrase structure in this language. According to Greenberg (1963), there is a general word order tendency in natural languages that tends to place modifiers elements either before or after the head. On the other hand, it is observed that the position of heads and complements in different kinds of phrases seems not to be limited to the binary choice where all the heads must be either left or right. In other words, there would be some ‘mixed head languages’, as for example Basque. Radford (1988:39).

In Waimiri Atroari, the head of the phrases occurs predominately at the right edge of the constituent in noun, verb, and postposition phrases. However, in the cases of noun phrases containing a numeral, a quantifier word, or adjective, this does not seem to be always the case. As it will be demonstrated below, the fact that the head can be positioned either to the left or to the right in this kind of phrases is probably related to the fact that numerals, adverbial quantifiers, and adjectives are adjuncts, and, as such, can occupy variable positions.

2. Noun Phrases

In Waimiri Atroari, the simplest case of noun phrases can have a single noun (1) or a pronoun (2). The clearest cases of NPs involving two nouns are examples of possessive phrases, which present the order possessor-possessed (3-8):

*Waimiri Atroari is a Carib language spoken by approximately 1000 speakers (December 2003), in several villages in an area to the North of the state of Amazonas and the South of the state of Roraima, Brazil. The data for the present analysis were collected during several field trips between 1991 and 2000. My main consultants were Damixiri (from the village of Kerepi Syna) and Ewepe (from Iawara), both males now in their late twenties. There are slight dialectal differences, which are not relevant for the present paper’s topic. This paper has benefited greatly from discussions with a number of people. I would like to thank the Kinja ‘people’ (Waimiri Atroari self-denomination) for their confidence and friendship.

¹ According to Travis (1989:264), “[L]anguage variation is allowed through parameters which introduce a limited flexibility to the system. Parameters represent the range of variation that can be found in natural languages as well as what has to be learned by the children.”

- | | |
|--|--|
| (1) <i>mabaia</i> a/the papaya(s) | (2) <i>amyry</i> you |
| (3) <i>mydy</i> <i>i-apremy</i>
house REL-owner
the owner of the house | (4) <i>Ewepe</i> <i>pyruwa</i>
Ewepe arrow
Ewepe's arrow |
| (5) <i>maryba</i> <i>i-apremy</i>
song/festivity REL-owner
owner of the song or of the party | (6) <i>Iawara</i> <i>mydy</i>
Iawara house/village
the village of Iawara |

Moreover, the examples involving noun phrases seem to have examples of both adjunction and complements. In the trees below (7b and 8b), the SPEC N is a possessor and the head is the N'. Unlike English, where the possessive clitic 's is attached to the possessor NP, in Waimiri Atroari it is the possessed noun that receives morphological indication of the genitive relationship (head marking).² Moreover, in cases such as

² In Waimiri Atroari, a number of vowel-initial noun and verb stems take the 'linking prefix' i- when immediately preceded by their determiners (that is, the possessor, with nouns, and the object, with transitive verbs). This prefix occurs generally with obligatorily possessed nouns, such as nouns denoting a 'part-of-a-whole' relationship (body-part and kinship terms, etc.). Examples are the stems *eba* 'eye' and *akyna* 'sweep':

- | | | |
|--|--|--|
| (i) a. <i>Ewepe</i> <i>i-eba</i>
Ewepe REL-eye
Ewepe's eye | b. <i>k-eba</i>
1+2-eye
our eyes | c. <i>a=i-eba</i>
2=REL-eye
your eye |
| (ii) <i>bahinja</i> <i>n-itxi-pia</i> <i>mydy</i> <i>i-akyna-se</i>
child 3-go-IM house REL-sweep-in.order.to
The child went to sweep the house. | | |
| On the other hand, consonant-initial stems do not present any linking prefix under these circumstances: | | |
| (iii) a. <i>Ewepe</i> <i>pana</i>
Ewepe ear
Ewepe's ear | b. <i>ky-pana</i>
1+2-ear
our ears | c. <i>a=pana</i>
2=ear
your ear |
| (iv) <i>Kynetxiri</i> <i>ram</i> <i>Irie</i> <i>pana</i> <i>xiky-pia</i> <i>maia</i> <i>ke</i>
Kynetxiri 2PART Irie ear cut-IMknife INSTR
Kynetxiri cut Irie's ear with a knife. | | |

Similar morphological alternations are also found in other Carib languages, such as Hixkaryana. Although Derbyshire (1985:200) describes the i- prefix of Hixkaryana as a 3rd person marker, his analysis is probably not totally accurate, since, as in Waimiri Atroari, the prefix y- can also co-occur with 2nd person possessive prefixes (*o-i-owan* [2-REL-chest] 'your chest'). [In the examples below, I reinterpret Derbyshire's data, analyzing i- as a relational prefix.]

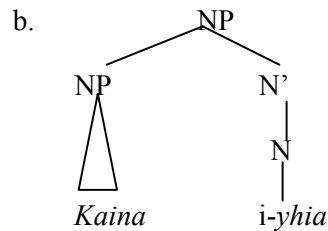
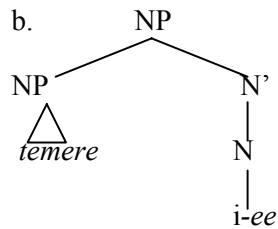
- Hixkaryana** (Derbyshire 1985, 5)
- | | |
|--|---|
| (v) a. <i>Haname</i> <i>i-aworu</i>
Haname REL-uncle
Haname's uncle. | b. \square - <i>aworu</i>
3-uncle
his/her uncle |
|--|---|

Furthermore, Derbyshire (*op. cit.*, 26-27) presents a clear 'minimal pair' that shows that y- cannot be analyzed as a merely epenthetic vowel. As he puts it, the difference between the constructions in (a) and (b)

example 6 above, the noun-noun construction can be ambiguously interpreted as a typical possessive phrase (i.e., ‘the village that belongs to Iawara’) or a ‘naming’ construction (‘the village whose name is Iawara’). Moreover, possessives will be always on the left because they will be either complement or specifier (Comp for inalienable and Spec for alienable).

(7) a. *Temere i-ee*
 jaguar REL-tooth
 The jaguar’s tooth.

(8) a. *Kaina i-yhia*
 Kaina REL-hair
 Kaina’s hair.



below is the fact that, in (a), “*anaro* is the possessor and *yowto* the possessed item,” while in (b) “*anaro* is a preposed modifier and *owto* the (nonpossessed) N nucleus of the phrase.”

(vi) a. *anaro i-owto*
 another REL-village
 another’s village

b. *anaro owto*
 another village
 another village

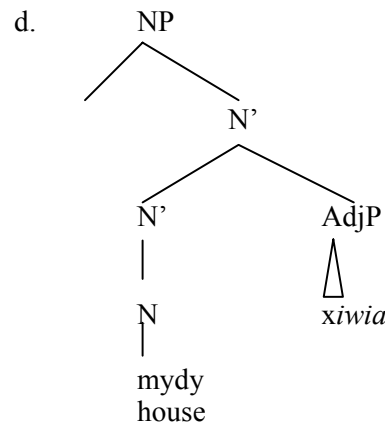
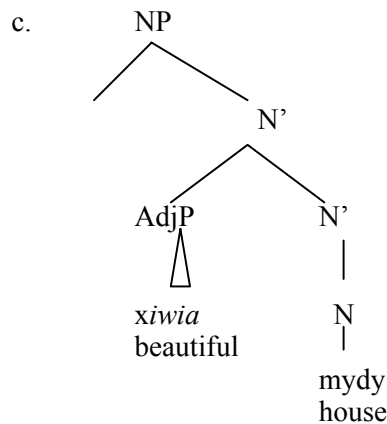
Following a well-established tradition in South American linguistics, I term *i-* a *relational prefix*. Relational prefixes are also found in languages of the Tupí and Macro-Jê stocks, a fact that has been pointed out as evidence for the genetic relationship between Carib and those two language groupings (Rodrigues 1994).

2.1 Noun Phrases Containing Adjectives³

As illustrated in the trees below, adjectives are adjuncts—or, in X-Bar terminology, sisters of an N' and daughters of an N'. Because adjuncts can be more flexible in their distribution, in a noun phrase containing adjectives, the adjectives can be either at the left or at the right to the head noun. At this moment, I cannot determine whether this variation is purely stylistic, or whether it entails any semantic difference.

(9) a. *xiwia mydy*
beautiful house

b. *mydy xiwia*
house beautiful
beautiful house



³ Many Carib languages do not have adjective as a syntactic class (part of speech). Words corresponding semantically to adjectives are classified as nouns. Based on morphological evidence, I claim that Waimiri Atroari *does* have adjectives. Syntactically, adjectives can, like nouns, occur as subject or object position. However, unlike nouns, adjectives cannot take the suffix *-my* that indicates 'absence' (e.g. *ety-my* 'nameless'). Furthermore, only adjectives can take the emphatic suffix *-pa* (e.g. *tamkwa-pa* 'very short'). On the other hand, it is not clear whether one can use the second position particle *ram* as a boundary constituent in phrases of the type <Adj N>, I have to do more tests because it is not always the case that the Waimiri Atroari consultants allow this kind of construction:

a. **kyrywy xiwia ram mixopa*
snake red 2PART long
The long red snake

b. *wykyry she ram waryna wu-se txi-pia ipaikpa weri*
tamkwa
man tall 2PARTpaca kill-in.order.to go-IM after woman short

kymy i-eky i-akymy-se.
bacaba REL-juice REL-make-in.order.to

The tall man went to kill *paca* (a kind of rodent) and the short woman went to prepare *bacaba* fruit juice.

- (10) a. *taha* *kyrywy* b. *Kyrywy* *taha*
 big/large snake snake big/large
 big snake big snake

- (11) *pana* *a'a* *n-itxi-piany* [*taha* *kanuwa*] *ta*
 yesterday 1+3PRO 1+3S-go-REC big canoe LOC

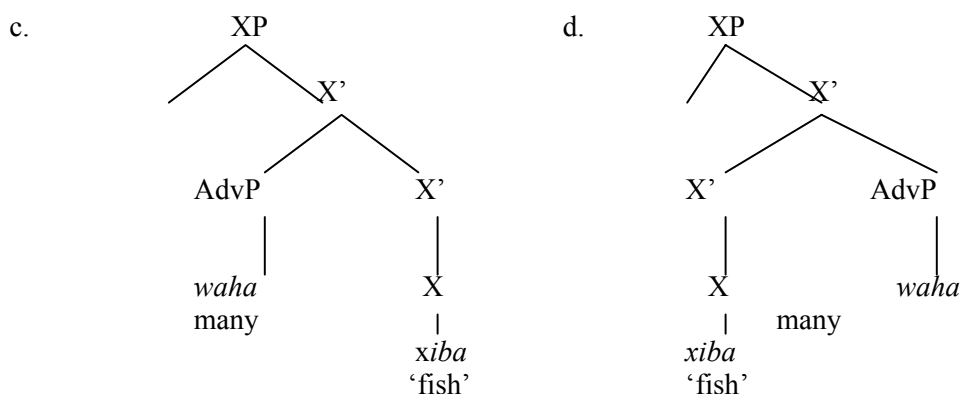
warara *bi* *pipe-se*
 turtle eggs look.for-in.order.to
 Yesterday, we went in the big canoe to look for turtle's eggs.

- (12) [*wykyry* *sehe*] *txi-pia* *waryna* *wu-se*
 man tall go-IM paca kill-in.order.to
 The tall man went to kill a *paca* (a kind of rodent).

2.1.1 Noun Phrases Containing Quantifiers Words

As with noun phrases containing adjectives, noun phrases containing quantifiers also present a certain degree of positional variation. As shown in examples (13-17) below, adverbial quantifiers can occur either to the left or to the right of the head noun. As the syntactic trees in (13c) and (13d) demonstrate, I consider such quantifiers as adjuncts, what would explain their relative mobility.

- (13) a. *Waha* *xiba* b. *xiba* *waha*
 many fish fish many
 many fish many fish



- (14) a. *wapy* *kinja* *wyty* *ipo-piany*
 many people meat look.for-REC
 Many people hunted.

b. *kinja wapy waty ipo-piany*
 people many meat look.for-REC
 Many people hunted.

(15) *tahkome wapy n-oosa-pa kamakaxi taka*
 elders many 3S-climb-REM tree (sp.) AL

xirikiki baka-paiky
 parakeet kill-T/A
 Many elders climbed trees to kill parakeets.

(16) *kinja wyty ipo-piany wapy.*
 people meat look.for-REC many
 People hunted a lot.

(17) *njawa nyn-pa waha kipety tarara many*
 rain come-REM many wind thunderstorm too
 It rained a lot with wind and thunderstorm as well.

Although examples (18), (19), and (20) are not examples of adverbial quantifiers, I provide them to show that other kinds of adverbs behave in the same way, presenting the same mobility.

(18) *mamyhkypa a'a n-y-sapa kwata wu-se*
 tomorrow 1+3PRO 1+3S-go-T/A spider.monkey kill-in.order.to
 Tomorrow we will go to kill spider monkey.

(19) *a'a n-y-sapa kwata wu-se mamyhkypa*
 1+3PRO 1+3S-go-T/A spider monkey kill-in.order.to tomorrow
 We will go to kill spider monkey tomorrow.

(20) *a'a n-y-sapa mamyhkypa kwata wu-se*
 1+3PRO 1+3S-go-T/A tomorrow spider.monkey kill-in.order.to
 We will go tomorrow to kill spider monkey.

Interestingly, the position of an adverbial quantifier such as *waha* ‘many, a lot’ and *wapy* ‘many, a lot’ seems to be free when they modify a noun phrase (examples 13-15). However, these adverbial quantifiers seem to occur preferentially in post-verbal position when modifying a verb phrase (examples 16 and 17). Waimiri Atroari lacks determiners that correspond to *each*, *every*, *most*, and *some*, a fact that suggests the absence of a class of D-quantifiers⁴ in this language. As mentioned at the introduction, in Waimiri Atroari

⁴ According to Partee *et al* (1987), D-quantifier is associated with determiner-like elements where the scope is restricted to NPs, in specific positions.

quantifiers such as *all*, *many*, and *two* do not belong to the functional category of determiner; therefore, I prefer to think of them as adverbs.

2.1.2. Noun Phrases Containing Numerals

The native lexicon of Waimiri Atroari has only three numeral words,⁵ whose meaning is not generally restricted to mathematical quantities. The expression *awini ~ awinini ~ awinihe ~ awynihe* means ‘alone’ and also ‘one’; the term *typytyna* means ‘a couple’, ‘a pair’, or ‘two’; the word for ‘three’ is *takynynapa*. Thus, traditionally the Kinja counted only up to three; amounts higher than three were referred to simply as ‘several, many’. Today, with the modern necessity for handling money and the introduction of western mathematical concepts through the village schools, the Kinja started using Portuguese loanwords to refer to numbers higher than three. These borrowed numerals occur in the same position as the native words meaning ‘one’, ‘two’, or ‘three’. Less commonly, Portuguese numerals for ‘one’, ‘two’ or ‘three’ may also be used instead of the native words, especially by the younger speakers (25). As shown by the examples below, numeral words can occur before a noun (21-23, 26), after a noun (24, 26), or by itself, after a verb (25).

(21) *typytyna* *karyka*
two chicken
two chickens

(22) *awynihe* *petxi* *Kwawura* *i-aryka-pa* *ty-kyda* *tohnaka*
one pig Kwawura REL-put-REM 3REFL-back over
One wild pig put Kwawura on his own back.

(23) *takynyna* *pahky* *kaminja* *n-apynaka*.
three only non-native 3S-escape
Only *the* three white men escaped.⁶

(24) *weri* *samka* *ka-pia* *takynynapa*
woman hammock make-IM three
The woman made three hammocks.

(25) *amy* *kinja* *dezessete* *apytyhy*
other people seventeen behind

amy *kinja* *dezessete nate'me*
other people seventeen behind

⁵ I am using the term ‘numeral words’ instead of ‘numerals’ because I have no evidence for the existence of numerals as an independent part-of-speech in this language.

⁶ This sentence was taken from a text narrating a fight between the Kinja people and the non-natives. The three non-Indian characters mentioned in this sentence have already been introduced in an earlier passage of the text. Therefore, the noun phrase *takynyna pahky kaminja* ‘only [the] three White man’ is clearly definite in this context, as shown by the English translation provided above.

Seventeen people were in front, and seventeen were behind.

- (26) *dois kinja xiba myry-myryky-pia quatro pahky.*
 two people fish REDUP⁷-fish-IM four only
 Two people caught only four fish.

It is not totally clear what motivates this variation in the position of the numeral words. However from the examples seen above, it seems that the variation may be related to issues of specificity and definiteness. That is, if the speaker thinks the listener already knows and can identify the particular referent which will be talked about, the speaker will codify such referents as definite and specific. According to Diesing (1992) and Diesing and Jelinek (1995), there is a mapping between argument structure and information structure. By information structure, Diesing (1992:58) refers to “the organization of the clause with respect to presuppositional (familiar) *vs.* information new to the discourse.” Waimiri Atroari clearly follows this mapping when topicalizing some arguments of the clause and also seems to make an association between definiteness and old information *vs.* indefiniteness and new information through the relative position of the numeral word in a noun phrase. When in specific and definite contexts, the numeral word seems to prefer the left side of the noun (21-23, 26), but in unspecific context the numeral word is positioned either post-verbally (25) or at the right side of the noun (24, 26). In this sense, the numeral words in (24) and (26) behave like the adverbial quantifier in example (15), inasmuch as the speaker is not talking about a specific group of people or hammocks. I admit that example (21) and (25) are potentially problematic for my assumptions, since it is not clear if the consultant is talking about two specific chickens or a specific group of seventeen Kinja. Therefore, this is a hypothesis to be further investigated.

3. Verb Phrases

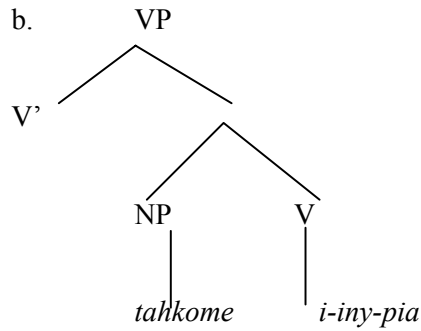
In Waimiri Atroari, a VP can be constituted of a verb alone (28) or a verb preceded by a NP (27). The VP can move to before the subject NP through topicalization (27) and cannot have its components separated, except in the OSV context when the object moves alone to a topic position as will be discussed below (30). In Waimiri Atroari there is a second position particle,⁸ *ram*, which can be used as a criterion to test the constituency of a given phrase. The particle *ram* can never intervene between two elements of the same phrase (27c). Furthermore, since *ram* is a second position particle, it can be useful in determining which elements in a given sentence were moved, such as in example (27a) below.

- (27) a. *tahkome i-iny-pia ram Irikwa*

⁷ This is an example of reduplication in Waimiri Atroari. Reduplication in this language is bimoraic, occurring with verb stems to indicate repetition or continuation (Bruno 2000).

⁸ According to the syntactic framework I am adopting here, based on Halpern & Zwicky (1996), the first element is the first immediate constituent of the clause, such as a complement or argument of the verb, an adverbial modifier, or other clausal constituent.

elders REL-eat-IM 2PART Irikwa
 Irikwa (a mythological entity) ate the elders.



c. *[*tahkome ram i-iny-pia*] Irikwa.
 elders 2PART REL-eat-IM Irikwa
 Irikwa (a mythological entity) ate the elders.

(28) *ka-ky!*
 speak-IMPER
 Speak!

(29) *bahinja maia kynk-E*
 children knife break-T/A
 The children break the knife.

(30) *woky i-eky kra h-ee-ia*
 banana REL-juice 1PRO 1-drink-T/A
 I drink the banana juice.

Example (30) above illustrates the only context where the VP is separated by the subject, when the object undergoes topicalization. Generally, in more ‘unmarked’ situations nothing can intervene between the object and the verb.

4. Postpositional Phrases

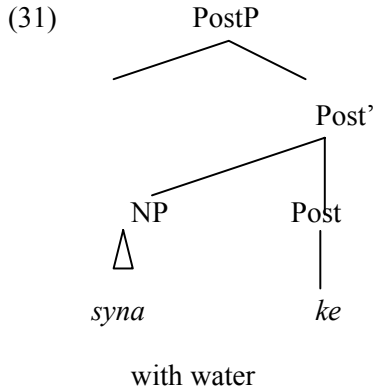
In Waimiri Atroari, some postpositions can inflect for person, taking the same series of markers used to indicate the possessor on nouns and the object on transitive verbs⁹.

⁹

Table 1. Personal clitics and prefixes

Intransitive Subjects	Transitive Subjects	Objects	Possessive

The syntactic link between a postposition and its noun phrase object is as strong as that between the elements of the noun and verb phrases: nothing can intervene between them.



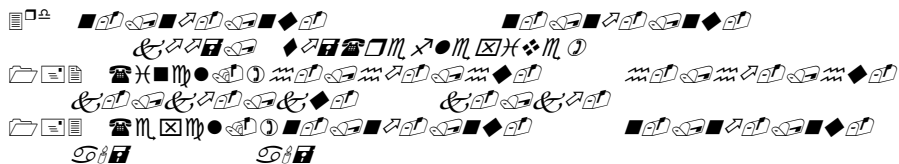
The tree above demonstrates that the head is always to the right in postpositional phrases, exactly as it happens with noun and verb phrases. The examples below reinforce my claim that nothing can separate the postpositions from their complements.

(32) *iakypa a'a ny-dykia-pa tapinja ta*
 then 1+3PRO 1+3S-squeeze-REM sieve LOC
 Then, we squeezed (the manioc) in the sieve.

(33) *samka tyhnaka*
 hammock over
 over the hammock

(34) *impa a'a n-ikeia-pa meie impary axinjaty tyhnaka*
 then 1+3PRO 1+3-bake-REM beiju then oven over
 Then we baked the *beiju* (kind of manioc tortilla) over the oven.

(35) *iakypa a'a minja pitxi-pia maia ke*
 After 1+3PRO manioc peel-IM knife INSTR
 Then we peeled the manioc with the knife.



Considering Gildea's classification (1998), based on morphosyntactic properties of verbal systems of several Carib languages, Waimiri Atroari is classified in the 'set I system (nominative or inverse/split-s)'.
 Bruno (2003) argues that Waimiri Atroari has a typical nominative/accusative system when considering verb agreement patterns.

- (36) *aa ram xiba h-yry-pia ka inaka*
 1PRO2PART fish 1-give-IM 3PRO DAT
 I gave fish to him.
- (37) *amyra ram aa=inaka xiba m-yry-pia*
 2PRO 2PART 1=DAT fish 2S-give-IM
 You gave fish to me.
- (38) *paruwe aa=i-ry-py-pia, woky yry-ky mahta inaka*
 Paruwe 1=REL-tell-CAUS-IM banana give-IMP Marta DAT
 ‘Paruwe told me: “Give banana to Marta.”’

5. Conclusion

In this article, I have provided an analysis of the Waimiri Atroari phrase structure. Based on the different types of phrases showed above, I argue that Waimiri Atroari is a head-right language. In verb phrases, noun phrases with possessive, and postposition phrases, Waimiri Atroari presents a typical case of head right. However, in phrases with adjuncts, such as noun phrases containing adjectives, adverbial quantifiers, and numeral words, the relative position of the head seems to vary depending on the kind of information that the speaker intends to convey, such as specificity and definiteness (adverbial quantifiers and numeral words)¹⁰, or whether it is modifying a noun or a verb (adverbial quantification phrases).

6. References

- Bruno, Ana Carla. (1995). Person subject and object marking in Waimiri Atroari. Unpublished manuscript
- _____. (1999). The causative construction in Waimiri Atroari. Final paper for the Lexical Semantics class. Tucson: University of Arizona.
- _____. (2000). Reduplication in Waimiri Atroari. Department of Linguistics master’s paper. Tucson: University of Arizona.
- _____. (2003a). Waimiri Atroari Grammar: Some Phonological, Morphological, and Syntactic Aspects. PhD Thesis. Tucson: The University of Arizona.
- _____. (2003b). Reduplicação em Waimiri Atroari. In: *Amerindia: Revue D’ethnolinguistique Amérindienne – Langues Caribes*. n.28. França: CNRS.
- Derbyshire, Desmond. (1985). *Hixkaryana and Linguistic Typology*. Texas: Summer Institute of Linguistics and University of Texas.
- Diesing, Molly. (1992). *Indefinites*. Cambridge: MIT Press.
- Diesing, Molly and Jelinek, Eloise. (1995). Distributing arguments. *Natural Languages Semantics* 3.123-176.
- Gildea, Spike. 1998. *On Reconstructing Grammar: Comparative Cariban Morphosyntax*. Oxford Studies in Anthropological Linguistics 18. Oxford University Press.
- Greenberg, J.H. (1963). *Universals of languages*. MIT Press: Cambridge, MA.
- Halpern, Aaron and Zwicky, Arnold. (1996). *Approaching Second: Second Position Clitics and Related Phenomena*. Stanford: CSLI Publications.

¹⁰ In relation to this issue, I have to do more tests and collect more data to check this hypothesis.

Radford, Andrew. (1988). *Transformational Grammar*. Cambridge: Cambridge University Press.

Rodrigues, Aryon. (1994). Grammatical affinities among Tupí, Carib, and Macro-Jê. Unpublished manuscript. Brasília: Universidade de Brasília.

Travis, Lisa. (1989). Parameters of phrase structure. In Baltin, Mark and Kroch, Anthony (editors), *Alternative Conceptions of Phrase Structure*. Chicago: Chicago University Press.

7. Table of Abbreviations

AL	‘allative’	2PART	‘second-position particle’
CAUS	‘causative’	POS	‘possession’
DAT	‘dative’	REC	‘recent past’
DEV	‘devaluative’	REDUP	‘reduplication’
IM	‘immediate past’	REFLX	‘reflexive’
IMP	‘imperative’	REL	‘relational prefix’
INSTR	‘instrumental’	REM	‘remote past’
LOC	‘locative’	T/A	‘tense/aspect’

8. Contact Information

Núcleo de Pesquisa em Ciências Humanas e Sociais - NPCHS
Instituto Nacional de Pesquisas da Amazônia - INPA
Av. André Araújo, 3296 Aleixo / Aloj.
Manaus – AM BRAZIL
69.060-001
(abruno@inpa.gov.br)