ORIGINAL ARTICLE

INTRODUCING ARGUMENTS TO THE KARITIANA VERBAL STRUCTURE

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▪ ABSTRACT: This paper investigates how Karitiana (a Tupian language, Arikém branch, located in Rondônia, Brazil; population: 396 people - 333 speakers) introduces additional arguments into the basic verbal structures. In order to analyze and discuss the data, we adopted two theoretical frameworks, i.e., (i) the Hale and Keyser (2002)'s theory of argument structure and (ii) the theory of applicative heads, elaborated by Pylkkänen (2008). In the former proposal, Karitiana displays four verbal classes (intransitive, intransitive with oblique objects, transitive and ditransitive verbs) while, in the latter, the language has only two verbal classes (intransitive and transitive verbs). Adopting Pylkkänen's framework, the Karitiana verbal system exhibits two basic structures in which applicative or voice nuclei add additional arguments. In causatives, the voice nuclei only introduce higher arguments into the structures. However, applicative heads are divided into two types – high and low. The higher head inserts an extra argument above the VP, while the lower one inserts the argument internally into the VP.

▪ KEYWORDS: Argument Structure. Applicative Heads. Verbal Classes. Karitiana Language.

Introduction

This article offers a theoretical and empirical analysis of the argument structure of the Karitiana verbs based on two approaches developed by (i) Hale and Keyser (2002) and (ii) Pylkkänen (2008). The former describes how verbal nuclei project their arguments, and the latter shows how the basic structure of the verb introduces their additional arguments.

The Karitiana is an endangered language, which belongs to the Arikem family, Tupian stock, located in the state of Rondônia, in Brazil. In 2016, the language comprised 333 speakers out of 396 people (ROCHA, 2018).

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Morphosyntactic tests

In this section, we show four morphosyntactic tests used to identify valence change and verbal classes in Karitiana. The mentioned tests are (i) agreement pattern; (ii) causativization; (iii) passivization, and (iv) the copular complement as a predicated syntactically intransitive.

Agreement pattern as a morphosyntactic test

Karitiana is an ergative-absolutive language in which the verbal agreement pattern[1] refers to the absolutive argument, e.g., the verb agrees with the object in transitive sentences or with the subject in intransitive sentences (LANDIN, 1984; STORTO, 1999, 2002, 2005, 2010).

Table 1 – The transitive verb agrees with the object (declarative mood)

Num	Subject	Verb	Object	Translation
1	yn	**y**-ta-ahoj-ø	**yn**	"I laughed at myself."
	I	1-DECL-laugh-NFUT[2]	I	
2	yn	**a**-ta-ahoj-ø	**an**	"I laughed at you."
	I	2-DECL-laugh-NFUT	você	
3	yn	**ø**-na-ahoj-ø	**i**	"I laughed at him."
	I	3-DECL-laugh-NFUT	s/he/it	

Source: Author's elaboration.

Table 2 – The intransitive verb agrees with the subject (assertive mood)

Num	Verb	Subject	Translation
1	**y**-ta-ahy-t	**yn**	"I drank."
	1-DECL-drink-NFUT	I	
2	**a**-ta-ahy-t	**an**	"You drank."
	2-DECL-drink-NFUT	you	
3	**ø**-na-ahy-t	**i**	"S/he drank."
	3-DECL-drink-NFUT	s/he/it	

Source: Author's elaboration.

[1] The definition of agreement used is from the Case Binding theory which says that a functional nucleus agrees with different arguments in different syntactic configurations (STORTO, 1999. 154; BITTNER; HALE, 1996).

[2] GLOSSES: 1, 2, 3: agreement of first, second, and third persons; DECL: declarative mood; NFUT: non-future tense; ASSERT: assertative mood; CAUS: causativizer; OBL: oblíque marker; PASV: passive preffix; COP: copular; PART: participle/nominalizer; ADVZR: adverbializer; PAST: past tense; FOC: focus; 1/2/3SG: first, second, and third singular persons; PRES: present tense; APPL: applicative head; FV: final vowel; C1/C7/C9: classes 1, 7, and 9; ASP: aspect; SP: preffix of subject agreement; SUB: subject.

Tables (1) and (2) show that the agreement pattern in Karitiana forms a method of identification of verbal classes, once the agreement marking is sensitive to the valence of the verb: transitive or ditransitive verbs agree with their objects while intransitive verbs accord with their unique arguments, that are, the subjects (ROCHA, 2011; STORTO, 2001; STORTO; ROCHA, 2015).

Causativization/transitivization as a morphosyntactic test

The causative morpheme {m-} is allowed only with intransitive roots. This morpheme works increasing the valence of the verb, and creating a space in the structure for the realization of an external argument. This fact, therefore, constitutes a morphosyntactic test capable of identifying whether a verb is intransitive or not, since if this morpheme is attached to either a transitive or ditransitive verb, the construction fails.

(1) Causativization of intransitive verbs (assertive mood)

a. ø-pyry-som-<y>n asyryty
3-ASSERT-ripen/redden-NFUT banana
"The banana ripened."

b. ø-pyry-m-som-<y>n asyryty taso
3-ASSERT-CAUS-ripen-NFUT banana man
"The man ripened the banana."

(2) Causativization of intransitive verbs (assertive mood)

a. y-pyry-tarak-<a>dn yn
1-ASSERT-walk-NFUT I
"I walked."

b. y-pyry-m-tarak-<a>n yn taso
1-ASSERT-CAUS-walk-NFUT I man
"The man made me walk."

c. ø-pyry-m-tarak-<a>n taso yn
3-ASSERT-CAUS-walk-NFUT man I
"I made the man walk."

(3) Causativization of intransitive verbs with oblique objects

a. y-py-so'oot-<y>n yn pikom-ty
1-ASSERT-see-NFUT I monkey-OBL
"I saw the monkey."

b. y-py-m-so'oot-<y>n yn õwã pikom-ty
1-ASSERT-CAUS-see-NFUT I child monkey-OBL
"The child made me see the monkey."

(4) Agramaticality of a transitive verb with {m–}

a. ø-pyr-oky-dn boroja taso
3-ASSERT-kill-NFUT snake man
“The man killed the snake.”

b. *ø-py-m-oky-dn boroja taso
3-ASSERT-CAUS-kill-NFUT snake man
Intended interpretation: “The man killed the snake.”

(5) Agramaticality of a ditransitive verb with {m–}

a. y-pyry-hit-<y>n boet-<e>ty taso
3-ASSERT-give-NFUT necklace-OBL man
“The man gave me the necklace.”

b. *y-pyry-m-hit-<y>n boet-<e>ty taso
1-ASSERT-CAUS-give-NFUT necklace-OBL man

Impersonal passives with the morpheme {a–} as a test

The impersonal passive construction forms the third morphosyntactic evidence to identify verbal classes. The impersonal passive morpheme {a-} is only used with verbs syntactically transitive. Affixing the morpheme {a-} to intransitive verbs is not, therefore, permitted in Karitiana (ROCHA, 2011; STORTO, 2001; STORTO; ROCHA, 2015).

(6) Passivization of transitive verbs is allowed

a. ø-pyr-oky-dn boroja taso
3-ASSERT-kill-NFUT snake man
“The man killed the snake.”

b. ø-pyr-a-oky-dn boroja
3-ASSERT-PASV-kill-NFUT snake
“The snake was killed.”

(7) Passivization of ditransitive verbs is allowed

a. y-pyry-hit-<y>n boet-<e>ty taso
1-ASSERT-give-NFUT necklace-OBL man
“The man gave a necklace to me.”

b. y-pyr-a-hit-<y>n boet-<e>ty
1-ASSERT-PASV-give-NFUT necklace-OBL
“The necklace was given to me.”

Examples (6a) and (7a) can have the valence decreased by using the morpheme {a-}. The external argument of the verb is deleted from the structure, and it cannot be

recovered through the by-phrase expression. The result of this operation can be seen in examples (6b) and (7b), respectively, in which the verbs were passivized/intransitivized.

(8) Passivization of an intransitive verb is not allowed
a. ø-pyry-som-<y>n asyryty
3-ASSERT-ripen/redden-NFUT banana
"The banana ripened."
b. *ø-pyry-a-som-<y>n asyryty
3-ASSERT-PASV-ripen/redden-NFUT banana
Intended: "The banana was ripened."

(9) Passivization of an intransitive verb is not allowed
a. y-pyry-tarak-<a>dn yn
1-ASSERT-walk-NFUT I
"I walked."
b. *y-pyry-a-tarak-<a>dn yn
1-ASSERT-PASV-walk-NFUT I
Intended: "I was walked."

(10) Passivization of a perception intransitive verb is also not allowed
a. y-py-so'oot-<y>n yn pikom-ty
1-ASSERT-see-NFUT I monkey-OBL
"I saw the monkey."
b. *y-pyr-a-so'oot-<y>n yn pikom-ty
1-ASSERT-PASV-see-NFUT I monkey-OBL
Intended: "The monkey was seen."

On the other hand, intransitive verbs, as (8a), (9a), and (10a), do not allow the passivization with {a-} directly to the verbal stems. The ungrammatical examples (8b), (9b), and (10b) show the evidence that passivization is not allowed in those cases.

Passivization of intransitive verbs causativized

Once the intransitive verbs are causativized, as seen in (1b), (2b), and (3b), they will allow the use of the passive morpheme, as seen in (11), (12), and (13). Examples (8b), (9b) and (10b) are ungrammatical because the rule of passivization is that the morpheme {a-} only operates over a verb that has at least two arguments, including the external one or the causer argument.

(11) ø-pyry-a-m-som-<y>n asyryty
3-ASSERT-PASV-CAUS-ripen/redden-NFUT banana
"Someone/something made the banana ripen."

(12) y-pyry-a-m-tarak-<a>n yn
1-ASSERT-PASV-CAUS-walk-NFUT I
"Someone/something made me walk."

(13) y-pyr-a-m-so'oot-<y>n yn pikom-ty
1-ASSERT-PASV-CAUS-see-NFUT I monkey-OBL
"Someone/something made me see the monkey."

As one can see, the presence of the causative morpheme *m-* is evidence that the structures in (11-13) were first transitivized, in turn, to permit the passivization. Indeed, all Karitiana intransitive verbs have the same pattern shown in (11-13), as described by Rocha (2011) and Storto and Rocha (2015), in which an external argument must be added to these types of verbs via the morpheme *m-*.

Copular constructions as a morphosyntactic test

Storto (2010) has shown that the nucleus of the small clause in copular constructions in Karitiana is sensitive to the verbal valence since copular sentences would be ungrammatical if we put a syntactically transitive verb in this environment. Copular constructions comprise our fourth morphosyntactic test to identify verbal classes (ROCHA, 2011; STORTO, 2001; STORTO; ROCHA, 2015).

(14) Intransitive verbs as head of the small clause in copular constructions
a. Yn ø-na-aka-t i-tarak-<a>t
I 3-DECL-COP-NFUT PART-walk-ADVZR
"I walked/ I am walking."
b. Yn ø-na-aka-t i-otam-ø
I 3-DECL-COP-NFUT PART-arrive-ADVZR
"I arrived/ I am arriving."
c. Yn ø-na-aka-t i-so'oot-ø pikom-ty
I 3-DECL-COP-NFUT PART-see-ADVZR monkey-OBL
"I saw the monkey/ I am seeing the monkey."

The group of examples in (14) shows that we can put any intransitive verbs into the small clause of the copular construction, as seen in (a) *tarak* 'walk', (b) *otam* 'arrive', and (c) *so´oot* 'see.'

(15) Transitive verbs as head of the small clause in copular constructions
a. *Yn ø-na-aka-t i-oky-t (boroja)
I 3-DECL-COP-NFUT PART-kill-ADVZR snake
Intended: "I killed/ am killing the monkey."

b. *Yn ø-na-aka-t i-’y-t (asyryty)
I 3-DECL-COP-NFUT PART-eat-ADVZR banana
Intended: “I ate/ am eating the banana.”

c. *Yn ø-na-aka-t i-hit-ø (pikom) (asyryty-ty)
I 3-DECL-COP-NFUT PART-give-ADVZR monkey banana-OBL
Intended: I gave/ am giving the bananas to the monkey.”

Contrarily, transitive verbs are not allowed in this syntactic context as seen by the ungrammatical examples in (15) in which we elicited the copular construction with transitive verbs heading the small clauses, as seen in (a) *oky* ‘kill’, (b) *ʹy* ‘eat’, and (c) *hit* ‘dar.’

(16) Transitive verbs passivized heading the small clause of copular construction

a. boroja ø-na-aka-t i-a-oky-t
snake 3-DECL-COP-NFUT PART-PASV-kill-ADVZR
“The snake was killed.”

b. asyryty ø-na-aka-t i-a-’y-ø
banana 3-DECL-COP-NFUT PART-PASV-eat-ADVZR
“The banana was eaten.”

c. asyryty ø-na-aka-t i-a-hit-ø (pikom)
banana 3-DECL-COP-NFUT PART-PASV-give-ADVZR macaco
“The banana was given to the monkey.”

Examples (16), however, confirm that intransitive verbs after being passivized can occupy the position of copular complement. The verbs *oky*, *ʹy*, and *hit*, seen in (15), were first intransitivized, in turn, to be able to head this syntactic environment. This fact justifies the use of copular sentences as a linguistic test.

Table 5 – Summary of the morphosyntactic tests

	Test 1	Test 2	Test 3	Test 4
Verb Type	Agreement	{m–}	{a–}	Copular Construction
transitive	object	no	yes	no
ditransitive	direct object	no	yes	no
intransitive	subject	yes	no	yes
intransitive with oblique object	subject	yes	no	yes

Source: Author’s elaboration.

Table (5) summarizes all four tests applied to identify verbal classes in the language. The first column shows the valence of the verb. The second one shows the test 1 related to the agreement. The third one tests whether a verb can or not be causativized with

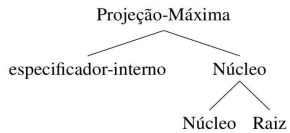
{m-} (test 2). The fourth one examines whether or not a verb can be passivized (test 3). Moreover, the fifth column shows which type of verb can occur in the small clause complement of the copular verb.

Hale e Keyser (2002) and Pylkkänen (2008)'s theories of argument structure

Hale and Keyser (2002)

According to Hale and Keyser (2002), the possibility or impossibility of the transitivity alternation process is related to the properties of the verbal roots: if they are predicative or not, e.g., if the roots require an internal argument in their structure. Consequently, the syntactic behavior of a verb depends on the properties of the elements with which this verb is comprised. The predicative roots (R) project an internal argument in the structure, whose position occurs in the specifier of V2 in verbal structures of unaccusatives.

(17) Structural projections of alternating verbs:



As illustrated in (17), the complement of the head is the root (R). The head (V) functions as a verbalizer of R, that requires an internal specifier (Spec) projected via the head. The notion of the internal specifier, in this approach, is quite essential once this specifier is a pivot in the alternation causative-inchoative.

Transitive counterpart Someone/something broke	**pivot** **the pote**	Intransitive counterpart . broke.

The conflation operation is a process used in Hale and Keyser (2002)'s theory of argument structure, and it is similar to Incorporation in Baker (1988a). However, the former is more constrained than the latter. Conflation can be understood as a process of fusion of two nuclei, or a nucleus and its complement; in both cases, they should be in a relation of mutual c-command. Furthermore, the nucleus according to which the complement conflates should be empty or phonologically defective. This operation is used both in verbal derivation from a root (R) and in the process of valence increase of the verb (HALE; KEYSER, 2002, 12).

> Conflation is restricted to the process according to which the phonological matrix of a head of a complement C is introduced into the empty

> phonological matrix of a head that selects (and is accordingly sister to) C (HALE; KEYSER, 2002, p. 12).
>
> Conflation consists in the process of copying the p-signature of the complement into the p-signature of the head, where the latter is defective (HALE; KEYSER 2002, p. 63).

In Hale and Keyser's proposal, there are four types of structural projections to describe verbs in natural languages: monadic, composite dyadic, basic dyadic, and atomic structures. In this paper, we discuss only the first three, once these structures are empirically found in Karitiana, and not the fourth one.

In the *monadic* structure, the nucleus V projects only its complement so that there is no projection of a specifier. This structure describes both transitive and unergative verbs (HALE; KEYSER, 2002).[3]

The *composite dyadic* structure displays two nuclei V, one upper (V1) and another lower (V2). The latter derives the intransitive version of the alternating verb while the former generates the transitive counterpart of the verb. As mentioned, the root (R) of alternating verbs functions as a predicator, which forces the lower nucleus V2 to project the internal specifier in the structure. This position bears the element that works as the subject of the intransitive version or the object of the transitive version (HALE; KEYSER, 2002).

The *basic dyadic* shows a P-head projecting its complement and the specifier. However, to become a verbal structure, this P-head must be taken as a complement by a monadic structure (HALE; KEYSER, 2002).

The structural representations concern the relations among the heads, specifiers, and complements. According to Hale and Keyser (2002), these relations allowed the composition of specific lexical structures.

Pylkkänen (2008)

According to Pylkkänen (2008), the majority of the languages uses the strategy of applicative heads to add an indirect object to the basic structure of a verb. This possibility was strongly attested in Bantu languages. In the literature of these languages, additional arguments are called applied arguments, and the resulting constructions called applied constructions.

Pylkkänen (2008) point out that English (example 19) and Chaga (example 20) show double object constructions with benefactive applied arguments. However, from

[3] Inergative verbs do not have internal arguments. Once they do not project internal arguments, there is no nominative case assignment to the external argument (BURZIO, 1986). Regarding this fact, Hale and Keyser (2002) assume that these verbs do not project an internal specifier in their structures. Therefore, they do not participate in the causative-inchoactive alternation because of the lack of an internal specifier. The internal specifier will function as the subject in an intransitive version of an unaccusative verb, and as the object in the transitive version of those verbs.

those two languages, only Chaga allows to add a benefactive participant to unergative verbs, as the following examples:

(19) Applied arguments in English
   a. I baked a cake. (transitive verb)
   b. I baked him a cake.
   c. I ran (unergative verb)
   d. *I ran him

(PYLKKÄNEN, 2008, ex. 1, p. 11))

(20) Unergative verbs with applied arguments in Chaga
   a. N-ä-ï-lì-í-à m-kà k-élyá
   FOC-1SUB-PRES-eat-APPL-FV C1-wife C7-food
   "He is eating food for his wife.
   b. N-ä-i-zrìc-í-à m-bùyà
   FOC-1SUB-PRES-run-APPL-FV C9-friend
   "He is running for a friend."

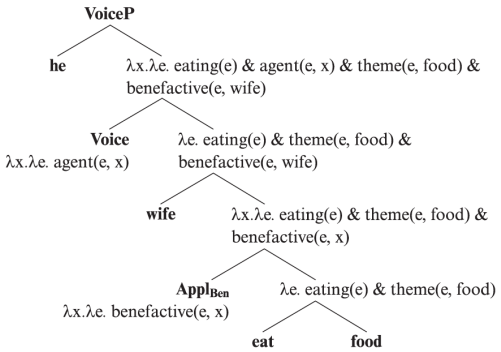
(BRESNAN; MOSHI, 1990 *apud* PYLKKÄNEN, 2008, p. 11)

As stated by Pylkkänen, the semantic similarities between English and Chaga benefactives are not valid, once Chaga applied head relates a participant to the event described by the VP. By contrast, the English applied nucleus correlates an entity to the direct object (PYLKKÄNEN, 2008).

The author claims that, cross-linguistically, these applied constructions can be divided into two different types, as presented by the asymmetry in examples (19) and (20).

In this theoretical approach, syntactic heads combine with their complements and specifiers compositionally through the rules of Functional Application and Predicate Modification (PYLKKÄNEN, 2008):

(21) High applicative construction



(PYLKKÄNEN, 2008, p. 12)

The applied argument '*wife,'* in (21), is the benefactive, which is related to the event '*eating,'* but is not sharing any features with '*food,'* the object of *'eating.'* The same reasoning is true for the instrumental applicatives in Chichewa, as in (22), in which *'knife*' has an instrumental relationship with the event of *'molding,'* not with *'waterpot'* (PYLKKÄNEN, 2008, p. 12).

Instrumental applicative in Chichewa

(22) Mavuto a-na-umb-ir-a mpeni mtsuko
Mavuto SP-PAST-mold-APPL-ASP knife waterpot
"Mavuto molded the waterpot with a knife."

(BAKER, 1988b, p. 353)

In English, however, the interpretation in which the applied argument does not have a relation with the direct object in the double object constructions is not possible (cf. examples (23) and (24)).

(23) *He ate the wife food.

(24) *John held Mary the bag.

In the following section, we will present two analyses based on the two theoretical proposals seen in this section.

The Karitiana verbal classes under Hale and Keyser (2002)'s approach

The Karitiana verbs can be basically described into 3 classes correlated to the 3 structures proposed by Hale and Keyser (2002): (i) the alternating intransitive verbs are described by the composite dyadic; (ii) the transitive verbs described by the monadic; and (iii) the ditransitive verbs described by the basic dyadic structures (ROCHA, 2011; STORTO, 2001; STORTO; ROCHA, 2015). We highlight the fact that Karitiana does not distinguish unergative from unaccusative verbs, once all morphosyntactic tests, which were applied to intransitive verbs, have shown that they have the same syntactic behavior in this language. Different from Karitiana, Juruna (another Tupian language) differentiates unergative from unaccusative intransitive verbs so that it displays two different causative morphemes: the causative {ma-} used with unaccusative verbs in the pars (25) and (26), and {ũ-} used with unergative verbs in (17) and (28) (FARGETTI, 2001; LIMA, 2008).

Alternating unaccusative

(25) anïiyu
3SG.sleep
"He slept."

(26) Sewakii-ma-iyu he anu
Sewaki 3SG-CAUS-sleep he ASP
"Sewaki made him sleep." (Lit. ′Sewaki slept him.')

Unergative

(27) tahuapï
run dog
"Dog ran."

(28) una apï y-ũ-tahu anu
I dog 3SG-CAUS-run ASP
"I made the dog run."

(FARGETTI, 2001, p. 186-190)

Examples (25-28) demonstrate that Juruna exhibits two different structures to describe the intransitive verbs: (i) monadic to describe the unergative and (ii) composite dyadic to describe alternating unaccusative verbs.

Composite dyadic verbs: unaccusatives

The composite dyadic structure describes all intransitive verbs in Karitiana. In (31), we show the argumental projection of an alternating unaccusative verb in which a predicative root (R), as *otam* 'arrive' and *terekterek* 'dance,' requires a specifier projected by the head V2. In this case, the specifier is depicted by the NP *taso* 'man.'

Intransitive verbs derivation: *otam* and *terekterek*

(29) ø-na-otam-ø taso
3-DECL-arrive-NFUT man
"The man arrived."

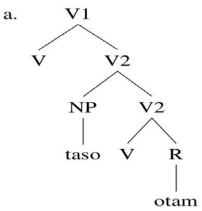
(30) ø-na-terek.teregng-ø taso
3-DECL-dance-NFUT man
"The man danced."

Pre-conflation

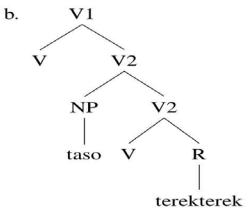
In (31), we show the pre-conflation configuration, in which the root is in the position R (complement of the verbalizing head V2), where a root such as *otam* and *terekterek* projects its internal specifier (the NP *taso*) bridged by the head in a composite dyadic structure.

(31) Composite dyadic structure deriving unaccusative verbs from a predicative root (R)

a.



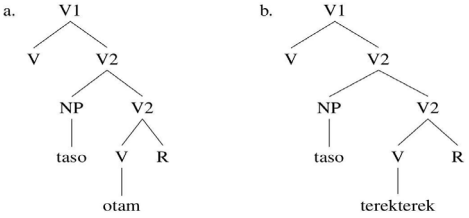
b.



First *conflation* operation

In (32), the first conflation operation occurs to form the intransitive verb version, as *otam* in (29) and *terekterek* in (30). Thus, the root R combines with the verbalizing head V2 to create the verb from the root.

(32) Unaccusative verbal structure



The following examples exhibit the transitive counterparts of the data in (29) and (30), respectively:

Deriving transitive verbs from *otam* and *terekterek*

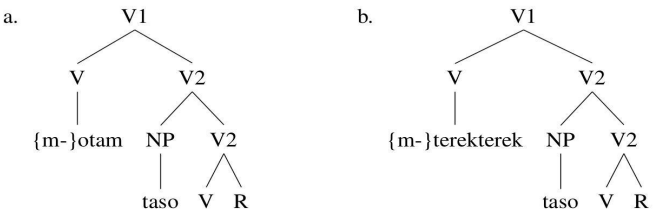
(33) Maria ø-na-mb-otam-ø João
Maria 3-DECL-CAUS-arrive-NFUT João
"Maria made João arrive." (Lit. <*Maria arrived João*>)

(34) Yn ø-na-m-terekteregng-ø taso
I 3-DECL-CAUS-dance-NFUT man
"I made the man dance." (Lit. <*I danced the man*>)

Second *conflation operation*

In structures (35a, b), from example (33) and (43), respectively, the transitive counterpart of the verb *otam* and *terekterek* is derived using the second conflation operation. In this level of the process, the language displays a causative morpheme {m-} attached to the verb.

(35)Transitive counterpart: structure



This operation comprises the combination of the head V1 with the head V2. In this type of structure, the NP, that worked as subject of the intransitive version, functions as the object of the transitive version, as seen in examples (33) and (34) from (29) and (30), respectively.

Composite dyadic verbs with oblique object

Among the alternating unaccusative verbs in Karitiana, there is an intransitive subclass that allows a projection of an optional indirect object. Morphosyntactically, this subclass passes the same tests applied to the verbs *otam* and t*erekterek*. We describe and analyze the following verbs as intransitive with optional object: *a'ak* 'like sexually'; *hõroj* 'lie'; *kãrã* 'be jealous'; *koro'oppasap* 'miss'; *opihok* 'escutar'; *opiso* 'ouvir'; paket 'feel disgusted'; *pasadn* 'love'; *pi* 'fear, dread, be afraid of'; *pypyyt* 'know, have the ability'; *pyso* 'touch/feel (with hands/fings)'; *pytimokokit*'get motion sickness, sicken, nauseate'; *pytim* 'want'*; so'oot* 'ver'; *sondyp* 'know'; and *tirira* 'shake. shiver' (ROCHA, 2011). For this analysis and discussion, we adopt the verb *so'oot* as a prototype verb of this intransitive subclass (*so'oot*-type).

In (36), we present the *so'oot*-type verb paradigm, in which the word order is always verb-initial VS (with a possibility of adding an oblique object). The order V(Oblique Object)S is also possible. In case of a transitive structure, the orders are VOS and VSO in assertive mood. The syntactic-semantic properties of this type of verb are distinguished from the *otam/terekterek*-type, e.g., the *so'oot*-type displays (i) an oblique object and (ii) a subject whose semantic role is an experiencer (ROCHA, 2011).

(36) ø-py-so'oot-yn (pykom-ty) õwã
3-ASSERT-see-NFUT (monkey-OBL) child.
"The child saw the monkey ."

(37) *ø-pyr-a-so'oot-yn õwã (boet-<e>ty)
3-ASSERT-PASV-see-NFUT child (necklace-OBL)
(Intend: The child/necklace was seen.)

As seen in (37), the *so'oot*-type verb does not allow the impersonal passive formation through the morpheme {a-}, following the same pattern as *otam* and *terekterek*.

(38) y-py-m-so'oot-yn õwã yn (pikom-ty)
1-ASSERT-CAUS-see-NFUT child I (monkey-OBL)
"The child made me see the monkey."

Example (38) shows the verb *so'oot* being causativized by the morpheme {m-}, as predicted for an alternating unaccusative verb. Furthermore, the absolutive agreement marker, first-person {y-}, co-occurs with the absolutive argument, the pronoun *yn*.

(39) y-pyr-a-m-so'oot-<y>n yn (boet-<e>ty)
1-ASSERT-PASV-CAUS-see-NFUT I necklace-OBL
"Lit: (someone/something made me see the necklace."

In (37), we just saw that the morpheme {a-} could not directly passivize the verb *so'oot*. However, this type of verb might accept the passivization if it is causativized by {m-} beforehand, as depicted in (38). This process happens to introduce the external argument (cause or agent) to license the passive use in (39).

(40) õwã Ø-na-aka-t i-so'oot-Ø (pikom-ty)
child 3-DECL-COP-NFUT PART-see-ADVZR monkey-OBL
"The child saw the monkey."

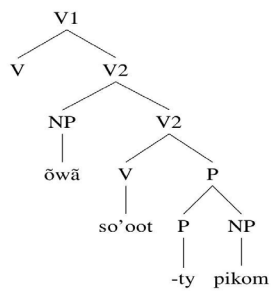
Example (40) displays a *so'oot*-type verb functioning as the nucleus of the complement of copular verbs. As attested in the morphosyntactic tests, only intransitive verbs can fill this syntactic position.

Adopting a structure that describes the facts observed in verbs like *so'oot* in (36)-(40) is relatively convoluted since the theoretical approach chosen shows the basic verbal structures: composite dyadic, basic dyadic, and monadic.

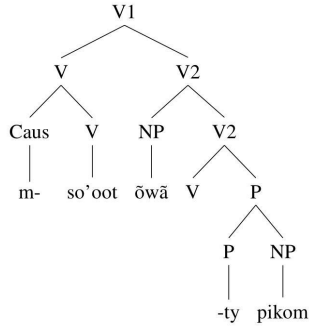
We have analyzed the *so'oot*-type verbs as having a composite dyadic structure, because these verbs can occur in the same environments that *otam* and *terekterek* can. However, the *so'oot*-type verbs semantically require an object, which syntactically appear with an oblique marker. However, the composite dyadic itself does not describe the fact that they project an oblique complement. Moreover, we could consider analyzing it using the basic dyadic structure, that projects the oblique complement, but it would not be sensible to the alternating properties of those verbs, because the basic dyadic comprises a monadic structure that takes a P-complement.

Bearing this in mind, Rocha (2011) opted to use a structure derived from a composite dyadic, predicted in Hale and Keyser's (2002) proposal. In this case, instead of having a root (R) as a complement of the lower verbal head (V2), it takes a P-complement. This way, we describe the process of transitivity alternation, at the same time in which the structure, adopted, allows the projection of the oblique object (cf. ex. (41)).

(41) Composite dyadic structure with a P-complement (intransitive version)



(42) Composite dyadic structure with a P-complement (transitive version)



The basic dyadic structure with a P-complement must depict the alternation that those verbs do at the same time in which the structure captures the occurrence of the indirect object.

Transitive verbs: monadic structure

Regarding the transitive verbs, the analysis adopted by Rocha (2011) is that the monadic structure describes the transitive verbs. In the following examples (43)-(47) from Rocha (2011), we present a paradigm of the transitive verbs.

Transitive verbs in the assertive sentence (VSO)

(43) Ø-pyry-'y-dn taso asyryty
3-ASSERT-eat-NFUT man banana
"The man ate a/the banana."

Transitive verb being passivized via {a-} in the assertive sentence (VS)

(44) Ø-pyr-a-'y-dn asyryty
3-ASSERT-PASV-eat-NFUT banana
"The banana was eaten.'

Transitive verb causativized with {m-} in the assertive sentence

(45) *Ø-pyry-m-'y-dn asyryty taso
3-ASSERT-CAUS-eat-NFUT banana man

The transitive verbs in Karitiana cannot be causativized by {m-} as attested in (45). The datum in (46) is ungrammatical due to the morpheme {m-}, not by the occurrence of the passive morpheme {a-}.

Transitive verbs with the morphemes {a-} and {m-}

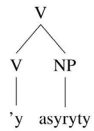
(46)	*Ø-pyr-a-m-’y-dn	asyryty
	3-ASSERT-PASV-CAUS-eat-NFUT	banana

Copular constructions with transitive verbs in the head of the small-clause

(47)	*asyryty	Ø-na-aka-t i-’y-t
	banana	3-DECL-COP-NFUT PART-eat-ADVZR

The datum (47) shows the constraints of a transitive verb occupying the head of the small clause that functions as a complement of the copula.

(48) Monadic structure – transitive verb



The structure in (48) describes transitive verbs as shown. These verbs, regarding their structure, project a complement, seen by the NP *asyryty* ‘banana’, but not a specifier, as predicted by the adopted theory (HALE; KEYSER, 2002).

Basic dyadic verbs: ditransitives

The ditransitive verbs in Karitiana are: *hit* ‘give,’ *hit ‘it* ‘lend,’ and *oigng* ‘gift.’ All of them have the same pattern morphosyntactically, as seen by examples (49) – (53). Notice that the verb agrees with the absolutive argument in (49). As one can see in the following examples, the argument theme receives the oblique marker {-ty}. Also, the ditransitive verbs, as well as the transitive verbs, can passivize directly by {a-} (cf. ex., 50). They do not accept the causativizer morpheme {m-}, even that they have been passivized beforehand (cf. 52). Furthermore, they cannot head the small clause in a copular environment (cf. 53).

Transitive verb *oigng* ‘gift’ in the assertive mood

(49)	y-pyr-oigng-<a>n	õwã	boet-<e>ty
	1-ASSERT-gift-NFUT	child	necklace-OBL
	“The child gifted me with a necklace.”		

Ditransitive verb with the morpheme {a-} in the assertive mood

(50)	Ø-pyr-a-oigng-<a>n	õwã	boet-<e>ty
	3-ASSERT-PASV-gift-NFUT	child	necklace-OBL
	“The child was gifted with a necklace.”		

Ditransitive verb with the causative morpheme {m-} in the assertive mood

(51) *y-py-m-oigng-<a>n õwã boet-<e>ty
1-ASSERT-CAUS-gift-NFUT child necklace-OBL

Ditransitive verb with the morphemes {a-} and {m-} in the assertive mood

(52) *Ø-pyr-a-m-oigng-<a>n õwã boet-<e>ty
3-ASSERT-PASV-CAUS-gift-NFUT child necklace-OBL

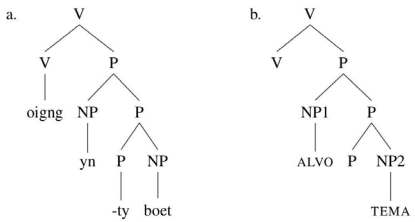
Ditransitive verb heading the small clause in copular construction

(53) *taso Ø-na-aka-t i-oigng-<a>t boet-<e>ty
man 3-DECL-COP-NFUT PART-gift-ADVZR necklace-OBL

In addition to presenting a morphosyntactic pattern comparable to the transitive verbs, the ditransitive ones share syntactic and semantic features with the intransitive verbs with oblique objects, e.g., the oblique arguments play a semantic role of the theme. Thus, to make an analogy to the intransitive verbs with oblique objects, which are syntactically intransitive, but semantically transitive, the ditransitive ones are syntactically transitive but semantically ditransitive (ROCHA, 2011; STORTO; ROCHA, 2015).

According to the facts shown in (49)-(63), the ditransitive verbs have the GOAL argument projected higher than the THEME one in the structure. In Karitiana, the theme is marked by the oblique postposition {-ty}. Given the linguistic evidence, the structure, which best describes the syntactic and semantic behavior of these verbs, is the basic dyadic depicted in (54)

(54) Deriving basic dyadic verbs: ditransitive



The structure (54) can be decomposed as follows: the monadic structure takes as its complement a pre/postpositional head that projects a GOAL argument in its specifier, and a THEME argument in the position of the complement (54b) (HALE; KEYSER, 2002). Thus, the structure (54) describes the transitivity of the verb, in addition to representing the fact that the Karitiana ditransitive verbs display the thematic argument lower in the structure, similar to the English double-object verbs. However, only in Karitiana, the thematic argument is introduced by a postposition due to the restriction of nuclear arguments.

Adding arguments

In this section, we show how additional arguments are added to the basic structures of the verbs in Karitiana according to the theoretical approach of Pylkkänen (2008). The author assumes that verbs have a basic structure and functional nuclei that allow the introduction of non-nuclear arguments. She analyzes this functional nucleus as applicative; and the additional argument, in turn, as an applied argument.

As stated in Pylkkänen (2008), the voice and applicative heads introduce arguments[4] into the verbal structure. Thereby the voice head introduces an argument above the VP, changing the argument structure of the verb while the higher and lower applicative heads add extra arguments to the VP, not changing, in this case, the argument structure. The higher applicative relates the applied argument to the event described by the VP. On the other hand, the lower applicative adds an internal argument to the VP, relating the original argument to the applied one.

Based on the Pylkkänen (2008)'s approach, Karitiana presents only two verbal classes: transitive and intransitive ones. Thus, the additional arguments are introduced via the applicative heads. Therefore, both the verbs *oky* 'kill' and *hit* 'give' display the same basic argument structure, so that *hit* can have an applied argument added to its structure, predicted semantically. By contrast, both the intransitive verbs *otam* 'arrive' and *so'oot* 'see' share the same basic structure. However, as *hit*, *so'oot* can also receive an additional argument, introduced by the lower applicative head.

The constructions, which were analyzed as causatives by Rocha (2011, 2014) and Everett (2006), are reanalyzed herein as high applicative constructions.

Summarizing, the introducer heads of arguments:

i. **Voice**: introduces the external argument to the alternating unaccusative verbs via morpheme {m-} to transitivize them;
ii. **High applicative**: introduces an instrumental argument to the transitive verbs via the *typoong* head (above the VP);
iii. **Low applicative**: introduces an applied argument internally to the intransitive verbs of the *so'oot*-type or *hit* via {ø}.

High applicative construction

Karitiana displays an applicative construction formed by a functional head externalized by *typoong* in which reading is instrumental (56). This construction has been analyzed as causative constructions by Everett (2006), and Rocha (2011, 2014).

[4] Non-nuclear arguments are not required by the verb. In general, when they appear, they are introduced through a functional head in the verb, and the additional argument marked by oblique case.

In the following examples, we show how applied arguments are added to a transitive construction:

(55) õwã ø-na-okop-ø ot'ep
child 3-DECL-break-NFUT bow
"The child broke the bow."

(56) taso ø-na-okop-ø typoong ot'ep õwã-ty
man 3-DECL-break-NFUT APPL bow child-OBL
"The man broke the bow using the child (as an instrument)."

Comparing examples (55) and (56), notice that, in the former, the subject, *õwã*, causes an action of 'breaking the bow', *ot'ep,* directly. In the latter, *õwã* is still the participant that executes the action of 'breaking the bow'. However, it is demoted from the position of the subject and promoted to another syntactic position, marked by an oblique suffix, and functioning as an instrument of the syntactical subject *taso*.

(57) *taso ø-na-okop-ø ot'ep typoong õwã-ty
homem 3-DECL-break-NFUT bow APPL child-OBL
Intend: "The man broke the bow using the child."

Example (57) is ungrammatical because *typoong* constitutes a syntactic unit with the verb so that we cannot put any argumental element between the verb and *typoong*.

(58) yn a-taka-mĩ-t typoong an i-ty
eu 2-DECL-hit-NFUT APPL you he/him-OBL
"I hit you using him (as an instrument)."

(EVERETT, 2006, p. 442)

Example (58) attests that the pronoun after *typoong* is the object, since the verb agrees with the absolutive argument, as we can see the agreement showing between the prefix {a-} and the pronoun *an*.

Observe the following examples:

(59) atykiri ø-na-otam-ø João
therefore 3-DECL-arrive-NFUT João
"Therefore João arrived."

(60) *atykiri (*João) ø-na-otam-ø (*João) typoong (João) taso-ty
therefore (João) 3-DECL-arrive-NFUT (João) APPL (João) man-OBL

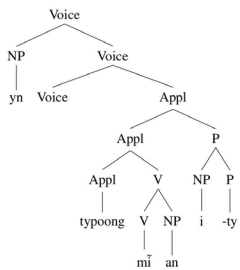
(61) Renato ø-na-mb-otam-ø õwã
Renato 3-DECL-CAUS-arrive-NFUT child
"Renato made the child arrive."

(62) Renato ø-na-mb-otam-ø typoongõwã João-ty
Renato 3-DECL-CAUS-arrive-NFUT APPL child João-OBL
"Renato made the child arrive using João (as an instrument)."

In example (59), we exhibited an intransitive sentence using the verb *otam* 'arrive'. And so, in (60), we added the *typoong* head in order to form a structure with the high applicative directly to the intransitive structure, what is not allowed, as seen by the ungrammaticality of (60). Besides, to avoid the mistake that the position of the arguments has caused this ungrammaticality, we tested the word order variation with the subject in (60). However, if example (59) has been causativized before via {m-}, like (61), the applicative construction is allowed as seen in (62)

We present the syntactic structure of a high applicative head depicting the projection of *typoong* as seen in (56), (58), and (62). For the structure (63), we consider example (58)

(63) High applicative structure



The structure in (63) adapted from Pylkkänen (2008, p. 14) captures the fact that the applied argument has a semantic of instrumental. That is, the argument, whose function is the subject, *yn*, does not directly affect the object *an*, but instead the event of "hitting you" is fulfilled by the applied argument that is introduced by *typoon*g.

Low applicative constructions

In this section, we show an analysis of low applicative heads for the verbs of *hit* and *so'oot*-type. Even though we analyze those as involving low applicative constructions, we highlight again that *hit* (64) shows a basic structure transitive while *so'oot* (67) displays a basic structure intransitive.

(64) taso ø-naka-hit-ø õwã boet-<e>ty
man 3-DECL-give-NFUT child necklace-OBL
"The man gave the child a necklace."

(65) taso ø-naka-hit-ø boet-<e>ty
man 3-DECL-give-NFUT necklace-OBL
"The man gave a necklace."

(66) taso ø-naka-hit-ø õwã
man 3-DECL-give-NFUT child
"The man gave (something) to the child."

(67) y-py-so'oot-<y>n yn pikom-ty
1-ASSERT-see-NFUT I monkey-OBL.
"I saw the monkey."

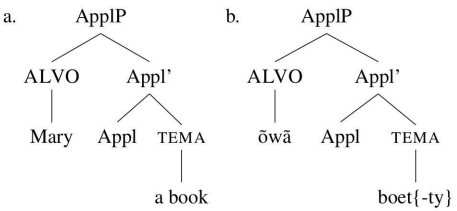
(68) y-py-m-so'oot-<y>n õwã pikom-ty
1-ASSERT-CAUS-see-NFUT child monkey-OBL
"The child made me see the monkey."

The structure for the verb (di)transitive *hit*

Before we present the structure of the verb *hit* in Karitiana (64), we do correlate this type of verb, in terms of structure, with the constructions of double object in English (69), since in both languages the argument with semantic role GOAL c-commands the THEME which is lower in the structure, according to the tree representation in (70). However, contrasting English to Karitiana, we can notice that the argument THEME receives an oblique marker in the latter, but not in the former. In our analysis, this argument is introduced by a low applicative head.

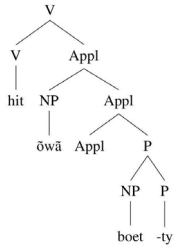
(69) I gave Mary a book.

(70) The GOAL higher than the THEME



The structure (71) depicts the low applicative construction proposed to describe the verbs of *hit*-type in Karitiana. In (71), we should consider the example in (64).

(71) Low applicative structure for verbs of *hit*-type in Karitiana



In (71), the applicative head selects three arguments, that are (i) the NP *õwã*, (ii) the NP *boet* marked by a postposition, and (iii) the verb *hit*.

Hale and Keyser (2002) describe the double object construction as basic dyadic structures, which, in terms of argument position, have the configuration of a *with-construction*. Thus, relating to its configuration, the with-construction and double object constructions are similar to one another, except by the fact that the former shows an opened P-head while the latter does not. These structures differ from the *to-dative* ones in which the GOAL is lower than the THEME.

It should be noted that in an analysis based on Hale and Keyser (2002)'s approach, verbs such as *hit* in Karitiana and *to give* in English are both prepositional. However, in an analysis based on the proposal of applicative heads developed by Pylkkänen (2008), there is an applicative head which adds the extra argument into the basic structure of the verb.

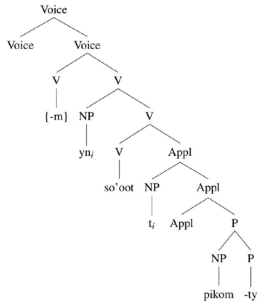
Structures of the verbs of *so'oot*-type

Karitiana displays a type of intransitive verb with an oblique object project. In previous works, Rocha (2011) analyzed them as verbs composite dyadic with a P-complement in the root (R) as complement of the V2 head (HALE; KEYSER, 2002). In this article, they are being analyzed as the low applicative heads according to Pylkkänen (2008). In addition to the oblique argument, verbs of this type present a subject with experiential semantic role.

Pylkkänen's (2008) proposal for applicative heads predicts that the low applicative head will take 3 arguments: the direct, indirect objects, and the event described by the verb. It would seem counterintuitive to say that a verb like *so'oot* has two internal arguments; however, it is not counterintuitive due to the following fact: these verbs are of the unaccusative type in which the intransitive subject is generated as the internal argument of the verb. In addition, one can see that the subject of the intransitive version

corresponds to the object of the transitive version (compare the pair of examples ((67) and (68))

(73) Structure of a low applicative head for verbs of the so'oot-type



Considering the fact that the verb *so'oot* can alternate between a transitive and an intransitive version, the structure that better describes this type of verb must be one that has a slot for such transitivity alternation. The adopted theory predicts that the external argument is introduced by a nucleus voice so that we project the voice head in the structure to describe the causativization via {m-} in Karitiana.

Conclusion

This article provided a study of the argument structure in Karitiana in which the tests applied were capable of identifying verbal classes in the language, showing the theoretical analysis and description given by Rocha (2011) in which we found 3 verbal classes: (i) transitive (monadic), (ii) ditransitive (basic dyadic), and (iii) intransitive. The last one can be divided into two subclasses: (a) "simple" unaccusatives (composite dyadic) and (b) unaccusatives with oblique objects (composite dyadic with oblique objects) (HALE; KEYSER, 2002).

We have shown a reanalysis of the Karitiana verbs, adopting the theoretical proposal of functional heads in which additional arguments are introduced via the low and high applicative heads (PYLKKÄNEN, 2008). In this proposal, Karitiana has only two verbal classes: transitive and intransitive. Therefore, the low applicative head introduces the argument oblique displayed in verbs as *hit* 'give' and *so'oot* 'see'. Also, the high applicative head allows the additional arguments in *typoong*-structures.

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ROCHA, I. Introduzindo argumentos à estrutura verbal karitiana. **Alfa**, São Paulo, v.64, 2020.

- *RESUMO: O artigo discute o processo de introdução de argumentos adicionais à estrutura básica do verbo na língua Karitiana (língua da família Tupi, ramo Arikém, localizada em Rondônia, com uma população de 396 indivíduos e 333 falantes). Adota-se, para análise e discussão dos dados, duas propostas teóricas (i) a teoria de estrutura argumental de Hale e Keyser (2002) e (ii) a proposta teórica de núcleos aplicativos de Pylkkänen (2008). Na proposta teórica (i), Karitiana apresenta quatro tipos de verbos (1 - intransitivo, 2 - intransitivo com objeto oblíquo, 3 - transitivo e 4 - bitransitivo), já na segunda proposta, por sua vez, mais econômica, a língua é analisada como tendo apenas dois tipos verbais (1 - intransitivo e 2 - transitivo). Nesta última, o sistema verbal Karitiana apresenta duas estruturas básicas em que argumentos extras são incrementados por meio de núcleos aplicativos e Voice. Este adiciona argumentos altos na estrutura em estruturas causativas. Os aplicativos são de dois tipos, i.é., o alto que insere um argumento extra acima do VP e o baixo que adiciona argumentos extras abaixo ou internamente ao VP.*

- *PALAVRAS-CHAVE: Estrutura Argumental. Aplicativos. Classes Verbais. Língua Karitiana.*

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