Predicate tenselessness in Cushillococha Ticuna

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1 Introduction

The purpose of this chapter is to introduce the reader to the grammar of temporal reference in Ticuna in general. This is necessary as background to the analysis of the language's nominal temporal markers, presented in the following chapters.

To these ends, the chapter makes two arguments. Both support the global claim that there is no evidence for tense in the predicate system of Ticuna.

First, in §2, I discuss the obligatory inflectional categories for predicates in this language. I show that predicates are obligatorily marked for four categories: subject agreement, clause type (main vs. subordinate vs. imperative), object agreement (for some transitive verbs), and presence/absence of a location argument (for some verbs of motion and posture). Predicates marked only for the obligatory inflectional categories can be interpreted as having topic times in the present, past, or future of utterance time. That is, there is no evidence for *obligatory* tense in the language.

Second, in §3, I argue that Ticuna also displays no evidence of *optional* tense in the predicate system. To support this claim, I provide a detailed description of all grammatical morphemes of the language which appear on predicates and necessarily contribute to their temporal interpretation. I show that none of these morphemes is a tense. Rather, all of them can be analyzed as contributing aspect, modality, or both.

2 No obligatory tense on predicates

Tonhauser (2015:132) defines a tenseless language as 'a language that does not have paradigmatic expressions that convey a temporal relation between the topic time [TT] and the utterance time [UT].' Since temporal adverbs are not paradigmatic expressions, under this definition a 'tenseless language' can still have deictic temporal adverbs. Likewise, since aspectual markers encode temporal relations between topic time and event time, a 'tenseless language' can stil have paradigmatic aspect marking.

If we exclude the nominal temporal markers from consideration, Ticuna appears to be a prototypical tenseless language under the Tonhauser (2015) definition. I present two main forms of evidence for this claim.

First, verbs which are marked only for the language's obligatory inflectional categories can be interpreted as having topic times in the present, past, or future of utterance time. That is, there is no *necessary* marking of relations between TT and UT. I provide background on the obligatory inflectional categories of the language in §2.1. With this in hand, I show in §2.2 that the obligatory inflectional categories do not affect temporal interpretation.

Second, Ticuna lacks any paradigmatic predicate markers which convey relations between TT and UT. There are paradigmatic predicate markers relevant to temporal reference – but all of them represent aspect, not tense. Conversely, there are adverbs that convey relations between UT and other times – but they do not form paradigms, so they do not represent tenses. Thus, other than the nominal temporal markers *ɟe⁴ma⁴* and *ga⁴*, there is no *possible* grammaticalized marking of relations between TT and UT in Ticuna. I argue for this in the following section, §3.

2.1 Obligatory inflectional categories

This section introduces the obligatory inflectional categories of predicates in Ticuna, as background for the arguments in §2.2 that predicates marked only for obligatory categories can be interpreted as having any topic time.

All verbal predicates of Ticuna bear proclitics. These proclitics fusionally expone two categories: (a) the person, number, and noun class of the subject, and (b) the clause type of the clause. Two subclasses of verbs must also be marked for additional categories. First, transitive verbs must be marked for (c) the person, number, and noun class of the object. Second, certain transitive and intransitive verbs – mainly verbs of motion and posture – take additional obligatory marking for (d) the presence or absence of a location argument.

(1) provides an example of a verb which is marked for all four of the potentially obligatory categories. In this verb, the proclitic at the left edge, *i²=*, codes the absence of a location argument from the clause. The proclitic next from left, *na⁴=*, codes fusionally that the subject is third person and is noun class II, III, or IV, and that the clause is a main clause. The final proclitic, *na³=*, codes that the object is third person and is noun class II, III, or IV. The subject and object proclitics also code that the verb belongs to the *a* inflection class. Though inflection class is not semantically relevant here, it does convey meaning with some verbs.

(1) *i²na⁴na³tą̇¹*

i²= na⁴= na³= tą̇¹
VCL= 3.A= 3OBJ.A= bury:SgO(A)

'S/he buried it.'[1]

I now turn to describing the four obligatory categories of predicates. I begin with subject agreement, which necessarily includes a discussion of inflection class (§2.1.1). Then I turn to object agreement (§2.1.2) and obligatory location marking (§2.1.3). I end by discussing clause type (§**??**). Only after introducing each of the obligatory inflectional categories is it possible to understand the agreement paradigms. Therefore, agreement paradigms are given at the end of this subsection.

2.1.1 Subject agreement and inflection class

Subject proclitics distinguish five person/number combinations: 1SG, 2SG, 1INCL (also used for impersonal or generic reference to humans), 1EXCL, 2PL, and 3. In the third person only, the proclitics also encode the noun class of the subject. The third person subject proclitics have unique forms displaying agreement with Class I and Class V. They display a single, conflated form for all of Classes II, III, and IV. I do not show a subject agreement paradigm here because it is only possible to state subject agreement paradigms in combination with object agreement and clause type. I give a complete subject agreement paradigm only in the clause type section of this chapter.

The phonological form of subject proclitics is determined by the inflection class of the verb. There are three inflection classes. I label each class with a thematic segment that its subject proclitics display: the *a*-class, the *i*-class, and the *ri*-class. (2) provides examples of the 1SG main clause forms of underived intransitive verbs belonging to each inflection class.

[1] The following abbreviations are used in this chapter: >I = affix/clitic converts predicate from lexical inflection class to *i*-class, 1 = first person, 2 = second person, 3 = third person, A = verb/proclitic belongs to inflection class with theme vowel *a*, ACC = accusative, ACHV = achievement (Aktionsart class), ADVBZ = adverbializer, AL.POSS = alienable possession enclitic or pronoun, ALL = allative, ALT = alternative marker (disjunction, polar question, alternative question), AM = associated motion, ANTIPERF = anti-perfect aspect marker, Ã⁴MA⁴ = enclitic deriving (a) contrastive nominal demonstratives, (b) nominal demonstratives without visibility requirements, and (c) direction/bearing descriptions, CAUS = causative, CIRC.POSS = circumstantial possibility modal, CLF = classifier, CLFI = classifier incorporation, CNTF = counterfactual, COM/INST = comitative/instrumental, COMP = complementizer, CONN = temporal connective, COP = copula, DEF.POSS = default possessor (of inalienably possessed noun), DET = determiner, DIR = directional, DISTRIB = distributive, DLOC = locative deictic, DNOM = nominal deictic, EXCL = exclusive, FOC = focus, FUT = future, HESIT = hesitation word, I = verb/proclitic belongs to inflection class with theme vowel *i*, IBEN = beneficiary of intransitive verb, IMP = imperative, IMPERS = impersonal, IMPF = imperfective, INCL = inclusive, INDEF = indefinite, LOC = locative, NEG = negative, NI = noun incorporation, NMLZ = nominalizer, NPC = noun phrase connective, NSI = mass/non-specific indefinite, OBJ = object, OOC = out-of-control, PERF = perfect, PL = plural, PRES = presentative interjection, PROSP = prospective aspect, R = verb/proclitic belongs to inflection class with theme segments *ri*, RCP = recipient case, REFL = reflexive, REMPST = remote past, RN = (spatial) relational noun, SC = subordinate clause (inflectional paradigm for proclitics and copula), SCALAR.FOC = scalar focus, SG = singular, SOURCE = source of motion, SUB = subordinator, TOP = topic, VCL = verb class, WEAK.PROSP = weak prospective aspect.

(2) Example 1SG main clause forms of underived intransitive verbs in each inflection class
   a. *a*-class: *tʃa³=ŋu̱¹* 'I learn' (1SG.A=learn(A))
   b. *i*-class: *tʃi³=de⁴³ʔa²* 'I talk' (1SG.I=talk(I))
   c. *rɨ*-class: *tʃa³rɨ³=dɨ¹* 'I belch' (1SG.R=belch(R))

Not every subject proclitic or subject proclitic combination in a given inflection class displays the thematic vowel for that inflection class. Some subject proclitics, like the 1SG proclitics shown in (2), do have the thematic segments. But other subject proclitics are morphologically zero, and still others have phonological content but do not include the thematic segment(s).

All three inflection classes contain both intransitive and transitive verbs. Nevertheless, the inflection class of verb roots can be partially predicted from their argument structure, semantics, and etymology. As an example of the role of argument structure, the *rɨ¹*-class contains no unergative intransitive verbs and no causative transitive verbs. It includes only unaccusative intransitive verbs, such as *to¹* 'sit' and *mą̱¹* 'hang one's head, bend over,' and 'psych' transitives, such as *mo⁴ẽ²* 'greet' and *ŋɨ³ma²* 'forget.' As an example of the role of semantics, underived manner of motion verbs, such as *ã¹* 'row' and *wa⁵¹* 'crawl,' always belong to the *i*-class. And as an example of etymology, all verb roots loaned from other languages – whether Iberian, like *ga³na¹* 'win' (< Spanish *ganar*), or Tupi-Guaraní, like *pu³ra³kɨ⁴* 'work' (< Nheengatú) – belong to the *a*-class.

On the other hand, it is not true that the inflection class of a verb root can *always* be predicted. For example, the inflection class assignment of 'psych' transitive verbs does not appear to track semantic or etymological properties. To support this generalization, (3) provides examples of psych transitive verbs belonging to each inflection class. Notice that there are some verbs, like *ĩ³nɨ³* in (3), that have multiple senses belonging to different inflection classes. *ĩ³nɨ³*, for example, belongs to the *a*-class when it glosses the English verb 'hear,' but belongs to the *rɨ*-class when it glosses the English verb 'think.' It is beyond this study whether this is a matter of polysemy or of vagueness.

(3) Example psych transitive verb roots in each inflection class
   a. *a*-class: *kʷą̱¹* 'know, feel (body sensation)' (< Tupi-Guaraní), *dau²* 'see,' *ĩ³nɨ³* in sense 'hear' (assigns accusative to object)
   b. *i*-class: *u³* 'say,' *õ²* 'believe,' *ŋo⁴gɨ²* 'feel (haptic touch)'
   c. *rɨ*-class: *ŋɨ³ma²* 'forget,' *mo⁴ẽ²* 'greet,' *ĩ³nɨ³* in sense 'think' (assigns locative to object)

In order to represent the inflectional system of the language accurately, I have provided fairly extensive information about inflection class in the gloss lines of examples. I use the following paragraphs to illustrate why inflection class is potentially semantically relevant in the language, and to explain my glossing conventions.

One way that inflection class is relevant to (non-lexical) meaning in Ticuna is that *many verbal suffixes and VP enclitics change the inflection class* of the predicate with which they combine. As a result, while the inflection class of a verb root is a lexical property of the root, the inflection class of a verb stem is determined by the morphological properties of the suffixes and enclitics of the stem. For example, consider the directional suffix *-ku²tʃi⁴* 'inwards:SgS/O' ∼ *-ku²* 'inwards:PlS/O.' Whenever this directional appears on a verb stem, it converts that stem into the *i*-class. Therefore, although the verb root *po⁴* 'hit with vertical swinging motion, e.g. hammer nail, serve volleyball' is *a*-class in citation form, it is obligatorily *i*-class in (4).

(4) Directional *-ku²tʃi⁴* 'inwards:SgS/O' changes inflection from *a*- to *i*-class
tʃa³¹po⁴ku²tʃi⁴

tʃa³¹= po⁴ -ku²tʃi⁴
1SG>3OBJ.I= hit(A) -DIR:inwards:SgS/O(>I)

'I hit it in (e.g. a ball into an enclosed space).'

Another way that inflection class is semantically relevant is that Ticuna displays *verbal morphology which consists only of changing the inflection class of the verb.* For example, changing the inflection class of an *a*-class verb to *i*-class encodes distributive quantification over the internal argument of the verb (i.e. that the internal argument is plural

and that predicate holds individually of each member of the set denoted by the internal argument). Therefore the verb root *me⁴³-ẽ⁴ẽ³* (good-CAUS) 'fix' is *a*-class in citation form, but appears as *i*-class in (5) because of the distributive context.

(5) Changing inflection from *a*- to *i*-class to express distributive quantification
Context: I have 3 pairs of worn-out shoes and I bring them to the cobbler, Pablo, to fix. He fixes each pair of shoes in turn. I can say,
Pablo rɨ¹ tʃo³¹rɨ³ tʃa³pa³tu¹ ni⁴me⁴³ẽ⁴ẽ³gɨ⁴.

Pablo	rɨ¹	tʃo³¹rɨ³	tʃa³pa³tu¹	ni⁴=	Ø=	me⁴³	-ẽ⁴ẽ³ =gɨ⁴
P	TOP	1SG.AL.POSS shoe		3.I=	DISTRIB(>I)=	good(A)	-CAUS =PL

'Pablo fixed each of my shoes.' (LWG: 2017.3.62)

I gloss subject proclitics with the subject person/number combination, followed by the noun class of the subject (included for the Class I and V subject proclitics only), followed by the inflection class. For consistency with the glossing of noun class agreement on other constituents, the noun class agreement is enclosed in parentheses. Thus 3(I).A means 'third person Class I subject, *a*-class verb.' 3.A, with no notation of noun class agreement, means 'third person Class II, III, or IV or expletive subject, *a*-class verb.' I gloss verbs with an approximation of the lexical meaning of the verb, followed by the inflection class information, which is enclosed in parentheses.

For morphemes that cause inflection class change and also have phonological content, such as *-ku²tʃi⁴* 'DIR:inwards:SgS/O(>I) ' in (4), I represent the inflection class change in parentheses following the gloss of the morpheme. Thus the gloss of *-ku²tʃi⁴* in (4) as 'DIR:inward:SgS/O(>I)' includes the semantic/syntactic information that the item is a directional (DIR), conveys motion into an enclosed space ('inwards'), and requires that the internal argument of the verb is singular ('SgS/O'). But the gloss also includes the exclusively morphological information that the suffix changes the verb that it combines with into the *i*-class (>I).

Morphology that consists only of inflection class change is represented in examples by a zero proclitic in the second line of the gloss. The zero proclitic is glossed in the gloss line with its meaning and its inflection-class-changing attributes. Thus the use of *i*-class agreement in lieu of *a*-class agreement to convey distributive quantification in (5) is represented by a zero proclitic in the segmented line. Then, in the gloss line, the zero proclitic is glossed as DISTRIB, conveying its meaning, followed by the morphological information that the distributive construction changes the verb to the *i*-class (>I).

I provide this level of detail about inflection class in order to demonstrate that differences in inflection class between forms of the same verb root in my examples do *not* encode anything about aspect or tense.

2.1.2 Object agreement

As discussed in the previous subsection, all three inflection classes include both transitive and intransitive verbs. Transitive verbs are further divided into two classes for the purposes of object syntax.

One class of transitive verbs can realize third person pronominal objects *only* as free pronouns bearing the accusative case. I refer to these as free object transitive verbs. In (6), the a-class verb *dau²* 'see' illustrates the object syntax of a free object transitive verb.

(6) Free object transitive verb: *dau²* 'see'

a. Free pronominal object acceptable: ✓*nɨ³¹ʔĩ³ tʃa³dau²*

nɨ³¹	=ʔĩ³	tʃa³=	dau²
3	=ACC	1SG.A=	see(A)

'I saw/see him/her/it.'

b. Proclitic object *unacceptable*: **tʃa³na³dau²*

tʃa³= na³= dau²
1SG.A= 3OBJ.A= see(A)
Attempted: (I saw/see him/her/it.)

The other class of transitive verbs realizes third person pronominal objects *either* as free pronouns bearing the accusative case *or* as proclitics to the verb, depending on the noun class of the object. I refer to this second class as object proclitic transitive verbs. In (7), the a-class verb *ɟau²ʔ* 'receive' (realized word-finally as *ɟa²ʔu³* for phonological reasons) illustrates the object syntax of an object proclitic transitive verb.

(7) Object proclitic transitive verb: *ɟau²ʔ* 'receive'
   a. Free pronominal object *unacceptable*: **nɨ³¹ʔĩ³ tʃa³ɟa²ʔu³*
      nɨ³¹ =ʔĩ³ tʃa³= ɟau²ʔ
      3 =ACC 1SG.A= receive(A)
      Attempted: (I receive(d) him/her/it.)

   b. Proclitic object acceptable: ✓*tʃa³na³ɟa²ʔu³*
      tʃa³= na³= ɟau²ʔ
      1SG.A= 3OBJ.A= receive(A)
      'I receive/d him/her/it.'

The form of third person pronominal objects is not the only difference between the object syntax classes, only the most conspicuous. Other reflexes of the difference between the classes include the role of animacy in differential object marking and the availability of special object marking for mass nouns.

In general, the object syntax of verbs tracks their argument structure. Causative transitive verbs belong to the object proclitic class, and psych transitive verbs belong to the free object class. But there are exceptions. For example, the verb *ku³¹ʔ* 'kick' is clearly a causative transitive verb on various syntactic tests, but it belongs to the free object class for object syntax purposes. Conversely, the verb *ŋa⁴ĩ¹* 'reply' is a psych transitive verb, but it belongs to the object proclitic class for object syntax.

All three inflection classes contain free object transitive verbs. Only the *a*-class and *i*-class also contain object proclitic transitive verbs. The *ri*-class does not contain object proclitic transitive verbs (because it does not contain any causatives, and possibly also for narrowly morphological reasons).

As with subject agreement, displaying object agreement paradigms requires referring to clause type. Therefore, readers should consult the clause type section for information on object agreement.

2.1.3 Obligatory location marking

Certain verbs must bear a proclitic *i²=* or *i⁵=*, appearing to the left of the subject proclitic, whenever they appear in isolation. Some verbs in this class can have either *i²=* or *i⁵=*, with different meanings; others can only have one. Verbs with obligatory *i²=*/*i⁵=* appear in all inflection classes and can have any argument structure. (8) provides some examples of verbs with obligatory *i²=*/*i⁵=* from each inflection class.

(8) Verbs which bear obligatory *i²=* and *i⁵=* proclitics in citation form
   a. *a*-class
      i⁵tʃa³ŋu³ 'I arrive'
      i²tʃa³tʃi⁴ 'I stand up' (assumption of posture and static posture)
      i⁵tʃa³na³tɑ̰¹ 'I discard it' (*i⁵=*), cf. *i²tʃa³na³tɑ̰¹* 'I bury it' (*i²=*)
      i²tʃa³na³to⁴³ 'I plant it'
   b. *i*-class
      i²tʃi³ʔũ⁴³ 'I walk, go' (*i²=*), cf. *i⁵tʃi³ʔũ⁴³* 'I go home' (*i⁵=*)

c. *rɨ*-class
i²tʃa³rɨ³ʔɑ̃ũ̃¹ 'I stay'
i⁵tʃa³rɨ³da³¹ 'I get up (from lying position)'
i⁵tʃa³rɨ³to¹ 'I sit' (assumption of posture and static posture)

As the glosses in (8) suggest, most verbs that have obligatory *i²=*/*i⁵=* are either intransitive verbs of motion or posture, or transitive verbs that (normally) attribute some motion to the object of the verb. Since location is plausibly more important with these verbs than with non-motion verbs, this makes it unsurprising that *i²=* and *i⁵=* represent *placeholders for location arguments* of the verb.

To understand the status of *i²=* and *i⁵=* as expressions of location, it is necessary to understand a little of the grammar of space in Ticuna. In most syntactic environments, Ticuna does not distinguish between the semantic roles of ground, goal, source, via (route), and instrument of motion. All of these roles are marked by the same two semantically general cases, the locative *=gu²* and the allative *=wa⁵*. The alternation between these case markers contributes information about space only with verbs of handling and with certain intransitive verbs of manner of motion. With all other verbs, only one of the two spatial case markers is possible. Which of the two this is, is determined by morphological properties of the verb (if it is an *i²=*/*i⁵=* verb) or by the lexical aspect of the verb (if not). Additionally, there are no spatial adpositions. Spatial relations are instead conveyed using spatial relational terms, which syntactically are nouns. This is overall similar to the grammar of space in many Mayan languages (Bohnemeyer 2017).

Whenever a verb with obligatory *i²=*/*i⁵=* occurs with a noun phrase expressing location (ground, goal, source, or via), two generalizations hold. First, *the case marking of the location phrase is conditioned by the tone of the /i/ proclitic that appears on the verb in isolation.* If a verb has *i²=* in isolation, then it marks all location phrases with *=gu²*. If a verb has *i⁵=* in isolation, then it marks all location phrases with *=wa⁵*.[2] Second, *the /i/ proclitic disappears.*

These generalizations are shown for an *i²=* verb in (9) and for an *i⁵=* verb in (10). With the *i²=* verb, the phrase denoting the ground of posture can only be marked with *=gu²* (9a,c). With the *i⁵=* verb, the ground can only be marked with *i⁵=* (10a,c), even though the spatial relation between the figure and the ground is identical between the two verbs. With both verbs, the /i/ proclitic is obligatorily deleted when the location phrase appears (9b, 10b).

(9) The *i²=* verb *i²tʃa³tʃi⁴* 'I stand up' with location phrase
a. ✓: Location=*gu²* Ø=Verb
ĩ³¹ɑ̃¹tɨ³gu² tʃa³tʃi⁴.
ĩ³¹ɑ̃¹tɨ³ =gu² tʃa³= tʃi⁴
yard =LOC 1SG.A= stand(A)
'I stood/am standing up in the yard.' (DGG: 2017.3.24)
b. ✗: Location=*gu²* *i²*=Verb
**ĩ³¹ɑ̃¹tɨ³gu² i²tʃa³tʃi⁴.*
ĩ³¹ɑ̃¹tɨ³ =gu² i²= tʃa³= tʃi⁴
yard =LOC VCL= 1SG.A= stand(A)
Attempted: (I stood up in the yard.) (DGG: 2017.3.24)
c. ✗: Location=*wa⁵* Ø=Verb
**ĩ³¹ɑ̃¹tɨ³wa⁵ na⁴tʃi⁴.*
ĩ³¹ɑ̃¹tɨ³ =wa⁵ na⁴= tʃi⁴
yard =ALL 3.A= stand(A)
Attempted: (S/he stood up in the yard.) (LWG: 2017.3.5)

(10) The *i⁵=* verb *i⁵tʃa³rɨ³to¹* 'I sit' with location phrase
a. ✓: Location=*wa⁵* Ø=Verb
ĩ³¹ɑ̃¹tɨ³wa⁵ tʃa³rɨ³to¹.
ĩ³¹ɑ̃¹tɨ³ =wa⁵ tʃa³rɨ³= to¹
yard =ALL 1SG.R= sit(R)

[2] It cannot be accidental that the tone of the *i* and the tone of the case marker in each pair match; but I have no synchronic explanation for this.

'I sat/am sitting in the yard.'

b. ✗: Location=*wa⁵ i⁵*=Verb
**ĩ³¹ɑ̃¹tɨ³wa⁵ i⁵tʃa³rɨ³to¹.*
ĩ³¹ɑ̃¹tɨ³ =wa⁵ i⁵= tʃa³rɨ³= to¹
yard =ALL VCL= 1SG.R= sit(R)
Attempted: (I sat in the yard.)
(Note: This sentence may have an acceptable parse where *i⁵*= represents the imperfective proclitic, rather than the location morpheme)

c. ✗: Location=*gu² i²*=Verb
**ĩ³¹ɑ̃¹tɨ³gu² tʃa³rɨ³to¹*
ĩ³¹ɑ̃¹tɨ³ =gu² tʃa³rɨ³= to¹
yard =LOC 1SG.R= sit(R)
Attempted: (I sat in the yard.)

(ABS: 2017/07/25 typed fieldnotes)

Since *i²*= and *i⁵*= are in complementary distribution with location phrases, the most parsimonious analysis of these markers is that the verbs which display them have a syntactic requirement for a location phrase. That is, the location phrase in sentences like (9a) and (10a) is an argument of the verb, not an adjunct. If a verb that requires a location argument has an overt location phrase in its clause, then the location argument is filled without adding any additional morphology to the verb. If there is no overt location phrase, then the location argument is filled by inserting a semantically vacuous /i/ proclitic. The form of the location argument – i.e. the case marking on a location phrase or the tone on an /i/ proclitic – appear to be arbitrary lexical properties of the verb.

It bears mention that there are some verbs with *i²*=/*i⁵*= proclitics that do not follow just the same patterns as stated above and shown in (9) and (10). Two examples of exceptional *i²*=/*i⁵*= verbs are the verbs *i⁵tʃa³na³pi⁴* 'I wipe it' and *i⁵tʃa³na³ga¹* 'I swallow it.' Exceptional *i²*=/*i⁵*= verbs display exactly the same relationship between case-marking of location phrases and the tone of the /i/ proclitic as other *i²*=/*i⁵*= verbs. They differ from regular *i²*=/*i⁵*= verbs in that they do not allow deletion of the /i/ proclitic even when a location phrase is present (11). Importantly, none of the irregular *i²*=/*i⁵*= verbs that I have identified are underived motion/posture verbs.

(11) Exceptional *i⁵*= verbs display same case behavior, different /i/ proclitic behavior, compared to other *i²*=/*i⁵*= verbs

a. *tʃo¹pa⁴ta³wa⁵ (*i⁵)tʃa³na³ga¹*
tʃau¹ *pa⁴ta³ =wa⁵ (*i⁵=) tʃa³= na³= ga¹
1SG *house =ALL (*VCL=) 1SG.A= 3OBJ.A= swallow(A)
'I swallowed it (a pill) in my house.' (LWG: 2017.3.28)

b. *tʃo¹pa⁴ta³wa⁵ (*i⁵)tʃa³na³pi⁴*
tʃau¹ *pa⁴ta³ =wa⁵ (*i⁵=) tʃa³= na³= pi⁴
1SG *house =ALL (*VCL=) 1SG.A= 3OBJ.A= wipe(A)
'I wiped it in my house.' (LWG: 2017.3.28)

2.1.4 Clause type

In the clause type system, there are three categories: main clauses, imperatives, and subordinate clauses. The distribution of the clause types is controlled mainly, but not wholly, by syntax. This is easiest to see for the subordinate clause type. The subordinate clause type *must* be used in the complements of complement-taking verbs (such as perception verbs, speech verbs, and modals); in temporal subordinate clauses; in conditional antecedents; in all relative clauses and focus constructions; in positive imperatives to a plural addressee; and in negative imperatives. The subordinate clause type *can* also be used in simple declarative sentences, polar questions, and content questions (even when there is no focus construction).

Like the subordinate clause type, the main clause type *can* used in simple declarative sentences, polar questions, and content questions. Unlike the subordinate clause type, there is no syntactic environment where the main clause type *must* be used. The imperative clause type is used in all positive imperatives to a singular addressee. It has no other uses.

For the contexts where either main clause or subordinate clause inflection is possible – simple declaratives, polar questions, and content questions – I do not yet understand the pragmatic contribution of clause type fully. In conversation, it is unmarked to use main clause inflection for declaratives and subordinate clause inflection for polar questions (with no other marking of status as a question). Using subordinate clause inflection for declaratives is unattested in conversation,[3] but common in narratives. Using main clause inflection for polar questions is well attested in conversation. Some polar questions with main clause inflection have other marking that the turn is a question, such as the tag *kɨ²a⁴na⁴* or the disjunction marker *ɛ̃¹ʔna⁵*; other polar questions with main clause inflection are formally identical to declaratives. I do not understand the pragmatic differences between the various polar question strategies, but speakers strongly prefer the main clause + tag/disjunction strategy in elicitation. The distribution of main vs. subordinate clause inflection in content questions is similar, except that content questions with main clause inflection do not involve tags or disjunction markers.

(12) visually summarizes the distribution of clause types discussed above.

(12) Distribution of clause types by syntactic and pragmatic context

Declaratives		
Environment	Main Clause Infl	Subordinate Clause Infl
Monoclausal declarative, forms other than narrative	✓	Unattested
Monoclausal declarative, narrative	✓	✓
Relative clause	✗	✓
Focus construction	✗	✓
Complement clause	✗	✓
Temporal subordinate clause	✗	✓
Conditional antecedent	✗	✓
Conditional consequent	✓	Unattested

Other speech act types			
Environment	Main Clause Infl	Subordinate Clause Infl	Imperative Infl
Polar question	✓	✓	✗
Content question	✓	✓	✗
Positive imperative, sg addressee	✗	✗	✓
Positive imperative, pl addressee	✗	✓	✗
Negative imperative	✗	✓	✗

Whenever a predicate bears a subordinate clause subject proclitic, it must also bear a subordinating enclitic. There are three sets of mutually exclusive subordinating enclitics: one set for temporal subordinate clauses and conditional antecedents, one set for relative clauses and focus constructions, and one set (consisting of just one item) for all other types of subordinate clause. The subordinators that appear in relative clauses and focus constructions can also be used to derive deverbal nouns. Therefore, I analyze them as nominalizers and gloss them as NMLZ plus the noun class they expone. I gloss the temporal/conditional subordinators and the all-purpose subordinator as simply SUB. The subordinators are shown in (13).

(13) Subordinating enclitics

Marker	Type of subordinate clause
=(ʔ)gu² SUB	Temporal subordinate clauses, conditional antecedents
=e³ (I) ∼ *=kɨ³* (II) ∼ *=(ɨ⁵)ne¹* (III) ∼ *=ʔɨ̃⁴* (IV) ∼ *=(ʔ)kɨ³* (V)	Relative clause, focus construction (agrees in noun class with head of relative clause or focused constituent)
=ʔ(ɨ̃⁴) SUB	All other types (complement of perception verb, complement of modal, purpose clause, etc.)

[3]Except in contexts where the subordinate clause can be interpreted as falling under the scope of an embedding operator, such a perception verb or modal, earlier in the discourse.

Table 1: Paradigm of subject proclitics for *a*-class verbs without object proclitics, based on *dau²* 'see'

Subject Features	Main Clause	Subordinate Clause
1SG	tʃa³=dau²	tʃa¹=dau²=SUB
2SG	ku³=dau²	ku¹=dau²=SUB
1INCL/IMPERS	ta⁴=dau²	i¹=dau²=SUB
1EXCL	ta³=dau²	ta³=dau²=SUB
2PL	pe³=dau²	pe³=dau²=SUB
3(I)	ta⁴=dau²	ta³=dau²=SUB Rel/Foc: Ø=dau²=SUB
3(II/III/IV)	na⁴=dau²	na¹=dau²=SUB Rel/Foc: Ø=dau²=SUB
3(V)	i³=dau²	na³=dau²=SUB Rel/Foc: Ø=dau²=SUB

I gloss subordinate clause subject proclitics with the code SC following the subject and inflection class features gloss. Thus 3(I).A.SC means 'third person Class I subject, *a*-class verb, subordinate clause type.' Main clause subject proclitics are not glossed for clause type. Imperative clause type subject proclitics are glossed as IMP, followed by the subject features they expone, followed by the inflection class of the verb. Thus IMP.2SG.A means 'imperative, singular addressee, *a*-class verb.'

2.1.5 Inflectional paradigms

Now that I have introduced all of the inflectional categories, I turn to displaying verb paradigms. Below I display first the *a*-class paradigm, then the *i*-class, and *ri*-class. The *a*-class and *i*-class have different paradigms for verbs that do vs. do not include object proclitics. I display the paradigms without no object proclitic first, then the ones with object proclitics.

***a*-class** Table 1 gives the paradigm of subject/clause type proclitics, for all combinations of subject features and main and subordinate clause type, for the transitive *a*-class verb *dau²* 'see.' This is a free object transitive verb. The same paradigm shown in Table 1 applies to all intransitive verbs that do not have object proclitics. This encompasses all intransitives, all free object transitives, and all object proclitic transitives when the object is expressed as a free word.

In the subordinate clause column of Table 1 and all following paradigm tables, note the forms marked as 'Rel/Foc.' These are alternate forms of the third person which do not code noun class. They obligatorily appear in all relative clauses and focus constructions. The Rel/Foc forms can also, however, appear in other subordinate clause contexts. For example, in a subordinate clause where the subject noun phrase contains a demonstrative, it is typically the Rel/Foc forms and not the regular subordinate clause forms that appear.

Table 2 then gives the paradigm of subject/object/clause type proclitics for the transitive *a*-class verb *kʷe¹* 'blow on, shoot.' This verb is an object proclitic verb, meaning that it can express its object *either* as an object proclitic to the verb (if the object is a Class II, III, or IV third person pronoun) *or* as a free word (if the object has any other noun class and person features). When an object proclitic verb expresses its object as a free word, it has the same paradigm as in Table 1 above. But when such a verb expresses its object as an object proclitic, it must instead have the paradigm in Table 2.

Table 3 gives the paradigm for *i*-class verbs without object proclitics (all intransitives, all free object transitives, and object proclitic transitives not bearing object proclitics), based on the verb *u³* 'say.' The glottal stops shown in this paradigm are epenthetic. I segment them with the root for consistency.

Table 4 gives the equivalent paradigm to Table 2 for *i*-class verbs bearing object proclitics, based on the verb *mg̱¹* 'hit, kill.' The tone changes in some subordinate cells of this paradigm are due to tonal interactions between the root and the subordinate paradigm enclitic *=ã¹*; they do not appear on verbs with other tones.

Table 2: Paradigm of subject proclitics for *a*-class verbs with object proclitics, based on k^we^1 'blow on, shoot'

Subject Features	Main Clause	Subordinate Clause
1SG	$t\int a^3=na^3=k^we^1$	$t\int a^1=na^3=k^we^1$ =SUB
2SG	$ku^3=na^3=k^we^1$	$ku^1=na^3=k^we^1$ =SUB
1INCL/IMPERS	$ta^4=na^3=k^we^1$	Ø=$na^3=k^we^1$=SUB
1EXCL	$ta^3=na^3=k^we^1$	$ta^3=na^3=k^we^1$=SUB
2PL	$pe^3=na^3=k^we^1$	$pe^3=na^3=k^we^1$=SUB
3(I)	$ta^4=na^3=k^we^1$	$ta^3=na^3=k^we^1$=SUB Rel/Foc: $na^1=k^we^1=\tilde{a}^1$=SUB
3(II/III/IV)	$na^4=na^3=k^we^1$	$na^1=k^we^1=\tilde{a}^1$=SUB Rel/Foc: $na^1=k^we^1=\tilde{a}^1$=SUB
3(V)	$i^3=na^3=k^we^1$	$na^3=k^we^1=a^1$=SUB Rel/Foc: $na^1=k^we^1=\tilde{a}^1$=SUB

Table 3: Paradigm of subject proclitics for *i*-class verbs without object proclitics, based on u^3 'say'

Subject Features	Main Clause	Subordinate Clause
1SG	$t\int i^3=ʔu^3$	$t\int i^1=ʔu^3$=SUB
2SG	$ki^3=ʔu^3$	$ki^1=ʔu^3$=SUB
1INCL/IMPERS	$ti^4=ʔu^3$	$i^2=ʔu^3$=SUB
1EXCL	$ti^3=ʔu^3$	$ti^3=ʔu^3$=SUB
2PL	$pi^3=ʔu^3$	$pi^3=ʔu^3$=SUB
3(I)	$ti^4=ʔu^3$	$ti^3=ʔu^3$=SUB Rel/Foc: $i^3=ʔu^3$=SUB
3(II/III/IV)	$ni^4=ʔu^3$	$ɟa^1=ʔu^3$=SUB Rel/Foc: $i^3=ʔu^3$=SUB
3(V)	$i^3ɟa^3=ʔu^3$	$ɟa^3=ʔu^3$=SUB Rel/Foc: $i^3=ʔu^3$=SUB

Table 4: Paradigm of subject proclitics for *i*-class verbs with object proclitics, based on *mą¹* 'kill'

Subject Features	Main Clause	Subordinate Clause
1SG	tʃa³=ɟa³=mą¹ OR tʃa³¹=mą¹	tʃa¹=ɟa³=mą¹=SUB
2SG	ku³=ɟa³=mą¹	ku¹=ɟa³=mą¹=SUB
1INCL/IMPERS	ta⁴=ɟa³=mą¹	Ø=ɟa³=mą¹=SUB
1EXCL	ta³=ɟa³=mą¹	ta³=ɟa³=mą¹=SUB
2PL	pe³=ɟa³=mą¹	pe³=ɟa³=mą¹
3(I)	ta⁴=ɟa³=mą¹	ta³=ɟa³=mą¹ Rel/Foc: ɟa¹=ma⁵=ã¹=SUB
3(II/III/IV)	na⁴=ɟa³=mą¹ OR na⁴¹=mą¹	ɟa¹=ma⁵=ã¹=SUB Rel/Foc: ɟa¹=ma⁵=ã¹=SUB
3(V)	i³=ɟa³=mą¹	ɟa³=ma⁵=ã¹=SUB Rel/Foc: ɟa³=ma⁵=ã¹=SUB

Table 5: Paradigm of subject proclitics for *rɨ*-class verbs, based on *ŋɨ²ma³* 'forget'

Subject Features	Main Clause	Subordinate Clause
1SG	tʃa³=rɨ³=ŋɨ²ma³	tʃa¹=rɨ³=ŋɨ²ma³=SUB
2SG	ku³=rɨ³=ŋɨ²ma³	ku¹=rɨ³=ŋɨ²ma³=SUB
1INCL/IMPERS	ta⁴=rɨ³=ŋɨ²ma³	Ø=rɨ³=ŋɨ²ma³=SUB
1EXCL	ta³=rɨ³=ŋɨ²ma³	ta³=rɨ³=ŋɨ²ma³=SUB
2PL	pe³=rɨ³=ŋɨ²ma³	pe³=rɨ³=ŋɨ²ma³=SUB
3(I)	ta⁴=rɨ³=ŋɨ²ma³	ta³=rɨ³=ŋɨ²ma³=SUB Rel/Foc: Ø=rɨ³=ŋɨ²ma³=SUB
3(II/III/IV)	na⁴=rɨ³=ŋɨ²ma³	na¹=Ø=ŋɨ²ma³=SUB Rel/Foc: Ø=rɨ³=ŋɨ²ma³=SUB
3(V)	i³=rɨ³=ŋɨ²ma³	na³=Ø=ŋɨ²ma³=SUB Rel/Foc: Ø=rɨ³=ŋɨ²ma³=SUB

Although I have transcribed the *i*-class object proclitic as /ɟa³/, it is realized as [ɟa³] only in maximally careful speech. The ordinary pronunciation of the proclitic is actually only [a³], with no consonant. Additionally, in (at least) two cells of the main clause paradigm, it is acceptable to drop all segmental content associated with the object proclitic, realizing the object only by changing the tone of the subject proclitic from a level tone (3 or 4) to a contour of consisting of the original tone followed by tone 1. For example, *tʃa³ɟa¹mą¹* 'I kill it' can also be pronounced [tʃa³a¹mą¹] or [tʃa³¹mą¹].

Anderson (1962) claims that there are tonal differences between the subject proclitic paradigms of the *i*-class verbs *mą¹* 'kill,' *ka¹* 'shout,' and the copula *ĩ⁴* on the one hand, and all other *i*-class verbs on the other hand. However, I have not been able to detect any tonal or segmental differences between *mą¹* and *ka¹* and other *i*-class verbs. I have found a single difference between the copula inflectional paradigm and that of other *i*-class verbs – the 3(II/III/IV) subordinate clause proclitic for the copula is *ɟi¹=*, that for all other *i*-class verbs is *ɟa¹=* – but have not observed any tonal differences. It is plausible that this is due to language change, given that only three verbs are listed in Anderson (1962) as having the tonally different subject proclitics.

Table 5 displays the paradigm for all *rɨ*-class verbs. The *rɨ*-class includes only intransitives and free object transitives, with no object proclitic transitives. Therefore, all verbs in the class follow the same paradigm.

I do not include imperatives in the preceding tables. Instead, Table 6 shows the entire positive imperative paradigm. Recall from the discussion of clause type that negative imperatives and plural positive imperatives do not use the imperative clause type. Instead, they use the subordinate clause type with second person agreement.

The associated motion proclitic *ɟa³=* 'come/go and Verb' has several special morphological properties. It changes the inflection class membership of the stem, the form of the imperative, and (for transitive verbs) the object syntax of the entire verb complex. Therefore, in the interest of space, I do not discuss verbs that contain the associated motion

Table 6: Paradigm of imperatives

Inflection Class, Object Class: Verb	Sg Imperative
a-class, no object proclitic: *dau²* 'see'	na³=dau²
a-class, with object proclitic: *ɟau²ʔ* 'get'	na³=ɟa²ʔu³
i-class, no object proclitic: *de⁴³ʔa²* 'talk'	i¹=de⁴³ʔa²
i-class, with object proclitic: *mą¹* 'hit, kill'	ɟa³=mą¹
rɨ-class, no object proclitic: *to¹* 'sit'	rɨ³=to¹

proclitic here. In examples, the special inflectional proclitics that co-occur with associated motion will be glossed as AM plus their underlying subject/object feature, inflection class, and clause type values.

2.2 No obligatory tense

This section demonstrates that predicates marked only for the obligatory inflectional categories discussed above – what I will call "minimally inflected predicates" – do not convey tense. That is, they can be interpreted as having topic times (TT) in either the past or the present of utterance time (UT). They can also be interpreted as having TTs in the future of UT, although future TTs are pragmatically marked by comparison to TTs in the past and present of UT.

Past and present topic times As evidence that minimally inflected predicates can have TTs in either the past or the present of UT, consider the discourses in (14). All of these discourses contain only minimally inflected predicates. In (14a), the TT of the main clause is contextually established as the time of the event denoted by the subordinate clause, the time of the addressee's last visit. This time is approximately one year prior to UT. The main clause therefore has a TT in the (remote) past of UT. By contrast, in (14b,c), there is no temporal subordinate clause, and the discourse context does not make available a TT other than UT. Therefore, the TT of both of (14b,c) is taken to be UT.

(14) a. Context: It is July 2017. I am talking to someone who last visited my town in August 2016.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu² rɨ¹, Betania=wa⁵ tʃa³ʔũ⁴³.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² rɨ¹ Betânia =wa⁵ tʃa³= ũ⁴³
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS(A) =SUB TOP Betânia =ALL 1SG.A= come/go:SgS(A)
'When you came here (last year), I went to Betânia (a Ticuna community in Brazil).' (LWG: 2017.2.165)
TT < UT

b. Context: Someone has heard that I plan to go to Betânia. They ask if it is true and I reply,
Betania=wa⁵ tʃa³ʔũ⁴³.
Betânia =wa⁵ tʃa³= ũ⁴³
B =ALL 1SG.A= come/go:SgS(A)
'(Yes,) I'm going to Betânia.' (acceptable if I am preparing to travel there, or if I am traveling there now)
(ECP: 2017.2.168)
TT = UT

c. Context: I see someone walking down the street and ask them,
ŋe¹ʔta⁵ ku³ʔũ⁴³?
ŋe¹ʔta⁵ ku³= ũ⁴³
INDEF:place:ALL 2SG= come/go:SgS(A)
'Where are you going?' (everyday greeting)
TT = UT

The main clause in (14a) and the single clauses in each of (14b,c) are all identical: they contain an allative NP plus a minimally inflected form of the verb *ũ⁴³* 'come/go:SgS.' But TT is in the past of UT in (14a), while TT is UT in (14b,c).

This shows that minimally inflected predicates are compatible with both absolute past temporal reference (TT < UT, 14a) and absolute present temporal reference (TT = UT, 14b,c).

Future topic times Now we look to TTs in the future of UT. In out-of-the blue contexts, consultants reject attempts to use minimally inflected verbs to talk about future events. For example, 5/5 consultants rejected (15a). They repaired the utterance by adding the future marker *ta⁴*, as in (15b).

(15) Context question: What are you going to do tomorrow?

a. *#mo⁴ʔĩ² tʃa³ʔai⁴ɟa².*

mo⁴ʔĩ² tʃa³= ai⁴ɟa²
tomorrow 1SG.A= bathe(A)

Attempted reading: (Tomorrow I bathe.)

b. ✓ *mo⁴ʔĩ² ta⁴ tʃa³ʔai⁴ɟa².*

mo⁴ʔĩ² ta⁴ tʃa³= ai⁴ɟa²
tomorrow FUT 1SG.A= bathe(A)

'Tomorrow I will bathe.' (DGG: 2017.2.70)
UT < TT

Despite the consultants' rejections of (15a), speakers *do* regularly use minimally inflected verbs to talk about future events, as shown by the spontaneous examples in (16).[4] Observe that (16) contains the temporal adverb *ɟi⁵¹kɨ³ã⁴ma⁴* 'later', showing that minimally inflected verbs can have future temporal reference both when they are not modified by temporal adverbs (16a) and when they are (16b, analogous to 15a).

(16) Minimally inflected verbs with future TTs in main clauses

a. Context: Speaker is telling me about plans for construction on his house
na²tɨ⁴rɨ² ta²ʔu²ta² tu³bo¹ na⁴nũ³ku². tu³bo¹ rɨ¹ ɟe⁵a²ta²ã⁴ ne⁴ na⁴da³¹gɨ⁴, nu⁵a²ta²ã⁴ na⁴da³¹gɨ⁴.

na²tɨ⁴rɨ² ta²ʔu²ta² tu³bo¹ na⁴= nũ³ -ku² tu³bo¹ rɨ¹ ɟe⁵a² =ta²ã⁴ ne⁴
but not.yet Sp:pipe 3.A= put:InamPlO -DIR:inward:PlO Sp:pipe TOP DLOC3:ALL SCALAR.FOC SOURCE
na⁴= da³¹ =gɨ⁴ nu⁵a² =ta²ã⁴ na⁴= da³¹ =gɨ⁴
3.A= lie.elongate(A) =PL DLOC1:ALL SCALAR.FOC 3.A= lie.elongate(A) =PL

'But they haven't installed the pipes yet. The pipes, they will run (lit. they run) from right there, they will run (lit. they run) to right here.'
(tca_20170715_ssg_ahs_elicit_001.wav, 5:08)
UT < TT

b. Context: Speaker (adult) tells addressee (child) to go keep an eye on the basket of oranges for sale on the other side of their house. Then she says,
ɟi⁵¹kɨ³ã⁴ma⁴ ku³¹ʔna¹ tɨ³¹ʔne¹ tʃa³ʔã³.

ɟi⁵¹kɨ³ =ã⁴ma⁴ ku³¹ =na¹ tɨ³¹ =ne¹ tʃa³= ã³
later =Ã⁴MA⁴ 2SG =RCP 3(I) =NSI(I) 1SG.A= give:InamSgO(A)

'A bit later I'll give (lit. I give) you some of it (= the money).'
(tca_20170818_disc_002.wav, 11:35)
UT < TT

What (16) shows on its own is that clauses containing minimally inflected verbs *can* have future topic times. What it shows in contrast with (15) is that future topic times are not available for minimally inflected verbs in pragmatically impoverished out-of-the-blue contexts, such as the question-answer pair in (15).

[4] Since these examples are spontaneous, it is important to note that they were checked for transcription accuracy and felicity with my primary transcription consultant, ABS. He confirmed that both of (16) are acceptable and that both can only be construed, given the discourse contexts, as referring to an event in the future of utterance time.

It is a related fact that future temporal reference is freely available, *even in out-of-the-blue contexts*, for minimally inflected verbs in certain syntactic contexts. These include (a) temporal subordinate clauses and (b) all intensional contexts. Intensional contexts include but are not limited to conditional antecedents and consequents, epistemic modals, circumstantial/deontic modals, attitude reports, and indirect speech reports.

(17) and (18) provide examples of minimally inflected verbs with future temporal reference licensed by syntactic context. In (17), the temporal subordinate clause is headed by the verb *ku¹ʔũ⁴³gu²* 'when you come.' This verb is minimally inflected – it has only subject agreement and clause type marking – but is still interpreted as having a future topic time. In (18), the verb of the main clause, *na⁴ŋu³pe⁴tɨ¹* 'it happens', is minimally inflected, but is interpreted as having a future topic time: the speaker is asking what *will* happen to her in the future of UT, not what *is* happening to her at UT.

(17) Temporal subordinate clause
Context: You are visiting me now. I tell you that before the next time you visit, I will cut down one of the trees in my yard.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², rɨ¹ da³¹a² na³ra⁴ɲa¹ rɨ¹ ma³rɨ³ ta⁴ tʃa³na³tu³¹ʔu³.

ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² rɨ¹ da³¹a² na³ra⁴ɲa¹ rɨ¹ ma³rɨ³
CONN again DLOC4:ALL 2SG.SC.A= come/go:SgS(A) =SUB, TOP PERF FUT 1SG.A= 3OBJ.A=
ta⁴ tʃa³= na³= tu³¹ʔu³
fell.tree(A)

'When you will come (lit. when you come) in here again, I will have cut down this orange tree.' (DGG: 2017.2.173; elicited as an isolated sentence)
Subordinate clause: UT < TT

(18) Conditional consequent
Context: A tall man and a short man have asked Maria to marry them. She goes to a shaman to get advice. She tells the shaman about the proposals, then asks,
ŋẽ⁴ʔgu²ma³ tʃi⁴ ŋe³ma² ɟa³¹tɨ¹ i⁴ ma⁵tʃa¹ne³ʔɨ̃⁴ma⁴ã² tʃa¹ʔã³te⁴gu² rɨ¹, tą¹ʔa⁴kɨ⁴ tʃo³¹ʔɨ̃⁵ na⁴ŋu³pe⁴tɨ¹?

ŋẽ⁴ʔgu²ma³ tʃi⁴ ŋe³ma² ɟa³¹tɨ¹ i⁴ mą¹ *tʃa¹ne¹ =ʔɨ̃⁴ =ma⁴ã² tʃa¹= ã³
CONN CNTF DNOM5(IV) man(IV) NPC(IV) long *NI:stature =NMLZ:IV =COM/INST 1SG.A.SC= have.inal
*te⁴ =gu² rɨ¹ tą¹ʔa⁴kɨ⁴ tʃo³¹ =ʔɨ̃⁵ na⁴= ŋu³pe⁴tɨ¹
*husband =SUB TOP INDEF:nonhuman 1SG =IBEN 3.A= happen(A)

'If I marry the tall man, what will happen (lit. happens) to me?' (ABS: TFS Fortune Teller, 2:32; elicited using a storyboard)
Main clause: UT < TT

(16-18) combine to indicate that future temporal reference *is* possible for clauses with minimally inflected verbs, but is marked. Achieving future temporal reference requires either that the clause be part of a larger future-oriented discourse (16); that it be a temporal subordinate clause (17); or that it appear in an intensional context (18). Otherwise, TTs in the future of UT require the absolute future marker *ta⁴*.

These findings about future temporal reference are important because future discourse is a key part of the debate about whether apparently tenseless languages should be analyzed as tenseless in the underlying structure, or as having silent tense morphemes. On one side of the debate is data from languages of the Pacific Northwest, notably St'átimcets (Salish) (Matthewson 2006) and Gitksan (Tsimshianic) (Jóhansdóttir & Matthewson 2007). These are languages where minimally inflected predicates can have either present or past topic times, but cannot have future topic times. Future discourse instead rigidly requires the use of a future marker. Both languages happen to display exactly one future marker (which can have either relative or absolute future reference). Therefore, Matthewson (2006) and Jóhansdóttir & Matthewson (2007) analyze these languages as having a phonologically null non-future tense morpheme, NONFUT, which appears in every sentence. The non-future tense morpheme composes with the future marker, which is analyzed as conveying circumstantial modality and prospective aspect, in sentences with future temporal reference. This means that apparently future discourses in the language do not actually have future

topic times. Instead, they are discourses with present/past topic times and future event times – that is, with prospective aspect. Tonhauser (2011, 2015) refers to this set of arguments as representing a 'tensed analysis' for apparently tenseless languages.

On the other side of the future discourse debate is data from languages such as Paraguayan Guaraní (Tonhauser 2011) and Yucatec Maya (Bohnemeyer 2015). These are languages where, in at least some environments, minimally inflected predicates can have any topic time. Paraguayan Guaraní does not allow future temporal reference for minimally inflected predicates in out-of-the-blue contexts analogous to (15). But similar to Ticuna, it allows future temporal reference for minimally inflected predicates in all intensional contexts, as well as in extensional contexts involving conjunction and temporal subordinate clauses (Tonhauser 2011:271-274). Yucatec Maya is less restrictive. It allows future temporal reference for all minimally inflected predicates, except if they have the perfective aspect. In conditional antecedents, even perfectives can have future temporal reference (Bohnemeyer 2015). Because of this data, Tonhauser (2011) and Bohnemeyer (2015) argue that Guaraní and Yucatec simply do not have tense morphemes, including the silent NONFUT morpheme proposed by Matthewson (2006). They analyze restrictions on future discourse in out-of-the-blue contexts as arising from pragmatic bans on future topic times for all predicates (Tonhauser 2011:290) or for predicates with certain aspectual properties (Bohnemeyer 2015). The authors involved refer to this as a 'tenseless analysis' of tenseless languages (Tonhauser 2011, 2015).

The data above, as well as additional data which I present in the next section, make clear that Ticuna should receive a tenseless analysis. (16-18) indicate that it is possible for minimally inflected predicates to have absolute future temporal reference. For the same reasons laid out for Paraguayan Guaraní in Tonhauser (2011), this makes it impossible to claim that every clause contains a NONFUT tense morpheme. Thus Ticuna is less like Gitksan and St'átimcets in terms of support for NONFUT, and more like Paraguayan Guaraní and Yucatec Maya.

Furthermore, the data on aspect presented in §3 show that Ticuna allows future topic times for three of its five viewpoint aspect markers, as well as for predicates that are construed (due to lack of aspectual marking) as perfective. In comparison, future topic times are impossible everywhere in Guaraní and impossible with perfectives in Yucatec. Thus Ticuna has even lighter restrictions on temporal reference than other tenseless languages. Not only is there no evidence of the NONFUT morpheme, there is also very little evidence for the pragmatic bans on future topic times proposed by Tonhauser (2011) and Bohnemeyer (2015).

I conclude from all of the above that nothing about either the surface form or the underlying form of a minimal clause in Ticuna constrains the ordering relation between the TT of the clause and UT. The TT of a minimal clause can precede UT, can be UT, or can follow UT. In other words, tense is not an obligatory inflectional category of predicates in the language.

3 No optional tense

Some of the world's languages lack obligatory tense, but have optional past tense marking (Bochnak 2016) or have past tense marking that is restricted to specific morphosyntactic contexts (Cover 2010). The purpose of this section is to show that – if we consider only the domain of predicates – Ticuna is not such a language. Not only do predicates of the language lack obligatory tense, they also lack any optional form of tense. That is, on predicates, Ticuna displays *no grammaticized marking of TT-UT relations whatsoever.*

The only plausible candidates for optional tense markers in Ticuna are the predicate clitics shown in (19). (19) is an exhaustive list of all markers of the language, excluding temporal adverbs, which (a) appear on predicates and (b) necessarily affect the temporal interpretation of the clause (i.e. relations among ET, UT, and TT).

(19) Temporally relevant predicate markers

Marker	Category	Gloss
i⁵=	imperfective	IMPF
ma³ri³	perfect	PERF
=ʧi⁴rɛ̨¹	antiperfect	ANTIPERF
=ʧa¹ĩ¹	prospective: strong	PROSP
=e⁵ga¹	prospective: weak	WEAK.PROSP
ta⁴	absolute future	FUT

To show that there is no optional tense in the language, it is sufficient to show that none of (19) encodes tense, defined as an ordering relation between TT and UT. More specifically, I will argue that none of the items in (19) encode tense, all of them encode aspect, and the last three (future-oriented) items additionally encode modality.

To understand the aspectual values of the items in (19), it is first necessary to know something about the Aktionsart classes of the language. Therefore, the rest of this subsection is organized as follows. In §3.1, I provide a brief overview of Aktionsart classes of Ticuna. In §3.2, I show that the first three markers listed in (19), *i⁵=*, *ma³ri³*, and *=ʧi⁴rɛ̨¹*, encode only aspect, not tense. Then in §3.3, I show that the second three markers in (19), *=ʧa¹ĩ¹*, *=e⁵ga¹*, and *ta⁴*, encode aspect and modality but do not encode tense.

3.1 Aktionsart classes

There is language-internal evidence in Ticuna for all of the four Aktionsart classes defined by Vendler (1957). There is no evidence for semelfactives as a distinct class; cross-linguistically semelfactive verbs like *sneeze* pattern with activities. Below I review the evidence for each Aktionsart class in turn.

3.1.1 Statives

The Aktionsart class of stative predicates has two main diagnostic properties: (a) unacceptability of the affix *-tɑ̨¹* and (b) inceptive readings of the clitic *=ʔã⁴ʧi⁴*.

First, stative predicates are generally unacceptable with the affix *-tɑ̨¹*, which appears on dynamic verbs and derives a stative verb meaning 'have the propensity to V'. Stative predicates instead take the clitic *=wɑ̨¹e³* (elswhere the verb 'want') in this meaning.

Second, the clitic *=ʔã⁴ʧi⁴*, discussed below, appears on stative predicates, activities, and accomplishments. On the dynamic predicate classes where it is allowed, *=ʔã⁴ʧi⁴* compresses the time interval over which the predicate holds – the interval when an agent does an activity, or the interval where an agent completes an accomplishment – into an extremely short, possibly instantaneous, interval. It can be glossed in English as 'in/for a short time.'

On stative predicates, *=ʔã⁴ʧi⁴* still has the 'in/for a short time' reading, but it also allows an inceptive reading. (20) illustrates this with the stative predicates *ã³pa⁴te²e³* 'wear a hat' and *dau⁴* 'be red': the (i) glosses represent the inceptive readings, and the (ii) glosses represent the time compression readings. *=ã⁴ʧi⁴* never leads to inceptive readings with dynamic predicates.

(20) a. *ʧa³ʔã³pa⁴te²e³ʔã⁴ʧi⁴.*
tʃa³= ã³ *pa⁴te²e³ =ʔã⁴tʃi⁴
1.SG.A= have.inal *hat =ACHV
i. 'I put on a hat (lit. began to wear a hat).' (LWG: 2017.2.152; ABS: 2017.2.156)
ii. 'I wore a hat for a moment.' (ABS: 2017.2.156)

b. *na⁴dau⁴e³ma³ʔã⁴ʧi⁴.*
na⁴= dau⁴ *e³ma³ =ʔã⁴tʃi⁴
3.A= be.red *CLFI:immaterial =ACHV
i. 'It became red.'
ii. 'It was red for a moment.' (speaking of a traffic light) (LWG: 2017.2.152)

As will become important later, the inceptive reading shown in (20b) is *also* available to stative predicates that do not have any aspectual marking. One way to coerce this reading is to modify the stative predicate with a clock or calendar time adverbial, such as *to²ku⁴tʃi⁴gu²* 'at noon' in (21).

(21) *to²ku⁴tʃi⁴gu² rɨ¹ ni⁴dɑ̨¹we¹ i⁴ Bi³tu⁵*

to²ku⁴tʃi⁴ =gu² rɨ¹ ni⁴= dɑ̨¹we¹ i⁴ Bi³tu⁵
noon =LOC TOP 3.I= be.sick(I) DET(IV) B(IV)

a. ??'As of noon, Victoria was sick.'
b. ✓'At noon, Victoria became sick.' (LWG: 2017.3.54)

Other diagnostic properties of stative predicates include readings of the verbal number enclitics *=e¹tʃa¹* 'large cardinality' and *=tʃi¹gɨ¹* 'distributive,' which quantify events or participants with eventive predicates, but quantify times at which the state holds with stative predicates. A less categorical diagnostic of statives is that when a stative predicate is predicated of a body/plant/object part, it is strongly preferred for the part term to undergo noun incorporation (although constructions without noun incorporation are still grammatical).

3.1.2 Achievements

The Aktionsart class of achievements includes two subclasses: instantaneous achievements such as *pu³¹* 'shatter,' and run-up achievements (Wood 2007) such as *ŋu³* 'arrive.' The only property which both kinds of achievement share is that they are unacceptable with the distributive clitic *=tʃi¹gɨ¹* when all of their arguments are construed as singular. (22) shows this for both kinds of achievements. All other verb classes are acceptable with the distributive when all of their arguments are singular.

(22) a. Instantaneous achievement *bɨ³* 'break, snap (intransitive)'
#Ka³ru¹ rɨ¹ ni⁴bɨ³ɟe¹pa³ra¹tʃi¹gɨ¹.
Ka³ru¹ rɨ¹ ni⁴= bɨ³ *ɟe¹ *pa³ra¹ =tʃi¹gɨ¹
K TOP 3.I break.rigid(vi)(I) *CLFI:2D.short *NI:shin =DISTRIB
Attempted reading: (Carlos, he broke his leg bit by bit.) (DGG: 2017.2.115; ECP: 2017.2.121)

b. Run-up achievement *ŋɛ̨¹* 'drop'
#tʃo³¹rɨ³ po³ra⁴tu² i⁵na⁴ŋe⁵tʃi¹gɨ¹.
tʃo³¹rɨ³ po³ra⁴tu² i⁵= na⁴= ŋɛ̨¹ =tʃi¹gɨ¹
1SG.AL.POSS plate VCL= 3.A= drop(A) =DISTRIB
Attempted reading: (S/he dropped my plate bit by bit.) (LWG: 2017.2.119; ECP: 2017.2.121)

Instantaneous achievements have three other diagnostic properties. They cannot be complements of *ɨ²gɨ⁴* 'begin'; they cannot take the imperfective clitic *i⁵=* (except in constructions that involve distributive quantification); and they mark adjuncts expressing static location with the locative marker *=gu²* rather than the allative marker *=wa⁵*. All of these properties are unique to instantaneous achievements; none is shared with any other Aktionsart class.

Run-up achievements do not display any of the special properties of instantaneous achievements.

3.1.3 The problem of telicity

The phenomena discussed above make it possible to distinguish durative dynamic predicates – activities and accomplishments – from states (durative nondynamic predicates) on the one hand, and achievements (instantaneous dynamic predicates) on the other. On the other hand, it is very difficult to find language-internal criteria that distinguish activities from accomplishments, and that consequently that can define telicity, in Ticuna.

The difficulty of defining telicity reflects three properties of the language. First, like other aspect-prominent languages such as Yucatec Maya (Bohnemeyer 2002) and Navajo (Smith et al. 2007), Ticuna does not display any syntactic

reflexes of telicity. There are no differences between time adverbials expressing duration ('for two hours') and those expressing timeframe ('in two hours'). There are also no phase verbs that select only atelic or only telic verb phrases as complements, and no grammatical aspect markers that combine with only atelic or only telic verbs.

Second, Ticuna does not have a dedicated marker of perfective aspect. (Minimally inflected dynamic verbs are construed as perfective as a default. But this construal can be defeated – showing that it is due to implicature, and not due to the presence of a morphologically zero perfective morpheme.) This makes it impossible to use the Imperfective Paradox (Dowty 1979) to test for telicity, since Imperfective Paradox-based tests for telicity, like those developed by Bohnemeyer (2002, 2015), rely on the existence of non-defeasibly perfective verb forms.

Third, a large proportion of atelic predicates also have at least one telic reading. Stative predicates always allow achievement-like inceptive readings, as discussed above. Many activity predicates have salient performance object interpretations (Bohnemeyer 2002), on which they behave like accomplishments. For example, the predicate *de⁴³ʔa²* 'talk' normally behaves as an activity on the criteria laid out below. But *de⁴³ʔa²* can also mean 'give a speech,' and on that reading it behaves as an accomplishment.

Because of the absence of syntactic reflexes of telicity and of a grammaticalized perfective, only semantic diagnostics can distinguish between activities and accomplishments. The two categorical diagnostics of whether a durative dynamic predicate is an activity or an accomplishment come from (a) the clitic *=ʔãˀ⁴tʃiˀ⁴* and (b) the clitic *=tʃiˀ⁴rɛ̨¹*.

3.1.4 Activities

First, consider activities. When *=ʔãˀ⁴tʃiˀ⁴* appears on a predicate denoting an activity, it requires that the time interval during which the activity held was very short, possibly instantaneous, as in (23). Its best English gloss is 'for a short time.' There are no implications about a change of state occurring within the short timeframe.

(23) a. *i⁵ni⁴de⁴³ʔa²ʔãˀ⁴tʃiˀ⁴.*
i⁵= ni⁴= de⁴³ʔa² =ʔãˀ⁴tʃiˀ⁴
IMPF= 3.I= talk(I) =ACHV
'S/he was talking for a short time.' (LWG: 2017.2.152, ABS: 2017.2.157)

b. *na⁴pu³ra³kɨ⁴ʔãˀ⁴tʃiˀ⁴.*
na⁴= pu³ra³kɨ⁴ =ʔãˀ⁴tʃiˀ⁴
3.A= work(A) =ACHV
'He worked for a short time.' (LWG: 2017.2.152, ABS: 2017.2.157)

c. *nɨ³¹ʔĩ³ tʃa³dau²ʔãˀ⁴tʃiˀ⁴.*
nɨ³¹ =ʔĩ³ tʃa³= dau² =ʔãˀ⁴tʃiˀ⁴
3 =ACC 1SG.A= see(A) =ACHV
'I saw it for an instant (e.g. while passing over it in an airplane).' (SSG: 2016.1.112)

When *=tʃiˀ⁴rɛ̨¹* appears on a predicate denoting an activity, it entails that the predicate held at a time prior to TT and that it did not hold at TT. Asserting P*=tʃiˀ⁴rɛ̨¹* at some TT and then asserting P at the same TT results in a contradiction. This distinguishes the cessation meaning component of *=tʃiˀ⁴rɛ̨¹* from the cessation implications of past tenses in languages like English: the cessation meaning of *=tʃiˀ⁴rɛ̨¹* is an entailment, while the cessation implication of the English past tense is a conversational implicature. I have rendered the cessation entailment of *=tʃiˀ⁴rɛ̨¹* in the glosses of (24) by using the auxiliary *used to* and the phase verb *stop*, but note that there are no phase verbs in the Ticuna examples, only *=tʃiˀ⁴rɛ̨¹*.

(24) a. *i⁵¹ra¹ga¹ãˀ¹kɨˀ² tʃiˀ³de⁴³ʔaˀ²tʃiˀ⁴rɛ̨¹.*
i⁵¹ra¹ *ga¹ =ãˀ¹kɨˀ² tʃiˀ³= de⁴³ʔaˀ² =tʃiˀ⁴rɛ̨¹
be.small *NI:voice =ADVBZ 1SG.I= talk(I) =ANTIPERF
'I used to talk in a low voice (now I talk normally).' (LWG: 2017.2.156, ABS: 2017.2.157)

b. *ŋẽˀ⁴ʔguˀ²maˀ³ nu⁵aˀ² kuˀ¹ŋuˀ³ʔguˀ², Kaˀ³ruˀ¹ rɨˀ¹ naˀ²aˀ¹neˀ¹waˀ⁵ naˀ⁴puˀ³raˀ³kɨˀ⁴tʃiˀ⁴rɛ̨¹.*

ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² Ka³ru¹ rɨ¹ na² *a¹ne¹ =wa⁵ na⁴= pu³ra³kɨ⁴ =tʃi⁴rɛ̨¹
CONN DLOC1:ALL 2SG.SC.A= arrive(A) =SUB K TOP 3(II) *garden =ALL 3.A= work(A) =ANTIPERF
'When you arrived, Carlos had stopped working in his garden.' (ABS: 2017.2.157)

3.1.5 Accomplishments

Knowing the properties of activities shown in (23) and (24), we can consider accomplishments. When *=ʔã⁴tʃi⁴* appears on a predicate denoting an accomplishment, it entails that the entire event denoted by the predicate, **including the culmination**, occurred within a very short time interval. The best English gloss is of *=ã⁴tʃi⁴* is 'in a short time,' as in (25).

(25) a. *ɟi²ma⁴ wai⁵ra⁴ na⁴tu³¹ʔã⁴tʃi⁴.*
ɟi²ma⁴ wai⁵ra⁴ na⁴= tu³¹ʔ =ʔã⁴tʃi⁴
DNOM5(II) E.precatoria(II) 3.A= fell.tree(A) =ACHV
'He cut down the/that açai in a short time.' (LWG: 2017.2.152)

b. *ɟi³¹ma² mo³to¹ na⁴me⁴³ẽ⁴ẽ³ʔã⁴tʃi⁴.*
ɟi³¹ma² mo³to¹ na⁴= me⁴³ -ẽ⁴ẽ³ =ʔã⁴tʃi⁴
DNOM5(III) motocar(III) 3.A= good(A) -CAUS =ACHV
'He fixed the/that motocar in a short time.' (LWG: 2017.2.152)

When *=tʃi⁴rɛ̨¹* appears on a predicate denoting an accomplishment, it has two possible readings. One reading is that before TT, the agent began to do the accomplishment, but was interrupted before she reached the culmination. The interruption reading is available with all accomplishments and can be roughly paraphrased with English *almost*. The other reading is that the agent did the accomplishment and reached the culmination, but that the culmination was reversed before TT. The reversal reading is only available with accomplishments that can plausibly be reversed, like *fix a car* – not with accomplishments that involve creation and destruction, like *build a house*. Since in both of these cases *=tʃi⁴rɛ̨¹* targets the culmination of the accomplishment, neither of the readings of *=tʃi⁴rɛ̨¹* on accomplishments is available for activities. (26a, b.i) illustrate the interruption reading of *=tʃi⁴rɛ̨¹*, while (26b.ii) illustrates the reversal reading.

(26) a. *Bi³tu⁵ rɨ¹ tʃo¹pa¹ na⁴mu³tʃi⁴rɛ̨¹.*
Bi³tu⁵ rɨ¹ tʃau¹ =pa¹ na⁴= mu³ =tʃi⁴rɛ̨¹
B TOP 1SG =hammock 3.A= weave =ANTIPERF
Interruption reading only: 'Victoria, she almost wove me a hammock (but then e.g. she got sick and couldn't finish the hammock).' (LWG: 2017.2.156; ABS: 2017.2.157)

b. *tʃo³¹rɨ³ mo³to¹ na⁴me⁴ẽ⁴ẽ³tʃi⁴rɛ̨¹.*
tʃo³¹rɨ³ mo³to¹ na⁴= me⁴³ -ẽ⁴ẽ³ =tʃi⁴rɛ̨¹
1SG.AL.POSS motocar 3.A= good(A) -CAUS =ANTIPERF
i. Interruption reading: 'He almost fixed my motocar (but then he stopped before he was done).'
ii. Reversal reading: 'He fixed my motocar (and it worked for a while, but then it broke again).'

3.1.6 Summary of Aktionsart diagnostics

(27) provides a summary of the diagnostic properties of Aktionsart classes discussed in this section.

(27) Diagnostic properties of Aktionsart classes

Aktionsart Class	*-tɑ̲¹* 'tend.to'	*=tʃi¹gɨ¹* w/ all args singular
Stative	Unacceptable	Acceptable
Achievement	Acceptable	Unacceptable
Activity	Acceptable	Acceptable
Accomplishment	Acceptable	Acceptable

Aktionsart Class	Readings of *=ã⁴tʃi⁴* ACHV	Readings of *=tʃi⁴rɛ̲¹* ANTIPERF
Stative	Inceptive and 'for a short time'	Predicate held and ceased by TT
Achievement	n/a, not consistently acceptable	Post-state of culmination held, but was reversed by TT
Activity	'For a short time' only (no culmination)	Predicate held and ceased by TT
Accomplishment	'In a short time' only (includes culmination)	Before TT, agent began accomplishment but was interrupted; OR post-state of culmination held, but was reversed by TT

3.2 Markers which encode only aspect

This section addresses the first four of the temporal predicate markers shown in (19): the imperfective *i⁵=*, the perfect *ma³rɨ³*, and the antiperfect *=tʃi⁴rɛ̲¹*. I show that all of these markers encode relations between event time (ET) and topic time (TT); they do not encode relations between TT and utterance time (UT). That is, all of the markers are aspect markers, and none is a deictic tense marker. The structure of this section and the diagnostics used for distinguishing between aspect and tense are based on Bohnemeyer (2002, 2009).

I do not consider the possibility here that *i⁵=*, *ma³rɨ³*, and *=tʃi⁴rɛ̲¹* encode relative tense. Additionally, I do not discuss the clitic *=ã⁴tʃi⁴* 'in/for a short time' in this section. This clitic, described in the Aktionsart section above as a test of stativity and telicity, constrains the *length* of ET, like *in* and *for*-type temporal adverbials in English. It does not constrain the relations between ET, TT, and UT, and therefore it is not relevant here.

3.2.1 Imperfective *i⁵=*

The imperfective proclitic *i⁵=* appears on predicates denoting states, activities, and accomplishments. Except in contexts involving distributive quantification, it does not appear on achievements. In copula clauses, *i⁵=* appears on the copula. In this *i⁵=* is different from all other bound aspect markers, which appear on the predicate nominal in copular clauses. *i⁵=* appears to the left of any subject and object proclitics to the verb. It cannot co-occur with the location argument markers *i²=* and *i⁵=*, which occupy the same position relative to the subject and object proclitics.

To understand the aspectual value of *i⁵=*, we look first to its meaning on dynamic predicates. On activities and accomplishments, *i⁵=* requires that the activity or accomplishment was ongoing as of topic time. That is, it places TT within ET, as shown by the acceptable glosses in (29a) and (28a). It is not acceptable to use the imperfective to describe a situation where ET is within TT, as in the unacceptable glosses in (29b) and (28b). It is also not possible to use the imperfective to describe a situation where ET fully precedes TT.[5]

(28) *ŋẽ⁴ʔgu²ma³ Bi³tu⁵ʔɨ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², rɨ¹ i⁵ta⁴ʔa³ʔu³.*

ŋẽ⁴ʔgu²ma³ Bi³tu⁵ =ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =gu², rɨ¹ i⁵= ta⁴= au³ʔ
CONN B =RN:at =ALL 1SG.SC.A= arrive(A) =SUB TOP IMPF= 3.A(I)= cry(A)

a. ✓When I arrived at Victoria's place, she was crying.
(She began crying before I arrived and possibly continued crying afterward)
TT *in* ET

[5]It *is* acceptable to use *ma³rɨ³* plus the imperfective to describe a situation of this type, but I assume that this is due to the contribution of *ma³rɨ³*, on which see the following section.

b. #When I arrived at Victoria's place, she cried.
(She began crying when/because I arrived)
ET *in* TT

(DGG: 2017.3.26)

(29) *ŋẽ⁴ʔgu²ma³ Bi³tu⁵ʔɾ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², rɨ¹ wɨ⁴³ʔi⁴ i⁴ carta i⁵ta⁴ʔɨ².*

ŋẽ⁴ʔgu²ma³	Bi³tu⁵=	ʔɾ̃¹ta¹	=wa⁵	tʃa¹=	ŋu³	=gu²	rɨ¹	wɨ⁴³ʔi⁴	i⁴	carta	i⁵=	ta⁴=
CONN	B	=RN:at	=ALL	1SG.SC.A=	arrive(A)	=SUB	TOP	one	DET(IV)	Sp:letter(IV)	IMPF=	3.A(I)=
ɨ²												
make(A)												

a. ✓When I arrived at Victoria's place, she was writing a letter.
(She began writing before I arrived and possibly continued and/or finished afterward)
TT *in* ET

b. #When I arrived at Victoria's place, she wrote a letter.
(She began writing the letter when/because I arrived)
TT *in* ET

(DGG: 2017.3.26)

For states, recall from the Aktionsart discussion above that stative predicates marked only for subject agreement are susceptible to two readings: (a) an inceptive reading ('it became red') and (b) a truly stative durative reading ('it was red'). Marking a stative predicate with the imperfective forces the durative reading and makes the inceptive reading unavailable (30).

(30) *ŋẽ⁴ʔgu²ma³ Bi³tu⁵ʔɾ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², rɨ¹ i⁵ta⁴ʔã³pa⁴te²e³.*

ŋẽ⁴ʔgu²ma³	Bi³tu⁵	=ʔɾ̃¹ta¹	=wa⁵	tʃa¹=	ŋu³	=gu²	rɨ¹	i⁵=	ta⁴=	ã³	*pa⁴te²e³
CONN	B	=personal.space	=ALL	1SG.A.SC=	arrive	=SUB	IMPF=	3(I).A=	have.inal	*hat	

a. ✓ When I arrived at Victoria's place, she was wearing a hat.
(She was wearing the hat before I arrived and possibly continued wearing it afterward)
TT *in* ET

b. # When I arrived at Victoria's place, she put on a hat.
(She put it on when/because I arrived)
TT *in* ET

(DGG: 2017.3.38)

The imperfective cannot be used in generic statements. To express generic propositions, speakers use verbs marked only for subject agreement. It is not clear whether the imperfective can describe habits. Speakers reject attempts to use the imperfective to describe habits in clauses that do not involve adverbial quantification, verb quantification, or focus. However, they accept (but do not produce) imperfectives with habitual readings if the clause contains an adverbial quantifier, a verbal quantifier such as the distributive, or a focus construction. For these reasons, it would also be appropriate to label *i⁵=* as a progressive; I call it imperfective only because it is acceptable with states.

Given this behavior, the aspectual meaning component of *i⁵=* is identical to Klein's (1994) analysis of the English progressive aspect: it encodes that TT is a proper subset of ET.

Now we turn to whether *i⁵=* has a tense meaning component. The discourses in (31) show that in a clause with *i⁵=* and no other temporal markers, TT can precede UT (31a), can be identical to UT (31b), or can follow UT (31c). This indicates that *i⁵=* cannot have a deictic tense component.

(31) a. Context: Earlier, I visited A³ri⁵.
ŋẽ⁴ʔgu²ma³ A³ri⁵ʔɾ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², ŋe³ma² wai⁵ra⁴ i⁵na⁴tu³¹ʔu³.

ŋẽ⁴ʔgu²ma³ A³ri⁵ =ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =gu² ŋe³ma² wai⁵ra⁴ i⁵= na⁴=
CONN A =RN:at =ALL 1SG.A.SC= arrive(A) =SUB DNOM5(IV) E.precatoria(IV) IMPF= 3.A=
tu³¹ʔ
fell.tree(A)

'When I arrived at A³ri⁵'s place, he was cutting down that açai tree.' (ECP: 2017.2.171)
TT *in* ET, TT < UT

b. Context: You arrive at my house and ask what I'm doing right now. I say,
na³ra⁴ɲa¹ i⁵tʃa³tu³¹ʔu³.

na³ra⁴ɲa¹ i⁵= tʃa³= tu³¹ʔ
orange IMPF= 1SG.A= fell.tree(A)

'I'm cutting down (the) orange tree.' (DGG: 2017.2.172)
UT = TT *in* ET

c. Context: You are visiting me now, and you ask what I will be doing the next time that you visit. I say,
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², rɨ¹ da³¹a¹ na³ra⁴ɲa¹ rɨ¹ i⁵tʃa³na³tu³¹ʔu³.

ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² rɨ¹ da³¹a¹ na³ra⁴ɲa¹ rɨ¹ i⁵= tʃa³=
CONN again DLOC1:ALL 2SG.SC.A= come/go:SgS =SUB TOP DNOM1(III) orange(III) TOP IMPF= 1SG.A=
na³= tu³ʔ
3OBJ.A= fell.tree(A)

'When you come here again, I will be cutting down this orange (tree).' (DGG: 2017.2.173)
UT < TT *in* ET (n.b. future topic time)

I conclude from (31) that *i⁵=* encodes progressive aspect but does not encode any value of tense. Additionally, the language-internal tests for modality introduced below, in the section on *=tʃa¹ɨ¹* PROSP, indicate that *i⁵=* is not modal. The only contribution of *i⁵=* is the aspect relation TT *in* ET.

3.2.2 Perfect *ma³rɨ³*

The aspectual marker *ma³rɨ³* is a prosodically free word which typically appears in second position in the clause. It combines with predicates of all Aktionsart classes. On the surface, the aspectual contribution of *ma³rɨ⁴* appears to vary by the Aktionsart class of the predicate with which it combines. Therefore, this section examines *ma³rɨ³* with predicates of each Aktionsart class in turn. I emphasize that although I refer to *ma³rɨ³* as a 'perfect' in the title of this section and in the glosses, I do not intend this label as a claim that *ma³rɨ³* has the same semantics as the perfect aspects of better-studied languages such as English.

States I begin with states. With a stative predicate, *ma³rɨ³* has two aspectual requirements. First, *ma³rɨ³* requires that the state of the predicate holds at TT. This is shown by the minimal pairs of acceptable and unacceptable contexts for utterances with *ma³rɨ³* in (32).

(32) *ma³rɨ³* + state requires that state holds at TT

a. *ŋẽ⁴ʔgu²ma³ tʃa¹ta⁵e¹gu²gu², rɨ¹ ma³rɨ³ na⁴gạ̰u̯¹.*

ŋẽ⁴ʔgu²ma³ tʃa¹= ta⁵e¹gu² =gu² rɨ¹ ma³rɨ³ na⁴= gạ̰u̯¹
CONN 1SG.A.SC= return:SgS(A) =SUB TOP PERF 3.A= be.cold(A)

'When I returned, it had gotten cold.'

i. ✓: I put some water in the chest freezer before I left. When I returned, it was still in the freezer and it was cold.

ii. #: I put some water in the chest freezer before I left. While I was gone, it became cold, but then someone took it out of the freezer. When I returned, it was no longer cold.

(LWG: 2017.2.69)

b. *ma³rɨ³ tʃi³dạ¹we¹.*

ma³rɨ³ tʃi³= dạ¹we¹
PERF 1SG.I= be.sick(I)
'I've gotten sick.'
i. ✓: I am sick now.
ii. #: I've been sick recently. Now I am recovering, but my voice is still hoarse.
(ABS: 2017.2.67)

Second, *ma³rɨ³* requires that the state of the predicate hold at TT *as the result of a change of state*. Because of this property, attempts to combine *ma³rɨ³* with individual-level predicates lead to unexpected readings of the predicates as stage-level. Some of these readings are shown in (33).

(33) *ma³rɨ³* + state requires change of state

a. *ma³rɨ³ tʃa³ɟạu̯¹e⁴tɨ¹.*
ma³rɨ³ tʃa³= ɟạu̯¹ *e⁴tɨ¹
PERF 1SG.A= be.blue/green(A) *NI:eye
'My eyes got blue.'
i. ✓: Previously my eyes were not blue, but then I had an operation and my eyes became blue.
ii. #: My eyes have been blue ever since I was born.

b. *ma³rɨ³ tʃa³ŋe³¹.*
ma³rɨ³ tʃa³= ŋe³¹
PERF 1SG.A= be.female(A)
'I got to be a woman.'
i. ✓: I was previously a man and became a woman.
ii. #: I have always been a woman.
(DGG: 2017.3.103)

Klein's (1994) framework cannot model the aspectual contribution of *ma³rɨ³* with states. Under Klein's theory, aspect is a relation between TT and ET, and perfect aspect markers encode the ordering relation ET $<$ TT (Klein 1994:111). But *ma³rɨ³* with states does not encode only that ET $<$ TT, for two reasons. First, if *ma³rɨ³* encoded only ET $<$ TT, then it would not have any entailments about eventualities at TT. As (32) illustrates, *ma³rɨ³* does have entailments about TT, because it requires the stative predicate with which it combines to hold at TT. Second, if *ma³rɨ³* encoded only ET $<$ TT, then it would not be sensitive to the event structure of the predicate that it combined with. But as (33) shows, *ma³rɨ³* is sensitive to the event structure of the predicate: it requires that the predicate denote a state change.

These facts eliminate an analysis of *ma³rɨ³* as Klein's perfect. We now consider *ma³rɨ³* in combination with other Aktionsart classes, and what analyses that data supports.

Achievements and accomplishments There is a crucial similarity between *ma³rɨ³* with states and *ma³rɨ³* with the telic Aktionsart classes – achievements and accomplishments. Much as *ma³rɨ³* with states requires that the *state* of the predicate hold at TT (32), *ma³rɨ³* with telic verbs requires that the *post-state* of the verb hold at TT.

The first form of evidence for the post-state semantics of *ma³rɨ³* is that is not acceptable to use *ma³rɨ³* with a telic verb if the change of state associated with the verb (also called the culmination) has been reversed.

For example, the verb *gau⁵¹ʔ* 'become ripped' denotes an instantaneous change of state (achievement) where a patient goes from whole to ripped. Being whole is the pre-state, and being ripped is the post-state. Therefore, it is unacceptable to use this verb plus *ma³rɨ³* to describe a scenario where a patient *changed from whole to ripped* at some time prior to TT, but is not ripped at TT.

Likewise, the verb *me⁴³ẽ⁴ẽ³* 'fix' denotes a gradual change of state (accomplishment) where a patient goes from broken to working. Being broken is the pre-state, and being in working order is the post-state. Because being in working

order is the post-state, it is unacceptable to use this verb with *ma³rɨ³* to describe a scenario where the patient *changed from broken to working* at some time prior to TT, but is no longer in working condition at TT.

The minimal pairs of contexts in (34) illustrate these generalizations for achievements, and those in (35) for accomplishments.

(34) *ma³rɨ³* + achievement requires post-state of achievement to hold at TT: no reversals

a. *ŋẽ⁴ʔgu²ma³ ku³¹ʔɨ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², ma³rɨ³ na⁴rɨ³gau⁵¹ i⁴ tʃo³¹rɨ³ dau⁵ʔɨ̃⁴.*
ŋẽ⁴ʔgu²ma³ ku⁴³ *ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =ʔgu² ma³rɨ³ na⁴rɨ³= gau⁵¹ i⁴
CONN 2SG *RN:at =ALL 1SG.A.SC= arrive =SUB PERF 3.R= become.ripped(R) DET(IV)
tʃo³¹rɨ³ dau⁵ʔɨ̃⁴
1SG.AL.POSS shirt(IV)
'When I arrived at your place, my blouse was torn.'
i. ✓: As I was leaving my house at 7:00am, my shirt tore. I did not have time to fix it before I arrived at your house at 10:00am.
ii. #: As I was leaving my house at 7:00am, my shirt tore. I got some needle and thread and temporarily fixed the tear before I arrived at your house at 10:00am. You can still tell that the shirt tore earlier, but there is not currently a gap in the fabric.
(LWG: 2017.3.47, ECP: 2017.3.35, DGG)

b. *ŋẽ⁴ʔgu²ma³ ku³¹ʔɨ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², ma³rɨ³ ni⁴pu³¹ i⁴ da²ʔu²tʃi⁴tʃi⁵ka¹.*
ŋẽ⁴ʔgu²ma³ ku⁴³ *ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =ʔgu² ma³rɨ³ ni⁴= pu³¹ i⁴ dau²
CONN 2SG *RN:at =ALL 1SG.A.SC= arrive =SUB PERF 3.I= become.shattered(I) DET(IV) see
-ʔɨ²tʃi⁴ *tʃi⁵ka¹
-DIR:inward:SgS *place(IV)
'When I arrived at your place, a/the window was broken.'
i. ✓: Earlier today, a window in your house broke. When I came to visit you this afternoon, there was still broken glass on the ground inside and outside, and some jagged glass left in the windowpane.
ii. #: Earlier today, a window in your house broke. When I came to visit you this afternoon, you had completely cleaned up the broken glass. There was no glass left on the ground or in the windowpane. It was like there had never been a window there at all.
(LWG: 2017.3.47, ECP, DGG)

(35) *ma³rɨ³* + accomplishment requires post-state of accomplishment to hold at TT: no reversals
ŋẽ⁴ʔgu²ma³ Ka³ru¹ʔɨ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², ma³rɨ³ tʃo³¹rɨ³ mo³to¹ na⁴me⁴³ẽ⁴ẽ³.

ŋẽ⁴ʔgu²ma³ Ka³ru¹ =ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =gu² ma³rɨ³ tʃo³¹rɨ³ mo³to¹ na⁴= me⁴³ -ẽ⁴ẽ³
CONN K =RN:at =ALL 1SG.A.SC= arrive =SUB PERF 1SG.AL.POSS motocar 3.A= good(A) -CAUS

'When I arrived at Carlos' place, he had fixed my motocar.'
a. ✓: My motocar was in working order when I arrived.
b. #: Carlos fixed my motocar the day before I arrived, but then it became damaged again. When I arrived, it was not in working order.
(ABS: 2017.3.67; LWG: 2017.3.68)

The second form of evidence that *ma³rɨ³* requires the post-state of telic verbs to hold at TT is that it is not acceptable to use *ma³rɨ³* in scenarios where a telic event is in progress at TT. For example, the sentence with *ma³rɨ³* and an accomplishment given in (35) is unacceptable in the scenarios given in (36).

(36) *ma³rɨ³* + accomplishment requires post-state of accomplishment to hold at TT: cannot describe event which has not yet reached culmination
ŋẽ⁴ʔgu²ma³ Ka³ru¹ʔɨ̃¹ta¹wa⁵ tʃa¹ŋu³ʔgu², ma³rɨ³ tʃo³¹rɨ³ mo³to¹ na⁴me⁴³ẽ⁴ẽ³.

ŋẽ⁴ʔgu²ma³ Ka³ru¹ =ʔɨ̃¹ta¹ =wa⁵ tʃa¹= ŋu³ =gu² ma³rɨ³ tʃo³¹rɨ³ mo³to¹ na⁴= me⁴³ -ẽ⁴ẽ³
CONN K =RN:at =ALL 1SG.A.SC= arrive =SUB PERF 1SG.AL.POSS motocar 3.A= good(A) -CAUS

'When I arrived at Carlos' place, he had fixed my motocar.'

a. #: When I arrived, I saw Carlos at work on my motocar. He was actively working on it, but it was not yet in working order.

b. #: When I arrived, Carlos was not actively working on my motocar. He had done some of the work necessary to fix it; but it was not yet completely in working order.

(ABS: 2017.3.67; LWG: 2017.3.68)

In combination with the data on states, (34)-(36) support the following two informal generalizations about the semantics of *ma³rɨ³*.

First, when *ma³rɨ³* combines with a stative predicate, it requires a construal of that predicate as inceptive, but when it combines with dynamic predicates, it does not impose any requirements on the construal of the event structure. What this suggests is that *ma³rɨ³* only combines with dynamic predicates. It is capable of combining with predicates that belong to the Aktionsart class of statives only because all of those predicates can also have inceptive readings without any additional morphology – and as we saw in (33), whenever *ma³rɨ³* combines with a stative verb, it coerces that inceptive reading. It is crucial here that the inceptive reading of a stative predicate is in fact *not stative*. It is dynamic, and because it denotes a change of state, it is also telic. If the change of state denoted by an inceptive is instantaneous, then the inceptive is like an achievement. Conversely, if the change of state denoted by an inceptive is gradual, then the inceptive is like an accomplishment. (37) visually represents this analysis.

(37) Inceptive readings of stative predicates are like achievements and accomplishments

a. Instantaneous change into state P

——– | —————
∼P Change P

Achievement *or* inceptive reading of stative predicate with instantaneous change of state

b. Gradual change into state P

———- |————— | —————
∼P Prep. phase Change P

Accomplishment *or* inceptive reading of stative predicate with gradual change of state

Second, with all three classes of telic predicates as defined above – achievements, accomplishments, and the inceptive readings of statives – *ma³rɨ³* requires that at topic time, the post-state of the predicate holds. The post-state of a telic predicate is the unique state caused by the change of state which the predicate denotes. This can be stated somewhat more precisely as in (38), which is adapted from the semantics given for resultative perfects by Bohnemeyer (2009:15).

(38) Semi-formal semantics for *ma³rɨ³* with telic predicates, adapted from Bohnemeyer (2009)

a. Definition of s_{post} (post-state)
Where:
   i. P is a property of an individual
   ii. e denotes an eventuality such that P is false before e and true after e
   iii. τ is a function from eventualities to their runtimes

$s_{post}(e)$ denotes a state such that:
   i. e causes $s_{post}(e)$
   ii. No eventuality other than e causes $s_{post}(e)$
   iii. $\tau(e)$ fully precedes $\tau(s_{post}(e))$

b. $[\![ma^3ri^3]\!]$: TT *in* $\tau(s_{post}(e))$

The denotation of *ma³ri³* given in (38) independently accounts for the coercion of inceptive readings of stative predicates with *ma³ri³*, since it presupposes the existence of a post-state, and only the inceptive reading of a stative predicate can have a post-state as defined in (38a). Therefore, attempting to combine *ma³ri³* as defined in (38b) with a truly stative (not inceptive) predicate would lead to presupposition failure.

On the other hand, the denotation in (38b) also predicts that with activities, *ma³ri³* will either be unacceptable or will lead to the coercion of some telic reading. It is not clear that this is true. To see why, we turn to *ma³ri³* with activities.

Activities: Modal Reading There are two salient readings of *ma³ri³* with activity predicates. Both readings are arguably inceptive. One also involves circumstantial modality; the other is not modal.

On the **modal** reading, *ma³ri³ P* means that the subject underwent a change of state in her *ability* to do the predicate, such that (a) before the change of state, the subject was not able to do the predicate, but (b) after the change of state, she was able to. On this reading, *ma³ri³ P* can be translated 'become able to P.' (39) provides volunteered examples of the reading. Note that there is no modal marking other than *ma³ri³* in (39).

(39) *ma³ri³* with activities: inceptive 'become able to P' reading

a. Context (volunteered by consultant in discussion of sentence): I fell off a bicycle and injured my leg. While I am injured, I cannot walk. Later, my injury heals and I take a few steps. I can say,
ma³ri³ i²tʃi³ʔũ⁴³
ma³ri³ i²= tʃi³= ũ⁴³
PERF VCL= 1SG.I= walk:SgS(I)
'I've become able to walk.' (DGG: 2017.3.117)

b. Context (volunteered by consultant in discusson of sentence): My son is 9 months old. Recently he said his first words. I can say,
ma³ri³ ni⁴de⁴³ʔa² i⁴ tʃau¹ne³
ma³ri³ ni⁴= de⁴³ʔa² i⁴ tʃau¹ *ne³
PERF 3.I= talk(I) DET(IV) 1SG *son(IV)
'My son has become able to talk.' (DGG: 2017.3.102)

The reading of *ma³ri³* in (39) is *not* an experiential perfect. The evidence for this is that these sentences entail that at topic time, the subject is able to do the predicate. DGG judged it false for me to say (39a) if I have walked before, but at topic time, I am injured and cannot walk. Similarly, the reading of *ma³ri³* here has a modal component, rather than being exclusively aspectual, because it does not entail either that the predicate holds or that it does not hold at topic time. The evidence for this lack of entailments about *eventualities* – as opposed to abilities – at topic time is that LWG judged it acceptable for me to say (39a) both when I am walking at UT (taken to be TT) and when I am not.

The readings of *ma³ri³* in (39), then, are inceptive. They differ from inceptive readings of stative verbs in that inceptive readings of statives denote a change into the state denoted by the predicate itself, while inceptives of ability like (39) denote a change into the state denoted by a modal proposition scoping over the predicate. This is represented visually by the diagram in (40).

(40) a. Inceptive reading of statives

———— | ————
∼P Change P

b. Inceptive of ability reading of *ma³ri³* with activities

———— | ————
$\sim \Diamond_{circ}$P Change $\Diamond_{circ}$P

Since, on this analysis, the readings of *ma³ri³* in (39) are inceptive, they can be accounted for via the same semantics given for *ma³ri³* in (38). *ma³ri³* will simply need to combine with a silent circumstantial possibility modal scoping over the predicate, rather than directly with the predicate. This is reasonable, because there is an independent reason to posit a silent circumstantial possibility modal. Namely, elicitation on circumstantial modality revealed that minimally inflected predicates can be interpreted as making either assertions or circumstantial possibility modal claims, as in (41). Therefore *ma³ri³* in (39) has only an aspectual contribution, not both an aspectual and a modal one.

(41) Context: You and I travel to a place farther upriver where they do not grow bitter manioc. No one has ever planted bitter manioc there, but the soil and climate is the same as at home, so it could grow.
na⁴ri³ʔi² ni⁴¹ʔĩ⁴ ɟa¹ ti²ʔe¹ ɟa¹ de⁴ʔe⁵ne¹.

na⁴ri³= i² ni⁴¹ʔĩ⁴ ɟa¹ ti²ʔe¹ ɟa¹ de⁴ʔ =ʔĩ⁵ne¹
3.R= grow.plant FOC NPC(III) manioc(III) NPC(III) yellow =NMLZ(III)

'Bitter manioc CAN GROW (here).' (DGG: 2017.3.85)

I do not have evidence on whether inceptive of ability readings are available for *ma³ri³* with other Aktionsart classes.

Activities: Non-Modal Reading On the **non-modal** reading of *ma³ri³* with activities, *ma³ri³* requires only that the activity has *begun* by topic time. There is no entailment about whether it is ongoing at topic time. This is illustrated by the minimal pairs of contexts in (42).

(42) *ma³ri³* with activities: non-modal reading

a. *ŋẽ⁴ʔgu²ma³ concurso=wa⁵ tʃa¹ŋu³ʔgu², ma³ri³ na⁴pa⁴e²ta³ i⁴ Bi³tu⁵.*
ŋẽ⁴ʔgu²ma³ concurso =wa⁵ tʃa¹= ŋu³ =ʔgu² ma³ri³ na⁴= pa⁴e²ta³ i⁴ Bi³tu⁵
CONN Sp:contest =ALL 1SG.SC.A= arrive(A) =SUB PERF 3.A= play.music(A) DET(IV) B
'When I arrived at the contest, Victoria played/was playing music.'
i. ✓: Victoria participated in a music contest where she was scheduled to play music exactly once. She started playing music at the same time as I arrived at the contest.
ii. ✓: Victoria participated in a music contest where she was scheduled to play music exactly once. She started playing music before I arrived at the contest and was still playing music when I arrived.
(LWG: 2017.2.68, ABS: 2017.2.66)

b. *ma³ri³ na⁴wi³ɟa³e³.*
ma³ri³ na⁴= wi³ɟa³e³
PERF 3.A= sing(A)
'S/he sang/is singing.'
i. ✓: S/he sang and has finished his/her song.
ii. ✓: S/he is singing right now.
(LWG: 2017.3.156)

In (42), the two (a) contexts notionally support perfect (ET $<$ TT) or perfective readings (ET *in* TT) and the (b) contexts notionally support imperfective ones (TT *in* ET) (in fact, these scenarios would more often be described in Ticuna with a verb bearing the imperfective aspect marker *i⁵*=). This makes it puzzling that predicates with *ma³ri³* are acceptable in both kinds of contexts. More puzzling still, activity predicates that have no aspectual marking are acceptable in exactly the same kinds of aspectual contexts as activity predicates with *ma³ri³*. This seems to suggest that *ma³ri³* makes no compositional aspectual contribution at all in (42).

Given this odd data, it would be useful to compare the approved readings of *ma³ri³* in (42) with the actual readings of the item with activities in spontaneous data. But this is impossible, because *ma³ri³* never occurs with activities

in my spontaneous data. Out of more than 150 examples of *ma³ri³* in the spontaneous corpus, all occur with either telic verbs or states. Given the absence of spontaneous examples, I turn to the behavior of *ma³ri³* under negation to explain the data in (42).

***ma³ri³* under negation** The availability of *ma³ri³* with activities in (42) provided one piece of evidence that *ma³ri³* is not simply a resultative perfect. More evidence to this effect comes from (a) the interaction of *ma³ri³* with plain negation and (b) the unacceptability of *ma³ri³* with *tau⁴ta¹* 'not yet.'

First, if *ma³ri³* were simply a resultative perfect with the denotation given in (38), its aspectual contribution would be the same in negative and positive polarity contexts. This is not the case. When *ma³ri³* appears in a negative polarity context, it does not mean that the post-state of the predicate fails to hold at TT. It means that the predicate *no longer* holds at TT, i.e. that it held at some time before TT, but does not hold at TT. This reading of *ma³ri³* under negation is attested with predicates of all Aktionsart classes except for achievements, as shown in (43).

Note that the order of the elements in all of these examples is *ma³ri³ ta⁴ma³*. The order *ta⁴ma³ ma³ri³* is usually judged unacceptable. This is relevant because the usual scope of *ta⁴ma³* 'not' is all of the material to its right and within the same constituent. Thus, the tokens of *ma³ri³* in (43) are not inside the predicted syntactic scope of negation.

(43) *ma³ri³* with plain negation: '(not) anymore'

a. State
Context: Speaker is talking about some worn-out parts of his house. He says, "I put those planks over there because they're not good for anything." Then he says,
ma³ri³ ta⁴ma³ tʃo³¹ʔĩ⁵ na⁴me⁴³
ma³ri³ ta⁴ma³ tʃo³¹ =ʔĩ⁵ na⁴= me⁴³
PERF NEG 1SG =IBEN 3.A= good(A)
'They are no longer useful to me.' (SSG House Description)

b. Activity
Context: Speaker is talking about a port which has recently dried up because of the weather.
ma³ri³ ta²ʔu⁵e²ma³ ta⁴na³ʔutilisa i⁴ ɲa⁴a²
ma³ri³ ta²ʔu⁵e²ma³ ta⁴= na³= utilisa i⁴ ɲa⁴a²
PERF nobody(I) 3.A(I)= 3.OBJ.A= Sp:use DET(IV) DNOM1(IV)
'No one uses this one any more.' (DGG Yard Description 15:54)

c. Accomplishment
Context: Folktale. An opossum breaks into a house and eats a whole cooking pot full of food. Then...
ri¹ ma³ri³ ta⁴ma³ ɟe⁵ma² i⁵na⁴ʔũ³¹ũ¹ ɟe⁴ri⁴ na⁴ta³¹pi¹ti³we³ʔĩ⁵tʃi².
ri¹ ma³ri³ ta⁴ma³ ɟe⁵ma² i⁵= na⁴= ũ⁴³ -ĩ¹ ɟe⁴ri⁴ na⁴= ta⁴³
and PERF NEG DLOC6:ALL VCL= 3.A= come/go:SgS -DIR:out:SgS because.REMPST 3.A= big(A)
*pi¹ti³we³ =ʔĩ⁵tʃi²
*NI:belly =really
'He could no longer go out, because his belly had become really fat.' (DGG, ngo 2:17)

Second, *ma³ri³* is always unacceptable with *ta²ʔu²ta³* 'not yet,' as shown in (44). This is also not predicted if *ma³ri³* is only a resultative perfect. Note also that *ta²ʔu²ta³* 'not yet' is a common way to answer a polar question that includes *ma³ri³*, as in (45) (although the plain negation *ta⁴ma³* is also acceptable).

(44) *ma³ri³* is not compatible with *tau⁴ta¹* 'not yet'

a. State
#ma³ri³ tau⁴ta¹ tʃi³dg̱a¹we¹
ma³ri³ tau⁴ta¹ tʃi³= dg̱a¹we¹
PERF not.yet 1SG.I= sick(I)
Attempted reading: (I have not yet become sick.) (YCG: 2017.3.111)

b. Accomplishment
#ma³rɨ³ tau⁴ta¹ carta tʃa³ʔi²
ma³rɨ³ tau⁴ta¹ carta tʃa³= ɨ²
PERF not.yet Sp:letter 1SG.A= make(A)
Attempted reading: (I have not yet written the letter.) (YCG: 2017.3.111)

(45) *tau⁴ta¹* is a coherent negative answer to a question with *ma³rɨ³*

a. MGW: *ku¹na³cambia? ma³rɨ³ ta⁴ i⁴ ɲa⁴a²?*
ku¹= na³= cambia =ʔɨ̃⁴ ma³rɨ³ ta⁴ i⁴ ɲa⁴a²
2SG.SC.A= 3OBJ.A= Sp:replace =SUB PERF FUT DET(IV) DNOM1(IV)
'Will you have replaced this (part of motocar)?'

b. JL: *tau⁴ta¹* 'Not yet.' (20170630 0:30)

(43) and (44) together eliminate an analysis of *ma³rɨ³* as only resultative perfect. A resultative perfect should behave compositionally with respect to negation; (43) shows that *ma³rɨ³* does not. A resultative perfect should also be compatible with *not yet*; (44) indicates that *ma³rɨ³* is not.

These examples instead suggest that *ma³rɨ³* has a temporal focus semantics like that of the English word *already* (Krifka 2000). With telic predicates in positive polarity environments, some property of the temporal focus semantics entails the resultative perfect meaning described above and formalized in (38). With activities – atelic predicates that cannot be coerced into a telic reading – the temporal focus semantics does not lead to the resultative perfect meaning. It therefore contributes no aspectual meaning, only the temporal focus meaning, leading to the lack of aspectual contribution from *ma³rɨ³* that we saw in (42). The unacceptability of *ma³rɨ³* with *tau⁴ta¹* 'not yet' in (44) presumably reflects that *ta²ʔu²ta³* 'not yet' is the external negation of *ma³rɨ³*, which is expected if *ma³rɨ³* is a temporal focus element but bizarre if it is only an aspectual marker. Another advantage of this analysis of *ma³rɨ³* is that it explains why *ma³rɨ³* is acceptable with all of the other aspect markers discussed in this section, while the other aspect markers are generally not compatible with each other.

In the interest of space, I do not attempt to work out the temporal focus analysis of *ma³rɨ³* suggested above. Instead I will treat *ma³rɨ³* below as always a resultative perfect, as it is analyzed in (38). The resultative perfect analysis is empirically adequate for all volunteered and spontaneous examples of *ma³rɨ³* in positive polarity sentences with no other aspect markers, since *ma³rɨ³* never appears with activity predicates in spontaneous data.

Now that I have discussed the aspectual contribution of *ma³rɨ³*, I ask whether *ma³rɨ³* also contributes tense. It does not. As shown in (46), *ma³rɨ³* is acceptable with no additional aspectual or modal marking for TTs in the past, present, and future of UT.

(46) a. Context: You last came to my town one year ago. I say to you,
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu², ma³rɨ³ Betania=wa⁵ tʃa³ʔũ⁴³.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² ma³rɨ³ Betânia =wa⁵ tʃa³= ũ⁴³
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS(A) =SUB PERF Betânia =ALL 1SG.A= come/go:SgS(A)
'When you came here, I had come from Betânia (such that I was here when you arrived).' (LWG: 2017.2.165; ECP: 2017.2.167)
ET < TT < UT

b. Context: You arrive at my house and ask what I'm doing right now. I say,
ma³rɨ³ na³ra⁴ɲa¹ tʃa³tu³¹ʔu³.
ma³rɨ³ na³ra⁴ɲa¹ tʃa³= tu³¹ʔ
PERF orange 1SG.A= cut.tree(A)
'I've cut down the orange (tree).' (DGG: 2017.2.172)
ET < TT = UT

c. Context: You are visiting me now, and you ask what I will be doing the next time that you visit. I say,
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², rɨ¹ da³¹a¹ na³ra⁴ɲa¹ rɨ¹ ma³rɨ³ tʃa³na³tu³¹ʔu³.

ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² rɨ¹ da³¹a¹ na³ra⁴ŋa¹ rɨ¹ ma³rɨ³ tʃa³=
CONN again DLOC1:ALL 2SG.SC.A= come/go:SgS =SUB TOP DNOM1(III) orange(III) TOP PERF IMPF=
na³= tu³ʔ
1SG.A= 3OBJ.A= fell.tree(A)
'When you come here again, I will have cut down this orange (tree).' (DGG: 2017.2.173)
UT < ET < TT (n.b. future topic time)

I conclude that *ma³rɨ³* does not convey tense and does convey resultative perfect aspect – TT *in* $\tau(s_{post}(e))$, as defined in (38) – with telic predicates (in positive polarity contexts). For the reasons discussed above involving the interactions of *ma³rɨ³* with negation, the resultative perfect meaning is probably not encoded, but instead arises from a more general temporal focus semantics.

3.2.3 Anti-perfect *=tʃi⁴rɛ̨¹*

The clitic *=tʃi⁴rɛ̨¹* appears on the verb of verbal predicates, on the predicate nominal in copular clauses, and on topic and adjunct noun phrases (but not on argument noun phrases). Semantically, *=tʃi⁴rɛ̨¹* is essentially the inverse of *ma³rɨ³*.

With stative predicates (including nominal predicates and topic and adjunct noun phrases), *=tʃi⁴rɛ̨¹* requires that the state of the predicate held, then ceased to hold before TT, as in (47). Thus on topic and adjunct noun phrases, it is best translated into English as *former*. Exactly like *former*, when *=tʃi⁴rɛ̨¹* appears on possessed noun phrases, it can target the possession relation (47c,d) instead of the property of the noun.

(47) *=tʃi⁴rɛ̨¹* with states: state holds and stops holding before TT

a. Verbal predicate
Bi³tu⁵ rɨ¹ no⁵¹rɨ³ ma³ma⁵ʔĩ³ na⁴ŋe⁴tʃa¹ĩ¹tʃi⁴rɛ̨¹.
Bi³tu⁵ rɨ¹ no⁵¹rɨ³ ma³ma⁵ =ʔĩ³ na⁴= ŋe⁴tʃa¹ĩ¹ =tʃi⁴rɛ̨¹
B TOP 3.AL.POSS mother =ACC 3.A= love(A) =tʃi⁴rɛ̨¹
'Victoria, she used to love her mother (but she doesn't any more).' (ABS: 2017.2.156, LWG: 2017.2.156)

b. Predicate nominal
da²a² du³tu³ru¹tʃi⁴rɛ̨¹ ni⁴¹ʔĩ⁴.
da²a² du³tu³ru¹ =tʃi⁴rɛ̨¹ ni⁴¹= ĩ⁴
DNOM1(II) doctor =ANTIPERF 3.I= COP(I)
'This (man) is a former doctor.' (LWG: 2017.2.56)

c. Topic
tʃau¹te⁴tʃi⁴rɛ̨¹ rɨ¹ na⁴me³¹kɨ³ma³.
tʃau¹ *te⁴ =tʃi⁴rɛ̨¹ rɨ¹ na⁴= me⁴³ *kɨ³ma³
1SG *husband =ANTIPERF TOP 3.A= good(A) *NI:habit
'My former husband, he was a good person.' (LWG: 2017.2.60)

d. Adjunct
Context: I am giving you instructions for musical chairs. When the music starts playing, we will both move. Then you will go to the place where I am now.
ŋẽ⁴ʔgu²ma³ musica pa³ɨ²ʔgu², rɨ¹ tʃau¹tʃi⁵ka¹tʃi⁴rɛ̨¹wa⁵ ku³ʔũ⁴³.
ŋẽ⁴ʔgu²ma³ musica Ø= pa³ɨ² =ʔgu² rɨ¹ tʃau¹ *tʃi⁵ka¹ =tʃi⁴rɛ̨¹ =wa⁵ ku³=
CONN Sp:music 3.SC.A= play.music.vi(A) =SUB TOP 1SG *place =ANTIPERF =ALL 2SG.A=
ũ⁴³
come/go:SgS(A)
'When (the) music plays, you go to my old place.' (LWG: 2017.2.60)

On achievements, *=tʃi⁴rɛ̨¹* means that the culmination of the achievement took place before TT, but the post-state of the achievement did not hold at TT, for example because the culmination was reversed. (48) illustrates. This

reading of *=tʃi⁴rɛ̨¹* is the inverse of the resultative perfect reading of *ma³rɨ³* with achievements, which entails that the culmination took place before TT and the post-state held at TT.

(48) *=tʃi⁴rɛ̨¹* with achievements: post-state holds and stops holding before TT

a. Context: I broke my leg, but now it's healed.
tʃi³bɨ³ɟe¹pa³ra¹tʃi⁴rɛ̨¹.
tʃi³= bɨ³ =ɟe¹ =pa³ra¹ =tʃi⁴rɛ̨¹
1SG.I= break.rigid(vi)(I) =CLF:2D.short =NI:shin =tʃi⁴rɛ̨¹
'I used to have a broken leg.' (LWG: 2017.2.156, ABS: 2017.2.157, DGG: 2017.2.160)

b. *na⁴rɨ³gau⁵¹ʔtʃi⁴rɛ̨¹.*
na⁴rɨ³= gau⁵¹ =tʃi⁴rɛ̨¹
3.R= rip(vi)(R) =tʃi⁴rɛ̨¹
'It (a shirt) used to be ripped.' (DGG: 2017.2.160)
Context offered by consultant: You're looking at the shirt. You know it ripped, but where? (mimes inspecting it) (i.e. you can't tell where it ripped because the tear is so completely mended)

I discussed *=tʃi⁴rɛ̨¹* with activities and accomplishments in the Aktionsart section above, since it represents one of two semantic tests for telicity in the language. As stated there, *=tʃi⁴rɛ̨¹* with activities means that the activity occurred at some time before TT, but stopped before TT, as in (49).

(49) *=tʃi⁴rɛ̨¹* with activities: predicate holds and stops holding before TT (repeated from 24)

a. *i⁵¹ra¹ga¹ã¹kɨ²² tʃi³de⁴³ʔa²tʃi⁴rɛ̨¹.*
i⁵¹ra¹ *ga¹ =ã¹kɨ² tʃi³= de⁴³ʔa² =tʃi⁴rɛ̨¹
be.small *NI:voice =ADVBZ 1SG.I= talk(I) =ANTIPERF
'I used to talk in a low voice (now I talk normally).' (LWG: 2017.2.156, ABS: 2017.2.157)

b. *ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², Ka³ru¹ rɨ¹ na²a¹ne¹wa⁵ na⁴pu³ra³kɨ⁴tʃi⁴rɛ̨¹.*
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² Ka³ru¹ rɨ¹ na² *a¹ne¹ =wa⁵ na⁴= pu³ra³kɨ⁴ =tʃi⁴rɛ̨¹
CONN DLOC1:ALL 2SG.SC.A= arrive(A) =SUB K TOP 3(II) *garden =ALL 3.A= work(A) =ANTIPERF
'When you arrived, Carlos had been working in his garden (and had stopped).' (ABS: 2017.2.157)

With accomplishments, *=tʃi⁴rɛ̨¹* allows two readings. One is like the reading with achievements: it means that the culmination of the accomplishment took place before TT, but the post-state did not hold at TT because the culmination was reversed. This is the reading represented by (**??**a.i,b.i), and it is exactly the inverse of the resultative perfect reading of *ma³rɨ³* with accomplishments.

The other reading of *=tʃi⁴rɛ̨¹* with accomplishments is more like the item's reading with activities. It means that the process denoted by the accomplishment began, but was interrupted before the culmination was reached. This reading is found in (**??**b.ii).

(50) *=tʃi⁴rɛ̨¹* with achievements: post-state holds and stops holding before TT, *or* agent is interrupted before post-state is reached (repeated from 26)

a. *Bi³tu⁵ rɨ¹ tʃo¹pa¹ na⁴mu³tʃi⁴rɛ̨¹.*
Bi³tu⁵ rɨ¹ tʃau¹ =pa¹ na⁴= mu³ =tʃi⁴rɛ̨¹
B TOP 1SG =hammock 3.A= weave =ANTIPERF
Interruption reading only: 'Victoria, she almost wove me a hammock (but then e.g. she got sick and couldn't finish the hammock).' (LWG: 2017.2.156; ABS: 2017.2.157)

b. *tʃo³¹rɨ³ mo³to¹ na⁴me⁴ẽ⁴ẽ³tʃi⁴rɛ̨¹.*
tʃo³¹rɨ³ mo³to¹ na⁴= me⁴³ -ẽ⁴ẽ³ =tʃi⁴rɛ̨¹
1SG.AL.POSS motocar 3.A= good(A) -CAUS =ANTIPERF
i. Interruption reading: 'He almost fixed my motocar (but then he stopped before he was done).'
ii. Reversal reading: 'He fixed my motocar (and it worked for a while, but then it broke again).'

Given this data, we can model the aspectual contribution of *=tʃi⁴rɛ̨¹* semi-formally as in (51). The definition of $s_{post}(e)$ in (51) is the same as the definition developed for that term in (38).

(51) Semantics of *=tʃi⁴rɛ̨¹*
Where:
a. P is a property of an individual
b. e is an eventuality such that P is not true before e and is true after e
c. τ is a function from eventualities to their runtimes
$[\![= \text{tʃi}^4\text{rɛ̨}^1]\!] = \tau(e) < \text{TT}$ & $\exists s_{post}(e) \rightarrow \tau(s_{post}(e)) < \text{TT}$
'Eventuality time fully precedes topic time and if the eventuality has a post-state, the time of the post-state fully precedes topic time.'

Now we consider the behavior of *=tʃi⁴rɛ̨¹* with respect to negation. Recall from the section on *ma³rɨ³* that under negation, *ma³rɨ³* ceases to contribute resultative perfect aspect. Does *=tʃi⁴rɛ̨¹*, the apparent inverse of *ma³rɨ³*, behave the same? No: *=tʃi⁴rɛ̨¹* makes the same aspectual contribution in negative and positive polarity contexts. Specifically, when a predicate marked with *=tʃi⁴rɛ̨¹* is negated, the negation targets only the predicate, scoping under *=tʃi⁴rɛ̨¹*.

To understand this, suppose that both external and internal negation of *=tʃi⁴rɛ̨¹* were possible. The external negation ∼(P=*tʃi⁴rɛ̨¹*), under the semantics for *=tʃi⁴rɛ̨¹* given in (51), would mean 'it is not the case that P held and ceased to hold before TT.' Internal negation, on the other hand, would have the logical form (∼P)=*tʃi⁴rɛ̨¹* and would mean '(∼P) held and ceased to hold before TT.' The minimal pair of contexts in (52) show that only the internal negation reading is possible. The unacceptable context in (52a) supports an external negation reading, i.e. one where the negation targets the aspectual contribution of *=tʃi⁴rɛ̨¹*, because the question under discussion is about times when the subject did and did not believe. The acceptable context in (52b) supports the internal negation reading, since the state denoted by *not believe* held and then ended.

(52) Only internal negation readings are acceptable for negation with *=tʃi⁴rɛ̨¹*
ta⁴ma³ na⁴ɟa³ʔõ²tʃi⁴rɛ̨¹.

ta⁴ma³ na⁴ɟa³= õ² =tʃi⁴rɛ̨¹
NEG 3>3.I= believe(I) =ANTIPERF

'S/he used to not believe (in the Christian God).' (SSG: 2017.4.36-37)

a. #: There's a rumor going around that s/he stopped believing in God, but it's not true. S/he has always believed. (∼ English 'It's not true that she USED TO believe')
b. ✓: S/he didn't believe in God before, but believes now.

(52) shows it that despite the great similarities between *=tʃi⁴rɛ̨¹* and *ma³rɨ³*, the items are not precisely parallel to each other, because their behavior is different under negation. This makes it reasonable for us to assign significantly different semantics to *=tʃi⁴rɛ̨¹* and *ma³rɨ³*: the temporal focus semantics suggested above for *ma³rɨ³* (which entail the resultative perfect meaning in some contexts, but do not encode it), but an exclusively resultative-based semantics for *=tʃi⁴rɛ̨¹*.

Another difference between *=tʃi⁴rɛ̨¹* and *ma³rɨ³* occurs in clauses with future temporal reference. (46c) above showed that predicates with *ma³rɨ³* and no other temporal marking can have topic times in the future of UT. This is not possible with *=tʃi⁴rɛ̨¹*. If *=tʃi⁴rɛ̨¹* appears on the verbal or nominal predicate of a clause, that clause cannot have a TT in the future of UT. This holds both for clauses where *=tʃi⁴rɛ̨¹* is the only aspectual marking (53a) and for clauses that contain both *=tʃi⁴rɛ̨¹* and the absolute future marker *ta⁴*, which forces TT to be in the absolute future of UT (53b).

(53) a. Context: You are visiting me right now. Telling you about what I will be doing the next time you visit, I say,
ŋɛ̃⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², # rɨ¹ da³¹a² na³ra³ɲa¹ tʃa³tu³¹ʔtʃi⁴rɛ̨¹. ŋɛ̃⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² rɨ¹ da³¹a² na³ra³ɲa¹ tʃa³= tu³¹ʔ =tʃi⁴rɛ̨¹
CONN again DLOC4:ALL 2SG.SC.A= come/go:SgS(A) =SUB TOP DNOM1(III) orange(III) 1SG.A= cut.tree(A) =ANTIPERF

Attempted reading: (When you come in here again, I will have almost cut down this orange tree.) (DGG: 2017.2.173)

b. Context: My dog alternates between being aggressive and being tame. I am telling you that it will be in a tame phase the next time you visit me.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵a² ku¹ʔũ⁴³gu², # ni⁴dɨ³ra³tʃi⁴rɛ̨¹ ta⁴ a⁴ ai³¹ru⁵.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵a² ku¹= ũ⁴³ =gu² # ni⁴= dɨ³ra³ =tʃi⁴rɛ̨¹
CONN again DLOC1:ALL 2SG.SC.A= come/go:SgS(A) =SUB, 3.I= aggressive(I) =ANTIPERF FUT
ta⁴ a⁴ ai³¹ru⁵
DET:animal dog
Attempted reading: (When you come here again, the dog will have been fierce (and stopped).) (ABS: elicited 2017.09.07)

Though *=tʃi⁴rɛ̨¹* is unacceptable with TTs in the future of UT, it is acceptable with TTs in the past of UT and when TT = UT (54).

(54) a. Context: I last visited your town two years ago. You tell me,
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu², Betania=wa⁵ tʃa³ʔũ⁴³tʃi⁴rɛ̨¹.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² Betânia =wa⁵ tʃa³= ũ⁴³ =tʃi⁴rɛ̨¹
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS(A) =SUB Betânia =ALL 1SG.A= come/go:SgS(A) =ANTIPERF
'When you came here, I had almost gone to Betânia (e.g. I got part of the way there, but then had to turn back, before you arrived).' (LWG: 2017.2.165, ECP: 2017.2.167)
ET < TT < UT

b. Context: I arrive at your house and ask what you're doing right now. You say,
na³ra⁴ŋa¹ tʃa³tu³¹ʔtʃi⁴rɛ̨¹.
na³ra⁴ŋa¹ tʃa³= tu³¹ʔ =tʃi⁴rɛ̨¹
orange 1SG.A= cut.tree(A) =ANTIPERF
'I've almost cut down the orange tree (e.g. I've chopped it some, but it hasn't fallen yet).' (DGG: 2017.2.173)
ET < TT = UT

An exception to the ban on *=tʃi⁴rɛ̨¹* with future temporal reference is that *=tʃi⁴rɛ̨¹* can appear on *adjuncts* in clauses with future topic times, as in (55) (and 47d).

(55) Context: I (AHS) am currently renting a house in Caballococha. When I go back to my country, another woman is going to move into that house, replacing me.
tʃau¹tʃi⁵ka¹tʃi⁴rɛ̨¹wa⁵ ta⁴ na⁴ŋu³.

tʃau¹ *tʃi⁵ka¹ =tʃi⁴rɛ̨¹ =wa⁵ ta⁴ na⁴= ŋu³
1SG *place =ANTIPERF =ALL FUT 3.A= arrive(A)

'She will arrive at my old place.' (LWG: 2017.4.30, SSG: 2017.4.36)

The matrix clause in (55) has a topic time in the future of utterance time, due to the presence of the absolute future marker *ta⁴* in second position. Because the verb of the clause, *na⁴ŋu³* 's/he arrives,' is an achievement with no aspectual marking, its aspectual value is perfective. Thus the relation between ET, TT, and UT for the entire matrix clause is {UT < TT, ET *in* TT}. However, *=tʃi⁴rɛ̨¹* appears not on the verb of the clause, but as part of the adjunct *tʃau¹tʃi⁵ka²tʃi⁴rɛ̨¹wa⁵* 'at my former place.' Recall that on possessed nominals, the aspectual contribution of *=tʃi⁴rɛ̨¹* targets the possession relation (cf. 47c). The possession relation between the speaker and her place holds at utterance time, but will end at some time between utterance time and the topic time of the matrix clause. That is, where T_{poss} is the time at which the possession relation between the speaker and the place holds, *=tʃi⁴rɛ̨¹* contributes *for the adjunct* the temporal relation T_{poss} < TT. Combined with the context and the UT-TT relation that exists for the entire clause, this means that the adjunct has the temporal relations {UT *in* T_{poss}, T_{poss} < TT, UT < TT}. All of this is relevant because it indicates that, despite the ban on *=tʃi⁴rɛ̨¹* on *main predicates* with future topic times, it is possible for other constituents with *=tʃi⁴rɛ̨¹* to have future topic times. This makes it impossible to analyze *=tʃi⁴rɛ̨¹*

as including a non-future meaning component. In turn, given (54), this entails that *=tʃi*^{4}*rḛ*^{1} does not have any tense component.

Finally, it is relevant that the aspectual clitic *=tʃi*^{4}*rḛ*^{1} is homophonous with a discourse marker *=tʃi*^{4}*rḛ*^{1}. Discourse *=tʃi*^{4}*rḛ*^{1}, which is well translated by English 'actually,' encodes that the proposition expressed in the turn is contrary to the beliefs, expectations, or desires of a discourse participant (whether speaker or addressee). It is clear that aspectual and discourse *=tʃi*^{4}*rḛ*^{1} are different because they can co-occur, as in (56) – the first *=tʃi*^{4}*rḛ*^{1} in line (c) is the discourse marker, the second is the aspectual marker.

(56) a. A: *ta̰*^{1}*ʔa*^{4}*kɨ*^{4} *ni*^{41}*ʔĩ*^{4} *i*^{4} *ɲa*^{4}*a*^{2}*? ɨ*^{1}*ʔta*^{3}*?*

ta̰^{1}ʔa^{4}kɨ^{4} ni^{41}= ĩ^{4} i^{4} ɲa^{4}a^{2} ɨ^{1}ʔta^{3}

INDEF:nonhuman 3.I= COP(I) DET(IV) DNOM1(IV) Bixa.orellana

'What is/was this? Achiote?' (pointing to a dead and withered tree)

b. B: *ɲa*^{4}*a*^{2} *dɨ*^{1}*ʔ?*

ɲa^{4}a^{2} dɨ^{1}ʔ

DNOM1(IV) PRES

'This, here it is?'

c. B: *ta*^{4}*ma*^{3}*(tʃi*^{4}*rḛ*^{1}*), e*^{3}*rɨ*^{4} *i*^{3}*ri*^{3}*ma*^{3}*wa*^{1}*tʃi*^{4}*rḛ*^{1} *ni*^{41}*ʔĩ*^{4}

ta^{4}ma^{3} =tʃi^{4}rḛ^{1} e^{3}rɨ^{4} i^{3}ri^{3}ma^{3}wa^{1} =tʃi^{4}rḛ^{1} ni^{41}= ĩ^{4}

NEG =actually because lime =ANTIPERF 3(I)= COP(I)

'No, actually (i.e. it's not achiote, contrary to what you suggest), because it used to be a lime tree.'

(constructed with ABS based on tca_disc_20170818_001, 5:15-5:19)

Another piece of evidence that aspectual and discourse *=tʃi*^{4}*rḛ*^{1} are different is that they have different syntactic distributions. Discourse *=tʃi*^{4}*rḛ*^{1} cliticizes to the first prosodic word of the clause, while aspectual *=tʃi*^{4}*rḛ*^{1} always cliticizes to the predicate. Additionally, *=tʃi*^{4}*rḛ*^{1} often appears in second position in monoclausal sentences that convey counterfactual propositions. I assume that (apparent) counterfactual *=tʃi*^{4}*rḛ*^{1} is the same as discourse *=tʃi*^{4}*rḛ*^{1}.

3.3 Markers which encode aspect and modality

Ticuna has three items which convey both temporal information and modality. These are the two prospective aspect markers, *=tʃa*^{1}*ĩ*^{1} and *=e*^{5}*ga*^{1}, and the absolute future marker *ta*^{4}. I discuss these markers in order. For each marker, I first deal with the aspectual component, then the modal component, and then finally the evidence that it does not have a deictic tense component.

There are two important global differences in aspectual contribution between the aspect-only markers discussed in the preceding section, and the aspect-modality markers of this section. First, all of the aspect-modality markers are future-oriented. They encode that ET is in the future of TT (for the two prospective aspects) or that TT is in the future of UT (for the absolute future in matrix contexts). None of the aspect-only markers locate ET in the future of TT.

Second, the aspect-modality markers do not have any interactions with Aktionsart. We saw in the preceding section that, at a descriptive level, Aktionsart is extremely important to the aspect-only markers. Aktionsart determines what aspect-only markers a predicate can combine with – for instance, achievements are not acceptable with the imperfective aspect – and has strong effects on the readings of aspect-only markers, as we saw in comparing the readings of *=tʃi*^{4}*rḛ*^{1} on activities and on accomplishments. Neither of these are true for the aspect-modality markers. They can combine with predicates of any Aktionsart class, and their readings are the same, even at a very extensional level, regardless of the Aktionsart class of the predicate. I will support this argument below by providing examples of each aspect-modality marker with predicates of all Aktionsart classes.

3.3.1 Necessity prospective *=tʃa¹ĩ¹*

The necessity modal/prospective aspect marker *=tʃa¹ĩ¹* is a predicate enclitic with the same distribution as aspectual *=tʃi⁴rɐ̨¹*. Like *=tʃi⁴rɐ̨¹*, it appears on the verb of a verbal predicate, on the predicate nominal in a nominal predicate, and on topics (57).[6] It can be translated by the English prospective aspect construction with *going to*, or on nominal constituents, by the adjective *future*. Exactly as with the adjective *future*, when *=tʃa¹ĩ¹* appears on a possessed noun phrase, the aspectual contribution of *=tʃa¹ĩ¹* can target the possession relation (57d) in lieu of the property of the noun.

(57) a. Verbal predicate
tɨ³¹ma²ma⁴a² i²ta⁴to³¹e¹gu¹tʃa¹ĩ¹.
tɨ³¹ma² =ma⁴a² i²= ta⁴= to⁴³ -e¹gu¹ =tʃa¹ĩ¹
3(I) =COM/INST VCL= 1EXCL.A= plant(A) -DIR:circle =PROSP
'We want to plant it in a circle.' (RGW: 20170527 Conversation 20:09)

b. Predicate nominal
Bi³tu⁵ rɨ¹ du³tu³ru¹tʃa¹ĩ¹ ni⁴¹ʔĩ⁴.
Bi³tu⁵ rɨ¹ du³tu³ru¹ =tʃa¹ĩ¹ ni⁴¹= ĩ⁴
B TOP doctor =PROSP 3.I= COP(I)
'Victoria is going to be/wants to be a doctor.' (LWG: 2017.3.55)

c. Topic
da²a² du³tu³ru¹tʃa¹ĩ¹ rɨ¹ po²ra⁴ã¹kɨ² na⁴ŋu̯¹ʔu⁵tʃi².
da²a² du³tu³ru¹ =tʃa¹ĩ¹ rɨ¹ po²ra⁴ =ã¹kɨ² na⁴= ŋu̯¹ =ʔɨ⁵tʃi²
DNOM1(II) doctor =PROSP TOP strong =ADVBZ 3.A= learn(A) =really
'This future doctor, he really studies hard.' (LWG: 2017.3.55)

d. Possessed NP, scoping over possession relation
Context: I am planning to start a new job. I introduce to you one of the people who will be working with me.
da²a² tʃo¹mɨ¹kɨ³tʃa¹ĩ¹ ni⁴¹ʔĩ⁴.
da²a² tʃau¹ *mɨ¹kɨ³ =tʃa¹ĩ¹ ni⁴¹= ĩ⁴
DNOM1(II) 1SG *companion =PROSP 3.I= COP(I)
'This is my future co-worker.' (LWG: 2017.2.56)

The aspectual contribution of *=tʃa¹ĩ¹* is prospective aspect: TT < ET. The evidence that *=tʃa¹ĩ¹* is a prospective aspect, and not an absolute future marker, is that predicates with *=tʃa¹ĩ¹* and no other aspectual marking are compatible with TTs and ETs in the past, present, and future of UT. (58) illustrates each possibility. Since all of (58) are acceptable, *=tʃa¹ĩ¹* cannot have a deictic tense component.

(58) a. Context: I last came to your town two years ago. You tell me,
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu², Betania=wa⁵ tʃa³ʔũ³¹ʔtʃa¹ĩ¹.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² Betania =wa⁵ tʃa³= ũ⁴³ =tʃa¹ĩ¹
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS =SUB Betânia =ALL 1SG.A= come/go:SgS =PROSP
'When you came here, I was going to go to Betânia.' (LWG: 2017.2.164)
TT < ET < UT

b. Context: I arrive at your house and ask what you're doing. You say,
na³ra⁴ŋa¹ tʃa³tu³¹ʔtʃa¹ĩ¹.
na³ra⁴ŋa¹ tʃa³= tu³¹ʔ =tʃa¹ĩ¹
orange 1SG.A= cut.tree(A) =PROSP
'I'm going to cut down the orange (tree).' (appropriate if you e.g. have the axe in hand) (DGG: 2017.2.172)
UT = TT < ET

[6] I do not have evidence about whether *=tʃa¹ĩ¹*, like *=tʃi⁴rɐ̨¹*, also appears on adjuncts.

c. Context: You are telling me about what will happen the next time I visit you.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², da³¹a¹ na³ra⁴ɲa¹ rɨ¹ tʃa³na³tu³¹ʔtʃa¹ɾ̃¹.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² da³¹a¹ na³ra⁴ɲa¹ rɨ¹
CONN again DLOC4:ALL 2SG.SC.A= come/go:SgS(A) DNOM1(III) orange(III) TOP
tʃa³= na³= tu³¹ʔ =tʃa¹ɾ̃¹
1SG.A= 3OBJ.A= cut.tree(A)
'When you come in here again, this orange tree, I'm going to cut it down.' (DGG: 2017.2.173)
UT < TT < ET

The evidence that *=tʃa¹ɾ̃¹* makes a modal contribution as well as an aspectual one comes from two sources. First, it is coherent to assert a predicate marked with *=tʃa¹ɾ̃¹* and then assert, using an epistemic possibility modal, that it is not certain whether the event of the predicate occurred (or is occurring or will occur). (59) shows a discourse of this type. By contrast, 'P-Asp and maybe P' discourses analogous to (59) are not acceptable if the aspect marker in the first clause is an aspect-only marker, such as *i⁵=* in (60), or if the first clause has no aspect/modality marking (61).

(59) 'P=PROSP and maybe P' is acceptable
Bi³tu⁵ rɨ¹ ni⁴dạ¹we¹tʃa¹ɾ̃¹. be¹ʔma²na⁴ ɟa¹dạ¹we³ʔ.
Bi³tu⁵ rɨ¹ ni⁴= dạ¹we¹ =tʃa¹ɾ̃¹ be¹ʔma²na⁴ ɟa¹= dạ¹we¹ =ʔɾ̃⁴
B TOP 3.I= sick(I) =PROSP epistemic.possibility 3.I.SC= sick(I) =SUB
'Victoria is going to get sick. And maybe she will get (lit. gets) sick.' (contradictory in English but acceptable in Ticuna) (LWG: 2017.3.90)

(60) But 'IMPF=P and maybe P' is unacceptable
Bi³tu⁵ rɨ¹ i⁵ni⁴dạ¹we¹. #be¹ʔma²na⁴ (i⁵)ɟa¹dạ¹we³ʔ.
Bi³tu⁵ rɨ¹ i⁵= ni⁴= dạ¹we¹ #be¹ʔma²na⁴ (i⁵=) ɟa¹= dạ¹we¹ =ʔɾ̃⁴
B TOP IMPF= 3.I= sick(I) epistemic.possibility (IMPF=) 3.I.SC= sick(I) =SUB
Attempted: (Victoria is sick. #And maybe she's sick.) (LWG: 2017.3.90)
Consultant's comment: It's contradictory.

(61) 'P and myabe P' also unacceptable
Bi³tu⁵ rɨ¹ ni⁴dạ¹we¹. #be¹ʔma²na⁴ ɟa¹dạ¹we³ʔ.
Bi³tu⁵ rɨ¹ ni⁴= dạ¹we¹ #be¹ʔma²na⁴ ɟa¹= dạ¹we¹ =ʔɾ̃⁴
B TOP Third.I= sick(I) epistemic.possibility 3.I.SC= sick(I) =SUB
Attempted: (Victoria is sick. #And maybe she's sick.) (ABS: 2017.3.66)

Predicates with no aspect/modality marking, like the one in the first clause of (61), and predicates with aspect-only markers, such as the imperfective predicate in the first clause of (60), entail their own truth. Because of this, the discourses in (61) and (60) are contradictory: first the speaker asserts the truth of the base predicate, then she calls the truth of the predicate into question by embedding it under the epistemic modal. By contrast, the nearly identical discourse in (59) is acceptable and not contradictory. This suggests that asserting a predicate with *=tʃa¹ɾ̃¹* does *not* constitute asserting that the event of the predicate will take place.[7]

A second source of evidence that predicates with *=tʃa¹ɾ̃¹* are modal is that it is coherent to assert a predicate with *=tʃa¹ɾ̃¹* and then assert the negation of the same predicate. (62b) shows this for a predicate with *=tʃa¹ɾ̃¹* and absolute past temporal reference. The alternative continuation of line (a) given in (62c) shows that it is also coherent to assert a predicate with *=tʃa¹ɾ̃¹* and then assert the same predicate *without* negation.

(62) Both 'P=PROSP and ∼P' and 'P=PROSP and P' are acceptable
Context: You hear that when you last visited me one year ago, I was thinking about building a house. You ask me if I built the house. I say,

[7]This is a point of difference between *=tʃa¹ɾ̃¹* and prospective constructions in other languages. On my judgment, the English gloss of (59) is not acceptable in any context; I give it only as the closest approximation of what (59) would mean if it could be expressed in English.

a. *ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋẽ²ʔma⁴gu², ĩ⁴³pa⁴ta³ne⁵ tʃa³ʔi²ʔtʃa¹ĩ¹.*
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋẽ²ʔma⁴ =gu² ĩ⁴³ *pa⁴ta³ =ne⁵ tʃa³= ɨ² =tʃa¹ĩ¹
CONN DLOC1:ALL 2SG= be.in.place =SUB house(III) *house(III) =NSI(III) 1SG.A= make(A) =PROSP
'When you were here, I was about to build a house.'

b. Possible continuation of (a): *... na²tɨ⁴rɨ¹ tʃi³dą̲¹we¹ã⁴ma⁴ rɨ¹ ta⁴ma³ tʃa³na³ʔi².*
na²tɨ⁴rɨ¹ tʃi³= dą̲¹we¹ =ã⁴ma⁴ rɨ¹ ta⁴ma³ tʃa³= na³= ɨ²
but 1SG.I= sick(I) =Ã⁴MA⁴ and NEG 1SG.A= 3OBJ.A= make(A)
'...But unfortunately I got sick and I didn't build it.'

c. Possible continuation of (a): *...rɨ¹ ma³rɨ³ tʃa³na³ʔi².*
rɨ¹ ma³rɨ³ tʃa³= na³= ɨ²
and PERF 1SG.A= 3OBJ.A= make(A)
'...And (now) I've built it.'
(LWG: 2017.3.106)
(adapted from Bohnemeyer 2009)

Since both of the continuations of (62a) in (b) and (c) are acceptable, I conclude that predicates with *=tʃa¹ĩ¹* do not entail the base predicate (or the continuation in b would be incoherent) nor do they entail the negation of the base predicate (or the continuation in c would be incoherent). Together with the data above about *=tʃa¹ĩ¹* and epistemic modals, this means that *=tʃa¹ĩ¹* is modal under standard definitions of modality.

Given that *=tʃa¹ĩ¹* is modal, what type of modality does it encode? This question is difficult to answer, since existing classifications of types of modality are designed for systems that collapse modality and tense, like English and German, rather than modality and aspect. This said, the modal contribution of *=tʃa¹ĩ¹* appears to be underspecified circumstantial modality. *=tʃa¹ĩ¹* can be used for reference to scheduled, non-scheduled, and naturally occuring events (63a-c). When the subject of a predicate with *=tʃa¹ĩ¹* is animate, the predicate can also be taken as reporting her desires or obligations (63d,e). By contrast, *=tʃa¹ĩ¹* is never volunteered in contexts designed to elicit epistemic modals.

(63) a. Scheduled event
Context: I have received a scholarship to go to school in Manaus next year, but it is not time for me to go yet.
nãĩ¹ ɟa⁴ tau¹ne³kɨ³gu², Manaus=wa⁵ tʃa³ŋu⁵ʔtʃa¹ĩ¹.
nãĩ¹ ɟa⁴ tau¹ne³kɨ³ =gu² Manaus =wa⁵ tʃa³= ŋų̲¹ =tʃa¹ĩ¹
other(II) DET(II) year(II) =LOC M =ALL 1SG.A= learn(A) =PROSP
'Next year I will study in Manaus.' (LWG: 2017.3.107)

b. Non-scheduled event
Context: We should be happy even if bad things happen to us.
e³rɨ⁴ nɨ³¹ʔĩ³ ta⁴dau²gɨ⁴tʃa¹ĩ¹, wɨ⁴³ʔi⁴ i⁴ ŋu¹ne³ʔĩ⁴wa⁵.
e³rɨ⁴ nɨ³¹ =ʔĩ³ ta⁴= dau² =gɨ⁴ =tʃa¹ĩ¹ wɨ⁴³ʔi⁴ i⁴ ŋu¹ne³ʔĩ⁴ =wa⁵
because 3 =ACC 1INCL.A= see(A) =PL =PROSP one DET(IV) day(IV) =ALL
'Because one day, we're going to see Him (God).' (Sermon 20170604 8:04)

c. Naturally occurring event
ɲų̲¹ʔma⁵ ta¹ wa³¹ʔi⁵ na⁴ʔo¹ʔtʃa¹ĩ¹
ɲų̲¹ʔma⁵ ta¹ wa³¹ʔi⁵ na⁴= o¹ =tʃa¹ĩ¹
now also hedge 3.A= issue.fruit(A) =PROSP
'It too is, like, about to fruit now (speaking of a plant).' (DGG: DGG Yard Description 8:59)

d. Desire
da²a² a³ɲo¹gɨ⁴ ŋe⁵ma²ne⁴ ũ³¹kɨ³, I³tʃi⁴tu²wa⁵ tʃa³=postula=tʃa¹ĩ¹
da²a² a³ɲo¹ =gɨ⁴ ŋe⁵ma² =ne⁴ ũ⁴³ =kɨ³ I³tʃi⁴tu² =wa⁵ tʃa³= postula =tʃa¹ĩ¹
DNOM1(II) year(II) PL DLOC5:ALL =source come/go:SgS =NMLZ:II Iquitos =ALL 1SG.A= Sp:apply =PROSP

'Next year (lit. in the one that comes from these years), I want to apply (to be a policeman) in Iquitos.' (20170818 Conversation: 10:10)

e. Obligation
Context: Victoria is a little girl. Her friends come and ask her to play with them. But her mother has ordered her to do chores.
tau²ʔã¹kɨ²ma³ ŋe⁵ma² i⁴ʔũ⁴³ na⁴³we⁵ e³rɨ⁴ i⁵-, i⁵na⁴bi⁴ʔi²tʃi⁴tʃa¹ĩ¹.
tau²ʔã¹kɨ²ma³ ŋe⁵ma² i⁴= ũ⁴³ na⁴³ *we⁵ e³rɨ⁴ i⁵- i⁵= na⁴=
NEG.CIRC.POSS DLOC5:ALL 3(V).A= come/go:SgS DEF.POSS *RN:behind.in.line because HESIT VCL= 3.A=
bi⁴ʔi²tʃi⁴ =tʃa¹ĩ¹
sweep(A) =PROSP
'She can't follow them there (to play) because s- she has to sweep.' (DGG Chore Girl: 2:23)

In terms of modal force, *=tʃa¹ĩ¹* encodes necessity. One initial form of evidence for this is that *=tʃa¹ĩ¹* is the only modal or modal/aspectual marker that is appropriate for reporting bodily needs, as in (64). Possibility modals, such as the pure circumstantial possibility modal *na⁴me⁴³*, are rejected in describing bodily needs, presumably because they are too weak.

(64) *na⁴wi¹ʔɟa¹tʃa¹ĩ¹.*

na⁴= wi¹ʔɟa¹ =tʃa¹ĩ¹
3.A= urinate(A) =PROSP

'She has to urinate.' (DGG: 20170527 Conversation 5:25)

The most conclusive evidence that *=tʃa¹ĩ¹* has necessity force, however, comes from its entailment relationship with the other prospective aspect marker, *=e⁵ga¹*. Therefore, I turn to *=e⁵ga¹*.

3.3.2 Possibility prospective *=e⁵ga¹*

The possibility modal/prospective aspect marker *=e⁵ga¹* has the same distribution as *=tʃa¹ĩ¹* and aspectual *=tʃi⁴rẹ¹*. It appears on the verb of verbal predicates (65a), on the predicate nominal in nominal predicates (65b), and on topics (65c). Since *=e⁵ga¹* expresses prospective aspect, I gloss it in the same way as *=tʃa¹ĩ¹*, with the English prospective *going to* construction in verbal predicates and with the adjective *future* in nominal predicates. I do not have data on whether *=e⁵ga¹* appears on possessed noun phrases or on adjuncts.

(65) a. Verbal predicate
Sabado=gu² Kɨ³ʔtʃi³tu¹wa⁵ tʃa³ʔũ⁴³e⁵ga¹.
Sabado =gu² Kɨ³ʔtʃi³tu¹ =wa⁵ tʃa³= ũ⁴³ =e⁵ga¹
Sp:Satuday =LOC Cushillococha =ALL 1SG.A= come/go:SgS(A) =WEAK.PROSP
'On Saturday I might go to Cushillococha.' (OS 2017/07/05)

b. Predicate nominal
Bi³tu⁵ rɨ¹ du³tu³ru¹e⁵ga¹ ni⁴¹ʔĩ⁴.
Bi³tu⁵ rɨ¹ du³tu³ru¹ =e⁵ga¹ ni⁴¹= ĩ⁴
B TOP doctor =WEAK.PROSP 3.I= COP(I)
'Victoria is going to be/wants to be a doctor.' (LWG: 2017.3.55)

c. Topic
da²a² du³tu³ru¹e⁵ga¹ rɨ¹ po²ra⁴ã¹kɨ² na⁴ŋu̱¹ʔu⁵tʃi².
da²a² du³tu³ru¹ =e⁵ga¹ rɨ¹ po²ra⁴ =ã¹kɨ² na⁴= ŋu̱¹ =ʔɨ⁵tʃi²
DNOM1(II) doctor =WEAK.PROSP TOP strong =ADVBZ 3.A= learn(A) =really
'This future doctor, he really studies hard.' (LWG: 2017.3.55)

The aspectual contribution of *=e⁵ga¹* is identical to the aspectual contribution of *=tʃa¹ɨ̃¹*. It conveys prospective aspect, TT < ET. Just as with *=tʃa¹ɨ̃¹*, predicates with *=e⁵ga¹* and no other aspectual marking are compatible with TTs and ETs in the past, present, and future of ET, as shown in (66). This indicates that *=e⁵ga¹* does not have a deictic tense component.

(66) a. Context: I last came to your town two years ago. You tell me,
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu², Betania=wa⁵ tʃa³ʔũ⁴³e⁵ga¹.

ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² Betania =wa⁵ tʃa³= ũ⁴³ =e⁵ga¹
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS =SUB Betânia =ALL 1SG.A= come/go:SgS =WEAK.PROSP
'When you came here, I was going to go to Betânia.' (LWG: 2017.2.164)
Speaker's comment: 'You were just barely planning it' (*apenas planificando*)
TT < ET < UT

b. Context: I arrive at your house and ask what you're doing. You say,
na³ra⁴ɲa¹ tʃa³tu³¹ʔe⁵ga¹.

na³ra⁴ɲa¹ tʃa³= tu³¹ʔ =e⁵ga¹
orange 1SG.A= cut.tree(A) =WEAK.PROSP
'I'm going to cut down the orange (tree).' (judged *not* appropriate if you have the axe in hand) (DGG: 2017.2.172)
UT = TT < ET

c. Context: You are telling me about what will happen the next time I visit you.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², da³¹a¹ na³ra⁴ɲa¹ rɨ¹ tʃa³na³tu³¹ʔe⁵ga¹.

ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² da³¹a¹ na³ra⁴ɲa¹ rɨ¹ tʃa³=
CONN again DLOC4:ALL 2SG.SC.A= come/go:SgS =SUB DNOM1(III) orange.tree(III) TOP 1SG.A=
na³= tu³¹ʔ =e⁵ga¹
3OBJ.A= cut.tree(A) =WEAK.PROSP
'When you come in here again, this orange tree, I'm going to cut it down.' (DGG: 2017.2.173) (judged *not* appropriate if you will be preparing to cut it)
UT < TT < ET

Like *=tʃa¹ɨ̃¹*, *=e⁵ga¹* also makes a modal contribution. The evidence is that it displays exactly the same behavior as *=tʃa¹ɨ̃¹* on the tests for modality defined above. It is coherent to assert a predicate with *=e⁵ga¹* and then assert that it is not certain whether the event of that predicate will occur (67). Likewise, it is coherent to assert a predicate with *=e⁵ga¹* (68a) and then assert the negation of the same predicate (68b). And one can assert a predicate with *=e⁵ga¹* and then assert the same predicate without *=e⁵ga¹* (68c).

(67) 'P=WEAK.PROSP and maybe P' is acceptable
ɲu̱¹ʔma⁵ rɨ¹, Bi³tu⁵ na⁴ʔau³ʔe⁵ga¹. be¹ʔma²na⁴ ta⁴ na⁴ʔa³ʔu³.

ɲu̱¹ʔma⁵ rɨ¹ Bi³tu⁵ na⁴= au³ʔ =e⁵ga¹ be¹ʔma²na⁴ ta⁴ na⁴= au³ʔ
now TOP B 3.A= cry(A) =WEAK.PROSP epistemic.possibility FUT 3.A= cry(A)

'Right now, Victoria wants to/is about to cry. And maybe she will cry.' (ABS: elicited 2017/08/05)

(68) Both 'P=WEAK.PROSP and ∼P' and 'P=WEAK.PROSP and P' are acceptable
Context: You hear that when you last visited me one year ago, I was thinking about building a house. You ask me if I built the house. I say,

a. *ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋẽ²ʔma⁴gu², ĩ⁴³pa⁴ta³ne⁵ tʃa³ʔɨ²ʔe⁵ga¹.*

ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋẽ²ʔma⁴ =gu² ĩ⁴³ *pa⁴ta³ =ne⁵ tʃa³= ɨ²
CONN DLOC1:ALL 2SG= be.in.place =SUB house(III) *house(III) =NSI(III) 1SG.A= make(A)
=e⁵ga¹
=WEAK.PROSP
'When you were here, I was about to build a house.'

b. Possible continuation of (a): ... *na²tɨ⁴rɨ¹ tʃi³da̱¹we¹ã⁴ma⁴ rɨ¹ ta⁴ma³ tʃa³na³ʔi².*

na²tɨ⁴rɨ¹ tʃi³= dạ¹we¹ =ã⁴ma⁴ rɨ¹ ta⁴ma³ tʃa³= na³= ɨ²
but 1SG.I= sick(I) =Ã⁴MA⁴ and NEG 1SG.A= 3OBJ.A= make(A)
'...But unfortunately I got sick and I didn't build it.'

c. Possible continuation of (a): *...rɨ¹ ma³rɨ³ tʃa³na³ʔɨ².*
rɨ¹ ma³rɨ³ tʃa³= na³= ɨ²
and PERF 1SG.A= 3OBJ.A= make(A)
'...And (now) I've built it.'
(LWG: 2017.3.106)
(adapted from Bohnemeyer 2009)

=e⁵ga¹ appears to have the same type of modality as *=tʃa¹ɨ̃¹*. It is acceptable in speaking about scheduled events, non-scheduled events, naturally occuring events such as weather, and desires. It is not volunteered in elicitation contexts designed to elicit epistemic modals. This suggests that *=e⁵ga¹*, like *=tʃa¹ɨ̃¹*, conveys underspecified circumstantial modality.

Where *=e⁵ga¹* differs from *=tʃa¹ɨ̃¹* is in terms of modal force. *=tʃa¹ɨ̃¹* has necessity force, and *=e⁵ga¹* has possibility force. There are three forms of evidence for this.

First, *=e⁵ga¹* is not accepted or volunteered in contexts that call for circumstantial necessity modals, such as statements of rules, moral obligations, and bodily needs. The appropriate modals to use in these contexts are *=tʃa¹ɨ̃¹* and the deontic necessity modal *na³¹ʔwạ¹e³*.

Second, speakers often translate and paraphrase *=e⁵ga¹* using attitude predicates similar to English *plan* and *think about*, such as the Spanish verbs *planificar* 'plan' and *pensar* 'think' and the Ticuna expression *na⁴³gu² na⁴rɨ³ʔɨ̃³nɨ³* 's/he thinks about it.' These expressions are not used to translate or paraphrase *=tʃa¹ɨ̃¹*. Instead, stronger expressions like the Spanish *ir a* prospective, the Spanish verb *querer* 'want,' and the Ticuna verb *=wạ¹e²* 'want' are used to translate and paraphrase *=tʃa¹ɨ̃¹*.

Third and most important, *=e⁵ga¹* entails *=tʃa¹ɨ̃¹* in downward-entailing contexts. These include the restrictor of a universal quantifier (69) and the antecedent of a conditional (70). The judgments here were elicited using an indirect implication task (Tonhauser et al. 2013), rather than via acceptability judgments of clauses involving negation, because the markers appear to consistently scope over negation.

(69) *=e⁵ga¹* entails *=tʃa¹ɨ̃¹* in the restrictor of a universal quantifier
Context: I am a school official and I say, *wɨ⁴³ʔi⁴tʃi¹gɨ¹ i⁴ bu³ʔɨ̃⁴ i⁴ nãĩ¹ ɟa⁴ tau¹ne³kɨ³gu² ŋụ¹e⁵ga³ʔɨ̃⁴, nɨ³¹ʔna¹ ta⁴ tʃa³na³ʔã³ i⁴ no⁵¹rɨ³ po³pe⁴ra¹.*

wɨ⁴³ʔi⁴tʃi¹gɨ¹ i⁴ bu³ʔɨ̃⁴ i⁴ nãĩ¹ ɟa⁴ tau¹ne³kɨ³ =gu² Ø= ŋụ¹ =e⁵ga¹
every DET(IV) child(IV) DET(IV) other(II) DET(II) year =LOC 3.A.SC= learn(A) =WEAK.PROSP
=ʔɨ̃⁴ nɨ³¹ =na¹ ta⁴ tʃa³= na³= ã³ i⁴ no⁵¹rɨ³ po³pe⁴ra¹
=NMLZ:IV FUT 1SG.A= 3OBJ.A= give:InamSgO(A) DET(IV) 3.AL.POSS book(IV)

'Every child who is going to (*e⁵ga¹*) study next year, I will give him/her a book.'

a. Suppose someone tells me, *Kʷa³ɨ̃¹ rɨ¹ na⁴ŋụ⁵ʔtʃa¹ɨ̃¹.*
Kʷa³ɨ̃¹ rɨ¹ na⁴= ŋụ¹ =tʃa¹ɨ̃¹
Kʷ TOP 3.A= learn(A) =PROSP
'Juan is going to (*tʃa¹ɨ̃¹*) study next year.'
Do I give a book to Juan? **Yes**

b. Suppose someone else tells me, *Ka³ru¹ rɨ¹ na⁴ŋụ¹e⁵ga¹.*
Ka³ru¹ rɨ¹ na⁴= ŋụ¹ =e⁵ga¹
K TOP 3.A= learn(A) =WEAK.PROSP
'Carlos is going to (*e⁵ga¹*) study next year.'
Do I give a book to Carlos? **Yes**

(YCG: 2017.3.146)

(70) *=e⁵ga¹* entails *=tʃa¹ɨ̃¹* in a conditional antecedent Context: I am taking care of your house and children while you are away. Before you leave, you tell me and your children, *ŋẽ⁴ʔgu²ma³ na¹pu³e⁵ga¹gu², rɨ¹ na⁴³ʔtʃi⁵ru¹ i⁵pi⁴nũ⁴ku².*

ŋẽ⁴ʔgu²ma³ na¹= pu³ =e⁵ga¹ =gu² rɨ¹ na⁴³ *ʔtʃi⁵ru¹ i⁵= pi⁴= nũ⁴
CONN 3.SC.A= rain(A) =WEAK.PROSP =SUB TOP DEF.POSS *clothes VCL= 2PL.I= put:InamPlO
-ku²
-DIR:inward:PlO

'If it is going to (*e⁵ga¹*) rain, put the clothes inside.'

a. Suppose one of your children tells me, *na⁴pu³ʔtʃa¹ɨ̃¹.*
   na⁴= pu³ =tʃa¹ɨ̃¹
   3.A= rain(A) =PROSP
   'It's going to (*tʃa¹ɨ̃¹*) rain.'
   Do I take the clothes in? **Yes**

b. Suppose one of your children tells me, *na⁴pu³e⁵ga¹.*
   na⁴= pu³ =e⁵ga¹
   3.A= rain(A) =WEAK.PROSP
   'It's going to (*e⁵ga¹*) rain.'
   Do I take the clothes in? **Yes**

Data on whether *=tʃa¹ɨ̃¹* entails *=e⁵ga¹* in upward-entailing contexts were not consistent. In upward-entailing contexts where speakers judged *=tʃa¹ɨ̃¹* appropriate, they sometimes accepted and sometimes rejected *=e⁵ga¹*. If we posit that *=tʃa¹ɨ̃¹* and *=e⁵ga¹* form a Horn scale with *=e⁵ga¹* as the weaker member, this is not surprising: speakers might vary in whether they are wiling to endorse the weaker member of the scale if the stronger one is true.

The data above also provides evidence that the difference between *=tʃa¹ɨ̃¹* and *=e⁵ga¹* is not a temporal remoteness contrast. A remoteness analysis of these markers would likely say that *=e⁵ga¹* encodes prospective aspect and that the ET is 'far in the future' relative to TT, while *=tʃa¹ɨ̃¹* encodes prospective aspect only. It could also propose the reverse markedness relation, with *=tʃa¹ɨ̃¹* encoding that ET is 'soon' and *=e⁵ga¹* encoding nothing.

Temporal remoteness analyses of the contrast between *=tʃa¹ɨ̃¹* and *=e⁵ga¹* fail for two reasons. First, it is acceptable to use both items to talk about events with the same absolute degree of temporal remoteness from TT. For example, in the context in (71), LWG judged both *=e⁵ga¹* (a) and *=tʃa¹ɨ̃¹* (b) acceptable.

(71) Context: It is Wednesday afternoon. I live in Caballococha. You ask if you can make an appointment with me on either Friday or Saturday. I say that you should come Friday, because:

a. *Sabado=gu² Kɨ³ʔtʃi³tu¹wa⁵ tʃa³ʔũ⁴³e⁵ga¹.*
   Sabado =gu² Kɨ³ʔtʃi³tu¹ =wa⁵ tʃa³= ũ⁴³ =e⁵ga¹
   Sp:Saturday =LOC Cushillococha =ALL 1SG.A= come/go:SgS(A) =WEAK.PROSP
   'I'm going to (*e⁵ga¹*) go to Cushillococha on Saturday.' (OS in this context 2017/07/05; LWG: 2017.2.155)

b. *Sabado=gu² Kɨ³ʔtʃi³tu¹wa⁵ tʃa³ʔũ³¹ʔtʃa¹ɨ̃¹.*
   Sabado =gu² Kɨ³ʔtʃi³tu¹ =wa⁵ tʃa³= ũ⁴³ =tʃa¹ɨ̃¹
   Sp:Saturday =LOC Cushillococha =ALL 1SG.A= come/go:SgS(A) =PROSP
   'I'm going to (*tʃa¹ɨ̃¹*) go to Cushillococha on Saturday.' (LWG: 2017.2.155)

Second, the remoteness analysis predicts that the contrast between upward- and downward-entailing contexts should not affect the entailment relations between *=tʃa¹ɨ̃¹* and *=e⁵ga¹*. As (69) and (70) illustrate, *=e⁵ga¹* clearly does entail *=tʃa¹ɨ̃¹* in downward-entailing contexts; but there is no evidence that *=e⁵ga¹* entails *=tʃa¹ɨ̃¹* in upward-entailing contexts.

3.3.3 Absolute future *ta⁴*

The absolute future marker *ta⁴* FUT is syntactically similar to *ma³rɨ³*. It usually appears in second position in the clause (though it can also appear at the right or the left edge), and it is a prosodically independent word. *ta⁴* has two syntactic properties which it does not share with *ma³rɨ³*. First, when *ta⁴* appears in second position, certain focus- and discourse structure-related enclitics that normally attach to the first constituent cannot attach there. Instead, the enclitics must attach to *ta⁴*. This is shown for the scalar focus marker *=ta²ã⁴* in (72).[8]

(72) Effects of second position *ta⁴* on location of *=ta²ʔã⁴*/*=ta²ma⁴* SCALAR.FOC

a. Without *ta⁴*, SCALAR.FOC appears on constituent it scopes over

i. *nu⁵a²ta²ʔã⁴ tʃa³ŋẽ²ʔma⁴.*
nu⁵a² =ta²ʔã⁴ tʃa³= ŋẽ²ʔma⁴
DLOC1:ALL =SCALAR.FOC 1SG.A= be.in.place(A)
'I am/was right here.' (ABS: 2017/07/11)

ii. *ɟe⁵a²ã⁴ma³ta²ʔã⁴ i⁵na¹ʔũ³¹ɨ̃¹, ɟe⁵a²ã⁴ma⁴!*
ɟe⁵a² =ã⁴ma³ =ta²ʔã⁴ i⁵= na¹= ũ³¹ɨ̃¹ ɟe⁵a² =ã⁴ma⁴
DLOC3:ALL =Ã⁴MA⁴ =SCALAR.FOC VCL= IMP.A= go.out:SgS(A) DLOC3:ALL =Ã⁴MA⁴
'Go out through (the area of the soccer field) right there, there!' (Soccer 20170613: 3:50)

b. With *ta⁴*, SCALAR.FOC must appear on *ta⁴*

i. *nu⁵a² ta⁴ta²ʔã⁴ tʃa³ŋẽ²ʔma⁴.*
nu⁵a² ta⁴ =ta²ʔã⁴ tʃa³= ŋẽ²ʔma⁴
DLOC1:ALL FUT =SCALAR.FOC 1SG.A= be.in.place(A)
'I will be right here.' (ABS: 2017/07/11)
Cf. **nu⁵a²ta²ʔã⁴ ta⁴ tʃa³ŋẽ²ʔma⁴*
nu⁵a² =ta²ʔã⁴ ta⁴ tʃa³= ŋẽ²ʔma⁴
DLOC1:ALL =SCALAR.FOC FUT 1SG.A= be.in.place(A)
Attempted reading: (I will be right here.) (ABS: 2017/07/11)

ii. *gu³¹a²ã⁴ma⁴ ɟe⁵a² ta⁴ta²ʔã⁴ ni⁴¹ʔĩ⁴ ma³rɨ³ i⁴ na³¹ʔtạ¹pɨ¹ʔɨ³*
gu³¹a² =ã⁴ma⁴ ɟe⁵a² ta⁴ =ta²ʔã⁴ ni⁴¹ʔĩ⁴ ma³rɨ³ i⁴ na⁴³ *ʔtạ¹pɨ¹ʔɨ³
DNOM3(III) =Ã⁴MA⁴ DLOC3:ALL FUT =SCALAR.FOC FOC PERF DET(IV) DEF.POSS *wall(IV)
'That (pile of cinder blocks) will become the wall right there.' (MAG Construction Description 1:23)

Second, it is ungrammatical for a clause to contain both a negation item and *ta⁴*. Instead, one must use a special portmanteau form of the negation. All of the negation-*ta⁴* portmanteaux incorporate the syllable *ta⁴* (but not as head of an independent prosodic word). (81) gives the relevant portmanteau negation forms.

(73) Portmanteaux of negation items and *ta⁴*

Regular Negation	Negation with *ta⁴*	Gloss
ta⁴ma³	*ta⁴ʔu²ta⁴ã³* ∼ *ta⁴ʔu²ta⁴ma³*	'not, no' (plain negation, answer to polar questions)
tau⁴ta¹	*ta²ʔũ²ta³*	'not yet'
ta⁴gu²ma³	*ta⁴gu²ta⁴ma³* ∼ *ta³gu²ta⁴ã³*	'never'
ta²ʔu²ma³	*ta²ʔu²ta⁴ma³* ∼ *ta²ʔu²ta⁴ã³*	negative existential verb

(ABS: 2017.3.188, LWG: 2017.3.190-191)

[8] There is a sound change in progress in Cushillococha which, in some words, takes word-final unstressed [ama] to [aʔã] (if the tone of *ma was higher than the tone of the preceding syllable) or [aã] (if lower). This change is conspicuous in the data for (72) and (81). All reflexes of *ama, including conservation of the consonant, are present in my corpus; therefore I cite items that are undergoing the change as 'X=ama ∼ X=a(ʔ)ã.' Speakers accept both pronunciations as correct. The plain negation marker *ta⁴ma³* 'not' is also often pronounced as [ta⁴³] in casual speech, but as of 2017, all of my consultants judged this pronunciation incorrect; therefore I cite the item as *ta⁴ma³*. This change does not affect the clitic *=ã⁴ma⁴* (possibly because the first vowel is nasal).

Ta⁴ shares both of its special syntactic properties with the modal *tʃi⁴* CNTF. It also shares the first property (effects on focus and discourse enclitics) with *e³ga⁴* 'if,' which optionally introduces conditional antecedents. I am not aware of any other items which have either property.

The semantics of *ta⁴* are also very different from those of other aspect and aspect-modality markers. Unlike the other future-oriented markers, *ta⁴* is an absolute future. It cannot have a TT in the past of UT (74a), only one in the future of UT (74b, c).

(74) Possible TTs for *ta⁴*

a. Context: You last visited my town two years ago. I tell you,
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ʔũ⁴³gu², # Betania=wa⁵ ta⁴ tʃa³ʔũ⁴³.

ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ũ⁴³ =gu² # Betania =wa⁵ ta⁴ tʃa³= ũ⁴³
CONN DLOC1:ALL 2SG.SC.A= come/go:SgS(A) =SUB # Betânia =ALL FUT 1SG.A= come/go:SgS(A)

Attempted: (When you came here, I was going to go to Betânia.) (LWG: 2017.2.164, ECP: 2017.2.167)
Attempted: (TT < ET < UT)

b. Context: You arrive at my house and ask what I'm doing. I say,
na³ra⁴ŋa¹ ta⁴ tʃa³tu³¹ʔu³.

na³ra⁴ŋa¹ ta⁴ tʃa³= tu³¹ʔ
orange FUT 1SG.A= cut.tree(A)

'I'm going to cut down the orange tree.' (appropriate if I am by the tree preparing to cut it down, or if I am telling you the plan inside my house) (DGG: 2017.2.172)

c. Context: You are visiting me now, and you ask what I will be doing the next time that you visit. I say,
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹ʔũ⁴³gu², rɨ¹ da³¹a¹ na³ra⁴ŋa¹ rɨ¹ ta⁴ tʃa³na³tu³¹ʔu³.

ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵ma² ku¹= ũ⁴³ =gu² rɨ¹ da³¹a¹ na³ra⁴ŋa¹ rɨ¹ ta⁴ tʃa³=
CONN again DLOC4:ALL 2SG.SC.A= come/go:SgS =SUB TOP DNOM1(III) orange(III) TOP FUT 1SG.A=
na³= tu³¹ʔ
3OBJ.A= cut.tree(A)

'When you come in here again, I will cut down the orange tree.' (suggests that I will begin cutting when you arrive) (DGG: 2017.3.173)

The only context where *ta⁴* is allowed with absolute past temporal reference is in attitude reports and indirect speech reports. In a clause with an attitude verb such as *=wɑ̰¹e²* 'want' or *ĩ³nɨ³* 'hear/think' and a TT and ET in the past of UT, *ta⁴* may occur in the complement of the attitude verb. When *ta⁴* is present in this context, it conveys that the attitude is about a time in the future of TT (75). But *ta⁴* is never obligatory in this type of context, even if the attitude is about a time that is in the future of *both* TT and UT, as in (76). This is one case of the generalization (made above) that in intensional contexts, minimally inflected verbs can always be construed as having future TTs.

(75) *ta⁴* with absolute past temporal reference in report of absolute past attitude
Context: The Nativity story
ɟe⁴ʔgu⁴ma⁴ ŋe³tʃu⁴tʃu¹ bu³¹ʔgu², rɨ¹ E³ro³de¹ rɨ¹ na⁴³gu² na⁴rɨ³ʔĩ³nɨ³ ga⁴ ɲu¹ʔã¹kɨ² (ta⁴) ŋe³tʃu⁴tʃu¹ʔĩ³ na⁴ʔ ɟa¹ma⁵ʔĩ⁴.

ɟe⁴ʔgu⁴ma⁴ ŋe³tʃu⁴tʃu¹ Ø= bu³¹ =gu² rɨ¹ E³ro³de¹ rɨ¹ na⁴³ =gu² na⁴rɨ³= ĩ³nɨ³ ga⁴
CONN.REMPST Jesus 3.SC.A= be.born(A) =SUB TOP Herod TOP 3 =LOC 3.R= think(R) DET.REMPST
ɲu¹ʔã¹kɨ² (ta⁴) ŋe³tʃu⁴tʃu¹ =ʔĩ³ na⁴ʔ ɟa¹= mɑ̰¹ =ʔĩ⁴
how? (FUT) Jesus =ACC COMP 3.SC.I= kill(I) =SUB

'When Jesus was born, Herod thought about how he would (lit. will) kill him.' (DGG: 2017.3.101)

(76) *ta⁴* with absolute future temporal reference in report of absolute past attitude
Context: It is August. When I arrived in town in May, I wanted it to rain a lot in September so that the river would be high when I left in September (making travel easier).
ŋẽ⁴ʔgu²ma³ mayo=gu² nu⁵a² tʃa¹ŋu³ʔgu², rɨ¹ tʃa³na³¹ʔwɑ̰¹e² na⁴ po²ra⁴ã¹kɨ² (ta⁴) na¹pu²ʔĩ⁴ i⁴ septiembre=gu².

ŋẽ⁴ʔgu²ma³ mayo =gu² nu⁵a² tʃa¹= ŋu³ =gu² rɨ¹ tʃa³= na⁴³ =wa̱¹e² na⁴ po²ra⁴ =ã¹kɨ²
CONN Sp:May =LOC DLOC1:ALL 1SG.SC.A= arrive =SUB TOP 1SG.A= 3 =want COMP be.strong =ADVBZ
(ta⁴) na¹= pu³ =ʔĩ⁴ i⁴ septiembre =gu²
(FUT) 3.A= rain(A) =SUB DET(IV) Sp:September =LOC

'When I arrived here in May, I wanted it to rain hard in September (lit. that it will rain hard in September).' (LWG: 2017.3.98, DGG: 2017.3.101)

The same facts hold for indirect speech reports as for attitude reports (77): *ta⁴* can have absolute past reference. But *ta⁴* is *not* allowed with absolute past temporal reference in any other type of subordinate clause, such as relative clauses or purpose clauses.

(77) *ta⁴* with absolute past temporal reference in report of absolute past speech
Context: I did some work for the town authorities. They said on Monday that they would pay me on Tuesday. But today is Wednesday and they haven't paid me yet.
lunes=gu² tʃo³¹ma⁴ã² nɨ³¹ʔĩ³ ni⁴ʔu³ na⁴ martes=gu² tʃo³¹ʔĩ⁵ (ta⁴) na¹ʔɨ²ta³nɨ³gɨ⁵a̱¹ʔĩ⁴.

lunes =gu² tʃo³¹ =ma⁴ã² nɨ³¹ =ʔĩ³ ni⁴= u³ na⁴ martes =gu² tʃo³¹ =ʔĩ⁵ (ta⁴) na¹= ɨ²ta³nɨ³
Sp:Monday =LOC 1SG =COM/INST 3 =ACC 3.I= say(I) COMP Sp:Tuesday =LOC 1SG =IBEN (FUT) 3.A= pay(A)
=gɨ⁵ =a̱¹ =ʔĩ⁴
=PL =3OBJ.SC =SUB

'They said to me on Monday that they would (lit. will) pay it to me on Tuesday.' (LWG: 2017.3.153)

Additionally, *ta⁴* is not a prospective aspect. Evidence for this analysis comes from two sources. The first source of evidence is temporal anaphora discourses where the subordinate clause makes available a future TT, and the main clause contains *ta⁴* and no other aspectual marking. In this type of discourse, especially if the main clause verb is stative, the subordinate clause and main clause events can be read as overlapping (78). This shows that *ta⁴* does not independently shift the ET forward of a contextually available future TT.

(78) Subordinate clause and main clause ETs can overlap when main clause contains *ta⁴* and no other aspect markers

a. *ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², rɨ¹ ta⁴ tʃa³nu²ʔma⁴ta²ʔã⁴.*
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² rɨ¹ ta⁴ tʃa³= nu²ʔma⁴ =ta²ʔã⁴
CONN DLOC1:ALL 2SG.SC.A= arrive(A) =SUB TOP FUT 1SG.A= DLOC6:predicate =SCALAR.FOC
'When you arrive, I will be right here.' (i.e. I will wait here for you) (LWG: 2017.2.155)

b. Context: Speaker is discussing the planned construction of a cinderblock wall
ŋẽ⁴ʔgu²ma³ ta⁴ na¹ʔɨ²a̱¹ʔĩ⁴, me³¹ã² a⁵rɨ⁵, da³¹a¹, da³¹a¹ʔĩ³ ta⁴ na⁴da²we³nɨ²ʔĩ⁴ ni⁴¹ʔĩ⁴ a⁵rɨ³.
ŋẽ⁴ʔgu²ma³ ta⁴ na¹= ɨ² =a̱¹ =ĩ⁴ me³¹ã² a⁵rɨ³ da³¹a¹ da³¹a¹ =ʔĩ³
CONN FUT 3.A.SC= make(A) =3OBJ.SC =SUB well again DNOM1(III) DNOM1(III) =ACC3(V).A.SC=
ta⁴ na⁴= da²we³nɨ³ =ʔĩ⁴ ni⁴¹ʔĩ⁴ a⁵rɨ³
watch(A) =SUB FOC again
'When he makes it, (he will make it) well too, and she will WATCH this one, too.' (i.e. she will watch while he builds the wall) (MAG House Description 3:30)

The second piece of evidence that *ta⁴* is not a prospective aspect is that it can co-occur with other aspect markers (except for *=tʃi⁴re̱¹* ANTIPERF), as shown in (79). In these examples, the aspect markers have the same contribution as in clauses that do not contain *ta⁴*. In (79a), with *ta⁴* and the imperfective in the main clause, the topic time established by the subordinate clause 'when you come here again' is read as within the event time of the main clause eventuality. In (79b), the topic time of the sentence in line (iii) is established by the first clause of my question in line (i), 'when they finish your courtyard.' The only plausible reading of SSG's turn in (iii) is that, as of this absolute future topic time, the hearth will be in the result state of the eventualities marked with *ma³rɨ³*. Finally, in (79c), the topic time is still the topic time from line (i) of (79b), and the event time (i.e. when the agent roasts plaintains) can only be plausibly understood as following that topic time.

(79) *ta⁴* with other aspect markers

a. *i⁵*= IMPF
Context: You ask what I will be doing the next time you visit me. I answer,
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵a² ku¹ʔũ⁴³gu², da³¹a¹ na³ra⁴ɲa¹ rɨ¹ ta⁴ i⁵tʃa³tu³¹ʔu³.
ŋẽ⁴ʔgu²ma³ we⁵na¹ nu⁵a² ku¹= ũ⁴³ =gu² da³¹a¹ na³ra⁴ɲa¹ rɨ¹ ta⁴ i⁵= tʃa³=
CONN again DLOC 2SG.SC.A= come/go:SgS =SUB DNOM1(III) orange(III) TOP FUT IMPF= 1SG.A=
tu³¹ʔ
cut.tree(A)
'When you come here again, I will be cutting down this orange tree.' (LWG: 2017.2.178) (i.e. I will start cutting before you arrive and possibly continue and/or finish afterward)
UT < TT *in* ET

b. *ma³rɨ³* PERF
Context: SSG and I are discussing the ongoing construction of his house.

i. AHS: *ma³rɨ³ ku³¹rɨ³ ĩ³¹ɰ̃¹tɨ³ na⁴na³gu̱¹ẽ⁴ẽ³, na⁴ŋẽ²ʔma⁴ã⁴ma⁴ ɟa² ku³¹rɨ³ ɨ²ʔɨ³ʔ*[9]
ma³rɨ³ ku³¹rɨ³ ĩ³¹ɰ̃¹tɨ³ na⁴= na³= gu̱¹ -ẽ⁴ẽ³ na⁴= ŋẽ²ʔma⁴ =ã⁴ma⁴ ɟa²
PERF 2SG.AL.POSS yard 3.A= 3OBJ.A= be.finished(A) -CAUS 3.A= be.in.place =Ã⁴MA⁴ DET(III)
ku³¹rɨ³ ɨ²ʔɨ³
2SG.AL.POSS firewood(III)
'When they finish your courtyard, will you still have a hearth (lit. is your hearth still there)?'

ii. SSG: *ŋe³ma²ã¹kɨ² ta⁴*
ŋe³ma² =ã¹kɨ² ta⁴
DNOM5(IV) =ADVBZ FUT
'Yes (we) will.'

iii. SSG: *ma³rɨ³ to¹õ¹kɨ² ma³rɨ³ ta⁴ e³rɨ⁴ me³¹ã¹ɨ¹ra¹ ta⁴ ma³rɨ³ ɨ²ʔĩ⁴*
ma³rɨ³ to¹ =ã¹kɨ² ma³rɨ³ ta⁴ e³rɨ⁴ me³¹ã¹ =ɨ¹ra¹ ta⁴ ma³rɨ³ Ø= ɨ² =ʔĩ⁴
PERF other(IV) =ADVBZ PERF FUT because well =sorta FUT PERF IMPERS.SC.A= make(A) =SUB
'But it will have become different, because it will have been built better.' (SSG House Description 7:55)
UT < TT *in* $\tau(s_{post})$(hearth becomes different), UT < TT *in* $\tau(s_{post})$(hearth is built)

c. *=tʃa¹ĩ¹* PROSP
Context: Immediately following line (iii) of above
SSG: *e³rɨ⁴ ŋɨ²rɨ⁴ʔã⁴tʃɨ⁴ ŋẽ⁴ʔgu²ma³ tʃo³¹rɨ³ tʃɨ³ũ³ra¹, po³ʔi⁵ ta⁴ ti⁴gu²ʔtʃa¹ĩ¹ma³re³*
e³rɨ⁴ ŋɨ²rɨ⁴ʔã⁴tʃɨ⁴ ŋẽ⁴ʔgu²ma³ tʃo³¹rɨ³ tʃɨ³ũ³ra¹ po³ʔi⁵ ta⁴ ti⁴= gu² =tʃa¹ĩ³ =ma³re³
because OOC CONN 1SG.AL.POSS señora(I) plantain FUT 3(I).I= roast(I) PROSP =just
'Because maybe at that time my wife will want just to roast plantains' (i.e. she won't want to cook everything on the fire) (SSG House Description 7:57)
UT < TT < ET

This lack of effect on aspect is predicted if *ta⁴* simply forces TT to be in the future of UT. On the other hand, this behavior is *not* expected if *ta⁴* is a prospective aspect, encoding that ET follows TT. If that were the case, then *ta⁴* would shift the ET of the main clauses in these discourses to be *after* the TT established by the subordinate clauses. The other aspect markers would then either be uninterpretable (since they also encode relations between ET and TT) or would lead to readings where they related ET to some time in the future of the subordinate clause TTs.

Considering all of this data, I conclude that the only temporal contribution of *ta⁴* in matrix contexts is the ordering relation UT < TT. If this were the only semantic contribution of *ta⁴*, it would be appropriate to call the item a tense. But *ta⁴* also has another meaning component: it is modal. (80) and (81) illustrate this using the same tests for modality developed in the analysis of prospective aspect above.

[9]The transcription consultant, ABS, judged it odd that I used the third person main clause verb form *na⁴na³gu̱¹ẽ⁴ẽ³* 'they finish it' in the first clause of this turn. He felt that it would have been more correct for me to say a second person subordinate clause verb form, *ku¹na³gu̱¹ẽ⁴ẽ³gu²* 'when you finish it.'

(80) 'P *ta⁴* and maybe P' is acceptable
Bi³tu⁵ rɨ¹ ni⁴dɑ̱¹we¹ ta⁴. be¹ʔma²na⁴ ni⁴dɑ̱¹we¹ ta⁴.

Bi³tu⁵ rɨ¹ ni⁴= dɑ̱¹we¹ ta⁴ be¹ʔma²na⁴ ni⁴= dɑ̱¹we¹ ta⁴.
B TOP 3.I= be.sick(I) FUT epistemic.possibility 3.I= be.sick(I) FUT

'Victoria will get sick. And maybe she will get sick.' (unacceptable in English but acceptable in Ticuna) (LWG: 2017.3.90)

(81) 'P *ta⁴* or ∼P' is acceptable
Bi³tu⁵ rɨ¹ ni⁴dɑ̱¹we¹ ta⁴, rɨ¹ɛ̃¹ʔna⁵ ta⁴ma³.

Bi³tu⁵ rɨ¹ ni⁴= dɑ̱¹we¹ ta⁴ rɨ¹ =ɛ̃¹ʔna⁵ ta⁴ma³
B TOP 3.I= be.sick(I) FUT and =ALT NEG

'Victoria will get sick, or not.' (LWG: 2017.3.106)
Speaker's comment: 'Maybe so, maybe not' (*quizás sí, quizás no*)

The modal type and force of *ta⁴* seem to be similar to that of *=tʃa¹ĩ¹* PROSP. Like *=tʃa¹ĩ¹*, *ta⁴* can be used to talk about scheduled and unscheduled events, naturally occurring events, desires, and obligations, suggesting that it is similar to the prospective in modal type. It is difficult to diagnose the strength of *ta⁴* using entailment patterns, since *ta⁴* resists being embedded except in attitude reports; but based on the contexts where the item is felicitous, it appears to be strong.

This said, there are two significant differences in modal value between *=tʃa¹ĩ¹* and *ta⁴*. First, it is not acceptable to use *=tʃa¹ĩ¹* to predict that an inanimate entity of one natural or manufactured kind will become an entity of another kind. Only *ta⁴* can be used in this meaning, as in (82).

(82) Context: I am sprinkling some manioc starch onto a griddle to make manioc bread. I can say of the starch,

a. *do⁵¹wɨ¹ ta⁴ ni⁴¹ʔĩ⁴.*
do⁵¹wɨ¹ ta⁴ ni⁴¹= ĩ⁴
manioc.bread FUT 3.I= COP(I)
'It will be manioc bread.'

b. *#do⁵¹wɨ¹tʃa¹ĩ¹ ni⁴¹ʔĩ⁴.*
do⁵¹wɨ¹ =tʃa¹ĩ¹ ni⁴¹= ĩ⁴
manioc.bread =PROSP 3.I= COP(I)
Attempted: (It is going to be manioc bread.)

(ECP: 2017.2.66)

Second, in conversation it is common to use *ta⁴* with subordinate verb forms to issue commands (83) of all types: negative and positive, to plural and singular addressees. This is unattested with *=tʃa¹ĩ¹*.

(83) a. Soccer coach to players: *pe³¹gɨ¹na¹ ta⁴ pe¹dau²gɨ⁵ʔĩ⁴!*
pe³¹ =gɨ¹ =na¹ ta⁴ pe¹= dau² =gɨ⁴ =ʔĩ⁴
2PL =REFL =RCP FUT 2PL.SC.A= take.care.of(A) =PL =SUB
'You guys take care of (i.e. guard) each other!' (Soccer 20170613 8:05)

b. Preacher to congregation: *ɲɑ̱¹ʔma⁵ rɨ¹ ta⁴ ta⁴ʔũ² ku¹ʔã³ne²ʔĩ⁴!*
ɲɑ̱¹ʔma⁵ rɨ¹ ta⁴ ta⁴ʔũ² ku¹= ã³ne³ =ʔĩ⁴
now TOP FUT NEG.IMP 2SG.SC.A= feel.shame.dt.avoidance.relation(A) =SUB
'Now don't you be ashamed / feel the need for ritual avoidance (of God)!' (Sermon 20170604)

3.3.4 Predicates with no aspect/modality marking

Predicates that do not contain an aspect/modality marker can be read in several ways. As discussed in the section on *i⁵=*, they can be interpreted as habitual or generic statements. Or, as discussed in the treatment of *ma³ɾɨ³*, they can be read as statements of circumstantial possibility.

Predicates without aspect/modality marking can also receive completely extensional, non-habitual readings. In temporal anaphora contexts, zero-marked predicates are preferentially read as perfective. This holds for all Aktionsart classes (84).

(84) Zero-marked predicates in temporal anaphora contexts are read as perfective

a. Stative verb
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², tʃa³ʔã³pa⁴te²e³.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² tʃa³= ã³ *pa⁴te²e³
CONN DLOC1:ALL 2SG.A.SC= arrive(A) =SUB 1SG.A= have.inal(A) *hat
'When you arrived here, I put on (lit. had) a hat.' (ABS: 2017.2.158) (I put on the hat at precisely the moment you arrived)

b. Achievement
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², Ka³ru¹ ɾɨ¹ ni⁴bɨ³ɟe¹pa³ra¹.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² Ka³ru¹ ɾɨ¹ ni⁴= bɨ³ *ɟe¹ *pa³ra¹
CONN DLOC1:ALL 2SG.A.SC= arrive(A) =SUB K TOP 3.I= break.rigid(vi)(I) *CLFI:2D.short *NI:shin
'When you arrived here, Carlos broke his leg.' (DGG, LWG, ABS) (he broke his leg at precisely the moment you arrived)

c. Activity
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², Ka³ru¹ ɾɨ na⁴a³ʔu³.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² Ka³ru¹ ɾɨ¹ na⁴= au³ʔ
CONN DLOC1:ALL 2SG.A.SC= arrive(A) =SUB K TOP 3.A= cry(A)
'When you arrived here, Carlos cried.' (he began crying at precisely the moment you arrived)

d. Accomplishment
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹ŋu³ʔgu², ŋe³ma² wai⁵ra⁴ na⁴tu³¹ʔu³.
ŋẽ⁴ʔgu²ma³ nu⁵a² ku¹= ŋu³ =gu² ŋe³ma² wai⁵ra⁴ na⁴= tu³¹ʔ
CONN DLOC1:ALL 2SG.A.SC= arrive(A) =SUB DNOM5(IV) E.precatoria(IV) 3.A= fell.tree(A)
'When you arrived here, he cut down that açai.' (ECP: 2017.2.171) (he began cutting at precisely the moment you arrived)

The data in (84), however, should not be taken as evidence that all verbs have a zero perfective marker. Zero-marked verbs other than achievements can also be interpreted as imperfective. In fact, in out-of-the-blue contexts, this is the only acceptable construal for stative verbs (85a). It is also possible for activities and accomplishments (85b,c).

(85) Context question: *tɑ̰¹ʔa⁴kɨ⁴ na⁴ŋu³pe⁴tɨ¹?* 'What happened / is happening?'

a. Stative: *tʃa³ʔã³pa⁴te²e³.*
tʃa³= ã³ *pa⁴te²e³
1SG.A= have.inal(A) *hat
i. 'I'm wearing a hat.'
ii. #'I was wearing/wore a hat.' (Judged false if I am not wearing a hat at the moment of speech.)

b. Activity: *na⁴a³ʔu³.*
na⁴= au³ʔ
3.A= cry(A)
i. 'He's crying (right now).'

ii. 'He cried.'

c. Accomplishment: *da³¹a¹ na³ra⁴ɲa¹ tʃa³tu³¹ʔu³.*
da³¹a¹ na³ra⁴ɲa¹ tʃa³= tu³¹ʔu³
DNOM1(III) orange(III) 1SG.A= fell.tree(A)
i. 'I'm cutting down this orange tree (right now).'
ii. 'I cut down this orange tree.'

Many other aspect-prominent languages have dedicated ways of expressing perfective aspect. This discussion illustrates that Ticuna does not. There is no phonologically contentful perfective – none of the several aspect morphemes discussed above is a perfective – and there is also no zero-marked perfective construction.

4 Summary and conclusion

This chapter has argued that there is no evidence of obligatory or optional tense in the predicate system of Ticuna. To argue for the absence of obligatory tense, in §2.1 I described the four inflectional categories which can be obligatory for predicates in the language: subject agreement, clause type marking, object agreement (obligatory for some transitive verbs), and location marking (obligatory for some verbs of motion and posture). I then showed, in §2.2, that clauses headed by a verb marked only for these categories can be interpreted as having a topic time in the past, present, or future of utterance time. I laid special emphasis on the fact that verbs marked only for obligatory inflectional categories can have future topic times. This emphasis reflects the importance of future discourse to analyses of tenseless languages in the time semantics literature. Compared to other languages represented in this literature, Ticuna has very few restrictions on the availability of future topic times, eliminating an analysis of the language as having a phonologically covert non-future tense morpheme in every clause. Instead, I concluded that nothing in a minimal clause of the language places any restrictions on the ordering of TT relative to UT – that is, there is no obligatory tense.

In §3, I argued that Ticuna also has no optional tense. In support of this claim, I provided detailed analyses of all six markers of the language which appear on predicates and obligatorily affect their temporal interpretation. Drawing on an analysis of lexical aspect or Aktionsart classes (§3.1), I analyzed three of the six predicate temporal markers as conveying only aspect (§3.2), two as conveying both aspect and modality, and one – the second-position element *ta⁴* – as conveying modality and the ordering relation UT $<$ TT (§3.3). *Ta⁴* is the best candidate for a tense in the predicate system, since it requires TT to be in the future of UT. Yet *ta⁴* is profoundly different from tenses in more familiar languages, since it is not obligatory in all clauses with future TTs, and since it contributes modality as well as an ordering relation.

The goal of all of these arguments has been to show that in the predicate domain, Ticuna is as deeply tenseless a language as any represented in the time semantics literature. I could have included further data to show that the predicate system of Ticuna not only fails to grammaticalize tense, but does not encode event order relations in any way. For example, for reasons of space, I have omitted data demonstrating that the deictic temporal adverbs of Ticuna do not constrain the TT of the clause relative to UT (but rather ET relative to UT); that temporal subordinate clauses do not encode the order of the temporal vs. main clause events; and that the language lacks a temporal connective analogous to English 'before.'

I do not include this data, though, because the overall purpose of this part of the study is not to prove the tenselessness of the predicate system of Ticuna. Instead, I am interested in demonstrating that Ticuna *does* encode deictic temporal meanings in the noun phrase, even though it *does not* encode them in predicates: that is, deictic temporal markers can exist in the nominal domain even where they do not exist in the verbal domain. Therefore, the following chapters turn to the meanings of the two nominal temporal markers: DNOM6 *ɟe⁴ma⁴* and DET.REMPST *ga⁴*.

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