

Tense Marking on PPs and Adverbials in Malagasy¹

Matt Pearson (Reed College)
pearsonm@reed.edu
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Abstract

Certain PPs and adverbials in Malagasy, referred to as OBLIQUES, generally take the prefix *t-* in past-tense clauses. However, when the oblique is a verb complement and denotes an endpoint of motion, *t-* is absent if the theme is still at the endpoint, or on its way to the endpoint, at utterance time. Similarly, oblique adjuncts appear without *t-* when embedded in a tenseless clause selected by a past-tense verb, just in case the embedded-clause event overlaps the utterance time. I propose that oblique complements modify an event argument associated with the target state of a telic event, and take *t-* only if the target state properly precedes utterance time; whereas oblique adjuncts modify a cause/process event argument and take *t-* if that sub-event precedes utterance time. When the adjunct is embedded in a tenseless clause, however, its form is determined by the tense features of the higher clause.

1 Introduction

In Malagasy (Austronesian, Madagascar) certain adverbial and prepositional phrases appear in one of two forms, characterized by the presence or absence of the prefix *t-* on the initial word of the phrase. Here I will refer to phrases capable of taking *t-* as OBLIQUES. The unprefix variant of the oblique will be referred to as the BARE FORM while its prefixed counterpart will be referred to as the *t*-FORM. Examples are given in (1), where the bare form appears in (1a,b) and the *t*-form appears in (1c). Here and throughout, the oblique phrase is italicized in the examples while *t-* is boldfaced and glossed ‘T’.²

- (1) a. Mandidy mofo *amin’ ny antsy* Rabe
Pres.AV.cut bread with Det knife Rabe
‘Rabe is cutting bread with the knife’
b. Handidy mofo *amin’ ny antsy* Rabe
Irr.AV.cut bread with Det knife Rabe
‘Rabe will cut bread with the knife’

¹This paper builds on and supersedes previous research which appeared as Pearson (2000, 2001b, 2008, 2018a). Some of the data presented here originally appeared in those earlier papers. Thanks to audiences at the 26th Austronesian Formal Linguistics Association conference and the 2019 “Processing Tense” workshop at Tübingen University for providing feedback on the current version. And thanks especially to the following speakers for providing the data: Aina Randria, Clarisse Razanarisoa, Elia Ranaivoson, Hasiniaina Randriamihamina, Joachim Rabarimanana, Joëlle Bebiniaina, Josué Rakotoniaina, Laza Razafindrakoto, Lova Rasanimanana, Noro Ramahatafandry, Rado Razanajatovo, Raharisoa Ramanarivo, and Rija Raherimandimby. All errors and oversights with respect to the data are solely my responsibility. Some of this research was funded by a Franklin Research Grant from the American Philosophical Society.

²The following abbreviations are used in this paper: 1in: 1st person plural inclusive, 1s: 1st person singular, 2s: 2nd person singular, 3: 3rd person (singular or plural), Acc: accusative, AT: assertion time, AV: actor voice, *c(e)*: culmination point of event *e*, Det: determiner, Foc: focus particle, *i(e)*: initial time (initiation point) of event *e*, Irr: irrealis/future, Loc: locative, Neg: negation marker, Nom: nominative, Pres: present, Pst: past, T: *t-* prefix, $\tau(e)$: time of event *e*, TS: target state, TV: theme voice, UT: utterance time.

- c. Nandidy mofo *tamin' ny antsy* Rabe
 Pst.AV.cut bread T.with Det knife Rabe
 'Rabe cut bread with the knife'

As these examples show, the form of the oblique correlates with the tense of the clause, with the *t*-form occurring in [+PAST] contexts and the bare form in [-PAST] contexts: the PP 'with the knife' takes the form *amin'ny antsy* when the clause is either present tense (1a) or irrealis/future tense (1b), but *tamin'ny antsy* when the clause is past tense (1c).

Prior literature on Malagasy identifies *t*- as a past tense marker, and treats (1c) as an instance of TENSE CONCORD between a past-tense verb and its oblique dependent (Rajaona 1972:275, Rasoloson and Rubino 2005:464, etc.). In this paper I will show that *t*- has a more complex distribution than this, involving asymmetries between complements and adjuncts, and between root and embedded contexts. In past-tense root clauses, an oblique adjunct must appear in the *t*-form, whereas an oblique complement denoting an endpoint of motion can be in either the *t*-form or the bare form, depending on whether the situation named by the complement precedes or overlaps/follows the utterance time. In certain types of tenseless embedded clauses, this marking pattern gets extended to oblique adjuncts.

I offer an analysis of these asymmetries in terms of the syntax of event composition. I argue that oblique complements merge in a low position within the clause and modify an event argument associated with the TARGET STATE of a telic event, while oblique adjuncts merge higher and modify an event argument associated with a cause/process sub-event. Each event argument is within the local scope of an aspectual (Asp) head, which temporally orders the corresponding sub-event relative to an assertion time. The T head in turn orders the assertion time relative to the utterance time. An oblique is prefixed with *t*- when the closest c-commanding T has a past-tense feature, and/or the closest c-commanding Asp has an anterior-aspect feature.

Next I consider biclausal constructions where the verb in the complement clause must match the tense of the verb that selects it. I show that when the matrix and embedded verbs both carry [+PAST] marking, an oblique adjunct embedded in the complement clause can appear in either the *t*-form or the bare form, with the same semantic contrast exhibited by oblique complements in monoclausal contexts. I propose an extension to my analysis of the complement–adjunct asymmetry which accounts for this possibility in terms of the absence of interpretable tense in the embedded clause, correlating with a temporal dependency between the embedded-clause event and the superordinate-clause event.

The structure of this paper is as follows: Section 2 provides a brief overview of Malagasy clause structure and verb inflection. In section 3 I describe the class of obliques in more detail, and discuss the basic distribution of the *t*- prefix. I then turn to the asymmetry between complement and adjunct obliques in section 4 and propose an analysis of this asymmetry, extending the analysis to tenseless clauses in section 5. Section 6 summarizes the paper and raises issues for future research.

2 Background: Clause structure and tense morphology

Malagasy is an Austronesian language of Madagascar. The data in this paper comes from the Merina dialect, which forms the basis for standard written Malagasy. Information on Malagasy morphology and syntax can be found in Keenan (1976), Pearson and Paul (1996), Paul (1998, 2000), Rasoloson and Rubino (2005), Pearson (2001, 2005), and the many references therein.

Unmarked clauses consist of a predicate phrase followed by a definite DP denoting the topic of predication, variously referred to as the TRIGGER, PIVOT, or SUBJECT. In verbal predicates, VOICE morphology on the verb head indicates the grammatical role of the trigger. Two voice forms appear

in this paper. The ACTOR VOICE (AV)—also known as the ACTOR-TOPIC or ACTIVE form—is used when the trigger is the external argument of a transitive or unergative verb, or the sole core argument of an unaccusative verb. The THEME VOICE (TV)—also known as the THEME-TOPIC or PASSIVE form—is used when the trigger is the internal argument of a transitive verb. Compare the examples below, featuring the verb root *vaky* ‘read’. In (2a) the verb appears in the AV form *mamaky*, marked by the voice prefix *m-* and the stem-forming prefix *an-*; here the external argument *ny mpianatra* functions as the trigger of the clause. In (2b) the verb appears in the TV form *vakin(a)*, marked by the suffix *-in(a)*, and the internal argument *ny boky* acts as the trigger.³

- (2) a. Mamaky ny boky any an-tokotany ny mpianatra
 Pres.AV.read Det book there Loc-garden Det student
 ‘The student is reading the book in the garden’
 b. Vakin’ ny mpianatra any an-tokotany ny boky
 Pres.TV.read Det student there Loc-garden Det book
 ‘The student is reading the book in the garden’

Verbs inflect for tense along with voice. Three tenses are distinguished: PRESENT is morphologically unmarked, while PAST is marked by the prefix *n(o)-* and IRREALIS/FUTURE by the prefix *h(o)-*.⁴ *N-* and *h-* replace the AV prefix *m-* (3), while in the other voices *n-* and *h-* are prefixed to a vowel-initial stem and their allomorphs *no-* and *ho-* are prefixed to a consonant-initial stem (4).

- (3) a. Namaky ny boky ny mpianatra
 Pst.AV.read Det book Det student
 ‘The student read the book’
 b. Hamaky ny boky ny mpianatra
 Irr.AV.read Det book Det student
 ‘The student will read the book’
 (4) a. Novakin’ ny mpianatra ny boky
 Pst.TV.read Det student Det book
 ‘The student read the book’
 b. Hovakin’ ny mpianatra ny boky
 Irr.TV.read Det student Det book
 ‘The student will read the book’

Non-verbal predicates, such as those headed by a noun (5) or an adjective (6), lack an overt copula. In irrealis/future clauses the predicate is preceded by the particle *ho* (clearly related to the verb prefix *h(o)-*). When *ho* is absent, the clause receives a present or past interpretation according to context.

- (5) a. Mpianatra Rabe
 student Rabe
 ‘Rabe is/was a student’

³Some verbs mark the TV form with the prefix *a-* or the suffix *-an(a)*. A third voice form, the CIRCUMSTANTIAL, has a limited distribution than AV and TV and does not appear in any of the examples in this paper.

⁴The irrealis/future form is so called because, in addition to marking an event as following the utterance time, it is required in certain types of embedded clauses where its distribution is similar to that of subjunctive forms in other languages (cf. examples (56b), (77)).

- b. **Ho** mpianatra Rabe
Irr student Rabe
'Rabe will be a student'
- (6) a. Finaritra ny vehivavy
happy Det woman
'The woman is/was happy'
- b. **Ho** finaritra ny vehivavy
Irr happy Det woman
'The woman will be happy'

While the verb prefix *n(o)-* is generally analyzed as a past tense marker, there are situations where it appears to encode something like ANTERIOR ASPECT. For example, a verb prefixed with *n(o)-* can be preceded by the particle *ho*, yielding a future anterior ('past-in-the-future') interpretation:

- (7) **Ho** nandidy mofo aho
Irr Pst.AV.cut bread 1sNom
'I will have cut bread'

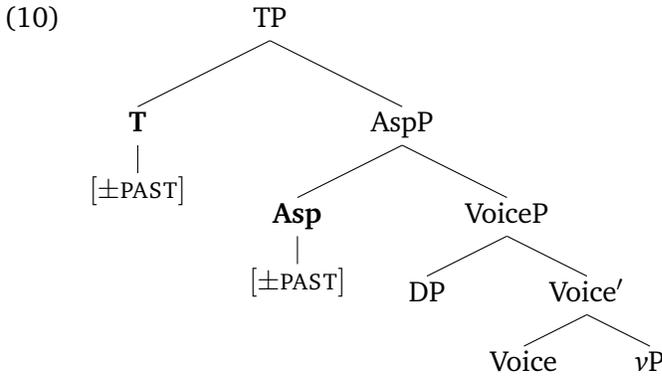
Following work inspired by Reichenbach (1947), I consider tense and aspect features to express ordering relations between times: aspect features encode an ordering between the time of the event, notated $\tau(e)$, and an ASSERTION TIME (AT); while tense features encode an ordering between AT and an anchoring time, typically the UTTERANCE TIME (UT). I use ASSERTION TIME in the sense of Demirdache and Uribe-Etxebarria (2000, 2014), who in turn follow Klein (1995:687): "the time for which an assertion is made (or to which the assertion is confined)" (other authors refer to this as the TOPIC TIME or REFERENCE TIME). Typically the prefix *n(o)-* indicates that the assertion time precedes the utterance time, $AT < UT$, as in (3a) and (4a). But in (7) *n(o)-* appears to encode that the time of the event precedes the assertion time, $\tau(e) < AT$ (anterior aspect), with *ho* indicating that the assertion time follows the utterance time (future tense).

Another construction where *n(o)-* arguably expresses anterior aspect is illustrated in (8)–(9) below. Here the verb combines with the particle *vao* 'just, newly', which encodes proximity between $\tau(e)$ and an assertion time AT. By default, *vao* is interpreted such that AT corresponds to (or overlaps) UT, resulting in an 'immediate past' reading, as in (8a) and (9a). However, an assertion time which precedes UT can be specified—e.g., by adding a past-time adverbial (8b) or an additional clause denoting a past event (9b). In such cases, the combination of *vao* plus *n(o)-* encodes that $\tau(e)$ immediately precedes the overtly specified assertion time, which in turn precedes UT.

- (8) a. **Vao** niteny izy
just Pst.AV.speak 3Nom
'S/he has just spoken'
- b. **Vao** niteny izy tamin' izay
just Pst.AV.speak 3Nom T.at that
'S/he had just spoken then' (Rajaona 1972:318)
- (9) a. **Vao** nohanin-dRabe ilay fanafody
just Pst.TV.eat-Rabe that medicine
'Rabe has just taken the medicine'

- b. **Vao nohanin-dRabe** ilay fanafody dia natory izy
 just Pst.TV.eat-Rabe that medicine then Pst.AV.sleep 3Nom
 ‘Rabe had just taken the medicine when he fell asleep’

Here I offer a formal characterization of the syntactic features that *n(o)*- encodes. First, I follow Demirdache and Uribe-Etxebarria (2000, 2014) and many others in positing an aspectual phrase, AspP, below TP and above the base-merge position of the external argument (here assumed to be SpecVoiceP):



I also follow Demirdache and Uribe-Etxebarria in treating both T and Asp as ordering predicates: T orders the assertion time AT relative to the utterance time UT, while Asp orders the event time $\tau(e)$ relative to AT. I will use the binary feature $[\pm\text{PAST}]$ to express the presence or absence of a precedence relation between two times: T is $[\text{+PAST}]$ when AT precedes UT (past tense), and $[\text{-PAST}]$ when AT does not precede UT (non-past tense). Likewise Asp is $[\text{+PAST}]$ when $\tau(e)$ precedes AT (anterior aspect), and $[\text{-PAST}]$ when $\tau(e)$ does not precede AT (neutral aspect).⁵

The possible permutations of T and Asp features, and the corresponding temporal ordering relations, are summarized in (11) ($t_1 \geq t_2$ should be read as “ t_1 overlaps or follows t_2 ”):

(11)

	T	Asp			
a.	$[\text{-PAST}]$	$[\text{-PAST}]$	NON-PAST	$\text{AT} \geq \text{UT}$	$\tau(e) \geq \text{AT}$
b.	$[\text{-PAST}]$	$[\text{+PAST}]$	NON-PAST ANTERIOR	$\text{AT} \geq \text{UT}$	$\tau(e) < \text{AT}$
c.	$[\text{+PAST}]$	$[\text{-PAST}]$	PAST	$\text{AT} < \text{UT}$	$\tau(e) \geq \text{AT}$
d.	$[\text{+PAST}]$	$[\text{+PAST}]$	PAST ANTERIOR	$\text{AT} < \text{UT}$	$\tau(e) < \text{AT}$

The verb is prefixed with *n(o)*- when UT, AT, and $\tau(e)$ are ordered as in (11b), (11c), or (11d). I propose that verb morphology spells out the features of T and Asp as follows:

- (12) a. The verb is prefixed with *n(o)*- when the closest c-commanding T head, Asp head, or both, includes a $[\text{+PAST}]$ feature.
 b. Otherwise the verb is unmarked when T is specified as $[\text{+REALIS}]$, and prefixed with *h(o)*- when T is $[\text{-REALIS}]$.

⁵Treating Asp as a temporal ordering predicate provides a general approach to the semantics of viewpoint aspect. For instance, Pancheva and von Stechow (2004) propose that Asp in English and German can have the feature $[\text{PERFECTIVE}]$ or $[\text{IMPERFECTIVE}]$: $[\text{IMPERFECTIVE}]$ denotes that the assertion time is contained within the event time, $\text{AT} \subseteq \tau(e)$; while $[\text{PERFECTIVE}]$ denotes that the event time is properly contained within the assertion time, $\tau(e) \subset \text{AT}$ (see Demirdache and Uribe-Etxebarria for a similar proposal). Malagasy does not mark a perfective–imperfective distinction, so I assume that Asp in Malagasy encodes just a two-way contrast between anterior and neutral aspect.

Since the verb is prefixed with *n(o)-* in all cases where the event time precedes the utterance time, one might wonder whether (12a) could be simplified: perhaps *n(o)-* directly encodes that $\tau(e)$ precedes UT, without the need to invoke an assertion time or reference features of Asp. In 4.3 I show that the formulation in (12a) is needed to capture the distribution of *t*-marking. In the meantime, I will often group (11b,c,d) together as “[+PAST] contexts” in cases where it is not necessary to specify whether the verb is realizing a [+PAST] feature of T, Asp, or both.

3 Obliques and *t*-marking

3.1 The class of obliques

The prefix *t-* appears on certain constituents, referred to here as OBLIQUES, which encode semantic roles such as location, manner, or instrument. Obliques are headed by a small class of prepositions and adverbials, including the elements listed in (13):

(13)	BARE	<i>t</i> -FORM	
	<i>aiza</i>	<i>taiza</i>	‘where’
	<i>aloha</i>	<i>taloha</i>	‘before, earlier’
	<i>aoriana</i>	<i>taoriana</i>	‘after, behind, later’
	<i>amin’</i>	<i>tamin’</i>	‘with, at, to’

Obliques headed by the elements in (13) are illustrated in (14)–(15) below. *Aiza* is the locative wh-operator (14a). *Aloha* and *aoriana* express both spatial and temporal relations, and may function as obliques either on their own (14b) or in combination with a DP complement (14c) (note *aoriana* becomes *aorian’* before a complement). The preposition *amin’* encodes various semantic roles: PPs with *amin’* can denote an instrument (15a), comitative relation (15b), manner (15c), or temporal location (15d).

- (14) a. *Aiza ny reninao no mipetraka?*
 where Det mother.2s Foc Pres.AV.live
 ‘Where does your mother live?’
- b. *Hiteny aloha aho*
 Irr.AV.speak before 1sNom
 ‘I will speak first’
- c. *Hiteny aorian’ ny mpampianatra aho*
 Irr.AV.speak after Det teacher 1sNom
 ‘I will speak after the teacher’
- (15) a. *Manoratra taratasy amin’ ny penina ny mpianatra*
 Pres.AV.write letter with Det pen Det student
 ‘The student is writing a letter with the pen’
- b. *Miresaka amin’ ilay vehivavy aho*
 Pres.AV.converse with that woman 1sNom
 ‘I am speaking with that woman’
- c. *Miteny amim-panetran-tena foana Rabe*
 Pres.AV.speak with-modesty always Rabe
 ‘Rave always speaks modestly’

- d. Mamela an-dRabe mivoaka amin' ny alina aho
 Pres.AV.let Acc-Rabe Pres.AV.go:out in Det evening 1sNom
 'I let Rabe go out in the evening(s)'

The other elements which can head an oblique phrase are the spatial deictics listed in (16) below, equivalent to 'here' and 'there'. As this table shows, Malagasy has an unusually rich system for encoding spatial deixis (Dez 1980:122–145, Anderson and Keenan 1985:292–293, Imai 2003). Spatial deictics distinguish several degrees of distance, as well as indicating whether the location in question is visible to the speaker or not ([±VIS]). Also, certain pairs of deictics are distinguished by whether they refer to a specific point in space or a more general location: e.g., *eto* 'right here' versus *ety* 'hereabouts'.

(16)	BARE		t-FORM		
	[+VIS]	[-VIS]	[+VIS]	[-VIS]	
	<i>eto</i>	<i>ato</i>	<i>teto</i>	<i>tato</i>	point next to speaker
	<i>ety</i>	<i>aty</i>	<i>tety</i>	<i>taty</i>	area including speaker
	<i>etsy</i>	<i>atsy</i>	<i>tetsy</i>	<i>tatsy</i>	area near speaker
	<i>eo</i>	<i>ao</i>	<i>teo</i>	<i>tao</i>	point not near speaker
	<i>eny</i>	<i>any</i>	<i>teny</i>	<i>tany</i>	area not near speaker
	<i>ery</i>	<i>ary</i>	<i>terỳ</i>	<i>tary</i>	area far from speaker

A peculiarity of Malagasy is that any oblique phrase denoting a location in space must be introduced by one of these deictic elements, anchoring the location with respect to the speech act. Example sentences containing spatial obliques include:

- (17) a. *Ety* ny boky
 here Det book
 'The book is here'
- b. *Hihaona any amin' ny tetezana* isika
 Irr.AV.meet there at Det bridge 1inNom
 'We will meet at the bridge'
- c. *Mipetraka any Antsirabe* izy
 Pres.AV.live there Antsirabe 3Nom
 'S/he lives in Antsirabe'
- d. *Any am-pianarana* ny ankizy
 there Loc-school Det children
 'The children are at school'
- e. *Eo ambonin' ny latabatra* ilay boky
 here on:top.of Det table that book
 'The book is on the table'
- f. *Milomano ao anaty renirano* Raso
 Pres.AV.swim there inside river Raso
 'Raso is swimming in the river'

As these examples show, a deictic element can function as an oblique on its own (17a), or select a complement. Possible complements include a PP headed by *amin'* (17b), *aloha*, *aoriana*, or one of a handful of other prepositional elements featuring the prefix *a-*: e.g., *akaiky* 'near(by), close

to', *amorona* 'at the edge of'. The spatial deictic can also combine with a place name (17c), or a bare noun marked with the locative proclitic *an-* (17d). Some *an-* + noun combinations have been grammaticalized as prepositions, including *ambony* 'over, on top' (from *vony* 'top') (17e), and *anaty* 'inside' (from *aty* 'interior; liver') (17f).

The sentences below illustrate *t*-marking on spatial versus non-spatial obliques ((19a,b) adapted from Paul 2000:100). These show that when the oblique consists of a deictic adverbial and a PP complement headed by *amin'*, *aloha*, or *aoriana*, as in the (b) examples, it is the deictic that carries the *t-* prefix. *Amin'*, *aloha*, and *aoriana* take *t-* only when they are the initial element in the oblique phrase, as in the (a) examples.

- (18) a. Niresaka *tamin' ilay vehivavy* aho
 Pst.AV.converse T.with that woman 1sNom
 'I spoke with that woman'
- b. Nihaona *tany amin' ny tetezana* isika
 Pst.AV.meet T.there at Det bridge 1inNom
 'We met at the bridge'
- (19) a. Niteny *taorian' ny mpampianatra* aho
 Pst.AV.speak T.after Det teacher 1sNom
 'I spoke after the teacher'
- b. Nipetraka *tao aorian' ny mpampianatra* aho
 Pst.AV.sit T.there after Det teacher 1sNom
 'I sat behind the teacher'

Note that OBLIQUE is being used here as a term of convenience, to refer to all and only constituents which can take the *t-* prefix. Not all phrases in Malagasy denoting peripheral syntactic roles count as obliques in this specialized sense. For example, temporal adverbials such as *omaly* 'yesterday' and *oviana* 'when?' cannot take *t-*. Likewise *t-* does not appear on manner adverbials and other non-spatial modifiers formed with the proclitic *an-* (e.g., *an-tsirambina* 'carelessly', from *tsirambina* 'carelessness'), or on benefactive phrases, formed with *an-* plus the particle *ho* (e.g., *ho an'ny zaza* 'for the child'). Finally, *t-* cannot be added to prepositions grammaticalized from verbs or adjectives (e.g., *momba ny zaza* 'about the child', where *momba* 'about/concerning' derives from the verb *momba* 'follow'). I leave it for future investigation to determine why certain subclasses of PPs and adverbials can take *t-* while others cannot.

3.2 The function of *t-*: A first pass

The *t*-form of the oblique occurs in [+PAST] contexts while the bare form is required in [-PAST] contexts. Consider the examples below, where the oblique functions as the main predicate of the clause (note the absence of a copula). When the bare form is used (20a), it is understood that the lemur is in the forest at the time of utterance (UT). When the *t*-form is used (20c), it is understood that the lemur was in the forest at some point prior to UT. In (20b) the oblique is preceded by the particle *ho*, which, as noted above, marks irrealis/future on non-verbal predicates; here, as in (20a), the oblique appears in its bare form.

- (20) a. Any *anatin' ny ala* ny gidro
 there inside.of Det forest Det lemur
 'The lemur is in the forest'

- b. Ho *any anatin' ny ala ny gidro*
Irr there inside.of Det forest Det lemur
'The lemur will be in the forest'
- c. *Tany anatin' ny ala ny gidro*
T.there inside.of Det forest Det lemur
'The lemur was in the forest'

An oblique can also function as a dependent within a larger predicate headed by a verb, as illustrated in (21) (repeated from (1)). Here the form of the oblique covaries with the tense of the verb. The *t*-form co-occurs with past marking (21c), while the bare form is required when the verb is in the present or irrealis/future (21a,b).

- (21) a. Mandidy mofo *amin' ny antsy* Rabe
Pres.AV.cut bread with Det knife Rabe
'Rabe is cutting bread with the knife'
- b. Handidy mofo *amin' ny antsy* Rabe
Irr.AV.cut bread with Det knife Rabe
'Rabe will cut bread with the knife'
- c. Nandidy mofo *tamin' ny antsy* Rabe
Pst.AV.cut bread T.with Det knife Rabe
'Rabe cut bread with the knife'

Consider also the examples in (22), where the oblique is a dependent of the non-verbal predicate *tonga* 'arrive'.⁶ *Tonga* is preceded by *ho* in irrealis/future clauses (22b), but otherwise the form of the oblique provides the only indication of the tense of the clause (22a,c).

- (22) a. Tonga *any ny vehivavy*
arrive there Det woman
'The woman {arrives/has arrived} there'
- b. Ho tonga *any ny vehivavy*
Irr arrive there Det woman
'The woman will arrive there'
- c. Tonga *tany ny vehivavy*
arrive T.there Det woman
'The woman arrived there'

The data above suggests that *t*- encodes PAST TENSE: i.e., a [+PAST] feature on T. In (20c) *t*- is the sole encoding of this feature, given the absence of a verbal copula. Likewise *t*- is the only indicator of past tense in (22c), where the oblique acts as a dependent of a non-inflecting predicate head. In cases such as (21c), past tense is marked both by *t*- and by the verb prefix *n(o)*-, resulting in tense concord between the verb and its oblique dependent. All of these cases may be subsumed under the simple distributional rule in (23). A rule of this sort is found in grammatical descriptions of Malagasy (e.g., Rajaona 1972:275), and was also volunteered to me by some of my native speaker consultants.

⁶*Tonga* may be categorized as non-verbal since it takes the form of an invariant root, with no inflection for tense or voice. Predicates belonging to the *tonga* class are discussed in chapter 7 of Travis (2010).

- (23) a. An oblique is unprefixed when it appears in a non-past-tense clause.
 b. An oblique is prefixed with *t-* when it appears in a past-tense clause.

Although it captures the data in (20)–(22), a more thorough investigation shows that (23) is only partially correct. On the one hand, (23a) holds without exception: the *t*-form is disallowed in present and irrealis/future clauses. Thus the sentences in (24) and (25) are robustly ungrammatical when the oblique is prefixed with *t-*.

- (24) a. **Mandidy** mofo (***t**)amin' ny antsy Rabe
 Pres.AV.cut bread T.with Det knife Rabe
 'Rabe is cutting bread with the knife'
 b. **Handidy** mofo (***t**)amin' ny antsy Rabe
 Irr.AV.cut bread T.with Det knife Rabe
 'Rabe will cut bread with the knife'
- (25) a. **Miditra** (***t**)ao an-trano ny vehivavy
 Pres.AV.enter T.there Loc-house Det woman
 'The woman {goes/is going} into the house'
 b. **Hiditra** (***t**)ao an-trano ny vehivavy
 Irr.AV.enter T.there Loc-house Det woman
 'The woman will go into the house'

However, (23b) turns out to be too strong: under certain conditions a [+PAST] clause can include an oblique in the bare form instead of the *t*-form. Compare the sentences in (25) above with those in (26), which show that the past form of the verb can combine with either the *t*-form or the bare form of the oblique. As the glosses for (26a,b) suggest, the presence or absence of *t-* has an effect how the sentence is interpreted (see 4.1 below for discussion).

- (26) a. **Niditra** tao an-trano ny vehivavy
 Pst.AV.enter T.there Loc-house Det woman
 'The woman went into the house'
 b. **Niditra** ao an-trano ny vehivavy
 Pst.AV.enter there Loc-house Det woman
 'The woman has gone into the house'

As far as I am aware, the possibility of sentences like (26b) has not been noted in the prior literature on Malagasy, apart from a passing mention in Rajemisa-Raolison (1969:139). However, sentences of this sort can be found in corpus data, and their well-formedness has been confirmed by multiple native speakers (interestingly, although every speaker I consulted immediately accepted sentences like (26b), some expressed surprise upon realizing that they find such sentences grammatical, since they had learned in school that *t-* is required in past-tense clauses).

For predicates containing a verb head and an oblique dependent, then, the permissible combinations are the ones listed in (27):

- (27)
- | | | |
|----|-------------|----------------------|
| | VERB | OBLIQUE |
| a. | present | bare form |
| b. | irrealis | bare form |
| c. | past | bare form |
| d. | past | <i>t</i>-form |

For the remainder of this paper I focus on the distribution and interpretation of the combinations in (27c) and (27d). In section 4 I show that in root contexts, (27c) is available only when the oblique is selected by a verb of motion and denotes a goal/endpoint. I propose an analysis which captures this restriction in terms of event composition and the structural position of oblique complements versus adjuncts. I then extend this analysis to biclausal constructions in section 5.

4 Event structure and *t*-marking on oblique dependents

4.1 A complement–adjunct asymmetry

When the oblique is an ADJUNCT (non-argument) and denotes an instrument, the manner in which an event is carried out, the spatio-temporal location of an event or situation, or a comitative relation, the *t*-form appears to be obligatory in [+PAST] root clauses. Thus speakers systematically reject sentences like (28a), where a past-tense verb combines with a bare instrumental oblique. When the oblique is instead in the *t*-form (28b), the sentence is acceptable. The same contrast obtains in (29) with a locative oblique.⁷

- (28) a. ?* Nandidy ny mofo *amin' ny antsy* i Naivo
 Pst.AV.cut Det bread with Det knife Det Naivo
 ‘Naivo cut the bread with the knife’
 b. Nandidy ny mofo *tamin' ny antsy* i Naivo
 Pst.AV.cut Det bread T.with Det knife Det Naivo
 ‘Naivo cut the bread with the knife’
- (29) a. ?* Namaky boky *any an-tokotany* ny mpianatra
 Pst.AV.read book there Loc-garden Det student
 ‘The student {read/was reading} a book in the garden’
 b. Namaky boky *tany an-tokotany* ny mpianatra
 Pst.AV.read book T.there Loc-garden Det student
 ‘The student {read/was reading} a book in the garden’

However, when the oblique denotes the GOAL or ENDPOINT of a motion event, speakers readily accept both the *t*-form and the bare form in [+PAST] contexts, with a consistent difference in meaning. Consider these examples, repeated from (26):

- (30) a. Niditra *ao an-trano* ny vehivavy
 Pst.AV.enter there Loc-house Det woman
 ‘The woman has gone into the house’

⁷Occasionally one of my consultants would accept sentences like (28a) or (29a), but this happened infrequently and none of my consultants accepted such sentences consistently. In previous work I claimed that some speakers allow such sentences just in case the clause receives a habitual reading (e.g., ‘Naivo used to cut bread with the knife’). However, subsequent fieldwork has not corroborated this claim. Eleven of the thirteen speakers I have consulted reject sentences like (28a) and (29a) even in contexts that force a habitual reading. The remaining two speakers, interviewed together during a single session, allowed a habitual interpretation for (28a) and (29a) only with some hesitation. Based on this I conclude, albeit tentatively, that examples like (28a) and (29a) are ungrammatical.

It is of course possible that further investigation will reveal dialectal or idiolectal variation in the obligatoriness of *t*-marking. According to Dez (1980:139,203, 1990:110), *t*- is optional whenever the clause is otherwise overtly marked for past tense. While Dez’s claim is not supported by my data, it may still reflect the behavior of some speakers.

- b. Niditra *tao* *an-trano* ny vehivavy
 Pst.AV.enter T.there Loc-house Det woman
 ‘The woman went into the house’

In (30a) it is understood that the woman is still inside the house at UT. In the case of (30b) nothing is entailed about the woman’s location at UT, although given the availability of (30a) the hearer is likely to infer from (30b) that the woman is no longer in the house. (Notice that the English glosses convey this meaning difference through the form of the verb: present perfect *has gone* versus past *went*.) Sentence (30a) could be uttered in answer to the question *Aiza ny vehivavy izao?* ‘Where is the woman now?’, whereas (30b) would not be felicitous in that context. Note also the examples below, where it is explicitly denied that the woman is still in the house: the *t*-form is acceptable here, but if the bare form is used speakers find the sentence pragmatically anomalous (contradictory).

- (31) a. Niditra *tao* *an-trano* ny vehivavy, fa tsy *ao* intsony
 Pst.AV.enter T.there Loc-house Det woman but Neg there anymore
 ‘The woman went into the house, but [she’s] not there anymore’
 b. # Niditra *ao* *an-trano* ny vehivavy, fa tsy *ao* intsony
 Pst.AV.enter there Loc-house Det woman but Neg there anymore
 ‘The woman has gone into the house, but [she’s] not there anymore’

The contrast in (30) is also seen in (32), where the goal oblique is selected by a transitive motion verb (‘place’). When the bare form is used (32a), it is understood that the book is on the table at UT; hence the sentence could be used to answer the question *Aiza ny boky?* ‘Where is the book (now)?’. No such inference obtains when the *t*-form is used (32b): here the hearer is likely to conclude that the book is no longer on the table at UT.

- (32) a. Napetrako *eo* *ambony latabatra* ilay boky
 Pst.TV.place.1s here on.top table that book
 ‘I (have) placed that book on the table’ (and it’s still there)
 b. Napetrako *teo* *ambony latabatra* ilay boky
 Pst.TV.place.1s T.here on.top table that book
 ‘I placed that book on the table’ (it may no longer be there)

In examples like (30) and (32), the clause denotes a more-or-less PUNCTUAL event of motion. That is, the theme is conceived of as undergoing a (near-)instantaneous transition from not being at the endpoint to being at the endpoint.⁸ When the clause instead denotes a more DURATIVE motion event—that is, one where it takes time for the theme to reach the endpoint—the range of interpretations associated with use of the bare form is slightly broader. Consider the sentences in (33). When the oblique is in the bare form (33a), two readings are possible: either the lemur is at the top of the tree at UT, or the lemur has not yet reached the top of the tree as of UT but is still on its way there. When the *t*-form is used (33b), it is understood that the lemur reached the top of the tree, but there is no implication that it is still there at UT.

⁸The event in (30) is punctual insofar as ‘enter the house’ expresses a near-instantaneous transition from being outside the house to being inside the house. The woman is presumably in motion immediately before and after she enters the house, but this movement is not properly part of the entering event itself. Similar comments apply to the placing event in (32).

- (33) a. Niakatra *eny amin' ny tompon' ilay hazo* ilay gidro
 Pst.AV.ascend there at Det top.of that tree that lemur
 ‘The lemur has gone up to the top of the tree’ (it’s still there, or on its way)
- b. Niakatra *teny amin' ny tompon' ilay hazo* ilay gidro
 Pst.AV.ascend T.there at Det top.of that tree that lemur
 ‘The lemur went up to the top of the tree’ (it might no longer be there)

The same pattern of readings obtains in (34) below, featuring a transitive motion verb (‘send’). In (34a) it is understood that the children are either at school at UT, or are in transit and have not yet reached the school as of UT. In the case of (34b), it is understood that the children reached the school but are probably no longer there at UT.

- (34) a. Nalefan' ny vehivavy *any am-pianarana* ny ankizy
 Pst.TV.send Det woman there Loc-school Det children
 ‘The woman has sent the children to school’
 (they’re at school now, or they’re on their way to school)
- b. Nalefan' ny vehivavy *tany am-pianarana* ny ankizy
 Pst.TV.send Det woman T.there Loc-school Det children
 ‘The woman sent the children to school’ (they’re probably no longer at school)

A goal oblique can be thought of as identifying the state resulting from a telic event of motion, what Parsons (1990) calls the TARGET STATE (TS): the motion event culminates when the theme is at the location named by the oblique. After the motion event culminates, the theme continues to occupy that terminal location for some interval of time, the duration of the target state itself. Expressed in these terms, the presence or absence of *t-* on the goal oblique correlates with the temporal ordering of the target state relative to UT. Using the notation $\tau(\text{TS})$ to represent the temporal span associated with the target state—i.e., the contextually-salient⁹ interval during which the theme occupies the terminal location—the distribution of *t*-marking on goal obliques may be summarized as follows:

- (35) When an oblique in a [+PAST] clause denotes the target state of a motion event:
- a. The *t*-form is used when the temporal span of the target state *properly precedes* utterance time: $\tau(\text{TS}) < \text{UT}$.
 - b. The bare form is used when the temporal span of the target state *does not properly precede* utterance time: $\tau(\text{TS}) \geq \text{UT}$. There are two scenarios compatible with this:
 - i. Target state *overlaps* utterance time (theme is currently at goal): $\tau(\text{TS}) \circ \text{UT}$
 - ii. Target state *follows* utterance time (theme is on its way to goal): $\tau(\text{TS}) > \text{UT}$

If the motion event is durative, as in (33a) and (34a)—that is, if it takes time for the theme to reach the goal—readings (35b-i) and (35b-ii) are both available. But if the motion event is construed as punctual, as in (30a) and (32a), only reading (35b-i) is felicitous. This is because no appreciable time elapses between the start of the motion event and the onset of the target state: i.e., there is no sub-interval of the motion event at which the theme is in transit and has not yet reached the goal.

Before we consider how to capture the *t*-marking patterns documented here, we need to resolve an apparent paradox with sentences like (33a). How can this sentence be interpreted to mean that

⁹I specify “contextually-salient” here because $\tau(\text{TS})$ does not necessarily correspond to the total period of time during which the theme occupies the terminal location. Consider (34b): although this sentence strongly implies that the children are no longer at school as of UT, especially when contrasted with (34a), it does not strictly entail that they are no longer there. Thus the *t*-form seems to encode merely that some relevant interval of the target state precedes UT.

the lemur is currently ascending the tree—reading (35b-ii)—when the verb *niakatra* ‘ascended’ is marked with the [+PAST] morpheme *n(o)-?* I address this question in the next section.

4.2 Digression on verbal tense and event culmination

When a verb takes past marking, the clause is normally understood to denote a completed event. If the event is telic, and thus has a non-arbitrary endpoint, completedness implies culmination: that is, past marking implies that the endpoint was reached prior to UT. However, Travis (2010) has shown that Malagasy is a language where event culmination is generally a matter of implicature rather than entailment. For example, while a sentence like (36a) is normally interpreted to mean that the child succeeded in catching the dog, that inference can be cancelled without creating a logical contradiction, as shown by the fact that (36b) is felicitous (Travis 2010:213; example from Phillips 2000:22):¹⁰

- (36) a. Nisambotra ny alika ny zaza
 Pst.AV.catch Det dog Det child
 ‘The child caught the dog’
- b. Nisambotra ny alika ny zaza, nefa faingana loatra ilay alika
 Pst.AV.catch Det dog Det child but quick too that dog
 ‘The child set out to catch the dog, but the dog was too quick’

A telic event e has both an INITIATION POINT, which I represent as $i(e)$, and a CULMINATION POINT, which I represent as $c(e)$. If e is punctual, $i(e)$ and $c(e)$ are one and the same, and if e is durative, $i(e)$ properly precedes $c(e)$. If e has an identified target state TS, $c(e)$ corresponds to the initial point of the target state’s temporal span: $c(e) = i(\text{TS})$. Given the acceptability of examples like (36b), the following appears to hold:

- (37) When a clause names an event e , and the verb in the clause is prefixed with $n(o)-$:
- a. It is *entailed* that $i(e)$ precedes UT: the event began before utterance time.
- b. If e is telic, it is strongly *implicated* that there exists a $c(e)$ preceding UT (the event culminated before utterance time) unless that implicature is explicitly cancelled.

There are different ways to cancel the implicature of a culmination point preceding UT. In (36b), the speaker cancels the implicature by adding information which makes it clear that the event failed to culminate. In the case of sentences like (33a), repeated below as (38), the implicature may be cancelled by the presence of a goal oblique in the bare form.

- (38) Niakatra eny amin’ ny tompon’ ilay hazo ilay gidro
 Pst.AV.ascend there at Det top.of that tree that lemur
 ‘The lemur has gone to the top of the tree’ (perhaps it’s still on its way up)

The verb *niakatra* carries past tense marking, which entails that the ascending event started prior to UT, in accordance with (37a). In accordance with (37b), the hearer would normally conclude that the entire ascending event precedes UT. However, the absence of t -marking on the oblique

¹⁰This is the default situation in Malagasy. If the past-tense verb includes special telic morphology, event culmination is entailed rather than implicated. See Travis (2010:213–226) for discussion of this morphology and its effect on the interpretation. Note also that Travis gives a literal gloss for (36b): ‘The child caught the dog, but the dog was too quick.’ I have modified the gloss to create a felicitous English sentence which suggests the intended meaning of (36b).

explicitly signals that the target state for the ascending event does not properly precede UT (cf. (35b)). This is consistent with a situation where the target state has not yet commenced as of UT: i.e., $\tau(\text{TS}) > \text{UT}$. Since the initiation point of the target state corresponds to the culmination point of the motion event, we arrive at the reading of (38) where the ascending event has begun but has not yet culminated.

Something similar seems to be occurring in the following examples. Although *matory* ‘sleep’ is not a motion verb, we might argue that in (39b), the oblique identifies the target state of an implicit motion event.

- (39) a. Natory *tao* *am-pandriana* ny zaza
 Pst.AV.sleep T.there Loc-bed Det child
 ‘The child slept in the bed’ (and is perhaps no longer in bed)
- b. Natory *ao* *am-pandriana* ny zaza
 Pst.AV.sleep there Loc-bed Det child
 ‘The child has gone to sleep in the bed’ (and is still in the bed)

The presence of [+PAST] marking on the verb entails that the sleeping event began in the past, but does not entail that it necessarily ended in the past. Thus *natory* may be interpreted as durative and atelic (‘slept’) or as inceptive (‘went to sleep’). In (39a) the oblique is in the *t*-form and the entire sleeping event is understood to precede UT. Here the oblique can be taken to denote the static location of an activity. In the case of (39b), it would seem that the bare oblique identifies the target state in an inceptive event: a past event of the child going to sleep resulted in the child now being in the bed. Due to the combination of a [+PAST] verb and a bare oblique, (39b) must be interpreted such that the event of the child sleeping started before UT but the target state of the child being in the bed has not yet ended as of UT.

4.3 Accounting for the complement–adjunct asymmetry

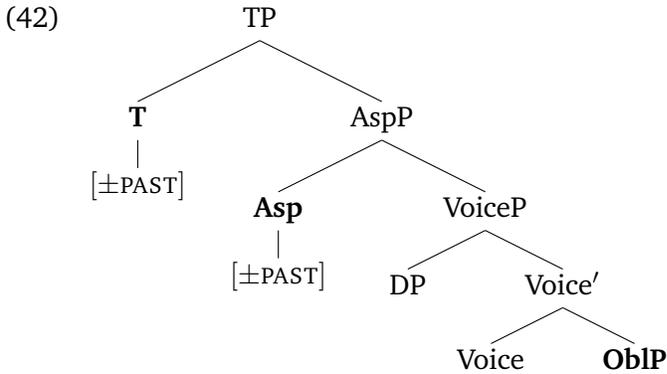
I have shown that the distribution of *t*- in [+PAST] clauses depends on the syntactic/semantic role of the oblique, with goals patterning differently from other oblique dependents. Here I propose a structural analysis which captures this distribution.

I begin with cases where the oblique is the main predicate, as in (40) and (41). Here the clause expresses a situation whereby the theme argument, either an entity or an event, occupies a given location (in (41) the *wh*-oblique acts as the predicate in a pseudo-cleft construction: see Paul 2000, 2001; Potsdam 2006). When the *t*-form is used, the clause receives a [+PAST] interpretation, and when the bare form is used a [–PAST] interpretation results.

- (40) a. *Eo ambonin’ ny latabatra* ilay boky
 here on:top.of Det table that book
 ‘The book is on the table’
- b. *Teo ambonin’ ny latabatra* ilay boky
 T.here on:top.of Det table that book
 ‘The book was on the table’
- (41) a. *Aiza Rabe no mianatra?*
 where Rabe Foc Pres.AV.study
 ‘Where is Rabe studying?’

- b. *Taiza* Rabe no nianatra?
 T.where Rabe Foc Pst.AV.study
 ‘Where was Rabe studying?’

My structure for clauses with oblique predicates is shown in (42). Although nothing in my analysis hinges on this, I will assume that the oblique phrase, ObIP, merges with a Voice head, which takes the DP denoting the theme as its specifier. The Voice head establishes a predication relation between DP and ObIP.¹¹



Obliques are stage-level predicates, denoting properties which can be temporally bounded. I therefore assume that ObIP includes an implicit EVENT ARGUMENT e_{obl} , denoting the situation of the theme being at the location (on event arguments see Davidson 1967, Parsons 1990, Kratzer 1996, et al.). ObIP carries the prefix *t-* just in case $\tau(e_{obl})$ properly precedes UT. More concretely, I propose that *t*-marking is governed by the spell-out rule in (43), which parallels the rule in (12a) that governs *n(o)*- marking on verbs:

- (43) An oblique is prefixed with *t-* iff it is in the immediate scope of a [+PAST] feature—i.e., iff the closest c-commanding T head or Asp head is [+PAST].

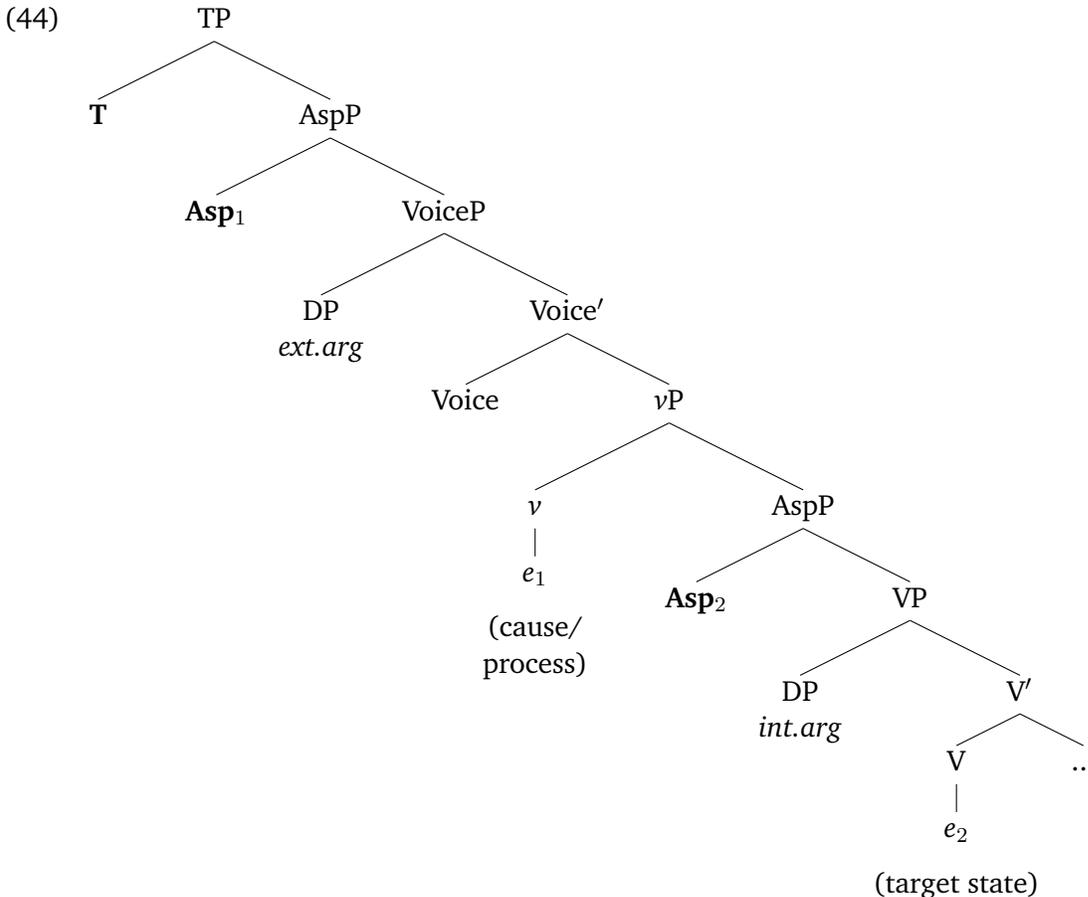
In accordance with (43), there are three featural combinations that yield *t*-marking: T is [+PAST] and Asp is [−PAST] (‘simple past’); T is [−PAST] and Asp is [+PAST] (‘present anterior’); or T and Asp are both [+PAST] (‘past anterior’). In each case $\tau(e_{obl})$ is ordered before UT. The oblique is in the bare form only when both T and Asp are [−PAST]. We thereby derive the past-tense interpretation of (40b) and (41b) and the non-past interpretation of (40a) and (41a).

I now turn to the distribution of *t-* on oblique dependents contained within a larger predicate. Recall that in [+PAST] clauses where the oblique denotes a goal—i.e., the target state in a motion event—the bare form is used if the theme is at the target state location, or has not yet reached the target state location, at UT; while the *t*-form is used if the theme reached the target state location and is (probably) no longer there at UT. When the oblique dependent denotes something other than a goal, such as an instrument, only the *t*-form is acceptable in [+PAST] clauses. I propose that this difference is a consequence of the different positions that goal and non-goal obliques occupy in the larger clause structure.

By way of background, I assume that telic events are composed of two sub-events, one representing the cause/process portion of the event and the other representing the endpoint or target

¹¹Note that (42) represents a partial structure for the sentence: following Pearson (2001, 2005, 2018b), I assume that the DP raises from SpecVoiceP to an A'-position in the left periphery of the clause, after which the TP undergoes fronting, yielding predicate-initial order.

state (Parsons 1990, Higginbotham 2009, Ramchand 2008, and many others). In the case of durative telic events, the cause/process sub-event is an activity which culminates in a target state; when the event is punctual, the cause/process sub-event is simply the specification of entry into the target state (CAUSE/BECOME). I further assume that each sub-event is associated with an event argument, and that these event arguments are introduced by verbal heads in a layered VP structure (cf. Hale and Keyser 2002, Ramchand 2008).¹² The basic structure for a transitive clause is shown in (44), where the event argument associated with the cause/process sub-event (e_1) is introduced by the v head, while the event argument associated with the target state (e_2) is introduced by the V head.¹³



I assume that vP and VP are each dominated by an $AspP$ projection, whose head includes a $[\pm PAST]$

¹²Ramchand (2008) treats ‘cause’ and ‘process’ as distinct sub-events, each associated with its own syntactic projection and its own event argument. I set aside the question of whether ‘cause’ and ‘process’ should be distinguished in this way, since treating them as a single sub-event turns out to be sufficient for my analysis.

¹³Alternatively, e_2 might be introduced by a category-neutral root, as in theories where the v head is the source of the verb category feature. Note that I remain agnostic on whether event arguments are discrete syntactic constituents—that is, phonologically null elements which merge with (a projection of) a verbal head—or whether they exist as implicit arguments in the semantic representations for the verbal heads themselves. In (44) and subsequent tree structures, the event argument is simply shown under the head with which it is associated.

For concreteness I follow Pylkkänen (2008), Harley (2013), and others in treating v and Voice as distinct categories: v introduces the cause/process sub-event, while external arguments are introduced in SpecVoiceP. Notice also that I show the internal argument base-merging in SpecVP. However, nothing in my analysis of t -marking hinges on where in the structure DP arguments are introduced.

feature that orders the time of the event argument introduced by its complement relative to the assertion time. Thus the higher aspectual head Asp_1 orders the (initial) time of the cause/process sub-event, $\tau(e_1)$ or $i(e_1)$, relative to AT; while the lower head Asp_2 orders the time of the target state, $\tau(e_2)$, relative to AT. Asp_1 corresponds to the VIEWPOINT ASPECT head posited by Demirdache and Uribe-Etxebarria (2000, 2014) and others, and shown in trees (10) and (42) above. Asp_2 is analogous to the INNER ASPECT head of Travis (2005, 2010), which she argues plays a role in “calculating the aspectual verb characterization of the verb and its internal arguments” (2005:70).¹⁴

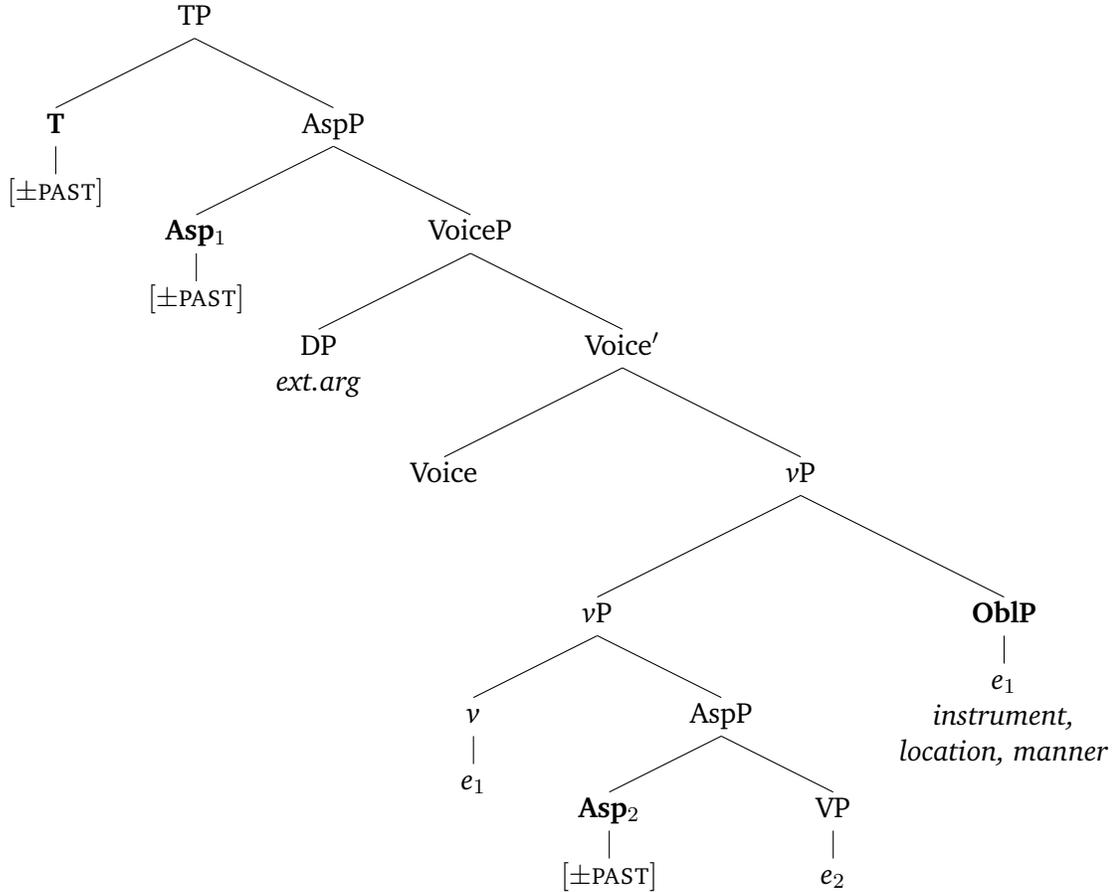
I propose that the distribution of *t*-marking on oblique dependents falls out from where the oblique merges in the hierarchical structure in (44). Let us begin with non-argument obliques which denote an instrument (45), spatio-temporal location (46), manner, or comitative relation. Recall that for obliques of this sort, the *t*-form is required in [+PAST] clauses while the bare form is disallowed. Thus *t*-marking necessarily co-occurs with *n(o)*-marking on the verb.

- (45) a. ?* Nandidy ny mofo *amin' ny antsy* i Naivo
 Pst.AV.cut Det bread with Det knife Det Naivo
 ‘Naivo cut the bread with the knife’
 b. Nandidy ny mofo *tamin' ny antsy* i Naivo
 Pst.AV.cut Det bread T.with Det knife Det Naivo
 ‘Naivo cut the bread with the knife’
- (46) a. ?* Namaky boky *any an-tokotany* ny mpianatra
 Pst.AV.read book there Loc-garden Det student
 ‘The student was reading a book in the garden’
 b. Namaky boky *tany an-tokotany* ny mpianatra
 Pst.AV.read book T.there Loc-garden Det student
 ‘The student was reading a book in the garden’

I assume that non-argument obliques merge relatively high in the structure in (44). Specifically, I propose that they adjoin to vP , as shown in (47) (this is roughly the position where Pylkkänen 2008 argues that ‘high’ applicative arguments are introduced):

¹⁴Travis (2005:91) suggests that, in addition to the inner AspP located between vP and VP, there is also an outer AspP which dominates vP and is the locus of viewpoint aspect, though she does not discuss the properties of this higher aspect projection. Note also that while Demirdache and Uribe-Etxebarria do not include an inner AspP projection in their tree structure, they do suggest that the sub-events of a complex event may be independently temporally ordered with respect to the assertion time (see Demirdache and Uribe-Etxebarria 2014:869 for brief discussion).

(47)



Above I suggested that the v head introduces an event argument e_1 associated with the cause/process sub-event. I propose that when ObIP merges with vP , as in (47), the resulting structure is interpreted via Kratzer’s rule of EVENT IDENTIFICATION (Kratzer 1996:122), paraphrased below:

- (48) *Event Identification*: If constituent α denotes a function $\lambda x_e \lambda e_s [f(x)(e)]$ and constituent β denotes a function $\lambda e_s [g(e)]$, then the output of MERGE(α, β) is interpreted as a function $\lambda x_e \lambda e_s [f(x)(e) \wedge g(e)]$.

In accordance with (48), the event argument introduced by ObIP is equated with the event argument introduced by v . I notate this by co-indexing the two arguments: both are labeled e_1 in (47). This derives the correct semantics for instrumental, manner, and spatio-temporal modifiers, which identify a property of an event that minimally pertains to the cause/process sub-event, but might fail to pertain to the target state (if there is one). In a predicate such as ‘cut the bread with the knife’, for instance, the instrumental modifier ‘with the knife’ describes something about the process whereby the cutting event is carried out—and not something about, say, the resulting state of the bread. This is in contrast to the goal phrase ‘on the table’ in a predicate such as ‘put the book on the table’, which describes the target state rather than something about the process that culminates in that target state (see below on the position of goal phrases).

By virtue of merging with vP , an oblique modifier is interpreted within the immediate scope of the higher aspect head Asp_1 —but outside the scope of the lower aspect head Asp_2 , when the latter is present in the structure. Thus, in accordance with (43) above, the oblique will take the t -prefix just in case Asp_1 and/or the T head includes the feature [+PAST]. The verb carries the prefix $n(o)$ - under the same conditions (cf. (12a)): I assume that the verb raises at least as high as Asp_1 ,

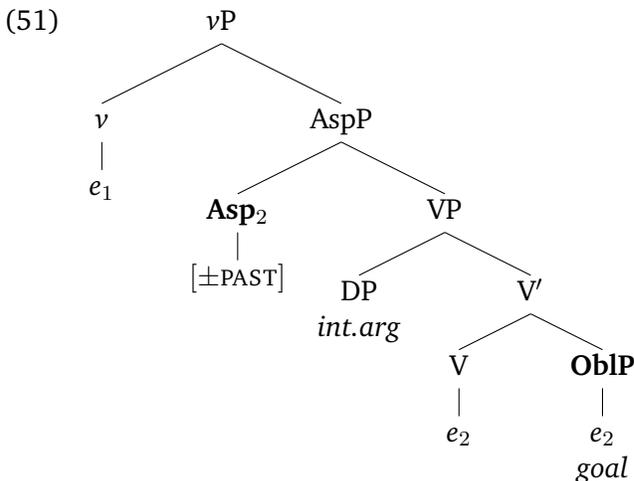
perhaps as high as T; thus the verb, like the oblique adjunct, is outside the c-command domain of the lower aspect head Asp_2 (evidence for the high position of the verb comes from the fact that it is spelled out to the left of a non-trigger external argument; cf. the discussion of (2b)). An oblique adjunct will appear in the bare form only if both T and Asp_1 are [-PAST], in which case the verb will appear in the present or future/irrealis form (depending on the value of T for [\pm REALIS]). We thus derive the concord pattern in (49), where the oblique ‘agrees in tense’ with the verb:

- (49) a. **Mandidy** mofo *amin’ ny antsy* Rabe
 Pres.AV.cut bread with Det knife Rabe
 ‘Rabe is cutting bread with the knife’
 b. **Nandidy** mofo *tamin’ ny antsy* Rabe
 Pst.AV.cut bread T.with Det knife Rabe
 ‘Rabe cut bread with the knife’

I now turn to oblique arguments denoting the goal of a motion event. Recall that a goal oblique appears in the bare form when the verb is in the present (50a) or future/irrealis form. When the verb has past marking, the oblique appears with or without *t-* depending on whether the interval of the theme occupying the terminal location overlaps/follows UT (50b) or precedes UT (50c).

- (50) a. **Alefako** any *am-pianarana ny ankizy*
 Pres.TV.send.1s there Loc-school Det children
 ‘I am sending the children to school’ (they’re on their way to school)
 b. **Nalefako** any *am-pianarana ny ankizy*
 Pst.TV.send.1s there Loc-school Det children
 ‘I have sent the children to school’ (they’re currently at school, or on their way)
 c. **Nalefako** *tany am-pianarana ny ankizy*
 Pst.TV.send.1s T.there Loc-school Det children
 ‘I sent the children to school’ (they’re probably no longer at school)

I assume that goal obliques are introduced in a low position in the verbal domain, internal to VP. Specifically I follow Larson (1988), Baker (1996), and Travis (2010), among others, in treating goal phrases as complements of the V head, as shown in (51):



As noted above, I assume that in telic predicates the V head introduces an event argument e_2 associated with the target state. When OblP merges with V, the event argument introduced by OblP is equated with e_2 via Event Identification (48). The closest aspectual head that c-commands the goal oblique is Asp_2 , which orders the time of the target state relative to AT. Thus, for purposes of the spell-out rule in (43), it is the $[\pm\text{PAST}]$ features of Asp_2 and T which determine whether the goal oblique is t -marked. The $[\pm\text{PAST}]$ feature of Asp_1 does not play a role in determining the form of the goal oblique; however, it is relevant for determining the tense morphology on the verb, under the assumption that the verb raises to Asp_1 or T.

To see how this analysis yields the t -marking pattern in (50), let us consider how the morphology on the verb and the goal oblique spell out different combinations of temporal ordering features on T, Asp_1 , and Asp_2 . The possible combinations are tabulated in (52). I also give the temporal interpretation of each combination, where e_1 is an event of a theme being in motion and e_2 is the target state of the theme occupying the terminal location. For (52a-c) I give only the interpretation when T is realis (i.e., present tense: AT overlaps UT).

(52)	T	Asp_1	Asp_2			
a.	$[-\text{PAST}]$	$[-\text{PAST}]$	$[-\text{PAST}]$	AT \circ UT	$\tau(e_1) \geq \text{AT}$	$\tau(e_2) \geq \text{AT}$
b.	$[-\text{PAST}]$	$[\text{+PAST}]$	$[-\text{PAST}]$	AT \circ UT	$\tau(e_1) < \text{AT}$	$\tau(e_2) \geq \text{AT}$
c.	$[-\text{PAST}]$	$[\text{+PAST}]$	$[\text{+PAST}]$	AT \circ UT	$\tau(e_1) < \text{AT}$	$\tau(e_2) < \text{AT}$
d.	$[\text{+PAST}]$	$[-\text{PAST}]$	$[-\text{PAST}]$	AT $<$ UT	$\tau(e_1) \geq \text{AT}$	$\tau(e_2) \geq \text{AT}$
e.	$[\text{+PAST}]$	$[\text{+PAST}]$	$[-\text{PAST}]$	AT $<$ UT	$\tau(e_1) < \text{AT}$	$\tau(e_2) \geq \text{AT}$
f.	$[\text{+PAST}]$	$[\text{+PAST}]$	$[\text{+PAST}]$	AT $<$ UT	$\tau(e_1) < \text{AT}$	$\tau(e_2) < \text{AT}$

Notice that two of the eight possible feature permutations are not included in (52), namely those where Asp_1 is $[-\text{PAST}]$ while Asp_2 is $[\text{+PAST}]$ (T either $[\text{+PAST}]$ or $[-\text{PAST}]$). By definition, the culmination of a cause/process sub-event corresponds to the inception of the target state: thus $\tau(e_1)$ necessarily precedes $\tau(e_2)$. Given this inherent temporal ordering between the two sub-events, the combination of $[-\text{PAST}]$ Asp_1 and $[\text{+PAST}]$ Asp_2 cannot receive a coherent interpretation: it is not possible to have an event whose cause/process sub-event overlaps or follows AT but whose resulting target state properly precedes AT.

Consider how the feature combinations in (52), and the temporal orderings that they instantiate, are encoded morphologically. When the feature values are as in (52a), the verb is in the scope of $[-\text{PAST}]$ features on both T and Asp_1 , while the goal oblique is in the scope of $[-\text{PAST}]$ features on both T and Asp_2 . When T also includes the feature $[\text{+REALIS}]$, this combination of ordering features is spelled out as in (50a), with the verb in the present-tense form and the oblique in the bare form. When the feature values are as in (52c-f), there is a $[\text{+PAST}]$ feature on either T or Asp_1 (or both), and thus the verb is prefixed with $n(o)$ -; likewise there is a $[\text{+PAST}]$ feature on either T or Asp_2 (or both), and therefore the goal oblique takes t -. This gives us the pattern in (50c), where the motion event precedes UT and (it is implied that) the theme is no longer at the goal at UT.

This leaves the feature combination in (52b). Here the $[-\text{PAST}]$ feature on T indicates that the assertion time AT overlaps UT. The $[\text{+PAST}]$ feature on Asp_1 in turn orders $\tau(e_1)$ —or at least the initiation point $i(e_1)$ —before AT, and thus before UT. Finally, the $[-\text{PAST}]$ feature on Asp_2 entails that $\tau(e_2)$ overlaps or follows AT, and thus overlaps or follows UT. Since the verb appears in the immediate scope of a $[\text{+PAST}]$ feature on Asp_1 , it is spelled out with the prefix $n(o)$ - in accordance with (12a). As for the goal oblique, it appears in the immediate scope of $[-\text{PAST}]$ features on both Asp_2 and T, and thus occurs in the bare form in accordance with (43). We thereby derive that the feature combination in (52b) is spelled out as in (50b) above. This correctly predicts how (50b) is interpreted: (the initial point of) the sending event precedes the utterance time, while the

target state either overlaps the utterance time (the children are currently at school) or follows the utterance time (the children are still on their way to school).

Note that this account of *t*-marking provides justification for the disjunctive rule in (12a), according to which the verbal prefix *n(o)*- spells out either past tense ([+PAST] on T) or anterior aspect ([+PAST] on Asp₁). If *n(o)*- were solely a past tense marker, it would be difficult to capture the co-occurrence of *n(o)*- with the bare oblique in (50b). My analysis relies on T having the feature [−PAST] in (50b): the sentence receives a present anterior rather than a past interpretation.

Notice that, strictly speaking, the feature combinations in (52d) and (52e) are compatible with a situation where the target state happens to overlap or follow UT, since $\tau(e_2)$ is not directly ordered with respect to UT, but only with respect to AT. It is for this reason, I suggest, that a sentence such as (50c) implicates but does not strictly entail that the theme is no longer at the goal at UT. I propose that this is a scalar implicature which arises due to competition with (50b). Sentence (50b) entails that the theme is still at the goal at UT, and (50b) is more ‘informative’ than (50c) in the sense that it is compatible with fewer temporal orderings: (50b) only encodes the feature combination in (52b) whereas (50c) encodes the combinations in (52c-f). Consequently if a speaker chooses to utter (50c) instead of (50b), the hearer is likely to infer that the situation named by (50b) does not hold: i.e., it is not the case that the theme is still at the goal (or on its way to the goal) at UT.

The table in (53) summarizes how the bare form and the *t*-form are interpreted for oblique adjuncts versus complements according to my analysis:

(53)

	<i>t</i>-form	bare form
adjunct <i>(instrument, location, etc.)</i>	T = [+PAST] or Asp ₁ = [+PAST] initial point of cause/process sub-event <i>e</i> ₁ precedes UT	T = [−PAST] and Asp ₁ = [−PAST] cause/process sub-event <i>e</i> ₁ does not precede UT
complement <i>(goal)</i>	T = [+PAST] or Asp ₂ = [+PAST] target state <i>e</i> ₂ precedes UT (= theme no longer at goal)	T = [−PAST] and Asp ₂ = [−PAST] target state <i>e</i> ₂ does not precede UT (= theme currently at goal) (= theme not yet at goal)

In section 1 I mentioned that when oblique adjuncts occur in certain kinds of embedded clauses, they behave like oblique complements with respect to *t*-marking. I turn to this phenomenon in the next section and show how, with minimal extra assumptions, the above analysis can be extended to these cases.

5 Oblique adjuncts in embedded contexts

5.1 Tense-matching complements

Malagasy verbs always show morphological tense marking; there are no non-finite forms. However, in certain biclausal constructions where the embedded clause lacks an independent tense specification, the tense morphology on the embedded verb must match the tense morphology on the superordinate verb (Paul and Ranivoson 1998, Potsdam 2009, Pearson 2018b, Paul and Scott 2022). I will refer to embedded clauses of this sort as TENSE-MATCHING COMPLEMENTS. Verbs that select tense-matching complements include aspectual verbs such as *manomboka* ‘begin’ (54), *manohy* ‘continue’, and *mitsahatra* ‘stop’, along with *manandrana* ‘try’ (55).

- (54) a. **Manomboka** [**mandidy mofo**] aho
 Pres.AV.begin Pres.AV.cut bread 1sNom
 ‘I am beginning to cut bread’
- b. **Nanomboka** [**nandidy mofo**] aho
 Pst.AV.begin Pst.AV.cut bread 1sNom
 ‘I began to cut bread’
- (55) a. **Manandrana** [**miditra**] Rasoa
 Pres.AV.try Pres.AV.enter Rasoa
 ‘Rasoa is trying to enter’
- b. **Nanandrana** [**niditra**] Rasoa
 Pst.AV.try Pst.AV.enter Rasoa
 ‘Rasoa tried to enter’

The tense-matching complement, bracketed in the examples, denotes an event (as opposed to a proposition). It also lacks an overt trigger DP, and instead has an implicit trigger which obligatorily corefers with an argument in the higher clause. I will refer to complements of this type as CONTROL COMPLEMENTS. Tense-matching control complements tend to correspond to complements of restructuring verbs in other languages, in particular those which Wurmbrand (2014) labels TENSELESS SIMULTANEOUS INFINITIVE complements.

Tense matching in control constructions arguably reflects an inherent temporal dependency between the event denoted by the complement clause and the event denoted by the superordinate clause. In the case of (54), the event time associated with *manomboka* ‘begin’ coincides with the initiation point of the event denoted by the complement clause (here, the event of cutting bread): $\tau(e_{begin}) = i(e_{cut})$. The temporal dependency is less straightforward in the case of ‘try’. In (55) the time of entering does not exactly coincide with the time of trying—indeed, there does not have to be an event of entering at all: Rasoa could try and fail, in which case the entering event remains unrealized. However, as Sharvit (2003) points out in her analysis of the semantics of ‘try’, there must exist some event *e* which has the potential, however remote, to develop into an event of entering. In this respect, she claims, the complement of ‘try’ is not strictly intensional. Wurmbrand (2001, 2014) makes a similar observation, arguing that the time of this event *e* must coincide with the time of the trying event, thereby licensing the selection of a tenseless simultaneous infinitive:

What *try*-examples such as [*John tried to switch on the light*] express is that some aspect of what John thinks will bring about the situation in which the light is on has to coincide temporally with John’s attempt. That is, at the time of John’s attempt he has to perform some action that according to his beliefs will make the light go on. Thus, the simultaneous character of *try*-contexts is not the simultaneity between two actual events, but rather between the (actual) event of trying and whatever the subject thinks will bring about the situation described in the infinitive. (Wurmbrand 2001:75)

From this perspective it is plausible that with *manandrana* ‘try’, as with *manomboka* ‘begin’, tense matching reflects an inherent temporal overlap between some embedded event and the event denoted by the higher clause.

Some verbs can select either a tense-matching control complement or an irrealis control complement, as shown in (56) for *mivoaka* ‘go out’. The form of the complement correlates with a difference in interpretation. In (56a) it is understood that Rabe did in fact cut some wood, while in the case of (56b) Rabe went outside for the purpose of cutting wood but he may not have actually

done so. I assume that tense matching in (56a) again reflects a temporal dependency between the matrix event and the embedded event. Specifically, I take the event of Rabe cutting wood to express the (realized) result or endpoint of the event of Rabe going out—somewhat analogous to a goal oblique expressing the target state of a motion event. In this sense the motion event is construed as having a culmination point that corresponds to the initiation point of the cutting event: $c(e_{go.out}) = i(e_{cut})$.

- (56) a. Nivoaka [nanapaka hazo] Rabe
 Pst.AV.go:out Pst.AV.cut tree Rabe
 ‘Rabe went out and cut wood’
 b. Nivoaka [hanapaka hazo] Rabe
 Pst.AV.go:out Irr.AV.cut tree Rabe
 ‘Rabe went out (in order) to cut wood’

Perception verbs such as *mahita* ‘see’ and *mahare* ‘hear/feel/smell’ can also select a tense-matching complement to form a clause denoting direct perception of an event (57). I will refer to tense-matching complements of this type as DIRECT PERCEPTION COMPLEMENTS (note that the embedded clause includes an overt trigger which precedes the embedded verb; see Pearson 2018b for detailed discussion of this construction).

- (57) a. Mahita [ny mpianatra mamaky boky] ny vehivavy
 Pres.AV.see Det student Pres.AV.read book Det woman
 ‘The woman sees the student reading a book’
 b. Nahita [ny mpianatra namaky boky] ny vehivavy
 Pst.AV.see Det student Pst.AV.read book Det woman
 ‘The woman saw the student reading a book’

As with the tense-matching control construction, there is an inherent temporal dependency between the superordinate event (the event of perception) and the embedded event (the event being perceived). In (57) the woman witnesses the reading event as it is happening. Therefore the temporal span of the seeing event must be either coextensive with, or contained within, the temporal span of the reading event: $\tau(e_{see}) \subseteq \tau(e_{read})$.

Evidence that this construction requires temporal overlap between the two events comes from (58a) below. Here we see that when temporal modifiers are added to the matrix and embedded clauses to force a reading where the events happen on different days, the sentence becomes pragmatically anomalous. Compare (58a) with the well-formed sentence in (58b), where the perception verb selects an extraposed clause headed by the complementizer *fa* and denoting an proposition (examples from Pearson 2018b:795). The verb in the *fa* complement does not have to match the tense of the perception verb, as shown in (58c). Unlike the construction in (58a), the construction in (58b,c) does not express direct event perception. Instead, the perception verb is interpreted epistemically: the woman saw something which led her to conclude that the student was reading a book, but she need not have witnessed the reading event itself, and hence the two events could have happened at different times.

- (58) a. # Nahita [ny mpianatra namaky boky omaly] ny vehivavy androany
 Pst.AV.see Det student Pst.AV.read book yesterday Det woman today
 ‘Today the woman saw the student reading a book yesterday’

- b. Nahita ny vehivavy androany [fa namaky boky ny mpianatra omaly]
 Pst.AV.see Det woman today that Pst.AV.read book Det student yesterday
 ‘Today the woman saw that the student had been reading a book yesterday’
- c. Mahita ny vehivavy [fa namaky boky ny mpianatra]
 Pres.AV.see Det woman that Pst.AV.read book Det student
 ‘The woman sees that the student was reading a book’

To capture the tense matching requirement in control and direct perception constructions, I will assume that a tense-matching complement clause shares its assertion time with the superordinate clause rather than having an independent assertion time, much as Wurmbrand (2014) argues for simultaneous infinitive constructions in English (cf. Felser 1999 on direct perception constructions). I expand on this proposal in section 5.3 below, where I suggest that the sharing of an assertion time between the higher and lower clause follows from the presence of a featurally deficient T head in the embedded clause.

Returning to the distribution of *t*-marked versus bare obliques in [+PAST] clauses, I show in the next section that the complement–adjunct asymmetry discussed in section 4 disappears when the oblique is embedded in a tense-matching complement.

5.2 Obliques in tense-matching complements

Recall that in [+PAST] root clauses an oblique adjunct, for example an instrumental PP, must be in the *t*-form (59a); the bare form is disallowed (59b). However, when the oblique adjunct is embedded in the tense-matching complement of *manomboka* ‘begin’, with the main and embedded verbs marked [+PAST], the oblique can appear in either the *t*-form (60a) or the bare form (60b):

- (59) a. Nandidy mofo *tamin’ ny antsy* i Naivo
 Pst.AV.cut bread T.with Det knife Det Naivo
 ‘Naivo cut bread with the knife’
- b. ?* Nandidy mofo *amin’ ny antsy* i Naivo
 Pst.AV.cut bread with Det knife Det Naivo
 ‘Naivo cut bread with the knife’
- (60) a. Nanomboka [nandidy mofo *tamin’ ny antsy*] i Naivo
 Pst.AV.begin Pst.AV.cut bread T.with Det knife Det Naivo
 ‘Naivo began to cut bread with the knife’ (he’s probably no longer cutting)
- b. Nanomboka [nandidy mofo *amin’ ny antsy*] i Naivo
 Pst.AV.begin Pst.AV.cut bread with Det knife Det Naivo
 ‘Naivo {began/has begun} cutting bread with the knife’ (he’s still cutting)

The sentences in (60a) and (60b) differ with respect to the relationship between the time of the event denoted by the embedded clause, $\tau(e_{cut})$, and the utterance time *UT*. When the oblique is in the *t*-form (60a), it may be assumed that $\tau(e_{cut})$ precedes *UT* and thus the cutting event is over. When the oblique is in the bare form (60b), it is understood that $\tau(e_{cut})$ overlaps *UT*: Naivo began cutting bread in the past and is still cutting bread at *UT*. *Nandidy* ‘cut’ carries past marking in both sentences due to the tense matching requirement (see 5.3 below for more discussion).

The contrast in (60a,b) also obtains when the embedded oblique adjunct denotes a location, as shown below. If the oblique is in the *t*-form (61a), it is understood that Rabe is no longer swimming

in the river at UT. If the oblique is in the bare form (61b), it is understood that Rabe is currently in the river: the swimming event began before UT and is still ongoing as of UT.

- (61) a. Nanomboka [*nilomano tao anaty renirano*] Rabe
 Pst.AV.begin Pst.AV.swim T.there inside river Rabe
 ‘Rabe began to swim in the river’ (he’s probably no longer in the river)
- b. Nanomboka [*nilomano ao anaty renirano*] Rabe
 Pst.AV.begin Pst.AV.swim there inside river Rabe
 ‘Rabe {began/has begun} to swim in the river’ (he’s currently in the river)

Additional examples are given below. The sentences in (62) feature an instrumental oblique embedded in the complement of *mivoaka* ‘go out’: (62b) entails that Rabe is still cutting wood at UT, whereas (62a) strongly implicates that the cutting event ended prior to UT. The sentences in (63) feature the object control verb *maniraka* ‘send’. In (63a) the embedded oblique is *t*-marked, and it is understood that the speaker made it to the store but is now no longer there. In (63b) the speaker is still at the store at UT, and the bare form of the oblique is used.¹⁵

- (62) a. Nivoaka [*nanapaka hazo tamin’ ny tsofa*] Rabe
 Pst.AV.go:out Pst.AV.cut tree T.with Det saw Rabe
 ‘Rabe went out and cut wood with the saw’ (he is probably no longer cutting)
- b. Nivoaka [*nanapaka hazo amin’ ny tsofa*] Rabe
 Pst.AV.go:out Pst.AV.cut tree with Det saw Rabe
 ‘Rabe {went/has gone} out to cut wood with the saw’ (he is still cutting)
- (63) a. Naniraka ahy [*nividy ronono tany amin’ ny magazay*] Rasoa
 Pst.AV.send 1sAcc Pst.AV.buy milk T.there at Det store Rasoa
 ‘Rasoa sent me to buy milk at the store’ (I’m no longer at the store)
- b. Naniraka ahy [*nividy ronono eto amin’ ny magazay*] Rasoa
 Pst.AV.send 1sAcc Pst.AV.buy milk here at Det store Rasoa
 ‘Rasoa (has) sent me to buy milk at the store’ (I’m currently at the store)

The same pattern obtains in the direct perception construction. When the sentence is [+PAST] and the complement contains an oblique adjunct, that oblique can appear in either the *t*-form (64a) or the bare form (64b). The semantic difference is the same as with control complements. In (64a) it is strongly implied that the speaker is no longer cutting bread at UT, whereas (64b) entails that the speaker is still cutting bread at UT. In the former case Rabe may have witnessed the entire cutting event or only a portion of it. In the latter case Rabe necessarily witnessed only a portion of the cutting event, given that the seeing event is over but the cutting event continues at UT.

- (64) a. Nahita [*ahy nandidy mofo tamin’ ny antsy*] Rabe
 Pst.AV.see 1sAcc Pst.AV.cut bread T.with Det knife Rabe
 ‘Rabe saw me cut(ting) bread with the knife’ (I’m no longer cutting bread)
- b. Nahita [*ahy nandidy mofo amin’ ny antsy*] Rabe
 Pst.AV.see 1sAcc Pst.AV.cut bread T.with Det knife Rabe
 ‘Rabe saw me cutting bread with the knife’ (I’m still cutting bread)

¹⁵The obliques in (63b) and (63a) are headed by different spatial deictics, *any* versus *eto*, since the location of the store relative to the current location of the speaker differs in the two sentences. Since *any* is used in (63b), the sentence entails that the speaker is no longer at the store rather than merely implicating that.

Note that for oblique complements denoting the goal of a motion event, the *t*-marking pattern discussed in 4.1 still obtains when the oblique appears in a tense-matching complement. The examples below show a goal oblique embedded in the complement of *manandrana* ‘try’. In (65a), with the oblique in the bare form, the target state overlaps UT: Rasoa is currently in the house (and therefore not only tried to enter the house but succeeded in doing so). In (65b) the oblique is in the *t*-form and it is understood that Rasoa is not currently in the house.

- (65) a. Nanandrana [niditra ao an-trano] Rasoa
 Pst.AV.try Pst.AV.enter there Loc-house Rasoa
 ‘Rasoa tried to enter the house’ (she is in the house now)
- b. Nanandrana [niditra tao an-trano] Rasoa
 Pst.AV.try Pst.AV.enter T.there Loc-house Rasoa
 ‘Rasoa tried to enter the house’ (she is probably not in the house now)

Interestingly, there are two different scenarios compatible with (65b): either Rasoa succeeded in entering the house but has now left, or else Rasoa tried but failed to enter the house. Under the latter scenario there was no relevant time prior to UT at which Rasoa was in the house. This shows that *t*-marked obliques can occur in clauses denoting counterfactual events: all that is required for (65b) to be felicitous is that there is no situation of Rasoa being in the house which coincides with UT and which is an outcome of the trying event.

Summarizing the data in this section, we see that when an oblique adjunct is embedded in a tense-matching complement clause, it exhibits a *t*-marking pattern identical to that of goal obliques in root clauses. I show in the next section that my scopal analysis accounts for this with minimal additional assumptions.

5.3 Extending the analysis

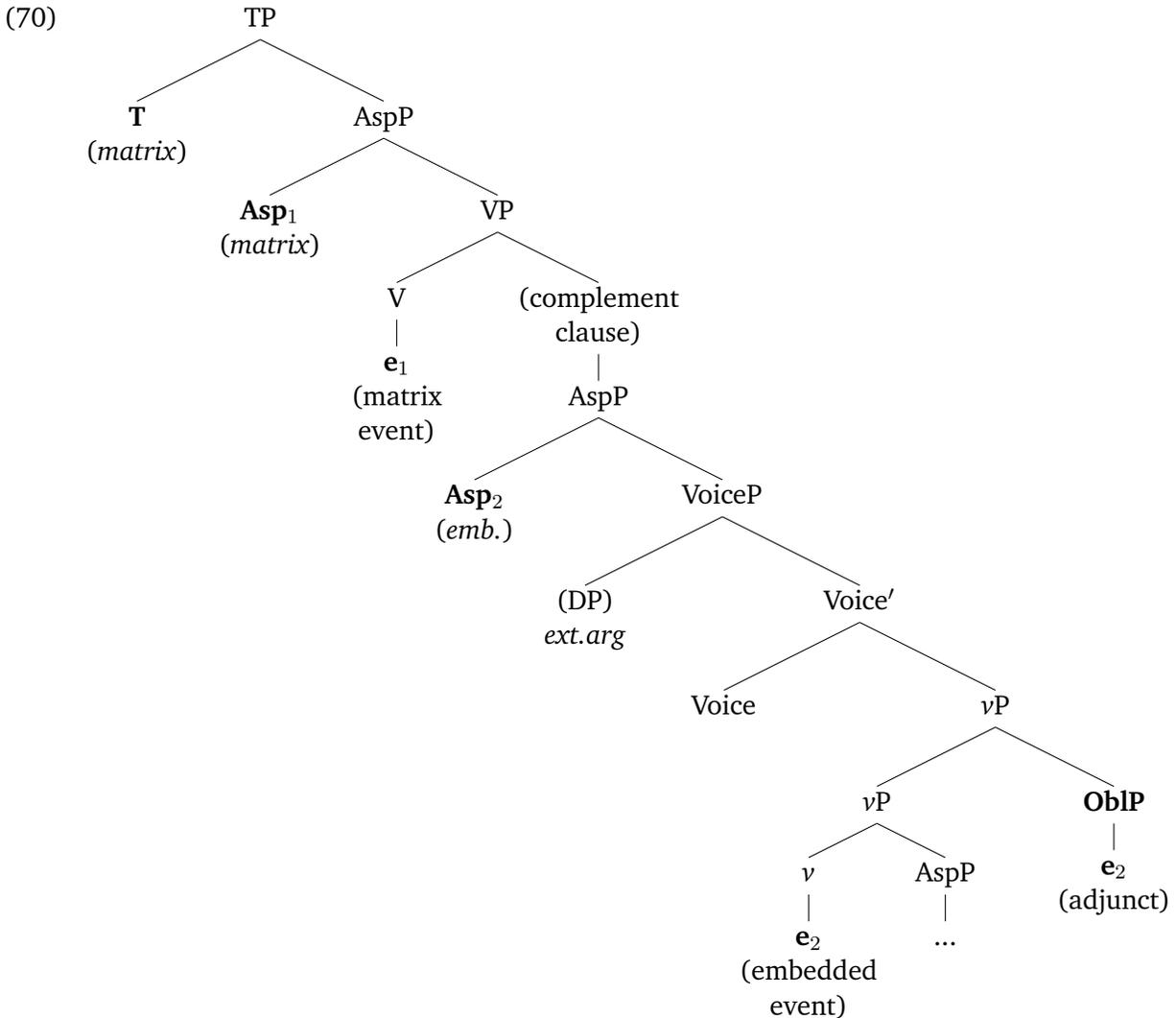
I propose that tense-matching complements have a ‘defective’ T head: more precisely, a T head which lacks the ordering feature [\pm PAST].¹⁶ I also assume that the tense-matching complement shares its assertion time AT with the higher clause. Consider the control construction in (66), for instance:

- (66) Nanomboka [nandidy mofo] Rabe
 Pst.AV.begin Pst.AV.cut bread Rabe
 ‘Rabe began to cut bread’

This sentence has the partial structure in (67), with the defective T head shown in angled brackets. The matrix T orders the AT shared by the matrix and embedded clauses relative to UT. The matrix aspectual head Asp₁ in turn orders $\tau(e_1)$, the time point associated with *nanomboka* ‘begin’, relative to AT. The embedded aspectual head Asp₂ orders $\tau(e_2)$ relative to AT, where $\tau(e_2)$ is the temporal

¹⁶An alternative possibility is that tense-matching complements have a truncated structure and lack a TP layer entirely. Paul and Scott (2022), for instance, propose that tense-matching complements are VoiceP constituents (cf. also Wurmbbrand 2001 on truncated infinitive complements of restructuring predicates in German, and Felser 1999 on direct perception complements in English). However, it is important for my analysis that tense-matching complements include an (outer) AspP projection. Pearson (2018b) provides evidence from binding and other domains showing that direct perception complements, at least, are larger than TP. I will tentatively assume that all tense-matching complement clauses include a TP layer with a defective T head, though my analysis of *t*-marking still goes through if certain tense-matching complements are AspP constituents.

As discussed in 4.3, I assume that instrumental PPs and other non-argument obliques adjoin to *vP*. The event argument introduced by the oblique is thus equated via Event Identification with the event argument introduced by *v*, associated with a cause/process sub-event. When *vP* is in turn embedded in a tense-matching complement, we have the structure schematized in (70). Here the oblique is in the immediate scopal domain of the embedded viewpoint aspect head *Asp*₂.



First consider (69a), where the embedded oblique adjunct appears in the bare form. In accordance with (43), an oblique takes the bare form when the closest c-commanding *Asp* and the closest c-commanding *T* both have the feature $[-\text{PAST}]$. In the structure in (70) the closest *Asp* head that c-commands *ObIP* is *Asp*₂. I construe “closest c-commanding *T*” to refer to the matrix *T* in this case, since the embedded *T* is defective and does not contribute a temporal ordering feature. Therefore in (69a) the matrix *T* must be $[-\text{PAST}]$, indicating that the assertion time *AT* for both the matrix and embedded events overlaps *UT*. The $[-\text{PAST}]$ feature in *Asp*₂ in turn indicates that $\tau(e_2)$ (the temporal span of the cutting event) overlaps *AT*.

Since the matrix *T* is $[-\text{PAST}]$ in (69a), *Asp*₁ must be $[\text{+PAST}]$ to derive the past morphology on *nanomboka* (cf. (12a)). The $[\text{+PAST}]$ feature on *Asp*₁ encodes that $\tau(e_1)$ (the temporal point of the beginning event) precedes *AT*. Since the matrix verb is spelled out with past marking, the embedded verb *nandidy* is also spelled out with past marking due to the tense matching requirement (see

below). Putting these temporal orderings together, we derive the correct interpretation of (69a), whereby the cutting event began prior to the utterance time ($AT \circ UT$ and $\tau(e_1) < AT$) and is still ongoing ($AT \circ UT$ and $\tau(e_2) \geq AT$). Notice that the combination of features that derives the marking in (69a), $[-PAST]$ in T and Asp_2 and $[+PAST]$ in Asp_1 , is the same as the combination that derives monoclausal examples like (71) featuring a bare oblique complement:

- (71) Niditra *ao an-trano ny vehivavy*
 Pst.AV.enter there Loc-house Det woman
 ‘The woman has gone into the house’ (she’s still in the house)

As for (69b), where the oblique appears in the *t*-form, the morphology in this sentence spells out various combinations of ordering features on matrix T, Asp_1 , and Asp_2 . If matrix T is $[+PAST]$, then both the matrix and embedded verbs will take the *n(o)*- prefix and the oblique will take the *t*- prefix: in this context AT properly precedes UT , and therefore (due to scalar implicature) the matrix and embedded events are understood to precede UT . The same morphology obtains when matrix T is $[-PAST]$ but both Asp_1 and Asp_2 are $[+PAST]$: in this case AT is specified as overlapping UT , but both the matrix and embedded events precede AT and are therefore construed as preceding UT . Note that if Asp_2 is $[+PAST]$, then Asp_1 must also be $[+PAST]$ due to the inherent temporal relationship between the matrix and embedded events.

One remaining issue is how to force tense matching under this model. According to my analysis, the embedded verb in (69a) is in the immediate scope of a $[-PAST]$ T head (in the matrix clause) and a $[-PAST]$ aspectual head Asp_2 (in the embedded clause). Therefore, in accordance with (12a) we might expect the embedded verb to appear with present-tense marking. This is not an option, however, as sentences like (72) are ungrammatical:

- (72) * Nanomboka [*mandidy mofo amin’ ny antsy*] Raso
 Pst.AV.begin Pres.AV.cut bread with Det knife Raso
 ‘Raso {began/has begun} cutting bread with the knife’ (she is still cutting)

To capture the tense matching requirement and rule out (72), we might postulate that verbs in Malagasy raise to the T head. If so, then the embedded verb moves to the T head of the tense-matching complement. Since that T head is defective, the embedded verb is understood to be in the immediate scope of the matrix aspectual head Asp_1 for purposes of (12a). Since Asp_1 has the feature $[+PAST]$, the embedded verb is realized with past morphology, as in (69).¹⁷

5.4 Further observations

The analysis presented in 5.3 accounts for some cases where the *t*-form and the bare form are not equally acceptable in a tense-matching complement. Consider the direct perception examples below, where the temporal adverbial *omaly* ‘yesterday’ has been added to the matrix clause. Here the *t*-form of the instrumental PP is acceptable (73a) while the bare form is infelicitous (73b):

- (73) a. Nahita [*ahy nandidy mofo tamin’ ny antsy*] Rabe *omaly*
 Pst.AV.see 1sAcc Pst.AV.cut bread T.with Det knife Rabe yesterday
 ‘Yesterday Rabe saw me cut(ting) bread with the knife’

¹⁷Assuming the verb moves to T via successive head adjunction, it will raise through the Asp head(s) and thereby ‘pick up’ any $[+PAST]$ feature in Asp , ensuring that it is spelled out with past morphology even if the T that it moves to is $[-PAST]$. (In the construction in (7) the particle *ho* plausibly occupies the T head, in which case the verb may move only as high as the outer Asp .)

- b. # Nahita [ahy nandidy mofo amin' ny antsy] Rabe omaly
 Pst.AV.see 1sAcc Pst.AV.cut bread with Det knife Rabe yesterday
 'Yesterday Rabe saw me cutting bread with the knife' (and I'm still cutting)

The presence of *omaly* indicates that AT, the shared assertion time for the seeing and cutting events, overlaps the day prior to the day when the sentence is uttered. However, the fact that the oblique in (73b) is in the bare form indicates that AT overlaps UT, since the matrix T head (along with Asp₂) must have the feature [–PAST]. According to speakers I consulted, (73b) expresses a situation where the speaker is currently cutting bread and has been doing so continuously ever since Rabe witnessed the event the day before: the time of the cutting event overlaps AT, which in turn overlaps both UT and 'yesterday'. In contrast to (73b), (73a) is felicitous because *t*-marking on the oblique is compatible with matrix T having the feature [+PAST], which encodes that AT (overlapping 'yesterday') precedes UT.

A similar contrast obtains in the sentences below, where a temporal oblique modifier (*tamin'ny nandalo Ranaivo* 'when Ranaivo passed by') has been added to the matrix clause in a tense-matching control construction. Speakers accept the sentence with the embedded oblique in the *t*-form (74a) but reject it when the oblique is in the bare form (74b). Sentence (74b) is ill-formed because it provides mutually-incompatible specifications for how AT (the assertion time shared by the matrix and embedded events) is ordered with respect to UT. The 'when' clause identifies AT with the time when Ranaivo passed, which precedes UT. Since AT precedes UT, the matrix T must have the feature [+PAST]. However, the bare form of the embedded oblique is only licensed when the matrix T is [–PAST] (AT does not precede UT), resulting in a contradiction.

- (74) a. Nanomboka [nilomano tao anaty renirano] Rabe tamin' ny nandalo
 Pst.AV.begin Pst.AV.swim T.there in river Rabe T.at Det Pst.AV.pass
 Ranaivo
 Ranaivo
 'Rabe had begun to swim in the river when Ranaivo passed by'
- b. # Nanomboka [nilomano ao anaty renirano] Rabe tamin' ny nandalo
 Pst.AV.begin Pst.AV.swim there in river Rabe T.at Det Pst.AV.pass
 Ranaivo
 Ranaivo
 'Rabe has begun to swim in the river when Ranaivo passed by'

Note also the examples in (75), where the matrix verb in a control construction is preceded by the particle *vao* 'just, newly'. In section 2 I noted that when *vao* combines with a *n(o)*-marked verb, the sentence normally receives an 'immediate past' reading: more precisely, *vao* indicates temporal proximity between the event time and the assertion time.

- (75) a. **Vao** nanomboka [nandidy mofo amin' ny antsy] aho
 just Pst.AV.begin Pst.AV.cut bread with Det knife 1sNom
 'I have just (now) begun cutting bread with the knife'
- b. ?? **Vao** nanomboka [nandidy mofo tamin' ny antsy] aho
 just Pst.AV.begin Pst.AV.cut bread T.with Det knife 1sNom
 'I just began cutting bread with the knife'

In (75a) the embedded oblique is in the bare form, which entails that the cutting event is ongoing at UT (both T and Asp₂ have the feature [–PAST]). This is compatible with an immediate past

reading: $\tau(e_{begin})$ immediately precedes AT, which overlaps UT, and thus the sentence is felicitous. However, speakers reject (75b), where use of the *t*-form implies that the entire temporal span of the cutting event precedes UT (T and/or Asp₂ is [+PAST]). This makes it pragmatically implausible that the ‘begin’ event would immediately precede UT, since that would require the cutting event to be virtually instantaneous.

Note that (75b) is anomalous only under the default construal of the *vao* construction where AT overlaps UT. If the sentence is embedded in a larger context where AT is specified as preceding UT, the *t*-form of the oblique becomes acceptable. This is shown below, where the sentence in (75b) has been conjoined with another [+PAST] sentence using the discourse connective *dia* ‘then’. Here the AT for the event of beginning to cut bread is specified as preceding the AT for the event of Ranaivo entering, which in turn precedes UT.

- (76) Vao nanomboka [nandidy mofo *tamin’ny antsy*] aho dia niditra Ranaivo
 just Pst.AV.begin Pst.AV.cut bread T.with Det knife 1sNom then Pst.AV.enter Ranaivo
 ‘I had just begun cutting bread with the knife, and then Ranaivo came in’

Finally, note the examples in (77), discussed by Paul and Ranaivoson (1998:121), which show that when a locative oblique adjunct is embedded in the irrealis control complement of a [+PAST] verb, it can appear in either the *t*-form or the bare form. When the bare form is used (77a), the sentence entails that Rasoa is currently in Antananarivo or is on her way there. When the *t*-form is used (77b), it is strongly implied that Rasoa is no longer in Antananarivo at UT.

- (77) a. Niakatra [*hiasa any Antananarivo*] Rasoa
 Pst.AV.go:up Irr.AV.work there Antananarivo Rasoa
 ‘Rasoa went up to work in Antananarivo’ (she is still there, or on her way)
 b. Niakatra [*hiasa tany Antananarivo*] Rasoa
 Pst.AV.go:up Irr.AV.work T.there Antananarivo Rasoa
 ‘Rasoa went up to work in Antananarivo’ (she is probably no longer there)

It thus appears that the *t*-marking pattern in tense-matching complements extends to (certain types of) irrealis complements. We can incorporate cases like (77) into my analysis if we assume that irrealis control complements, like tense-matching complements, have a defective (i.e., featurally deficient) T head. Perhaps the T head includes the mood feature [–REALIS], spelled out as irrealis morphology on the embedded verb, but lacks a specification for the temporal ordering feature [\pm PAST]. If the embedded T lacks a temporal ordering feature, then the form of the embedded oblique will be determined by the ordering feature on the matrix T, as it is in tense-matching constructions. Alternatively, (77a,b) might differ in their constituent structure: perhaps in (77a) the oblique adjoins to the embedded *vP* as a dependent of *hiasa* (78a), whereas in (77b) it actually adjoins to the matrix *vP* as a dependent of *niakatra* (78b):

- (78) a. [Niakatra [*hiasa any Antananarivo*]] Rasoa
 ‘Rasoa went up to work in Antananarivo’
 b. [Niakatra [*hiasa*] *tany Antananarivo*] Rasoa
 ‘Rasoa went up to Antananarivo to work’

If the constituency in (78a,b) is correct, then the sentences in (77) are exhibiting straightforward concord between the verb and its oblique dependent: in (78b) the oblique is in the immediate scope of the matrix T and Asp heads, which also trigger past-tense marking on the matrix verb;

whereas in (78a) the oblique is in the immediate scope of the embedded T and Asp heads, whose features are spelled out as irrealis marking on the embedded verb. If this is correct, then the irrealis complement does not necessarily have a defective T head. I leave it for future research to investigate *t*-marking in irrealis complements in more detail.

6 Conclusion

In this paper I proposed an analysis of the prefix *t*- in Malagasy, which attaches to a class of adverbial and prepositional phrases referred to here as OBLIQUES. I argued that an oblique is prefixed with *t*- when it is in the local scopal domain of a [+PAST] feature on a T head or an Asp head. This [+PAST] feature encodes a temporal precedence relation: when associated with T it indicates that the assertion time for the clause AT precedes the utterance time UT (i.e., past tense), and when associated with Asp it indicates that the time of the (sub-)event denoted by the complement of Asp precedes AT (i.e., anterior aspect). The oblique is *t*-marked when the closest c-commanding Asp head and/or (interpretable) T head is specified as [+PAST]. A verb carries the past prefix *n(o)*- under the same conditions.

I showed how adopting this analysis, in combination with certain assumptions about the relationship between syntactic structure and event structure, captures the distribution of *t*- in [+PAST] clauses. When the oblique is a *v*P-adjunct denoting an instrument, spatio-temporal location, etc., it must appear in the *t*-form when the clause is [+PAST]. But when the oblique is the complement of V denoting the endpoint in a motion event, it takes *t*- only when the target state (the situation of the theme being at the endpoint) properly precedes UT; otherwise *t*- is absent. To account for this pattern, I proposed that oblique complements modify an event argument introduced by V and associated with the target state (e_2), while oblique adjuncts modify an event argument introduced by *v* and associated with a cause/process sub-event (e_1). VP and *v*P are each in the local scope of an Asp head, where the higher Asp orders e_1 relative to AT and the lower Asp orders e_2 relative to AT. *T*-marking on oblique *v*P-adjuncts co-occurs with *n(o)*-marking on the verb because the oblique adjunct and the verb are both spelled out in the immediate scope of the T head and the higher Asp head. However an oblique complement merges in the c-command domain of the lower Asp head, and thus it is the features of T and the lower Asp which determine whether the oblique complement is *t*-marked. If T and the lower Asp are both [-PAST], while the higher Asp is [+PAST], the verb will be prefixed with *n(o)*- and the oblique complement will be unprefixed; the clause is interpreted such that (some portion of) the temporal span of the cause/process sub-event precedes UT, while the temporal span of the target state overlaps or follows UT.

I then turned to complement clauses where the tense form of the embedded verb must match the tense form of the selecting verb, reflecting an inherent temporal dependency between the embedded-clause event and the superordinate-clause event. I showed that when an oblique *v*P-adjunct is embedded in a tense-matching complement clause, it patterns like an oblique complement with respect to *t*-marking: when the sentence is [+PAST], the oblique adjunct is in the *t*-form if the embedded event precedes UT, and unprefixed if the embedded event overlaps UT. To capture this, I argued that biclausal tense-matching constructions have an event-structure syntax which parallels that of monoclausal predicates composed of a cause/process sub-event and a target state. I proposed that tense-matching complements have a featurally-deficient T head, and consequently the form of an embedded oblique adjunct is determined by the features of the matrix T head and the (highest) Asp head in the embedded clause, with the form of the matrix and embedded verbs determined by the matrix T head and the (highest) Asp head in the matrix clause.

Various avenues for further research present themselves. For example, a detailed investigation of *t*-marking in embedded clauses remains to be carried out. While I have considered *t*-marking

in tense-matching complements—and, briefly, in irrealis control complements—I have yet to fully investigate *t*-marking in ‘finite’ embedded clauses (i.e., those with a non-defective T). Based on the current state of fieldwork on Malagasy, it remains unclear whether tense marking in finite embedded clauses encodes a temporal ordering relative to UT, relative to the event time of the higher clause, or both/either (e.g., it is unclear if Malagasy exhibits SEQUENCE OF TENSE). Resolving this issue has consequences for the predicted distribution of *t*-marking in embedded contexts.

Another question raised by this research is whether phenomena similar to *t*-marking are attested in other languages. From what I have been able to determine, the *t*-morpheme has no obvious cognates in other Austronesian languages, or analogues outside Austronesian. While tense-marking on prepositional elements has been documented for a handful of other languages, it does not appear to show the same distribution as Malagasy *t*-marking. For example, some prepositions in Māori (Polynesian) can indicate the tense of the clause: e.g., past *i*, present *kei*, future *ko/hei* for spatial location. However, these tense distinctions are made only when the PP is the main predicate in the clause; when it acts as a dependent within a larger predicate, *i* is normally used regardless of tense (Bauer 1997:222).

Elsewhere in the Austronesian family, Bower and Aygen-Tosun (2000) show that tense/mood inflection occurs on a subset of prepositions and locational adverbs in the Oceanic language Sivisa Titan (Papua New Guinea). However, Sivisa Titan seems to exhibit strict tense/mood concord between a verb and its PP/adverbial dependent; there is no evidence of the kinds of complement–adjunct asymmetries which I document here for Malagasy. Moreover, tense/mood-marked prepositions and adverbs in Sivisa Titan derive historically from verbs, whereas there is no evidence that Malagasy oblique heads are deverbal. On the contrary, some oblique heads are derived from nominals (e.g., *aloha* ‘before’ from *loha* ‘head’), while the spatial deictics in (16) are formally related to demonstrative determiners (as noted in 3.1, Malagasy does have deverbal prepositions, but these do not take *t*). It thus remains to be seen whether *t*-marking has genuine equivalents in other languages, or whether this type of tense/aspect marking is unique to Malagasy.

References

- Anderson, John and Edward L. Keenan. 1985. Deixis. *Language Typology and Syntactic Description* vol. III: *Grammatical Categories and the Lexicon*, ed. T. Shopen, 259–308. Cambridge University Press.
- Baker, Mark. 1996. On the structural positions of themes and goals. *Phrase Structure and the Lexicon*, ed. J. Rooryck and L. Zaring, 7–34. Dordrecht: Kluwer.
- Bauer, Winifred. 1997. *The Reed Reference Grammar of Māori*. Auckland: Reed Books.
- Bower, Claire and Gülşat Aygen-Tosun. 2000. Titan’s tensed prepositions. *Papers from the 36th CLS*, volume 2, 35–48.
- Davidson, Donald. 1967. The logical form of action sentences. *The Logic of Decision and Action*, ed. N. Rescher, 85–95. University of Pittsburgh Press.
- Demirdache, Hamida, and Myriam Uribe-Etxebarria. 2000. The primitives of temporal relations. *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. R. Martin, D. Michaels, and J. Uriagereka, 157–186. MIT Press.
- Demirdache, Hamida, and Myriam Uribe-Etxebarria. 2014. Aspect and temporal anaphora. *Natural Language and Linguistic Theory* 32: 855–895.
- Dez, Jacques. 1980. *La syntaxe du malgache*. Atelier Reproduction des Theses Université de Lille III. Paris: Librairie Honoré Champion.
- Dez, Jacques. 1990. *Cheminevements linguistiques malgaches*. Asie et Monde Insulindien 20. Paris: Peeters/Selaf.

- Felser, Claudia. 1999. *Verbal Complement Clauses: A Minimalist Study of Direct Perception Constructions* (Linguistik Aktuell 25). John Benjamins.
- Hale, Kenneth and Samuel Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. MIT Press.
- Harley, Heidi. 2013. External arguments and the Mirror Principle: On the distinctness of Voice and v. *Lingua* 125: 34–57.
- Higginbotham, James. 2009. On events in linguistic semantics. *Tense, Aspect, and Indexicality*, 18–52. Oxford: Oxford University Press.
- Imai, Shingo. 2003. *Spatial deixis*. Doctoral dissertation: State University of New York at Buffalo.
- Keenan, Edward L. 1976. Remarkable subjects in Malagasy. *Subject and Topic*, ed. C. Li, 249–301. New York: Academic Press.
- Klein, Wolfgang. 1995. A time-relational analysis of Russian aspect. *Language* 71: 669–695.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. *Phrase Structure and the Lexicon*, ed. J. Rooryck and L. Zaring, 109–137. Dordrecht: Kluwer.
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19: 335–392.
- Pancheva, Roumyana and Arnim von Stechow. 2004. On the present perfect puzzle. *Proceedings of NELS 34*, ed. K. Moulton and M. Wolf.
- Parsons, Terence. 1990. *Events in the semantics of English: A study in subatomic semantics*. MIT Press.
- Paul, Ileana, ed. 1998. *The Structure of Malagasy, Volume 2*, UCLA Occasional Papers in Linguistics 20. Los Angeles: UCLA Department of Linguistics.
- Paul, Ileana. 2000. Malagasy clause structure. Doctoral dissertation, McGill University.
- Paul, Ileana. 2001. Concealed pseudo-clefts. *Lingua* 111: 707–727.
- Paul, Ileana and Jeannot Fils Ranaivoson. 1998. Complex verbal constructions in Malagasy. *UCLA Occasional Papers in Linguistics 20: The Structure of Malagasy, vol. II*, ed. I. Paul, 111–125. UCLA Department of Linguistics.
- Paul, Ileana and Holly Scott. 2022. Clausal complementation in Malagasy. *Proceedings of the Twenty-Eighth Meeting of the Austronesian Formal Linguistics Association (AFLA)*, ed. T. Clark, J. Dussere, C. Ting. University of Western Ontario. <https://ir.lib.uwo.ca/afla/aflaxxviii/>
- Pearson, Matt. 2000. ‘Tense’ marking on Malagasy obliques and the syntax of telic events. *Proceedings of AFLA VI*, ed. C. Smallwood and C. Kitto, 279–296. University of Toronto Linguistics.
- Pearson, Matt. 2001a. The clause structure of Malagasy: A minimalist approach. Los Angeles: UCLA Dissertations in Linguistics 21.
- Pearson, Matt. 2001b. T-marking on Malagasy obliques: Tense, aspect, and the position of PPs. *UCLA Working Papers in African Languages*, ed. H. Torrance, 14–39. UCLA Department of Linguistics.
- Pearson, Matt. 2005. The Malagasy subject/topic as an A'-element. *Natural Language and Linguistic Theory* 23: 381–457.
- Pearson, Matt. 2008. ‘Tense’ marked obliques in Malagasy. *Studies in Philippine Languages and Cultures* 18: 142–158.
- Pearson, Matt. 2018a. Observations on the prefix *t-* in Malagasy. *Festschrift for Lisa Travis*, ed. L. Kalin, I. Paul, J. Vander Klok. McGill Working Papers in Linguistics.
- Pearson, Matt. 2018b. Predicate raising and perception verb complements in Malagasy. *Natural Language and Linguistic Theory* 36: 781–849.
- Pearson, Matt and Ileana Paul, eds. 1996. *The Structure of Malagasy, Volume 1*, UCLA Occasional Papers in Linguistics 17. Los Angeles: UCLA Department of Linguistics..
- Phillips, Vivianne. 2000. The interactions between prefix and root: The case of *maha-* in Malagasy. *Formal Issues in Austronesian Linguistics*, ed. I. Paul, V. Phillips, and L. Travis, 85–104. Kluwer Academic Publishers.

- Potsdam, Eric. 2006. More concealed pseudo-clefts in Malagasy and the clausal typing hypothesis. *Lingua* 116: 2154–2182.
- Potsdam, Eric. 2009. Malagasy backward object control. *Language* 85: 754–784.
- Pylkkänen, Liina. 2008. *Introducing Arguments*. Cambridge, MA: MIT Press.
- Rajaona, Siméon. 1972. *Structure du malgache: Étude des formes prédicatives*. Ambozontany: Fianarantsoa.
- Rajemisa-Raolison, Régis. 1969. *Grammaire malgache* (6th edition). Ambozontany: Fianarantsoa.
- Ramchand, Gillian. 2008. *Verb Meaning and the Lexicon: A First-Phase Syntax*. Cambridge: Cambridge University Press.
- Rasoloson, Janie and Carl Rubino. 2005. Malagasy. *The Austronesian Languages of Asia and Madagascar*, eds. A. Adelaar and N. P. Himmelmann, 456–488. London: Routledge.
- Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. New York: The Free Press.
- Sharvit, Yael. 2003. Trying to be progressive: The extensionality of *try*. *Journal of Semantics* 20: 403–445.
- Travis, Lisa. 2005. Articulated vPs and the computation of aspectual classes. *Aspectual Inquiries*, ed. P. Kempchinsky and R. Slabakova, 69–93. Springer.
- Travis, Lisa. 2010. *Inner Aspect: The Articulation of VP*. Studies in Natural Language and Linguistic Theory. Springer.
- Wurmbrand, Susi. 2001. *Infinitives: Restructuring and Clause Structure*. Walter de Gruyter.
- Wurmbrand, Susi. 2014. Tense and aspect in English infinitives. *Linguistic Inquiry* 45: 403–447.