Tense Marking on PPs and Adverbials in Malagasy
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Abstract

Certain PPs and adverbials in Malagasy, referred to here as **OBLIQUES**, can appear either in their unmarked form or with the prefix *t-* This prefix is usually analyzed as marking past tense, or agreement with a past-tense verb. However, I show that when the oblique is the complement of a past-tense motion verb and denotes the endpoint of motion, it can appear without *t-* just in case the theme is still at the endpoint, or on its way to the endpoint, at the time of utterance. Similarly, an oblique adjunct can appear without *t-* when it is contained within a temporally-dependent tenseless clause selected by a past-tense verb, just in case the event denoted by the embedded clause overlaps with the time of utterance. I propose that the distribution of *t-* is conditioned by where the oblique merges in the structure. Oblique complements merge low, in the scope of an ‘inner’ aspect head, and denote the target state for a telic event; their form is determined by whether the temporal span of the target state precedes the utterance time. Oblique adjuncts merge higher, outside the scope of ‘inner’ aspect, and their form is determined by whether the cause/process sub-event precedes the utterance time. However, when the adjunct is embedded in a tenseless clause, its form is determined by the tense features of the higher clause.

1 Introduction

In Malagasy, an Austronesian language of Madagascar, certain adverbial and prepositional phrases denoting a spatio-temporal location, goal, instrument, or manner appear in one of two forms, characterized by the presence or absence of the prefix *t-* on the initial word of the phrase. For purposes of this paper, I will refer to phrases capable of taking *t-* as **OBLIQUES**. The unprefixed 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) while the *t*-form appears in (1c). Here and throughout, the oblique phrase is italicized in the examples while the prefix *t-* is boldfaced and glossed “T”\(^2\).

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\(^1\)This 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 Ranaivooson, Hasiniaina Randriamihamina, Joachim Rabarimanana, Joëlle Bebinaiana, 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.

\(^2\)The 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
(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’
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 instrumental PP ‘with the knife’ takes the form amin’ny antsy when the clause is in either the present tense (1a) or the irrealis/future tense (1b), but tamin’ny antsy when the clause is in the past tense (1c).

Prior literature on Malagasy identifies $t$- as a marker of past tense. The pattern in (1) is treated as obligatory tense concord between a verb and its oblique dependent, where the $t$-form agrees with a past-tense verb while the bare form agrees with a non-past-tense verb (Rajaona 1972:275, Rasoloson and Rubino 2005:464, and others). 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 clauses, an oblique adjunct must appear in the $t$-form, whereas an oblique complement denoting the endpoint of a motion event 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. Additionally, in certain types of tenseless complement clauses selected by a past-tense verb, the pattern we find with oblique complements in root contexts gets extended to oblique adjuncts.

I offer an analysis of these asymmetries in terms of scope and event composition. I propose that oblique adjuncts and oblique complements merge in different structural positions and modify event arguments associated with different sub-events. Oblique complements merge in a low position and modify an event argument associated with the endpoint (of target state) of a telic event, whereas oblique adjuncts merge in a higher position and modify an event argument associated with a cause/process sub-event. I propose that each event argument is within the local scope of an aspectual (Asp) head, which temporally orders the event argument relative to an assertion time. The T head in turn orders the assertion time relative to the utterance time. The form of the oblique is determined by the ordering features of the closest c-commanding Asp and T heads: specifically, the oblique is prefixed with $t$- if it is in the immediate scope of a [+PAST] feature on T (interpreted as past tense) and/or a [+PAST] feature on an Asp head (interpreted as perfect/anterior aspect).
Since an oblique complement merges low, it is within the immediate scope of the ‘inner’ Asp head (using **INNER ASPECT** in the sense of Travis 2010) and its form is thus determined by whether or not the temporal span of the target state precedes the utterance time. Oblique adjuncts, by contrast, merge in the immediate scope of ‘outer’ Asp, meaning their form is determined by whether (a contextually-relevant portion of) the cause/process sub-event precedes the utterance time.

Having accounted for this complement-adjunct asymmetry in monoclusal contexts, I turn to biclausal constructions where the verb in the complement clause must match the tense of the verb that selects it. I show that in such constructions where 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 monoclusal 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: In section 2 I present some background information on Malagasy clause structure and verb morphology, and describe the class of obliques in more detail. In section 3 I discuss the basic distribution of the t-prefix, suggesting that it marks an ordering relation whereby the situation denoted by the oblique precedes the utterance time. In section 4 I turn to the asymmetry between complement and adjunct obliques with respect to t-marking in [+PAST] clauses, and present my analysis of this asymmetry in terms of the different merger sites for oblique dependents. This analysis is then extended to biclausal contexts in section 5. In section 6 I summarize the paper and present questions for future research.

## 2 Background on Malagasy

Malagasy is a Western Malayo-Polynesian language from the Austronesian family spoken on the island of Madagascar. The data in this paper comes from the Merina dialect, which forms the basis for standard written Malagasy. In 2.1 I give a brief overview of basic clause structure with a focus on verb inflection, before describing the class of obliques in more detail in 2.2. For more on Malagasy clause structure, see Keenan (1976), Pearson and Paul (1996), Paul (1998, 2000), Rasoloson and Rubino (2005), Pearson (2001, 2005), and the many references therein.

### 2.1 Clause structure and tense morphology

Malagasy is a robustly head-initial language with default predicate-initial and verb-initial order. Clauses typically consist of a predicate phrase followed by a definite DP denoting the argument of predication, variously referred to as the **TRIGGER**, **PIVOT**, or **SUBJECT**. When the predicate phrase is headed by a verb, **VOICE** morphology on the verb indicates the grammatical role of the trigger. Two voice forms are attested in this paper. The **ACTOR VOICE** (AV)—also known as the **ACTOR-TOPIC** or **ACTIVE** form—is used when the trigger is the highest argument of the verb: i.e., 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**, **object-voice**, or **passive** form—is used when the trigger is the internal argument of a transitive verb. Compare the examples in (2), which express the same event but differ in which argument is selected as the trigger:

(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’

In (2a) the verb ‘read’ (whose root is *vaky*) appears in the AV form *mamaky*, marked by the voice prefix *m-* and the stem-forming prefix *an-*; here the external argument *ny mpianatra* ‘the student’ functions as the trigger of the clause. In (2b) the verb appears in the TV form *vakina*, marked by the suffix *-ina*, and the internal argument *ny boky* ‘the book’ functions as the trigger. Notice that in (2b) the non-trigger actor immediately follows the verb and the two combine to form a single prosodic unit (*vakina + ny mpianatra > vakin’ny mpianatra*).³

Verbs inflect for tense as well as voice. Three tense forms are distinguished: present (Pres) is morphologically unmarked, while past (Pst) is marked by the prefix *n-* or *no-*, and irrealis/future (Irr) is marked by the prefix *h-* or *ho-*.⁴ In the actor voice, *n-* and *h-* replace the AV prefix *m-* (3b,c). In other voices, *n-* and *h-* are prefixed to a vowel-initial stem while their allomorphs *no-* and *ho-* are prefixed to a consonant-initial stem (4b,c).

(3) a. Mamaky ny boky ny mpianatra
Pres.AV.read Det book Det student
‘The student is reading the book’

b. Namaky ny boky ny mpianatra
Pst.AV.read Det book Det student
‘The student read the book’

c. Hamaky ny boky ny mpianatra
Irr.AV.read Det book Det student
‘The student will read the book’

(4) a. Vakin’ ny mpianatra ny boky
Pres.TV.read Det student Det book
‘The student is reading the book’

³For some verbs the TV form is marked by the prefix *a-* or the suffix *-ana*. There is also an additional voice form called the **circumstantial** form. This form has a more limited distribution than the AV and TV forms and does not occur 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 non-factive embedded clauses. Its distribution in embedded contexts is similar to that of subjunctive and infinitive forms in other languages (cf. examples (60b) and (81)).
b. **Novakin’ ny mpianatra ny boky**  
Pst.TV.read Det student Det book  
‘The student read the book’

c. **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 or an adjective, are formed without an overt copula. In irrealis/future clauses such as (5b) and (6b), a non-verbal predicate is introduced by the particle *ho* (clearly related to the verb prefix *h(o)*-). When *ho* is absent, as in (5a) and (6a), the clause is interpreted as present or past, depending on context.

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

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’

In my discussion of *t*-marking on obliques I will be largely concerned with contexts where the verb is marked with the prefix *n(o)*-. While this prefix is generally analyzed as a past tense marker, there are certain situations where it appears to encode something closer to **PERFECT OR ANTERIOR ASPECT**. For example, a verb prefixed with *n(o)*- can in turn be preceded by the particle *ho*, yielding a future perfect/anterior interpretation:

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

Following Reichenbach (1947) and much subsequent work, I consider tense and aspect features to express ordering relations between times: aspeccual features encode an ordering between the time of the event, notated here as *τ(e)*, and an **ASSERTION TIME** (*AT*); while tense features encode an ordering between the assertion time and an anchoring time, typically the **UTTERANCE TIME** (*UT*). Here I use **ASSERTION TIME** in the sense of Demirdache and Uribe-Etxebarría (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)- may be taken to encode a relation where the assertion time precedes the utterance time, \( AT < UT \), as in (3b) and (4b). In the construction in (7), however, \( n(o)- \) seems to indicate that the time of the event precedes the assertion time, \( \tau(e) < AT \) (perfect/anterior aspect), while \( ho \) indicates that the assertion time is ordered after the utterance time (future tense).

Another construction where \( n(o)- \) arguably expresses perfect/anterior aspect rather than past tense is illustrated in (8) and (9) below. Here the verb is preceded by the particle \( vao 'just, newly', \) which encodes proximity between the event time and the assertion time. By default, \( vao \) is interpreted such that the assertion time corresponds to (or overlaps) the utterance time, resulting in an 'immediate past' reading, as in (8a) and (9a). However, an assertion time which precedes the utterance time can be specified—for instance, 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 the time of the event immediately precedes the overtly specified assertion time, which in turn precedes the utterance time (note the use of the past perfect in the English glosses).

\[
(8) \quad \begin{align*}
\text{a. } & \text{Vao niteny izy} \\
& \text{just Pst.AV.speak 3Nom} \\
& \text{‘S/he has just spoken’}
\end{align*}
\begin{align*}
\text{b. } & \text{Vao niteny izy tamin’ izay} \\
& \text{just Pst.AV.speak 3Nom T.at that} \\
& \text{‘S/he had just spoken then’ (Rajaona 1972:318)}
\end{align*}
\]

\[
(9) \quad \begin{align*}
\text{a. } & \text{Vao nohanin-dRabe ilay fanafody} \\
& \text{just Pst.TV.eat-Rabe that medicine} \\
& \text{‘Rabe has just taken the medicine’}
\end{align*}
\begin{align*}
\text{b. } & \text{Vao nohanin-dRabe ilay fanafody dia natory izy} \\
& \text{just Pst.TV.eat-Rabe that medicine then Pst.AV.sleep 3Nom} \\
& \text{‘Rabe had just taken the medicine when he fell asleep’} \\
& \text{(more lit. ‘Rabe had just taken the medicine, then he slept’)}
\end{align*}
\]

Here I offer a formal characterization of the syntactic features that the prefix \( n(o)- \) encodes. First, I posit an aspectual phrase, AspP, located below TP and above the base-merge position of the external argument, here assumed to be the specifier of VoiceP (on AspP, see Demirdache and Uribe-Etxebarria 2000, 2014; Pancheva and von Stechow 2004; and many others). This structure is shown in (10) below. I follow Demirdache and Uribe-Etxebarria in treating both T and Asp as temporal 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 \([±PAST]\) to express the presence or absence of a temporal precedence relation between two times: the T head has a \([+PAST]\) feature when \( AT \) precedes \( UT \) (past tense), and a \([-PAST]\) feature when \( AT \) does not precede \( UT \) (non-past tense). Likewise the Asp head has a \([+PAST]\) feature when \( \tau(e) \) precedes \( AT \) (perfect/anterior aspect), and a \([-PAST]\) feature when \( \tau(e) \) does not precede \( AT \) (default aspect).\(^5\)

\(^5\)Here and below I use \textit{perfect} and \textit{anterior} interchangeably to refer to an aspect which orders the event time before the assertion time. I remain agnostic on whether perfect aspect and anterior aspect should be distinguished (see
The table in (11) summarizes the possible permutations of T and Asp features and the corresponding temporal ordering relations. For (11a,b) I assume a realis context where \([-\text{PAST}]\) on T is construed such that the assertion time overlaps the utterance time \((\text{AT} \circ \text{UT})\) rather than following the utterance time.

(11)

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>Asp</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>([-\text{PAST}])</td>
<td>([-\text{PAST}])</td>
</tr>
<tr>
<td>b</td>
<td>([-\text{PAST}])</td>
<td>(+\text{PAST})</td>
</tr>
<tr>
<td>c</td>
<td>(+\text{PAST})</td>
<td>([-\text{PAST}])</td>
</tr>
<tr>
<td>d</td>
<td>(+\text{PAST})</td>
<td>(+\text{PAST})</td>
</tr>
</tbody>
</table>

The verb is prefixed with \(n(o)\)- when the utterance time, assertion time, and event time are ordered as in (11b), (11c), or (11d). I propose that the features of T and Asp are spelled out as verbal tense marking according to the following rules:

(12) a. The verb is prefixed with \(n(o)\)- when the closest c-commanding T head, Asp head, or both, includes a \([+\text{REALIS}]\) feature.

b. Otherwise the verb is unmarked when the T head is specified as \([+\text{REALIS}]\), and prefixed with \(h(o)\)- when the T head is specified as \([-\text{REALIS}]\).

Note that the verb is prefixed with \(n(o)\)- in all cases where the event time precedes the utterance time. One might therefore wonder whether (12a) could be simplified: perhaps \(n(o)\)- encodes a direct ordering between the event time and the utterance time, without the need to invoke an assertion time or reference to the features of the Asp head. In section 4.3 I will show that the

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Pancheva and von Stechow 2004, and references therein, for examples of theories which treat perfect aspect as more syntactically and semantically complex than anterior aspect).

Treating 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 2000, 2014 for a similar proposal). Since Malagasy does not mark a perfective–imperfective distinction in the morphology, I assume that Asp in Malagasy encodes a binary contrast between perfect/anterior aspect and ‘neutral’ aspect, where neutral aspect specifies merely that the assertion time does not precede the event time: \(\tau(e) \geq \text{AT}\).
formulation in (12a) is necessary in order to capture the relative distribution of \(n(o)\)-marking on verbs and \(t\)-marking on obliques. In the meantime, I will often group (11b,c,d) together as “[+PAST] contexts” in my description of \(t\)-marking, in cases where it is not necessary to specify whether the verbal morphology is spelling out a [+[PAST]] feature of T, Asp, or both.

2.2 The class of obliques

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

(13) \begin{tabular}{ll}
BARE & \(t\)-FORM \\
\(aiza\) & \(taiza\) \hspace{1cm} ‘where’ \\
\(aloha\) & \(taloha\) \hspace{1cm} ‘before; beforehand, earlier’ \\
\(aorian\) & \(taorian\) \hspace{1cm} ‘after, behind; afterwards, later’ \\
\(amin\) & \(tamin\) \hspace{1cm} ‘with, at/in/on, to’ \\
\end{tabular}

Obliques headed by these elements are illustrated in (14) and (15) below. \(Aiza\) is the locative wh-operator (14a). \(Aloha\) and \(aorian\) express both spatial and temporal relations, and may function as oblique constituents either on their own (14b) or in combination with a DP complement (14c).\(^6\) \(Amin\) is a sort of all-purpose preposition which encodes a variety of participant roles: PPs formed with \(amin\) can denote an instrument (15a), or indicate a comitative relation (15b), manner (15c), or location in time (15d), among other possibilities.

(14) a. \(Aiza\) ny reninao no mipetra\(k\)a?
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’

\(^6\)As shown in (14c), \(aorian\) loses its final vowel before a complement, becoming \(aorian\). This is an instance of a regular morpho-phonological process also seen in (4) above, where \(vakina\) becomes \(vakin\) when it combines with a non-trigger actor.
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)’

An oblique can also be headed by one of the spatial deictic elements in (16), glossed ‘here’ or ‘there’ in the examples:

\[
\begin{array}{cccc}
\text{BARE} & \text{t-FORM} \\
\text{(+VIS)} & \text{([–VIS])} & \text{(+VIS)} & \text{([–VIS])} \\
eto & ato & teto & tato & \text{point next to speaker} \\
ety & aty & tety & taty & \text{area including speaker} \\
etsy & atsy & tetsy & tatsy & \text{area near speaker} \\
et & ao & teo & tao & \text{point not near speaker} \\
etny & any & teny & tany & \text{area not near speaker} \\
etry & ary & tery & tar & \text{area far from speaker} \\
\end{array}
\]

As this table shows, Malagasy has an unusually rich system for encoding spatial deixis (see Rajemisaraolison 1969:138–139, Dez 1980:122–145, Anderson and Keenan 1985:292–293, Imai 2003 for discussion). Spatial deictics distinguish several degrees of distance from the speaker, as well as indicating whether the location in question is visible to the speaker or not ([+VIS]). In addition, certain pairs of deictics are distinguished by whether they refer to a specific point in space or to a more general location, as with eto ‘right here’ versus ety ‘hereabouts’ (Imai 2003).

One peculiarity of Malagasy is that any oblique phrase which denotes a location in space must be introduced by one of the deictic elements in (16), anchoring the location with respect to the speech act context. Example sentences containing spatial obliques are given below:

\[
\begin{array}{ll}
\text{(17)} & \\
\text{a. Et}y & \text{ny boky} \\
& \text{here Det book} \\
& \text{‘The book is here’} \\
\text{b. Hihaona} & \text{any amin’ ny tetezana isika} \\
& \text{Irr.AV.meet there at Det bridge 1inNom} \\
& \text{‘We will meet at the bridge’} \\
\text{c. Mipetraka} & \text{any Antsirabe izy} \\
& \text{Pres.AV.live there Antsirabe 3Nom} \\
& \text{‘S/he lives in Antsirabe’} \\
\text{d. Any} & \text{am-pianarana ny ankizy} \\
& \text{there Loc-school Det children} \\
& \text{‘The children are at school’} \\
\end{array}
\]
e.  \textit{Eo} ambonin' ny \textit{latabatra} ilay boky here on:top.of Det table that book

     ‘The book is on the table’

f.  Milomano ao anaty renirano Rasoa
     Pres.AV.swim there inside river Rasoa

     ‘Rasoa 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 to form a larger phrase. Possible complements include a PP headed by \textit{amin’} (17b), or by \textit{aloha}, \textit{aoriana}, or one of a handful of other prepositional elements formed with the prefix \textit{a-} and denoting spatial relations: e.g., \textit{akaiky} ‘near, close to; nearby’, \textit{amorona} ‘at the edge of’. The spatial deictic can also combine with a place name (17c), or with a bare noun combined with the locative proclitic \textit{an-} (17d). A number of \textit{an-} + noun combinations have been grammaticalized as prepositions, including \textit{ambony} ‘over, on top’ (from \textit{vony} ‘top’) (17e), and \textit{anaty} ‘inside’ (from \textit{aty} ‘interior; liver’) (17f).

The sentences below illustrate \textit{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 \textit{amin’}, \textit{aloha}, or \textit{aoriana}, as in the (b) examples, it is the deictic that carries the \textit{t-} morpheme. \textit{Amin’}, \textit{aloha}, and \textit{aoriana} are marked with \textit{t-} only when they are the initial element in the oblique phrase, as in the (a) examples.

(18) a.  Ni\textit{resaka} \textit{tamin’ ilay vehivavy} aho
     Pst.AV.converse T.with that woman 1sNom

     ‘I spoke with that woman’

b.  Nihaona \textit{tany amin’ ny tetezana isika}
     Pst.AV.meet T.there at Det bridge 1inNom

     ‘We met at the bridge’

(19) a.  Niteny \textit{taorian’ ny mpampianatra} aho
     Pst.AV.speak T.after Det teacher 1sNom

     ‘I spoke after the teacher’

b.  Nipetraka \textit{tao aorian’ ny mpampianatra} aho
     Pst.AV.sit T.there after Det teacher 1sNom

     ‘I sat behind the teacher’

Note that \textbf{oblique} is being used here as a term of convenience, to refer to all and only constituents capable of taking the \textit{t-} prefix. Not all phrases in Malagasy denoting peripheral syntactic roles count as obliques in this specialized sense. For example, temporal adverbials such as \textit{omaly} ‘yesterday’ and \textit{ovianna} ‘when?’ cannot take \textit{t-}. Likewise \textit{t-} does not appear on manner adverbs and other non-spatial modifiers formed with the locative proclitic \textit{an-}, such as \textit{an-tsirambina} ‘carelessly’ (from \textit{tsirambina} ‘carelessness’). In addition, \textit{t-} does not occur on benefactive phrases, which are formed with \textit{an-} preceded by the particle \textit{ho}: e.g., \textit{ho an’ny zaza} ‘for the child’. Finally, \textit{t-} cannot be added
to prepositions grammaticalized from verbs or adjectives: e.g., *momba ny zaza* ‘about the child’, where the preposition *momba* ‘about, concerning’ derives from the verb *momba* ‘follow’.

I leave it for future investigation to determine why certain certain subclasses of PPs and adverbiales can take *t*- while others cannot. Note that I am not aware of any research into the historical origins of the *t*- prefix, nor have I encountered cognates of this morpheme in other Austronesian languages, a fact I return to at the end of the paper.

### 3 The function of the *t*- prefix: 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 phrase functions as the main predicate of the clause (note the absence of a copula). In (20a), where the bare form is used, it is understood that the lemur is in the forest at the time of utterance (UT). In (20c), where the *t*-form is used, 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, encodes irrealis/future in clauses with non-verbal predicates. In (20b), as in (20a), the oblique appears in its bare form.7

(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) (repeating the examples in (1)). Here the form of the oblique covaries with the tense inflection on the verb. The *t*-form occurs when the verb is in the past (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’

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7According to Rajaona (1972:277), the combination of *ho* plus a spatial oblique predicate can be interpreted as denoting movement towards a goal: ‘The lemur is going into the forest’. This may reflect the fact that the particle *ho* functions not only as an irrealis/future particle but also as a dative/benefactive marker. Compare: *Aiza ianao?* ‘Where are you?’, *Taiza ianao?* ‘Where were you?’, *Ho aiza ianao?* ‘Where are you going?’ (‘Where will you be?’)
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 phrase functions as the dependent of the non-verbal predicate *tonga* ‘arrive’.

Recall that non-verbal predicates do not inflect for tense. In an irrealis/future clause the predicate is preceded by the particle *ho* (22b), but in non-irrealis/future contexts (22a,c) the form of the oblique provides the only indication of the tense of the clause.

(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 in (20)–(22) suggests that *t-* encodes **PAST TENSE** (i.e., a [+PAST] feature on the T head). In cases such as (20c), *t-* is the sole encoding of this feature, given the absence of a verbal copula in Malagasy. 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 prefix *n(o)-* on the verb, yielding a pattern of 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 when I asked them about the contrast between the bare form and the *t-* form.

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

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*Tonga* may be categorized as non-verbal on the grounds that it does not inflect for tense or voice, and instead takes the form of an invariant root. Malagasy grammarians refer to predicates of this sort as **ROOT PASSIVES**, since their argument structure is similar to that of TV clauses. Semantically *tonga* belongs to a class of predicates which can receive either an achievement construal (‘arrive’) or a stative/resultative construal (‘have arrived; be an an arrived state’), according to context. See chapter 7 of Travis (2010) for some discussion of these predicates.
(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, the generalization in (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) below, 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 these sentences suggest, the presence or absence of t- has an effect how the sentence is interpreted (the meaning difference is explained in section 4.1 below).

(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 Malagasy grammatical literature, apart from a very brief mention in Rajemisa-Raolison (1969:139), nor has it received any attention in the linguistic literature.9 However, sentences of this sort can be found in spontaneous textual data, and their well-formedness has been confirmed by multiple native speakers (interestingly, although every speaker I consulted immediately accepted sentences like (26b), several expressed surprise upon realizing that they find such sentences fully grammatical, since they reported having been taught in school that the t-form 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):

9Dez (1980:139,203, 1990:110) suggests that t-marking on obliques is always optional when the clause is otherwise overtly marked for past tense, but this claim is not supported by my data. See 4.1 below.
(27) VERB OBLIQUE
a. present bare form
b. irrealis bare form
c. past bare form
d. past t-form

For the remainder of this paper I focus on [+PAST] clauses containing a verb and an oblique dependent, and consider the distribution and interpretation of the marking patterns in (27c) versus (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 the goal or endpoint of motion. I argue for an analysis of t-marking which accounts for this restriction in terms of event composition and the scopal position of the oblique within the larger clause structure. I then extend this analysis to biclausal constructions in section 5.

4 Event structure and t-marking on oblique dependents

In this section I show that in regular [+PAST] clauses, the syntactic/semantic role of an oblique dependent determines whether it can appear in the bare form as well as the t-form, with argument and non-argument dependents patterning differently. I propose that this difference reflects a structural asymmetry between adjuncts and complements.

4.1 A complement–adjunct asymmetry

When the oblique is an ADJUNCT (non-argument dependent) and denotes the instrument with which an event is carried out, 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 when the clause is [+PAST]. Thus speakers systematically reject sentences like (28a) below, where a past-tense verb combines with an instrumental oblique in the bare form. When the oblique is instead in the t-form, as in (28b), the sentence is acceptable. The same contrast obtains in (29), where the oblique denotes a location.10

(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’

10 Occasionally in my elicitation sessions a speaker would accept a sentence like (28a) or (29a), but this was an infrequent occurrence and none of the speakers I consulted accepted such sentences consistently. In Pearson (2008) I claimed that some speakers allow an oblique adjunct in the bare form just in case the clause receives a past habitual reading (e.g., ‘Naivo used to cut bread with the knife’). However, subsequent fieldwork has not corroborated this claim. Of the thirteen speakers I have consulted so far, eleven reject sentences like (28a) and (29a) even in contexts that force a habitual reading. The remaining two speakers, who I interviewed together during a single session, allowed a habitual interpretation for (28a) and (29a), but 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 (note Dez 1980, who claims that t-marking on obliques is optional when the clause is otherwise overtly marked for past tense).
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 dependent 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 between the two. Consider the examples below, repeated from (26) above:

(30) a. Niditra ao an-trano ny vehivavy
Pst.AV.enter there Loc-house Det woman
‘The woman has gone into the house’
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 (in the English glosses I approximate this contrast via the alternation between present perfect has gone and simple past went). In accordance with this difference in interpretation, (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 such a context. Compare also the examples below, where the implication that the woman is still in the house is explicitly denied: the t-form is felicitous 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) below, featuring a transitive motion verb (‘place’). Here the clause denotes an event where an agent (the speaker) moves the theme (the book) so that it ends up at a location (the table), the latter expressed by a spatial oblique. In (32a), with the oblique in the bare form, it is understood that the book is on the table at UT. Hence this sentence could be
used to answer the question *Aiza ny boky?* ‘Where is the book (now)?’. No such inference obtains in the case of (32b), where the *t*-form is used: the hearer is most likely to conclude that the book is no longer on the table at UT.

(32)  
\[
\begin{align*}
\text{a. } & \text{Napetrako } eo \ ambony \ latabatra \ ilay \ boky \\
& \text{Pst.TV.place.1s here on.top table that book} \\
& \text{‘I (have) placed that book on the table’ (and it’s still there)} \\
\text{b. } & \text{Napetrako } teo \ ambony \ latabatra \ ilay \ boky \\
& \text{Pst.TV.place.1s T.here on.top table that book} \\
& \text{‘I placed that book on the table’ (it may no longer be there)}
\end{align*}
\]

In examples like (30) and (32), the clause denotes a more or less **punctual** event of motion. That is, we may conceive of the theme as undergoing a (near-)instantaneous transition from not being at the endpoint to being at the endpoint. When the clause instead denotes a more **durative** event of motion—that is, one where it takes time for the theme to reach the endpoint—the range of interpretations associated with the use of the bare form is slightly broader. Consider the pair of sentences in (33). For (33a), where the oblique is in the bare form, 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 (note the variant glosses provided for this sentence). In the case of (33b), where the oblique is in the *t*-form, it is understood that the lemur reached the top of the tree, but there is no implication that it is still at the top of the tree at UT.

(33)  
\[
\begin{align*}
\text{a. } & \text{Niakatra } eny \ amin’ \ ny \ tompon’ \ ilay \ hazo \ ilay \ gidro \\
& \text{Pst.AV.ascend there at Det.top.of that tree that lemur} \\
& \text{‘The lemur has gone up to the top of the tree’ (it’s still there)} \\
& \text{or ‘The lemur has started going up to the top of the tree’ (it’s not there yet)} \\
\text{b. } & \text{Niakatra } teny \ amin’ \ ny \ tompon’ \ ilay \ hazo \ ilay \ gidro \\
& \text{Pst.AV.ascend T.there at Det.top.of that tree that lemur} \\
& \text{‘The lemur went up to the top of the tree’ (it might no longer be there)}
\end{align*}
\]

The same pattern of readings obtains in (34) below, featuring a transitive verb of motion (‘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)  
\[
\begin{align*}
\text{a. } & \text{Nalefan’ ny vevihavy any am-piarana ny ankizy} \\
& \text{Pst.TV.send Det woman there Loc-school Det children} \\
& \text{‘The woman has sent the children to school’} \\
& \text{(they’re at school now, or they’re on their way to school)}
\end{align*}
\]

11The event in (30) may be described as punctual inasmuch 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).
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 that results from a telic event of motion, what Parsons (1990) calls the TARGET STATE (TS). That is, the motion event culminates when the theme reaches 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 \( \tau(TS) \) to represent the temporal span associated with the target state—i.e., the contextually-salient\(^{12} \) 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 goal/endpoint in a motion event, and thus identifies the target state of that event:
   a. The t-form is used when the temporal span of the target state properly precedes the utterance time: \( \tau(TS) < UT \).
   b. The bare form is used when the temporal span of the target state does not properly precede the utterance time: \( \tau(TS) \geq UT \). There are two scenarios compatible with this:
      i. Target state overlaps utterance time (i.e., the theme is currently at the goal):
         \( \tau(TS) \cap UT \)
      ii. Target state follows utterance time (i.e., the theme is on its way to the goal):
         \( \tau(TS) > UT \)

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

Note that the interpretive generalizations in (35) extend straightforwardly to cases like those in (36) (repeated from (20)), where the oblique functions as the main predicate. Here the clause denotes the situation of the theme being at a location, presented on its own rather than as the target state of a motion event. But just as in (33), the t-form is used when the situation of the lemur being at the top of the tree temporally precedes UT (36c), while the bare form is used when it either overlaps UT (36a) or follows UT (36b).

\(^{12}\)I specify “contextually-salient” here because \( \tau(TS) \) 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 properly precedes UT.
Before we consider how to capture the complement–adjunct asymmetry documented above, there is an issue presented by sentences like (33a) which needs to be resolved. Here we face an apparent paradox in regards to the availability of reading (35b-ii). How can the sentence be interpreted to mean that the lemur is currently ascending the tree, given that the verb niakatra ‘ascended’ is marked with the [+PAST] morpheme $n(o)$? To address this question, we must say a bit more about the semantics of $n(o)$. I turn to this issue 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 (37a) is normally interpreted to mean that the child succeeded in catching the dog, that reading can be cancelled without creating a logical contradiction, as shown by the fact that (37b) is felicitous (Travis 2010:213; example taken from Phillips 2000:22):13

13This 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 (37b): ‘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 (37b).
of the target state’s temporal span: $c(e) = i(TS)$. Given the acceptability of examples like (37b), I propose the following statement on the interpretation of $n(o)$- as an addendum to the spell-out rule in (12a):

**(38)** 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 $UT$: i.e., the event began before the utterance time.

b. If $e$ is telic, it is strongly *implicated* that there exists a $c(e)$ preceding $UT$ (i.e., the event culminated before the utterance time) unless that implicature is explicitly cancelled.

There are different ways to cancel the implicature of a culmination point preceding $UT$. In the case of (37b), the speaker cancels the implicature by providing further information which makes it clear that the event failed to culminate—that is, the endpoint was not achieved. In the case of sentences like (33a), repeated below as (39), the implicature may be cancelled by the presence of a goal oblique in the bare form.

**(39)** *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 indicates the presence of a $[+PAST]$ T feature or Asp feature (12a). This entails that the ascending event started prior to $UT$, in accordance with (38a). In accordance with (38b), the hearer would normally conclude that the entire ascending event precedes $UT$. However, the absence of the $t$- prefix on the accompanying goal oblique 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., $\tau(TS) > UT$. Since the initiation point of the target state corresponds to the culmination point of the motion event, we arrive at the reading of (39) where the ascending event has begun but has not yet culminated.

Something similar seems to be occurring in the following pair of examples. Although *matory* ‘sleep’ is not a motion verb, we might argue the oblique identifies the target state of an implicit motion event, at least in the case of (40b).

**(40)**

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* can be interpreted as durative and atelic (‘slept’) or as inceptive (‘went to sleep, began to sleep’), according to the context. The form
of the oblique helps to indicate which of these two readings is intended. In (40a) 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 (40b) the oblique is in the bare form, and must thus be construed as a goal oblique. That is, the oblique identifies the target state for the theme in an inceptive event: a past event of going to sleep resulted in the child now being in the bed. Due to the combination of a [+PAST] verb and a bare oblique, (40b) 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 goal obliques patterning differently from other oblique dependents. In this section I propose a structural analysis which captures this distribution.

I begin with cases where the oblique is the main predicate of the clause, as in (41) and (42). Here the clause expresses a situation whereby the theme argument, either an entity or an event, occupies a given location (in (42) the wh-oblique acts as the focused predicate in a pseudo-cleft; see Paul 2000, 2001 and Potsdam 2006 for discussion of the pseudo-cleft construction). When the t-form is used, the clause receives a [+PAST] interpretation, and when the bare form is used a [–PAST] interpretation results.

(41) 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’

(42) 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 (43). Although nothing in my analysis hinges on this, I will assume for concreteness that the oblique phrase, notated OblP, is selected by a Voice head, while the DP denoting the theme merges as the specifier of VoiceP.14

14In (43) the Voice head serves to establish a predication relation between DP and OblP. Other structures are possible: for example, perhaps DP and OblP merge to form a small clause. Note also that (43) 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 at spell-out.
I propose that t-marking is governed by the spell-out rule in (44), which parallels the rule in (12a) that governs n(o)-marking on verbs:

(44) An oblique is prefixed with t- if it is in the immediate scope of a [+PAST] feature—that is, if the closest c-commanding T head or Asp head is [+PAST].

Oblique phrases pattern as stage-level predicates in that they denote properties which can be temporally bounded (cf. *The book was on the table for two hours*). Therefore, following Davidson (1967), Parsons (1990), and many others, I assume that the OblP constituent includes an implicit EVENT ARGUMENT $e_{obl}$, denoting the situation of the theme being at the location. Since the Asp head orders the time of a situation $\tau(e)$ relative to the assertion time AT, while the T head orders AT relative to the utterance time UT, (44) entails that the oblique predicate is marked with t- just in case $\tau(e_{obl})$ properly precedes UT. There are three featural combinations that yield t-marking (cf. the discussion of (11) above): If T is [+PAST] and Asp is [-PAST] (= ‘PAST IMPERFECT’), then $\tau(e_{obl})$ overlaps AT, which precedes UT. If T is [-PAST] and Asp is [+PAST] (= ‘PRESENT PERFECT’), $\tau(e_{obl})$ precedes AT, which overlaps UT. And if T and Asp are both [+PAST] (= ‘PAST PERFECT’), $\tau(e_{obl})$ precedes AT, which in turn precedes UT. The oblique is in the bare form only when both T and Asp are [-PAST]. We thereby derive the past-tense interpretation of (41b) and (42b) and the non-past interpretation of (41a) and (42a).

Given that (44) makes reference to local c-command, it may be that t-marking reflects an AGREE relation between the oblique and a higher [+PAST] head. Perhaps obliques have an uninterpretable temporal ordering feature which needs to be valued by a probe in T or Asp. When the closest c-commanding T or Asp has a [+PAST] feature, that feature probes and values the feature on the oblique, causing the oblique to be spelled out with t-. The oblique appears in the bare form just in case neither head has a [+PAST] feature.\(^{15}\)

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

\(^{15}\)Here I must assume that a [-PAST] feature on Asp does not block a [+PAST] feature on T from triggering agreement on the oblique, even though the Asp head is a closer c-commander. One way to ensure this is to treat the probe as a privative feature encoding a temporal precedence relation: a “[+PAST]” head possesses this precedence feature while a “[–PAST]” head lacks it. If the Asp head lacks the precedence feature, the oblique can enter into an AGREE relation with a precedence feature on the higher T head.
event—the bare form is used if the theme is at the target state location at $UT$ or has not yet reached the target state location as of $UT$, 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 or the location where an event takes place, only the $t$-form is acceptable in $[+\text{PAST}]$ 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 represents the ‘cause’ or ‘process’ portion of the event, while the other represents the endpoint or target 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; and when the telic 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). For a transitive clause, the basic structure is the one shown in (45) below. The event argument associated with the cause/process sub-event, labeled $e_1$, is introduced by the $v$ head; while the event argument associated with the target state, labeled $e_2$, is introduced by the $V$ head. I further assume that $vP$ and $VP$ are each dominated by an AspP projection, whose head includes a $[\pm\text{PAST}]$ feature that orders the time of the event argument introduced by its complement relative to the assertion time. Thus the higher aspectual head Asp$_1$, which locally scopes over $e_1$, 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$_2$, which locally scopes over $e_2$, 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), Pancheva and von Stechow (2004), and many others, and shown in the trees in (10) and (43) 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).

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16Ramchand (2008) treats ‘cause’ and ‘process’ as two distinct sub-events, each associated with its own syntactic projection and its own event argument. I set aside the question of 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 (45) and subsequent tree structures, the event argument is simply shown under the head with which it is associated.

17Alternatively, perhaps $e_2$ is 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 (45) 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 the external DP argument (if any) is introduced in the specifier of VoiceP. Notice also that I show the internal DP argument base-merging in the specifier of VP. However, nothing in my analysis of $t$-marking hinges on where in the structure DP arguments are introduced.

18Travis (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).
I propose that the distribution of \( t \)-marking on oblique dependents falls out from where the oblique merges in the hierarchical structure in (45). Let us begin with obliques which function as non-arguments and denote an instrument (46), spatio-temporal location (47), 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.

(46) 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’

(47) 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 (45). Specifically, I propose that they adjoin to vP, as shown in (48) (this is roughly the position where Pylkkänen 2008 argues that ‘high’ applicative arguments are introduced):

\[
(48) \quad \text{TP} \\
\quad \text{T} \quad \text{AspP} \\
\quad \quad \quad \text{Asp} \quad \text{VoiceP} \\
\quad \quad \quad \quad \quad \text{DP} \quad \text{Voice'} \\
\quad \quad \quad \quad \quad \quad \text{Voice} \quad \text{vP} \\
\quad \quad \quad \quad \quad \quad \quad \text{vP} \quad \text{OblP} \\
\quad \quad \quad \quad \quad \quad \quad \quad \text{Asp} \quad \text{VP} \\
\quad \quad \quad \quad \quad \quad \quad \quad \quad \text{Asp} \\
\end{array}
\]

Above I suggested that the v head introduces an event argument \(e_1\) associated with the cause/process sub-event. I propose that when an OblP merges with vP, as in (48), the resulting structure is interpreted via Kratzer’s rule of **Event Identification** (Kratzer 1996:122), paraphrased below:

\[
(49) \quad \text{Event Identification: If constituent } \alpha \text{ denotes a function } \lambda x.e_s[f(x)(e)] \text{ and constituent } \beta \text{ denotes a function } \lambda e_s[g(e)], \text{ then the output of } \text{MERGE}(\alpha, \beta) \text{ is interpreted as a function } \lambda x.e_s[f(x)(e) \land g(e)].
\]

In accordance with (49), the event argument introduced by OblP is equated with the event argument introduced by v. I notate this by co-indexing the two arguments: both are labeled \(e_1\) in (48). 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 any). 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. It is thus the ordering features of T and Asp\(_1\) (but not Asp\(_2\)) which determine whether the oblique appears in the t-form or the bare form. The rule governing the distribution of t-marking is repeated in (50) below. The rules governing the distribution and interpretation of n(o)-marking on verbs are restated in (51) for comparison.

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

(51) The verb is prefixed with n(o)- iff it is in the immediate scope of a [+PAST] feature—that is, iff the closest c-commanding T head or Asp head is [+PAST]. When the verb takes n(o)-:

a. It is entailed that i(e) precedes UT: i.e., the event began before the utterance time.

b. If e is telic, it is strongly implicated that there exists a c(e) preceding UT (i.e., the event culminated before the utterance time) unless that implicature is explicitly cancelled.

Since an oblique adjunct merges in the immediate scope of Asp\(_1\), it will take the t- prefix just in case Asp\(_1\) and/or T includes the feature [+PAST]. The verb carries the prefix n(o)- under the same conditions: I assume that the verb raises at least as high as Asp\(_1\), perhaps as high as the T head; 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 [±REALIS]). As a consequence we derive the concord pattern in (52), where the oblique adjunct ‘agrees in tense’ with the verb:

(52) 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’
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 (53a) or future/irrealis (53b) form. When the verb has past marking, the oblique appears in either the bare form or the t-form, depending on whether the interval during which the theme occupies the terminal location overlaps/follows UT (53c) or precedes UT (53d).

(53) a. Miditra ao an-trano ny vehivavy
    Pres.AV.enter there Loc-house Det woman
    ‘The woman is going into the house’ (she’s not in the house yet)

b. Hiditra ao an-trano ny vehivavy
    Irr.AV.enter there Loc-house Det woman
    ‘The woman will go into the house’ (she’s not in the house yet)

c. 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)

d. Niditra tao an-trano ny vehivavy
    Pst.AV.enter T.there Loc-house Det woman
    ‘The woman went into the house’ (she’s probably no longer in the house)

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 (54):19

(54)  
\[ vP \]
\[ v \]  
\[ AspP \]  
\[ e_1 \]  
\[ Asp_2 \]  
\[ VP \]  
\[ [±PAST] \]  
\[ DP \]  
\[ int.arg \]  
\[ V' \]  
\[ V \]  
\[ OblP \]  
\[ e_2 \]  
\[ goal \]

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 the V head, the event argument introduced

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19 Another possibility is that the goal oblique is properly embedded within the sister of V, perhaps as the predicate in a small clause complement. Yet another option (suggested by Lisa Travis, p.c.) is that the goal oblique adjoins to VP. For present purposes all that matters is that the goal oblique merges within the immediate scope of Asp_2.
by OblP is equated with $e_2$ via Event Identification (49). This yields the correct semantics, insofar as goal phrases provide information about the target state of a motion event rather than the cause/process sub-event.

Since a goal oblique is located within VP, the closest c-commanding Asp is the inner aspect head Asp$_2$, which orders the time of the target state relative to AT. Thus, for purposes of the spell-out rule in (50), 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 because the goal oblique merges low in the verbal extended projection, within the immediate scopal domain of Asp$_2$ and thus outside the immediate scopal domain of Asp$_1$. However, the $[\pm \text{PAST}]$ feature of Asp$_1$ is relevant for determining the tense morphology on the verb, under the assumption that the verb raises out of the inner AspP and into the scopal domain of Asp$_1$.

To see how this analysis yields the marking patterns in (53), 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 laid out in (55) below. 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/endpoint named by the oblique. For (55a-c) I give only the interpretation when T is realis (i.e., present tense).

(55)

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>Asp$_1$</th>
<th>Asp$_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>$[-\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
</tr>
<tr>
<td></td>
<td>AT $\circ$ UT</td>
<td>$\tau(e_1) \geq \tau(e_2) \geq \tau(\text{AT})$</td>
<td>$\tau(\text{AT})$</td>
</tr>
<tr>
<td></td>
<td>assertion time overlaps utterance time,</td>
<td>motion event overlaps assertion time,</td>
<td>target state follows assertion time</td>
</tr>
<tr>
<td>b.</td>
<td>$[-\text{PAST}]$</td>
<td>$[+\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
</tr>
<tr>
<td></td>
<td>AT $\circ$ UT</td>
<td>$\tau(e_1) &lt; \tau(e_2) \geq \tau(\text{AT})$</td>
<td>$\tau(\text{AT})$</td>
</tr>
<tr>
<td></td>
<td>assertion time overlaps utterance time,</td>
<td>(start of) motion event precedes assertion time,</td>
<td>target state overlaps/follows assertion time</td>
</tr>
<tr>
<td>c.</td>
<td>$[-\text{PAST}]$</td>
<td>$[+\text{PAST}]$</td>
<td>$[+\text{PAST}]$</td>
</tr>
<tr>
<td></td>
<td>AT $\circ$ UT</td>
<td>$\tau(e_1) &lt; \tau(e_2) \geq \tau(\text{AT})$</td>
<td>$\tau(\text{AT})$</td>
</tr>
<tr>
<td></td>
<td>assertion time overlaps utterance time,</td>
<td>motion event and target state both precede assertion time</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>$[+\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
</tr>
<tr>
<td></td>
<td>AT $&lt; \text{UT}$</td>
<td>$\tau(e_1) \geq \tau(e_2) \geq \tau(\text{AT})$</td>
<td>$\tau(\text{AT})$</td>
</tr>
<tr>
<td></td>
<td>assertion time precedes utterance time,</td>
<td>motion event and target state both overlap or follow assertion time</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>$[+\text{PAST}]$</td>
<td>$[+\text{PAST}]$</td>
<td>$[-\text{PAST}]$</td>
</tr>
<tr>
<td></td>
<td>AT $&lt; \text{UT}$</td>
<td>$\tau(e_1) &lt; \tau(e_2) \geq \tau(\text{AT})$</td>
<td>$\tau(\text{AT})$</td>
</tr>
<tr>
<td></td>
<td>assertion time precedes utterance time,</td>
<td>motion event precedes assertion time,</td>
<td>target state overlaps/follows assertion time</td>
</tr>
</tbody>
</table>
assertion time precedes utterance time,
\[ \tau(e_1) < \tau(e_2) < \tau \]

motion event and target state both precede assertion time

Notice that two of the logically possible feature combinations are not included in (55), namely those where Asp\(_1\) is \([-\text{PAST}]\) while Asp\(_2\) is \([+\text{PAST}]\) (T is either \([+\text{PAST}]\) or \([-\text{PAST}]\)). By definition, the culmination point of a cause/process sub-event corresponds to the initiation point of the target state, \(c(e_1) = i(e_2)\); consequently the temporal span of the cause/process sub-event necessarily precedes the temporal span of the target state: \(\tau(e_1) < \tau(e_2)\). 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 \(\tau\) but whose resulting target state properly precedes \(\tau\).

Consider now how the feature combinations in (55), and the temporal orderings that they instantiate, are encoded morphologically on the verb and the oblique. When the feature values are as in (55a), 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 (56a) below, where the verb appears in the present-tense form and the oblique appears in the bare form. When the feature values are as in (55c-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 the prefix \(t\)-. This gives us the pattern in (56c), where the motion event precedes \(\tau\) and (it is implied that) the theme is no longer at the goal at \(\tau\).

\[(56)\]

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)

This leaves the feature combination in (55b). Here the \([-\text{PAST}]\) feature on the T head indicates that the assertion time \(\tau\) overlaps \(\tau\). The \([+\text{PAST}]\) feature on Asp\(_1\) in turn orders \(\tau(e_1)\)—or at least the initiation point \(i(e_1)\)—after \(\tau\), and thus after \(\tau\). Finally, the \([-\text{PAST}]\) feature on Asp\(_2\) entails that \(\tau(e_2)\) overlaps or follows \(\tau\), and thus overlaps or follows \(\tau\). Since the verb is in the immediate scope of a \([+\text{PAST}]\) feature on Asp\(_1\), it is spelled out with the prefix \(n(o)\)- in accordance with (51). As for the goal oblique, it appears in the immediate scope of a \([-\text{PAST}]\) feature on Asp\(_2\) as well as a \([-\text{PAST}]\) feature on T, and thus occurs in the bare form in accordance with (50). We thereby derive that the feature combination in (55b) is spelled out as in (56b) above. This correctly predicts how...
(56b) 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).

Notice that my analysis of t-marking on goal oblique variables provides justification for the disjunctive rule in (51), according to which the verbal prefix n(o)- spells out either past tense (a [+PAST] feature on T) or perfect/anterior aspect (a [+PAST] feature on Asp). If n(o)- were solely a marker of past tense, it would not be difficult to capture the co-occurrence of n(o)- with the bare form of the oblique in (56b). My analysis of (56b) relies on the T head having the feature [–PAST]: the sentence receives a 'present perfect' interpretation rather than a 'past' interpretation.

There is a residual issue which needs to be addressed regarding how the feature combinations in (55) correspond to temporal orderings. Notice that strictly speaking, (55d) and (55e) are both compatible with a situation where the target state happens to overlap or follow \( UT \), given that \( \tau(e_2) \) is not directly ordered with respect to \( UT \); \( \tau(e_2) \) is only ordered with respect to \( AT \). It is for this reason, I suggest, that a sentence such as (56c) 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 (56b). Sentence (56b) entails that the theme is still at the goal at \( UT \), and (56b) is more 'informative' than (56c) in the sense that it is compatible with fewer temporal orderings ((56b) only encodes the feature combination in (55b)). Consequently if a speaker chooses to utter (56c) instead of (56b), the hearer is likely to infer that the situation named by (56b) does not hold: in other words, it is not the case that the theme is still at the goal at \( UT \).

Similarly, notice that the ordering in (55d) is compatible with a situation where the cause/process sub-event overlaps or follows the utterance time. I assume that (56c) lacks this reading due to competition with the option in (56a). Using the present-tense form of the verb is a more explicit way of indicating that the cause/process sub-event is ongoing at \( UT \), so use of the past-tense form is avoided.\(^{20}\) Like (56b), (56a) is compatible with fewer temporal orderings than (53d) and is therefore a more 'informative' option than (56c).

The table in (57) summarizes how the bare form and the t-form are interpreted for oblique adjuncts versus oblique complements according to the above analysis:

\(^{20}\)But recall my discussion of tense marking and event culmination in section 4.2. Both (56a) and (56b) are compatible with the sending event overlapping \( UT \). Perhaps the choice between these two options is a matter of focus: (56b) asserts that some salient sub-interval of the sending event precedes \( UT \), whereas (56a) lacks that implication.
In section 1 I mentioned that when an oblique adjunct occurs in certain kinds of embedded clauses, the concord pattern illustrated in (52) above disappears, and the oblique adjunct instead behaves like an oblique complement with respect to t-marking. I turn to this phenomenon in the next section and show how, with minimal extra assumptions, the above scope-based 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 verb in the superordinate clause. Constructions of this sort have been discussed by Paul and Ranaivoson (1998), Potsdam (2009), Pearson (2018b), and Paul and Scott (2022). I will refer to embedded clauses which show this morphological dependency as TENSE-MATCHING COMPLEMENTS. Verbs that select tense-matching complements include aspectual verbs such as manomboka ‘begin’ (58), manohy ‘continue’, and mitsahatra ‘stop’, along with manandrana ‘try’ (59).

(58) a. Manomboka [ mandidy mofo ] aho
Pres.AV.begin Pres.AV.cut bread 1sNom
‘I am beginning to cut bread’

b. Nanomboka [ mandidy mofo ] aho
Pst.AV.begin Pst.AV.cut bread 1sNom
‘I began to cut bread’

(59) a. Manandranana [ miditra ] Rasoa
Pres.AV.try Pres.AV.enter Rasoa
‘Rasoa is trying 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. For this reason I will refer to tense-matching complements of this type as control complements. Control complements in Malagasy 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 (58), the event time associated with manomboka ‘begin’, which may be visualized as a point on the timeline, coincides with the initiation point of the event denoted by the complement clause (here, the event of cutting bread): \( \tau(e_{\text{begin}}) = i(e_{\text{cut}}) \). The temporal dependency is less straightforward in the case of ‘try’: in (59) the time of entering does not have to 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 alternate between selecting a tense-matching control complement and an irrealis control complement, as shown in (60a,b) for mivoaka ‘go out’. The form of the complement correlates with a difference in interpretation. In (60a) it is understood that Rabe did in fact cut some wood: i.e., the tense-matching complement receives a realis interpretation. When the embedded verb is instead in the irrealis (60b), the understanding is that Rabe went outside for the purpose of cutting wood but he may not have actually done so.
In the case of (60a) I assume that tense matching 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: \( c(e_{\text{go.out}}) = i(e_{\text{cut}}) \).

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. This construction, illustrated in (61), is discussed in detail in Pearson (2018b). 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).

As with the tense-matching control constructions discussed above, there is an inherent temporal dependency between the superordinate event (the event of perception) and the embedded event (the event being perceived). In (61) the woman witnesses the reading event as it is happening, and therefore the time of the seeing event necessarily overlaps the time of the reading event: \( \tau(e_{\text{see}}) \subseteq \tau(e_{\text{read}}) \) (i.e., the temporal span of the seeing event is either coextensive with, or contained within, the temporal span of the reading event).

Evidence that this construction requires temporal overlap between the two events comes from examples like (62a) 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 (62a) with the well-formed sentence in (62b), where the perception verb selects an extraposed clause headed by the completerizer *fa* and denoting a 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 (62c). Unlike the construction in (62a), the construction in (62b,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.

(62) 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 a separate assertion time, much as Wurmbrand (2014) argues for simultaneous infinitive constructions in English (cf. also Felser 1999 for a similar analysis of 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 root clauses an oblique adjunct, for example an instrumental PP, must be in the t-form when the verb is [ +PAST ], as shown in (63a); the bare form is disallowed here (63b). However, when the oblique adjunct is embedded in the tense-matching complement of manomboka ‘begin’, with both the main verb and the embedded verb marked [ +PAST ], the oblique can appear in either the t-form (64a) or the bare form (64b):

(63) 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’

(64) 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 (64a) and (64b) differ with respect to the relationship between the time of the event denoted by the embedded clause, \(\tau(e_{cut})\), and the utterance time \(UT\). The interpretive difference is very similar to what we find in monoclausal examples with an oblique complement denoting the endpoint of a motion event. In (64a), where the oblique is in the \(t\)-form, it may be assumed that \(\tau(e_{cut})\) precedes \(UT\) and thus the cutting event is over. In the case of (64b), where the oblique is in the bare form, it is understood that \(\tau(e_{cut})\) overlaps \(UT\): Naivo began cutting bread in the past and is still cutting bread at the time of utterance. Nandidy ‘cut’ carries past marking in both sentences due to the tense matching requirement for direct perception complements. I return to tense matching in the next section, but for now note that that the form of the embedded verb is not inconsistent with (64b) having an interpretation where the cutting event is ongoing at \(UT\), given that past marking requires only that the initiation point of the cutting event precedes \(UT\) (recall the discussion of \(n(o)\)- in 4.2).

The contrast found in (64a,b) also obtains when the embedded oblique adjunct denotes a location, as shown below. If the oblique is in the \(t\)-form (65a), it is understood that Rabe is no longer swimming in the river at \(UT\). If the oblique is in the bare form (65b), it is understood that Rabe is still swimming in the river: the swimming event began before \(UT\) and is still ongoing as of \(UT\).

(65) 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, illustrating other [+PAST] verbs that select a tense-matching control complement. The examples in (66) feature an instrumental oblique embedded in the complement of mivoaka ‘go out’: (66b) entails that Rabe is still cutting wood with the saw at \(UT\), whereas (66a) strongly implicates that the cutting event ended prior to \(UT\). The sentences in (67) feature the object control verb maniraka ‘send on an errand’. In (67a) 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 (67b) the speaker is still at the store at \(UT\), and the bare form of the oblique is used.\(^{21}\)

(66) 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)

\(^{21}\)The obliques in (67b) and (67a) are headed by different spatial deictic elements, any versus eto, since the location of the store relative to the current location of the speaker is different in the two sentences. Because any is used in (67b), indicating a location not near the speaker, the sentence entails that the speaker is no longer at the store rather than merely implicating that.
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)

(67) 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, as illustrated in (68). When the sentence is [+PAST] and the complement contains an oblique adjunct, that oblique can appear in either the t-form (68a) or the bare form (68b):

(68) 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)

The semantic difference is the same as what we find with control complements. In (68a) it is strongly implied that the speaker is no longer cutting bread at UT, whereas (68b) 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.

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 (69a), where the oblique is 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 (69b) the oblique is in the t-form and it is understood that Rasoa is not currently in the house.

(69) 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 (69b): 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 (69b) 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 named by the matrix clause.

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 (oblique complements denoting the target state of a motion event). I show in the next section that my scopal analysis accounts for this with minimal additional assumptions.

5.3 Extending the analysis to tense-matching constructions

I propose that tense-matching complements have a ‘defective’ T head: more precisely, a T head which lacks the ordering feature \([±\text{PAST}]\).\(^{22}\) Additionally, I assume that the tense-matching complement shares its assertion time AT with the higher clause (cf. Wurmbrand 2014). Consider the control construction in (70), for instance:

(70) \[\text{Nanomboka} \ [	ext{nandidy mofo}] \text{Rabe} \]
\[\text{Pst.AV.begin} \quad \text{Pst.AV.cut bread} \quad \text{Rabe}\]
‘Rabe began to cut bread’

The matrix predicate for this sentence has the structure in (71), 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 Asp\(_1\) in turn orders \(\tau(e_1)\), the time point associated with the matrix verb \(\text{nanomboka} \ ‘\text{begin}’\), relative to AT. The embedded aspectual head Asp\(_2\) orders \(\tau(e_2)\) relative to AT, where \(\tau(e_2)\) is the temporal span of the event named by the embedded predicate \(\text{mandidy mofo} \ ‘\text{cut bread}’\)—or more precisely, the temporal span of its cause/process sub-event.

(71) \[\text{TP} \quad \text{T} \quad [\text{Asp}\_1 \ \text{nanomboka} \quad \text{T}\] \quad [\text{Asp}\_2 \ \text{nandidy mofo} \ ] \] \]
\[(e_1) \quad (e_2)\]

Notice that (71) is very similar to the layered structure I posited in (45) above for monoclausal telic predicates composed of a cause/process sub-event and a target state. In both structures a higher Asp head and a lower Asp head appear in the scopal domain of a single (interpretable) T head, with each Asp ordering the time of the event in its immediate scope relative to a shared assertion time. The matrix event \(e_1\) in (71)—namely, the event of beginning to cut bread—is structurally analogous to the cause/process sub-event \(e_1\) in (45). Likewise the embedded event \(e_2\) in (71)—namely, the

\(^{22}\) An 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 Wurmbrand 2001 on truncated infinitive complements of restructuring predicates in German, as well as Felser 1999 on direct perception complements in English). However, it is important for my analysis that tense-matching complements include an (outer) AspP projection, and in Pearson (2018b) I provide evidence from binding and other domains showing that tense-matching 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 works if certain tense-matching complements are AspP constituents.
event of cutting bread—is analogous to the target state $e_2$ in (45). In both constructions there is an inherent temporal relationship between $e_1$ and $e_2$ which allows the two (sub-)events to be construed as a single complex event and viewed with respect to a single assertion time. In the case of a monoclausal telic event, as I noted in section 4, the culmination point of the cause/process sub-event corresponds to the initiation point of the target state: $c(e_1) = i(e_2)$. The same correspondence obtains in (70)/(71), where $e_1$ is the matrix event ‘begin’ and $e_2$ is the embedded event ‘cut bread’: the event of Rabe beginning to cut bread necessarily results in, or culminates in, the event of Rabe cutting bread.

In the direct perception construction in (72) below, there is also a temporal dependency between the matrix event $e_1$ (here, the seeing event) and the embedded event $e_2$ (the cutting event). In this construction $e_2$ does not denote the culmination of $e_1$, as it arguably does in (70). However, there is a requirement that the temporal span of $e_1$ be either coextensive with, or contained within, the temporal span of $e_2$: $\tau(e_1) \subseteq \tau(e_2)$. It is by virtue of this dependency that the embedded clause lacks an independent tense specification (cf. Felser 1999). Instead the tense of the embedded clause is specified by the (interpretable) T head of the superordinate clause, whose $[\pm \text{PAST}]$ feature encodes an ordering between UT and an assertion time. Since the matrix and embedded clauses share a single interpretable T, they necessarily also share a single assertion time $\text{AT}$: the matrix aspectual head $\text{Asp}_1$ orders $\tau(e_1)$ (the time of the seeing event) with respect to this $\text{AT}$, while the embedded aspectual head $\text{Asp}_2$ orders $\tau(e_2)$ (the time of the cutting event) with respect to $\text{AT}$.

(72) Nahita [ ahy nandidy mofo ] Rabe
     Pst.AV.see 1sAcc Pst.AV.cut bread Rabe
     ‘Rabe saw me cut(ting) bread’

Given the structural and interpretive parallels between biclausal tense-matching constructions and monoclausal telic predicates, my analysis of $t$-marking on goal obliques extends rather naturally to oblique adjuncts embedded in a tense-matching complement. Consider again sentence pairs like (73a,b), showing that an embedded instrumental PP appears in the bare form when the embedded event overlaps UT and in the $t$-form when the embedded event precedes UT:

(73) a. Nanomboka [ nandidy mofo amin’ ny antsy ] Rasoa
     Pst.AV.begin  Pst.AV.cut bread with  Det knife  Rasoa
     ‘Rasoa {began/has begun} cutting bread with the knife’ (she is still cutting)

b. Nanomboka [ nandidy mofo tamin’ ny antsy ] Rasoa
     Pst.AV.begin  Pst.AV.cut bread T.with Det knife  Rasoa
     ‘Rasoa began to cut bread with the knife’ (she is probably no longer cutting)

As discussed in 4.3, I assume that instrumental PPs like (t)amin’ny antsy ‘with the knife’, along with other non-argument oblique modifiers, adjoin to vP. Consequently the event argument introduced by the oblique adjunct is equated via Event Identification with the event argument introduced by v and associated with the cause/process sub-event. When vP is in turn contained within a tense-
matching complement, we end up with the structure schematized in (74). Here the oblique is in the immediate scopal domain of the embedded viewpoint aspect head Asp$_2$.

First consider (73a), where the embedded oblique adjunct appears in the bare form. In accordance with the spell-out rule in (50), an oblique takes the bare form when the closest c-commanding Asp head and the closest c-commanding T head both have the feature [–PAST]. In the structure in (74) the closest Asp head that c-commands OblP is Asp$_2$. I construe “closest c-commanding T head” 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 (73a) the matrix T must be [–PAST], indicating that the assertion time AT for both the matrix and embedded events overlaps UT. The [–PAST] feature in Asp$_2$ in turn indicates that $\tau(e_2)$ overlaps AT, where $\tau(e_2)$ is the temporal span of (the cause/process sub-event of) the event of Rasoa cutting bread.
Given that the matrix T is [-PAST] in (73a), Asp\textsubscript{1} must be [+PAST] to derive the past morphology on the matrix verb nanomboka in accordance with the spell-out rule in (51). The [+PAST] feature on Asp\textsubscript{1} encodes that \( \tau(e_1) \) precedes AT, with \( \tau(e_1) \) being the time point associated with the ‘begin’ event. 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 for more on tense matching). Putting these temporal orderings together, we derive the correct interpretation of (73a), whereby the cutting event began prior to the utterance time (AT \( \circ \) UT and \( \tau(e_1) < AT \)) and the cutting event is still ongoing at the utterance time (AT \( \circ \) UT and \( \tau(e_2) \geq AT \)). Notice that the combination of ordering features that derives the marking in (73a)—namely, [-PAST] in T, [+PAST] in Asp\textsubscript{1}, and [-PAST] in Asp\textsubscript{2}—is the same as the combination that derives monoclausal examples like (75), where a verb in the past tense co-occurs with the bare form of an oblique complement:

(75) 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 (73b), where the oblique appears in the t-form, the morphology in this sentence spells out various possible combinations of ordering features on matrix T, Asp\textsubscript{1}, and Asp\textsubscript{2} (cf. my discussion of (55c-f) in section 4.3). If the matrix T has the feature [+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 combination of verb and oblique morphology obtains if the matrix T is [-PAST] but both Asp\textsubscript{1} and Asp\textsubscript{2} are [+PAST]: in this case AT is specified as overlapping with UT, but both the matrix and embedded events precede AT, and are therefore construed as preceding UT. (If Asp\textsubscript{2} is [+PAST], then Asp\textsubscript{1} must also be [+PAST] due to the inherent temporal dependency between the matrix and embedded events.)

One remaining issue is how to force tense matching between the matrix and embedded verbs under this model. According to my analysis, the embedded verb in (73a) is in the immediate scope of a [-PAST] T head (in the matrix clause) and a [-PAST] aspectual head Asp\textsubscript{2} (in the embedded clause). Therefore, in accordance with the spell-out rule in (51), we might expect the embedded verb to appear in the present form rather than the past form. This is not an option, however, as sentences like (76) are ungrammatical:

(76) * Nanomboka [ mandidy \_ mofo \_ amin’ \_ ny \_ antsy ] Rasoa
   Pst.AV.begin \_ Pres.AV.cut \_ bread \_ with \_ Det \_ knife \_ Rasoa

‘Rasoa {began/has begun} cutting bread with the knife’ (she is still cutting)

To capture the tense matching requirement and rule out (76), 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\textsubscript{1} for purposes of the spell-out rule in (51).
Since Asp₁ has the feature [+PAST], the embedded verb is realized with past morphology and surfaces as nandidy (73) rather than mandidy (76).²³

5.4 Further observations

My analysis of t-marking on oblique adjuncts in tense-matching complements accounts for some cases where the t-form and the bare form are not equally acceptable. Consider the examples in (77), where an instrumental PP is embedded in a direct perception complement and the temporal adverbial omaly ‘yesterday’ has been added to the matrix clause. Here the t-form of the oblique is acceptable (77a) while the bare form is infelicitous (77b):

(77) 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’

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 (77b) is in the bare form indicates that AT overlaps UT, since the matrix T head (along with Asp₂) must have the feature [–PAST]. Thus (77b) ends up with an infelicitous interpretation. According to speakers I consulted, the only way to make sense of (77b) is to imagine 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’. By contrast, (77a) is felicitous because the t-form of 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 following examples, where a temporal oblique modifier equivalent to a ‘when’ clause (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 when the embedded oblique is in the t-form (78a) but reject the sentence when it is in the bare form (78b). According to my analysis, (78b) 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 of another event, the event of Ranaivo passing by, which precedes UT. Since AT precedes UT, the matrix T head must have the feature [+PAST]. However, the bare form of the embedded oblique is only licensed when the matrix T head is [–PAST] (AT does not precede UT), resulting in a contradiction.

²³Assuming the verb moves to T via successive head adjunction, it will raise through the outer Asp head and thereby ‘pick up’ any [+PAST] feature in Asp, ensuring that it will be spelled out with past morphology even if the T head that it moves to is [–PAST]. Note that in example (7) the T head is plausibly filled by the irrealis particle ho, blocking verb raising to T; in this construction the verb may move only as high as the outer Asp head.
(78)  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 (79) below, where the matrix verb in a control construction is preceded 
by the particle vao ‘just, newly’. In section 2.1 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 (cf. examples (8) and (9)). 

(79)  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  T.with  Det  knife  1sNom  
‘I just began cutting bread with the knife’ 

In (79a) 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: 
τ(begin) immediately precedes AT, which overlaps UT, and thus the sentence is felicitous. However, 
speakers reject (79b) with the oblique in the t-form. The use of the t-form signals that the entire 
temporal span of the cutting event precedes UT (T and/or Asp₂ is specified [+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 (79b) is anomalous only under the default interpretation of the vao construction 
where the assertion time 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 (79b) 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. 

(80)  Vao  nanomboka [ nandidy  mofo  tamin’ ny  antsy ] aho  
jiditra  Ranaivo  
just  Pst.AV.begin  Pst.AV.cut  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 (81), 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 (81a), the understanding is that Rasoa is currently in Antananarivo or is on her way there at UT. When the t-form is used (81b), it is strongly implied that Rasoa is no longer in Antananarivo at UT.

(81) a. \(\text{Niakatra [hiasa any Antananarivo ] Rasoa} \)
\(\text{Pst.AV.go:up Irr.AV.work there Antananarivo Rasoa} \)
‘Rasoa went up to work in Antananarivo’ (she is still there, or on her way)

b. \(\text{Niakatra [hiasa tany Antananarivo ] Rasoa} \)
\(\text{Pst.AV.go:up Irr.AV.work T.there Antananarivo Rasoa} \)
‘Rasoa went up to work in Antananarivo’ (she is probably no longer there)

It thus appears that the t-marking pattern found on oblique adjuncts in tense-matching complements extends to oblique adjuncts in (certain types of) irrealis control complements. We can incorporate cases like (81) 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 [±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, (81a) and (81b) might differ in regards to their constituent structure. Perhaps in (81a) the oblique adjoins to the embedded vP as a dependent of the embedded verb hiasa (82a), whereas in (81b) it actually adjoins to the matrix vP as a dependent of the matrix verb niakatra, as shown by the bracketing in (82b):

(82) a. \([\text{Niakatra [hiasa any Antananarivo ] } \text{Rasoa} \)
\(\text{‘Rasoa went up to work in Antananarivo’} \)

b. \([\text{Niakatra [hiasa tany Antananarivo ] } \text{Rasoa} \)
\(\text{‘Rasoa went up to Antananarivo to work’} \)

If the constituency in (82a,b) is correct, then the sentences in (81) are exhibiting straightforward ‘tense concord’ between the verb and its oblique dependent: in (82b) 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 (82a) 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 the case, then the irrealis complement does not necessarily have a defective T head: the T might include a [–PAST] ordering feature in addition to a [–REALIS] mood feature. 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 the T head it indicates that the assertion time for the clause precedes the utterance time (i.e., past tense), and when associated with an Asp head it indicates that the time of the (sub-)event denoted by the complement of Asp precedes the assertion time (i.e., perfect/anterior aspect). The oblique is t-marked when the closest c-commanding Asp head and/or the closest c-commanding (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 of t-marking, in combination with certain assumptions about the relationship between syntactic structure and event structure, captures the distribution of the t-prefix in [+PAST] clauses. I began by considering an asymmetry between oblique complements and oblique adjuncts. When the oblique is a vP-adjunct denoting an instrument, spatio-temporal location, manner, etc., it must appear in the t-form when the clause is [+PAST]. But when the oblique is a complement of V denoting the endpoint in a motion event, it appears in the t-form only when the target state (i.e., the situation of the theme being at the endpoint) properly precedes the utterance time; 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 of a telic motion event (e2), whereas oblique adjuncts modify an event argument introduced by v and associated with a cause/process sub-event (e1). VP and vP are each selected by an Asp head, where the higher Asp orders the temporal span of e1 relative to the assertion time and the lower Asp orders the temporal span of e2 relative to the assertion time. T-marking on oblique 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 carries the t-prefix. 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 the utterance time, while the temporal span of the target state overlaps or follows the utterance time.

I then turned to tense-matching complement clauses, where the tense morphology on the embedded verb must match the tense morphology on the selecting verb, reflecting an inherent temporal dependency between the event denoted by the complement clause and the event denoted by the superordinate clause. I showed that when an oblique 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 when the embedded event precedes the utterance time, and in its unprefixed form when the embedded event overlaps the utterance time. To capture this pattern, I argued that biclausal tense-matching predicates 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 into the distribution of $t$-marking in embedded contexts remains to be carried out. While the research presented here considers $t$-marking in tense-matching complements—and, briefly, in irrealis control complements—I have yet to fully investigate $t$-marking in finite complement clauses or relative clauses: i.e., embedded clauses with a non-defective T head. Based on the current state of fieldwork on Malagasy, it remains unclear whether verbal tense morphology in finite embedded clauses encodes a temporal ordering relative to the utterance time, 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 clauses.

Another question raised by this research is whether phenomena similar to $t$-marking are attested in other languages. From what I have so far 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 kind of distribution as Malagasy $t$-marking. For example, spatio-temporal prepositions in Māori (Polynesian) can indicate the tense of the clause: e.g., past i, present $kei$, future $ko$ (or $hei$) for spatial location. However, these tense distinctions are made only when the prepositional phrase functions as the main predicate in the clause; when it instead acts as a dependent within a larger clause, $i$ is normally used regardless of tense (Bauer 1997:222).

Elsewhere in the Austronesian family, Bowern and Aygen-Tosun (2000) and Bowern (2011:113–118) have shown that tense/mood inflection occurs on a subset of prepositions and locational adverbs in the Oceanic language Sivisa Titan (Admiralty Islands, Papua New Guinea). However, Sivisa Titan seems to exhibit strict tense/mood agreement between a verb and its PP/adverbial dependent, rather than displaying the kinds of complement–adjunct and root–embedded asymmetries which I have documented for Malagasy. Moreover, tense/mood-marked prepositions and adverbs in Sivisa Titan derive historically from verbs, whereas there is no evidence that $t$-marked elements in Malagasy are deverbal—on the contrary, some of them are derived from nominals, as in the case of aloha ‘before, earlier’ from loha ‘head’, while others (the spatial deictics in (16)) are formally related to demonstrative determiners (as noted in 2.2, Malagasy does have deverbal prepositions, but these do not take $t$-). It remains to be seen whether the phenomenon described here has equivalents in other languages, or whether this particular type of tense/aspect inflection is unique to Malagasy.

References


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