CHAPTER FOUR

TEMPORAL AND ASPECTUAL INTERPRETATIONS IN NON-FINITE CLAUSES

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Introduction

We are concerned in this paper with the tense interpretation of non-finite clauses in a language in which tense is not morphologically marked in embedded environments. Data from Karitiana, an Amerindian language of the Tupian family (Arikém branch), suggests that the tense value of the main clause will carry on to embedded clauses. We show that aspect auxiliaries present in embedded clauses will compose with the tense values of main clauses and add semantic nuances to the tense interpretations of complex sentences. This paper presents some of the data available on these issues in Karitiana, and gives a syntactic account of tense and aspect in the language.

1. Tense in complex clauses

1.1 Interactions between tense and perfective aspect

In Karitiana, tense is present in main verbs but crucially absent in subordinate verbs. In fact, the only functional heads present in subordinate clauses are aspectual auxiliaries (Storto 1999).

The value of non-future tense, in general, is defined pragmatically in Karitiana, because the language has a non-future tense suffix *–t/-Ø* that can be interpreted as present or past depending on the context[1]. In (2), the embedded and main clauses are interpreted as present tense because the

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context is one in which habits and obligations are presented as timeless truths (in 1-3, an excerpt from the ritual narrative "Osiip"):

1.   Pongyp Ø-na-pyn-taraka-t[2] (habitual and deontic)
      quiet   3-hab-deon-walk-nfut
      'One must walk toward quietness'

2.   [Pongyp yj-aka tykiri[3]], Ø-na-pysemen-Ø   Osiip (decl)
       quiet 1.pl-copula perfective 3-decl-to.spirit-nfut   Osiip
      '[When one is quiet], the Osiip's spirit works its way'

3.   Yjxa Ø-na-oky-t   him[4]
      we   3-decl-kill-nfut game
      'We kill game'

In (4) the embedded verb has a non-finite form and is followed by the same perfective marker *tykiri* seen in (2) but here its tense interpretation is past. In (5), the matrix clause is in the future - suffixed by the phonologically conditioned future tense allomorphs *–j/-i* (the phonological environments are the same mentioned in endnote 1 for non-future tense) - and the interpretation of the embedded clause is future as well, although the subordinate verb itself is not suffixed by tense:

4.   [SãoPaulo pip y-otam tykiri] Ø-naka-pop-Ø   Maria
      São Paulo in 1-arrive perfve 3-decl-die-nfut   Maria
      'When I arrived in São Paulo, Maria died'

5.   A horot tyym ajxa   Ø-naka-'a-j ajxa [aj-osii   tykiri]
      that like also you.pl 3-decl-do-fut you.pl you.pl-do.osii
      perfve
      'You yourselves will also do like that when you take the Osiip'

A first question that is raised by the Karitiana data given above is: what exactly is the semantic contribution of aspectual morphology such as *tykiri* 'perfective' to the interpretation of tense in a non-finite sentence? To be more precise, is there an interaction between aspect in the embedded clause and tense in the matrix? To answer those questions we will observe different kinds of embedded clauses (Storto 2012) and the tense interpretations they get, illustrating with some cases in which tense and aspect interact in the language.

1.2 Interactions between tense and imperfective aspect

One case of particular interest is that of embedded clauses with the imperfective auxiliary *tyka.* This morpheme is incompatible with a past tense interpretation when suffixed with non-future tense in main clauses (Marques 2010) as in (7), but may be interpreted as past in some non-finite embedded environments under the scope of a matrix non-future tense (as in (9)):

> 6. Kabm yn Ø-naka-m-'a tyka-t gooj
>   now I 3-decl-do impf-nfut canoe
>   'I am making a canoe now'

> 7. *Koot yn nakam'a tykat gooj
>   'I was making a canoe yesterday'

> 8. 2014 pip yn Ø-naka-m-'a tyka-j gooj
>   2014 in I 3-decl-do impf-fut canoe
>   'In 2014 I will be making a canoe'

> 9. Y-py-so'oot-yn yn[5] [Inácio 'ep opĩ tyka]-ty
>   1-assertative-see-nfut I Inácio tree cut impf-obl
>   'I saw that Inácio was cutting the tree'

> 10. Yn Ø-na-aka-t i-sondyp-Ø
>   I 3-decl-cop-nfut part-know-abs.cop.agr
>
>   [Inácio'ep opĩ tyka]-ty
>   Inácio tree impf- cut-obl
>   'I know that Inácio is cutting the tree'

Everett (2006) was the first to notice that *tyka* is incompatible with a past tense interpretation. Marques (2010), who has written a master´s dissertation on the semantics of the imperfective auxiliary *tyka* confirms Everett's finding, but disagrees with him on another claim he makes: that this aspect marker is incompatible with a future progressive reading. As examples (6) to (8), adapted from Marques (2010) show, the aspect auxiliary *tyka* is only incompatible with *a past tense reading* of the non-future morpheme. She shows, furthermore, that to obtain a past tense

imperfective reading as in (11) one has to use another aspect morpheme:
andyk.

> 11.   Taso Ø-naka-m-'a andyk-Ø gooj
>   Man 3-decl-do referential-nfut canoe
>   'The man was making a canoe'

We know that ***andyk*** is an aspectual auxiliary because, like other
auxiliaries such as the imperfective ***tyka*** in (6) and (8), it is suffixed by
non-future tense instead of the verb. Remember that when the verb stem is
consonant-final, the non-future tense allomorph is null, as in (2) and (4).
Because of these parallels, we know that in (11) the aspectual auxiliary
andyk is suffixed by this same null allomorph of non-future tense.
Besides, this same auxiliary can be suffixed by future tense as in (12):

> 12.   Y-ta-oty andyk-i yn
>   1s-decl-bathe referential-fut I
>   'I am going to bathe right away'

Further confirmation of this analysis comes from the fact that ***(an)dak***,
another version of the aspect morpheme ***andyk***, occurs obligatorily in
assertative clauses suffixed by the future tense marker ***-i***, to indicate future
tense[6]:

> 13.   Ø-Pyr-a-sokõˀi dak-i
>   3-assert-pass-tie.up referential-fut
>   'It is yet to be tied up'

> 14.   Y-pyr-a-syk andak-i yn
>   I-assert-pass-shoot referential-fut I
>   'I will be shot'

The aspect markers ***andyk*** and ***(an)dak*** do not seem to mean
imperfective even though they do occur in imperfective contexts. Storto
(2002) describes these auxiliaries as instances of "referential aspect",
making reference to Reichenbach's contextual time of reference R. She
explains that this "referential aspect" is compatible with present, past or
future readings, translated, respectively, as "from this moment on" (as in
(15)), "from a past time on" (as in (16)) and "from a future time on" (as in
(14)) and that it has translations such as "yet" (as in (13)) and "not yet"
(the latter in negative sentences).

15.   Osiip tepy-p Ø-na-pyn-oty andyk-Ø (habitual and deontic)
      Osiip vine-loc 3-hab-deon-bathe referential-nfut
      'One must bathe, then, in Osiip vine (a ritual liquid)'

16.   Y-taka-tat   andyk ta'ã-t   yn   [y-ti pop tykiri][7]
      1-decl-go referential dir.evid-nfut I 1s-mother die perfective
      'When my mother died, I left then'

The data discussed in this section is evidence that when the imperfective aspect morpheme **tyka** is present in embedded clauses it carries the non-future tense value of the matrix clause – be it present or past.

1.3 Interactions between tense and posterior aspect

In exactly the same environments in which the imperfective **tyka** is used in embedded clauses with a present or past tense meaning (oblique clausal complements of psych-verbs as in (9) and (10) according to Storto 2012) posterior aspect is marked to indicate future tense:

17.   Y-py-sondyp-yn yn [Inácio 'ep opĩ pasagng-ã]-ty
      1-assertative-know-nfut I Inácio tree cut posterior-tv-obl
      'I know that Inácio will cut the tree´

Other non-finite clauses in which the posterior aspect is obligatory with a future interpretation when the main clause has non-future tense are: relative clauses (as in (18)) and the complement clauses of copular verbs in clefts – as in (19):

18.   Yn Ø-na-pipop-Ø
      I   3-decl-burn-nfut

[yrysap a-ambi   hot an ti-m-'a   pasagng-ã [an ti-ndira]]
straw   your-house for you OFC-caus-make posterior-tv you OFC-take
'I burned the straw that you took for the future making of your house'

19. Edelaine Ø-na-aka-t [̄jonso goko hyky 'y-t pasagng-ã]
     Edelaine 3-decl-cop-nfut woman manioc old eat-cop.agr
     posterior-tv

'Edelaine is the woman who will eat the rotten manioc'

We know that ***pasagng*** is really aspect and not tense because it occurs in main clauses in the scope of a non-future tense:

20.   Ø-Pyr-osedn pasagng tyka-dn Pedro
        3-assert-happy posterior impf-nfut Pedro
        'Pedro is becoming happy'

In (20), the stative verb 'to be happy" is followed both by posterior and imperfective aspect and non-future tense is suffixed to the latter, suggesting that the verb forms a complex head with these auxiliaries.[8]

2. The syntax and semantics of embedded clauses

In this section we turn to the syntax and semantics of subordinate clauses. Storto (2012) describes three types of embedded clauses in Karitiana, showing that they have the properties discussed in sections 2.1 to 2.3.

2.1 Adverbial clauses

Adverbial embedded clauses are adjunct modifiers of the matrix clause, may occur in SOV or OSV word orders without any special use of morphology on the verb or the NPs, display "subordinators" that have aspectual semantics and have verb-subordinator order without exception[9]:

21. [São   Paulo pip y-otam tykiri]   Ø-naka-pop-Ø Maria
     São   Paulo in 1-arrive perf   3-decl-die-nfut Maria
    'When I arrived in São Paulo, Maria died'

22. [São   Paulo pip y-otam kit]   Ø-naka-pop-Ø   Maria
     São   Paulo in 1-arrive ant   3-decl-die-nfut Maria
    'Before I arrived in São Paulo, Maria died'

23. [São   Paulo pip y-otam byyk]   Ø-naka-pop-Ø   Maria
     São Paulo in   1-arrive post   3-decl-die-nfut Maria
    'After I arrived in São Paulo, Maria died'

Storto (2012) shows that some of these "subordinators" are clearly formed by two or three morphemes:

24.   Ty-ki-ri   perfective
        Ty-ki-'oot   imperfective progressive
        Agi-'oot   imperfective progressive (plural)

25.   [Ti'y Marcelo 'y tykiri] Ø-na-pa'ira-t João
        food Marcelo eat perf 3-decl-anger-nfut João
        'When Marcelo ate the food, João got angry'

26.   [Gok Maria amang tyki'oot]Ø-na-oky-t him   taso
        manioc Maria plant impf 3-decl-kill-nfut game man
        'While Maria was planting manioc, the man killed the game'

27.   [a-oty-p   a-tat tyki-'oot] y-ta-so'oot-Ø yn an-ty
        2s-bath-loc 2s-go impf 1s-decl-see-nfut I you(s)-obl
        'While you (sg.) were going (sg.) to bathe, I met you (sg.)'

28.   [Aj-oty-p   aj-hot   agi-'oot] y-ta-so'oot-Ø yn ajxa-ty
        2p-bath- loc 2p-go.pl impf.pl 1s-decl-see-nfut I you(pl)-obl
        'While you (pl.) were going (pl.) to bathe, I met you (pl.)'

Furthermore, Storto (2012) analyses these aspectual subordinators as auxiliaries because the same morphemes that carry aspectual information (and have suppletive forms for plural and stance) in the embedded clauses above occur in matrix clauses as aspectual auxiliaries:

29.   Y-'a tyki y-haj
        1-be perf 1-elder.brother
        'I am here, my brother'

30.   Ø-Py-mangat tyka-dn taso Luciana
        3-assert-lift impf.mvt-nfut man Luciana
        'Luciana is lifting a/the man/men'

31.   Ø-Py-mangat agi-dn taso Luciana
        3-assert-lift impf.pl-nfut man Luciana
        'Luciana is lifting (pl.) a/the man/men' (more than once)

32.   I Ø-na-oky tysyp-Ø saara
        he 3-decl-kill impf.supine-nfut alligator
        'He is killing the alligator'

33.   Taso Ø- na-atik   tyso-t kinda
        man 3- decl –throw impf.stdng-nfut thing
        'The man is throwing things'

David Landin (1984) and Caleb Everett (2006) describe these aspectual
heads that occur in main clauses as verb suffixes. We disagree with them
on this issue, because although aspectual heads do form a syntactic unit
with the verb, they constitute separate phonological words, having
independent stress and being pronounced separately in slow speech. Since
they form complex heads with the verb, in the same way that compounds
do in the language, in which phonological processes such as stress deletion
take place, these complex syntactic and phonological units have been
described as phonological phrases (Storto 1999, 2002, Storto and Demolin
2005).
      Landin (1984) was the first to describe some of the aspectual
morphemes occurring in main clauses in Karitiana as markers of
progressive aspect that also indicate the position of the body of a subject
(stance):

> "The aspect suffix indicates not only the progressive form of the verb, but
> also the position or stance of the referent of the subject, e.g. sitting,
> standing, in motion or supine".

      Storto (2002) agrees with Landin (1984) about the fact that progressive
meaning has to be expressed through the use of the aspectual morphemes
described above, but she shows that other kinds of imperfective meanings
besides the progressive can be encoded by those same morphemes. Some
of her examples are given below:

34.   I-ndo   tysyp   'ejo   hy?
        3-finish   impf.sup grave   interr
        'Oh, the grave is finished?'

35.   Ø-Pyry-ndo tysyp-yn 'ejo
        3-assert-finish impf.sup-nfut grave
        'Yes, the grave is finished'

The imperfective meaning of a verb like 'to finish' in (34)-(35) is difficult
to understand, because the event of 'finishing the grave' has been
completed, but it is marked as imperfective to show that it has internal
duration. The text from which these sentences were taken describes a
mortuary ritual in which many steps have been taken as part of the

completion of the grave. According to Comrie (1974), there is typological evidence of imperfective aspect used with completed events as long as the event has a durative character.

Another use Storto (2002) gives for imperfective auxiliaries is one in which it is used with stative verbs:

36.   Y-mboyr-a y-man,
      1-save-imp 1-husband

      syypo hadna-na   yn ti-m-'a   tysyp<y>-ty
      eyes   speak-advzr I OFC-caus-be impf.sup-obl
      'Save me dear, for I have a vertigo'

Storto (2002) segments the prefix *ty-* as a separate morpheme from the root of the auxiliary, pointing out that it is the root that undergoes suppletion to convey the meanings of plural or stance:

37.   Ty-ka   'movement'
      Ty-so   'standing
      Ty-syp   'supine/lying down (also plural)'
      Ty-j̃a   'sitting'

Andrea Marques (2010) has studied the formal semantic properties of the aspectual auxiliary *tyka* in matrix sentences. She agrees with Storto's analysis in (17) that this auxiliary is bimorphemic and has imperfective meanings that go beyond the progressive, shows that *tyka* is compatible with episodic, habitual and iterative events (contrary to Everett (2006) who considers it incompatible with plural events), and has found out, in addition, that it has several restrictions: (1) it cannot be used with past tense readings (in matrix environments[10]); (2) it cannot be used with plural subjects, and; (3) it cannot be used with verbs denoting non-temporary states. The semantics of a sentence with *tyka* suggested by Marques (2010:106) for the verb *f* (fish, for instance) is the following:

$(\exists t) (t \geq now$ & $(\exists e)$ [in-mvt (e) & fish (e) & Ag (e,x) & $\lvert Ag \rvert = 1$ & Hold (e, t)]]

Marques' work has shown us that the complexity involved in the meaning of aspectual auxiliaries and their interaction with tense and plurality of arguments or events in Karitiana is considerable, and much work needs to be done before we completely understand their meaning.

The prefix *ty-* is present in perfective and imperfective auxiliaries, and its function is not clear yet. The root of the auxiliary carries stance, singular/plural meanings and probably the (Hold (e, t)) meaning as well, although t, which is the topic time (TT), is defined in relation with the matrix clause. The elements suffixed to the root of the aspectual subordinator, such as *–t* (in *kiit*), *-ri* (in *tykiri*, to be segmented as *t-i* perhaps), and *–'oot* are even more mysterious. At least the latter is found in matrix clauses (Storto 2002) where it has an aspectual meaning (inceptive) - that is different from the one it has in embedded clauses (progressive).

It is not known at the present moment in the description of the language where the (t ≥ now) meaning comes from, since *tyka* can be used in an embedded clause with a past topic time. What is clear is that these aspectual auxiliaries occur both in finite (matrix) and in non-finite (embedded) environments. This suggests that they are not subordinators proper, but heads of aspectual projections. An embedded clause in Karitiana seems to be a subset of a matrix clause.

Another aspect of adverbial subordinate clauses that must be mentioned is that their constituent order may be either OSV or SOV when non-pronominal subjects are involved. The former is the usual order in colloquial sentences, SOV being used in a more formal style found in myths and other types of traditional narratives (Storto 1999):

> 38.   OSV subordinate clauses:
>   [Boroja taso oky   tykiri] Ø-naka-hyryp-Ø   õwã
>   snake man kill   perf   3-decl-cry-nfut   child
>   'When the man killed the snake, the child cried (coloquial)'

> 39.   SOV subordinate clauses:
>   [Taso boroja oky   tykiri] Ø-naka-hyryp-Ø   õwã
>   man snake kill   perf   3-decl-cry-nfut   child
>   'When the man killed the snake, the child cried (archaic)'

2.2 Relative clauses

Storto (2012) points out that relative clauses are SOV or OSV, do not display a subordinator, have the relativized argument - the so called head of the relative - in clause-initial position, and when they are OSV, there is an obligatory verb prefix on the verb (the prefix that marks the object focus construction elsewhere in the language). Storto (1999) analyses

them as head-internal relatives:

40.   Relatives in subject position of the matrix:

[jonso   õwã mĩ] Ø-na-aka-t   i-hyryp-Ø
woman   child hit 3-decl-cop-nfut   part-cry-cop.agr
'The woman who hit the child cried'

41.   [õwã ʲjonso ti-mĩ]   Ø- na-aka-t   i-egngy-t
child woman OFC-hit 3-decl-cop-nfut part-vomit-cop.agr
'The child whom the woman hit vomited'

42.   Relatives in direct object position of the matrix:

Yn Ø-naka-mĩ-t   [õwã   ti'y   'y]
I   3-decl-hit-nfut   child   food   eat
'I hit the child who ate the food'

43.   Relatives in oblique object position of the matrix:
[Dikisy   y-man   ti-oky]-ty   y-ta-so'oot   yn
spider   1-husband OFC-kill-obl   1s-decl-see   I
'I saw the spider that my husband killed'
or `I saw that my husband killed THE SPIDER'

Storto (1999) points out that the relativized noun phrase (subject, direct object, or indirect object) is always clause-initial in relative clauses, as it is in any construction involving focus movement (wh-sentences and answers). The evidence presented for that analysis, besides the constituent order, is the presence of a prefix *ti-* on the verb (glossed **OFC** for object focus construction) in those syntactic environments when the object is clause-initial (OSV in embedded clauses or OVS in matrix clauses):

44.   Yn (Ø-na-aka-t)   i-so'oot-Ø [taso õwã mĩ]-ty
I   decl-cop-nfu part-see-abs.cop.agr. man child hit-obl
'I saw the man who hit the child'

45.   Yn (Ø-na-aka-t) i-so'oot-Ø [õwã taso ti-mĩ]-ty
I decl-cop-nfut part-see-abs.cop.agr. child man OFC-hit-obl
'I saw the child whom the man hit'

46.   Non-declarative OFC

'ep i-ti-pasagngã-t   j̃onso
tree 3-OFC-count-nfut   woman
'The woman counted TREES'

47.   Morã-mon taso   ti-i-oky-t?
      Qu-int.cop man   OFC-part-kill-cop.agr.
      'What is it that the man killed?'

48.   Cleft answer to wh-question
      Pikom   (Ø-na-aka-t)   taso ti-i-oky-t
      monkey   3-decl-cop-nfut man OFC-part-kill-cop.agr
      'It is monkeys that the man killed'

49.   Declarative OFC: answer to wh-question
      Pikom   a-ta-oky-t   taso
      monkey   DOFC-decl-kill-nfut   man
      'The man killed MONKEYS'

2.3 "Complement" clauses

"Complement" clauses are marked by the oblique suffix *–ty* as non-obligatory objects of a class of intransitive psychological verbs (Storto and Rocha, to appear) and they may be characterized structurally as either adverbial or relative clauses:

50.   Y-py-so'oot-yn   yn   [Inácio 'ep   opĩ]-ty
      1-assert-see-nfut   I   Inácio   tree   cut-obl
      'I saw that Inácio cut the tree'

51.   Y-py-so'oot-yn yn [Inácio 'ep opĩ   tyka]-ty
      1-assert-see-nfut I   Inácio tree cut   impf.mot.-obl
      'I saw that Inácio was cutting the tree'

52.   Y-py-sondyp-yn yn [Inácio 'ep   opĩ]-ty
      1-assert-know-nfut I Inácio   tree   cut-obl
      'I know that Inácio cut the tree'

53.   Yn Ø-na-aka-t   i-sondyp-Ø   [Inácio 'ep opĩ]-ty

I   3-decl-cop-nfut   part-know-abs.cop.agr   Inácio   tree
cut-obl
'I know that Inácio cut the tree´

54.   Y-py-sondyp-yn yn [Inácio 'ep opĩ   pasagng]-<ã>ty
1-assert-know-nfut I Inácio tree cut   posterior-obl
'I know that Inácio will cut the tree´

55.   Y-py-pyting-yn yn   [him   pisyp   Inácio   opĩ]-ty
1-assert-want-nfut I   game   meat   Inácio   cut-obl
'I want that Inácio cuts the meat´

When the OSV word order is possible without the object focus
morphology, as in (55) "complement" clauses are analyzed as adverbial
clauses, whereas when OSV requires object focus morphology as in (56-
57), they are analyzed as relatives:

56.   Y-py-so'oot-yn   yn   [taso   õwã   mĩ]-ty
1-assert-see-nfut   I   man   child   beat-obl
'I saw the man who beat the child'
'I saw that the man beat the child'

57.   Y-py-so'oot-yn   yn   [õwã   taso ti-mĩ]-ty
1-assert-see-nfut   I   child   man OFC-beat-obl
'I saw the child whom the man beat'
'I saw that the man beat THE CHILD'

"Complement" clauses, therefore, do not constitute a third type of
embedded clause structurally. They can be adverbial clauses or relative
clauses.

3. The meaning of tense and the structure
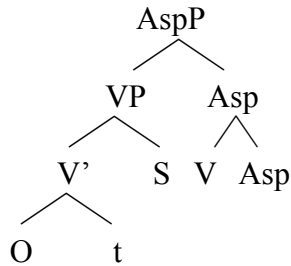# of Karitiana clauses

We have seen that tense in embedded clauses can be carried on directly
from main clauses in perfective adverbial clauses with *tykiri*. That is, the
bare verb of the embedded clause describes an eventuality that is
simultaneous to the eventuality described by the main verb. Using the

tense and aspect definitions proposed by Klein (1984), it is clear that the topic time (TT) of the main clause may be present, past or future as in (2), (4) or (5), respectively, whereas the situation time (TSit) of the embedded verb is simultaneous to the topic time of the main clause. This fact is consistent with the definition of perfective aspect given by Klein, according to which TT is at least partially contained in TSit. Since TT is the same for the main clause and the embedded clause, TSit in the latter is simultaneous to TT.

When aspect in a complement embedded clause is imperfective (with *tyka*) tense in the embedded clause is the same as the main clause when the nonfuture morpheme is involved. This fact is consistent with Klein´s definition of aspect, according to which imperfective aspect has TT totally contained in TSit. If TT in the main clause is the same as that of the embedded clause (present or past), and it is included in TSit, TSit has to be either present or past. For the embedded clause to be interpreted in the future when tense is present or past in the main clause, however, a posterior aspect auxiliary is required in the embedded clause. This morpheme of posterior aspect contributes with the interpretation that TSit in the subordinate is posterior to TT.
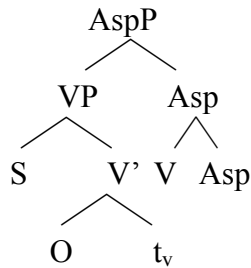
In terms of syntax, Karitiana is a language in which the verb forms a complex head with all functional morphology in the clause via head movement. Storto (1999) proposes the following structure, with head movement of the verb, creating a complex head formed by the verb and aspect (the compound head [V Asp]), to account for [OSV Aspect] adverbial clauses in Karitiana:

Figure 1: OSV Adverbial Embedded clauses

```
            AspP
           /    \
         VP      Asp
        /  \     / \
      V'    S   V  Asp
     /  \
    O    t
```

SOV adverbial clauses have the same structure, except that the subject is projected to the left of the VP, corresponding to the archaic SOV Proto-Tupi constituent order.

Figure 2: SOV Adverbial Embedded clauses

```
            AspP
           /    \
         VP      Asp
        /  \     / \
      S     V'  V  Asp
           /  \
          O    t_v
```

In head-internal relatives, the head of the relative additionally moves to the specifier position of AspP. In object relatives such as (45) and (57) this movement triggers the same object focus morphology *ti-* found in wh- (47) and focus matrix clauses (46) and (48).
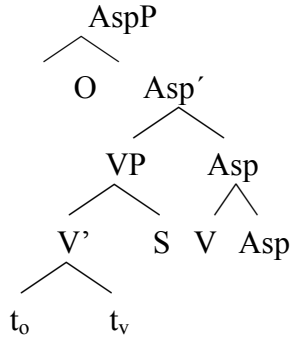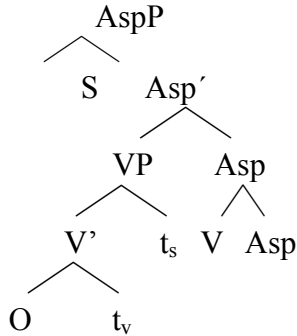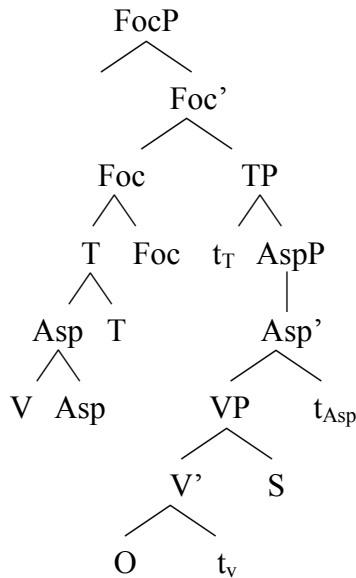
Figure 3: OSV Relative Embedded clauses

```
              AspP
             /   \
            O    Asp´
                /    \
              VP      Asp
             /  \     /  \
           V'    S   V   Asp
          /  \
        t_o   t_v
```

Figure 4: SOV Relative Embedded clauses

```
              AspP
             /   \
            S    Asp´
                /    \
              VP      Asp
             /   \    /  \
           V'    t_s  V  Asp
          /  \
         O    t_v
```

Finite clauses project tense, and the verb (plus tense and all the functional morphology required in matrix clauses such as mood and agreement, as well as extra morphology such as aspect) moves further up to adjoin to the left-periphery functional head where tense must be realized, leading to verb-initial and verb-second word orders. Storto (1999) considered that left periphery head to be a complementizer (C), but Storto (2010) calls it a focus head (Foc) to avoid the confusion with a subordinator.

Figure 5: Main clause

```
                    FocP
                    /\
                      Foc'
                      /\
                Foc        TP
                /\         /\
            T     Foc   t_T   AspP
            /\                  |
        Asp   T               Asp'
        /\                    /\
      V   Asp            VP       t_Asp
                         /\
                      V'     S
                      /\
                    O     t_v
```

This complex head formed by head movement of the verb to Aspect, T and Foc is the syntactic unit to which verb prefixes and suffixes are added. This is why tense surfaces on the aspectual auxiliary and not on the verb in matrix clauses.

The same head movement of the embedded verb to Aspect has to be posited in embedded clauses to account for the OSV word order in adverbial clauses.

Tense in the matrix clause is carried on to embedded clauses because the latter do not project tense and since they are contained in the former, tense in the matrix has scope over tense in subordinates. Aspect morphology is the only type of functional head present in embedded clauses, and it is interpreted taking into account the TT value inherited from the matrix clause. Although much more work has to be done before we fully understand the interactions between tense and aspect in Karitiana complex sentences, we hope to have provided some of the tools to explain both phenomena.

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Notes

[1] This non-future tense suffix is limited to declarative clauses and has two allomorphs: *–t* after vowel-final roots and *–Ø* after consonant-initial roots (Storto 2002).

[2] The habitual prefix *na-* is sometimes used before the deontic verb prefix in ritual narratives. The habitual is similar in form with the declarative prefix (*na-* and *na(ka)-/ta(ka)-*), respectively, but it differs from the declarative in that it does not have the augment *ka-* before stress-initial roots.

[3] This morpheme may be translated as "when" or "if". Ana Vilacy Galúcio describes adverbial clauses with the same interpretation in The Tupian language Mekéns (Tupari branch).

[4] The orthographic symbol *y* stands for a high central vowel.

[5] Non-future tense is morphologically different in assertative sentences (Storto 2002): *-n* is the allomorph with vowel-final verb stems and an epenthetic vowel *(<v>)*is inserted between a consonant-final stem and the non-future *–n*. The quality of this epenthetic vowel is assimilated from the last vowel of the stem. Assertative mood is obligatorily used in affirmative answers to polar questions.

[6] Everett (2006) describes this use of ***daki*** as the future tense suffix of assertative sentences (these sentences are considered to be verb focus constructions in his analysis). Storto (2002) analyzes tense morphology in declarative and assertative clauses to be different only in the non-future allomophs (declaratives have –*t* with vowel-final stems and the null morpheme with consonant-final stems; assertatives have *-<v>n*). In the future, Storto (2002) describes the tense allomorphs –*i* and –*j* to be common to both declaratives and assertatives. This is the analysis we adopt here.

[7] The evidential auxiliary ***ta'ã*** forms a complex head with the verb and aspectual auxiliary because non-future tense is suffixed to the evidential.

[8] Imperfective morphology in Karitina is used not only with a progressive meaning but to mark open-endedness in stative predicates (Storto 2002), as long as they are stage-level (Marques 2010).

[9] Storto (1999) has shown that adjuncts such as adverbs and PPs preferentially occur in preverbal position in declarative sentences. Adjunct clauses follow that pattern. Their distribution, however, is not as free as that of adverbs and PPs. In an SVO matrix sentence, for instance, adverbial clauses cannot oocur between V and O, whereas adverbs and PPs can.

[10] In (9) we have seen it used in an embedded clause with a past tense reading. Past tense, however, in that sentence, is a semantic property of the matrix clause that carries on to the embedded clause.