

Temporal Expression in Wichí Nominals

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1. Introduction. Morphosyntactic categories make up the core of typological study. These can range from issues of co-occurring word orders to more unique phenomena, including nominal tense – defined as “grammatical items with temporal properties attached to noun phrases” (Tonhauser 2007). Until relatively recently, it was debated whether nominal tense (or even nominal temporal markers in general) was a valid typological category (Nordlinger & Sadler 2004); however, with the further examination and documentation of many lesser-known languages, nominal tense has emerged as a valid phenomenon, and one worthy of further study. It challenges the idea that languages universally treat tense as a purely verbal (or even predicate) notion. Many of the indigenous languages of South America have nominal tense as a grammatical feature (Campbell, in press), and employ it in an internally diverse set of ways. Evidence from these languages provides new viewpoints from which we can examine nominal tense and other non-verbal temporal marking systems – as an areal feature, a genetic feature, and as a typological feature.

This paper will focus on data from the Wichí language (Matacoan) and its treatment of temporal markers on nouns. Wichí has an intricate system of tense on verbs, which also manifests itself inside noun phrases. Beginning with a brief overview of the language itself, I will show several grammatical and ungrammatical examples of these nominal constructions, and their function in the language, including in discourse. From there, I will use the semantic criteria for nominal tense set forth in Tonhauser (2006, 2007) and comparative criteria from Nordlinger & Sadler (2004, 2008) to tease apart the finer nuances of temporal expression in Wichí nominals and examine the evidence for additional categories. I intend to demonstrate that there is evidence in Wichí supporting a further division of temporal markers on nominals in languages from a typological perspective – that aspect (or aspect-like markers) can be a valid separate category in languages which have temporal marking on nouns, and can be distinct from nominal tense.

2. Wichí. The Wichí language is spoken in the Gran Chaco area of South America, including parts of Paraguay, Bolivia, and northern Argentina. Wichí, meaning ‘people’, is the endonym preferred by the speakers; alternate names for the language include Mataco (given by missionaries, now considered pejorative) and Wichí Lhamtes, meaning ‘the people’s language’. The Wichí and other Chaco people arrived in the area between 12,000 and 10,000 BP (Terra

2009:3), and they are traditionally hunter-gatherers. Since the Spanish established control, the Wichí have lived in small communities in the Chaco area. Notable features of the Wichí grammar include ejective consonants, alienable/inalienable possession, object classifier clitics, glottalized resonantsⁱ, and nominal tense, which I will discuss below.

In this section, I will provide some preliminary examples of nominal tense in Wichí and describe how this feature operates in the language. Then I will compare nominal tense in Wichí to the established structural criteria from Nordlinger & Sadler (2004, 2008) and the semantic criteria from Tonhauser (2006, 2007, and 2008). This will help demonstrate where Wichí should be placed within nominal tense typology. The data presented here (unless otherwise noted) was collected in the summer of 2010 at the Misión La Paz community on the northern border of Argentina and Paraguay, along the Pilcomayo River.

2.1. Tense. Tense is expressed by clitics in Wichí. These are lexical clitics, not phonological clitics like the *'ll* in *she'll* in English. The same set of clitics can attach to nouns or verbs to indicate tense; there are not two separate sets of tense clitics, one for nouns and one for verbs. There are seven of these clitics in Wichí, expressed along a temporal continuum. There are five degrees of past, zero marker for present, and one marker for future. See Table 1.

(+) Past (distance from utterance)		(-)			Present	Future
=pantɛʔ	=tɛʔ	=naxiʔ	=matiʔ	=nɛʔ	=∅	=hila
'long ago, remote past' (REM.PAST)	'some time ago' (PAST)	'yesterday' (YESTERDAY)	'earlier today' (EARLIER)	'a moment ago' (MOMENT)	(PRES)	(FUTURE)

Table 1: Tense markers in Wichí

All tense markers in Wichí are enclitics, whether they appear on nouns or on verbs. The relation between the multiple past markers varies from speaker to speaker, but all speakers agree on the temporal ordering of the clitics; =nɛʔ is more recent than =matiʔ, etc. (Terraça 2009:78).

Nouns with no modifiers simply appear with the tense attached after the root, as in 1 and 2ⁱⁱ.

- 1) ax^wenkⁱɛ**matiʔ**
ax^wenkⁱɛʔ = **matiʔ**
bird = **EARLIER**
'The bird/parrot (from earlier tonight)'

2) latax \dot{p} ante?

latax = \dot{p} ante?

horse = REM.PAST

‘The horse (from a long time ago, that used to be here but has since left, etc.)’

The noun marked with tense, however, does not carry tense for the entire clause or proposition. Nouns, including arguments, can carry a tense different from that on the verb. In examples 3 and 4, we can see the ‘mismatch’ between the tense on the noun and the tense on the verb (zero marker for present). It is grammatical for both to coexist in the same clause.

3) ax^wenk^jε[?]mati? ik^jε[?] toxa (Terraza
2009:79)

ax^wenk^jε[?] = mati? Ø-i = Ø-k^jε[?] toxa
bird = TEMP 3-be = TEMP-DIST PROdem

‘This bird (earlier tonight) comes here (now).’

4) asinox \dot{p} ante? i[?]k^jutiⁱ?a atana

asinox = \dot{p} ante? i[?]-k^jutiⁱ?a-Ø = Ø atana
dog = REM.PAST 3-sick-SG = PRES now

‘The dog (from a long time ago) is sick (now).’

2.2. Determiner phrases. Noun phrases with modifiers, including demonstratives and directionals can also have tense markers in them. However, there is a specific order in which the tense marker can attach once these other pieces are added. When a demonstrative is added, the tense marker must attach to the demonstrative, which follows the head noun. The tense marker cannot attach to the head noun if a modifier is present. There also cannot be more than one tense marker modifying a noun phrase. This is illustrated using the demonstrative in examples 5-7.

5) ax^wenk^jε[?] tax \dot{p} ante?

ax^wenk^jε[?] tax = \dot{p} ante?

bird DEM.large = REM.PAST

‘This (largeⁱⁱⁱ) bird (from a long time ago)’

- 6) *ax^wenkⁱε[?]paⁿte[?] tax
ax^wenkⁱε[?]=paⁿte[?] tax
bird = REM.PAST DEM.large
- 7) *ax^wenkⁱε[?]paⁿte[?] taxpaⁿte[?]
ax^wenkⁱε[?]=paⁿte[?] tax = paⁿte[?]
bird = REM.PAST DEM.large = REM.PAST

2.3. **Directional/distance markers.** Wichí also has distance and directional markers. These are also clitics, and these can also attach to nouns or verbs. Table 2 shows the spectrum of directions in distance, movement, and degrees of evidentiality with respect to the speaker.

(+) Distance from speaker				(-) Movement		
= lini	= pa [?]	= tsi	= ni	= na	= hñi	= tso
'far, neither see nor touch' (FAR)	'close, neither see nor touch' (CLOSE)	'to the side, can't touch' (SIDE)	'near, can see but not touch' (SEE.NOT.TOUCH)	'near, can touch' (NEAR.TOUCH)	'towards speaker' (TOWARDS)	'away from speaker' (AWAY)

Table 2: Directional markers in Wichí

However, if there is a demonstrative in the noun phrase, the directional enclitic is attached to the demonstrative the tense marker is attached to the head noun, as in examples 8-11.

- 8) latas^{te?} tasa[?]lini
latas = ^{te?} tasa = lini
horse.PL = PAST DEM.large.PL = FAR
'The horses (from some time ago) that are near (can't touch but can see)'
- 9) * latas^{te?}lini tasa
latas = ^{te?} = lini tasa
horse.PL = PAST = FAR DEM.large.PL

10) latax taẖi
 latax tax = ẖi
 horse DEM.large = TOWARDS
 ‘The horse (that’s) coming this way’

11) *lataẖi tax
 latax = ẖi tax
 horse = TOWARDS DEM.large

These clitics can also occur on nouns without demonstratives. The subtraction of the demonstrative places tense and directional markers on the head noun, in a specific order:

[head noun] = tense = directional

Figure 1: Clitic order in a Wichí noun phrase

Figure 1 is an illustration of Wichí noun phrase cliticization without a demonstrative. Without the demonstrative, the noun phrase loses its specificity. With a demonstrative, the noun phrase is assumed to refer to a specific object, at least familiar to the listener. Without a demonstrative, the referent is unspecific or unknown to the listener. These combinations are illustrated in examples 12-15.

12) asinax taxnaxi?
 asinax tax = naxi?
 dog DEM.large = YESTERDAY
 ‘The (specific) dog (from yesterday)’

13) asinax taẖi
 asinax tax = ẖi
 dog DEM.large = TOWARDS
 ‘The (specific) dog (coming towards speaker)’

14) asinaxnaxi?
 asinax = naxi?
 dog = YESTERDAY
 ‘The (unspecific or unknown to speaker) dog (from yesterday)’

15) asinaxlini

asinax = lini

dog = FAR

‘The (unspecific or unknown to speaker) dog far away’

16) asinaxnaxlini

asinax = naxi? = lini

dog = YESTERDAY = FAR

‘The (unspecific or unknown to speaker) dog (from yesterday) far away’

One directional in Wichí, =*tsi*, has the primary main semantic notion ‘cast to the side, to the side (of the speaker)’. When used in combination with any past tense marker, however, it takes on modified meaning. When used on an animate object or food, it carries the notion of ‘dead or rotten’ more so than directionally ‘to the side.’ This is shown in examples 16-20. When used in reference to a person, it indicates that the person is laying down, rather than deceased. Later when I address the semantic criteria of Wichí nominal tense, this particular directional clitic will be examined further. Here we see these enclitics applied to the nominals ‘dog’ and ‘egg’. When only =*tsi* is applied, it has directional semantic meaning, as in examples 17 and 19; when =*tsi* is combined with a past temporal, it turns to the ‘ruined’ or ‘dead’ meaning as in examples 18 and 20.

17) asinaxtsi

asinax = **tsi**

dog = **SIDE**

‘A dog to the side’

18) asinaxnaxtsi

asinax = naxi = **tsi**

dog = YESTERDAY = **SIDE**

‘The dead dog laying there’

19) fi?k'u?tsi

fi?k'u? = **tsi**

egg = **SIDE**

‘An egg to the side’

20) *hi?k'u?naxtsi*

hi?k'u? = *naxi* = **tsi**

egg = YESTERDAY = **SIDE**

'A rotten egg, a ruined egg'

2.4. Question words. Tense also appears on question words. When a question is asked, the tense is marked on the question particle. There are different question particles in Wichí dependent upon the part of speech being asked about: *asti?* asks for nouns ('who, which, what'), *k'i* asks for quantity, reason, manner or time ('how much, how many, why, how, or when'). Both of these can take tense markers; the tense marker implies that the thing or action asked about occurred within the time frame of the tense marker used. When used to ask 'when', the structure translates literally as 'how much time-temporal marker' (see example 21). When asking about a noun, the tense marker on the question particle assumes a time frame for the entire clause. This differs from when temporal markers are used with nouns in non-interrogatives. In non-interrogatives, temporal markers on nominal phrases only affect the temporal interpretation of the nominal, not the whole clause (later defined as independent nominal tense); in interrogatives, temporal markers on the nominal question particles affect the temporal interpretation of the entire clause (later defined as propositional nominal tense). When the time frame is unknown, speakers tend to default to using *=naxi?*, as in 21.

21) *k'inax* *mahnjej* *ta* *lak'ax* *hi?lu?*
k'i = naxi? *maq-PL* *ta* *la-k'ax* *hi?lu?*
Q = YESTERDAY *thing-PL* SUB 2.SG-buy *yica*
'When did you buy the *yica*^{iv}? (time of purchase unknown)'

22) *atsite?* *ta* *latijaxpe?* *tewoq^h*
atsi = te? *ta* *la-tijax-pe?* *tewoq*
Q = PAST SUB 2.SG-jump-into *river*
'Who jumped into the river (some time ago)?'

23) *atsine?* *hi?lu?* *ta* *lak'ax*
atsi = ne? *hi?lu?* *ta* *la-k'ax*
Q = MOMENT *yica* SUB 2.SG-buy
'Which *yica* did you buy (a moment ago)?'

26) *òwuteʔ lataxpanteʔ
 o-wuteʔ latax = p̣anteʔ
 1SG.POS-CLASS horse = REM.PAST
 ‘My former horse’

27) òwuq̣epanteʔ
 o-wuq̣eʔ = p̣anteʔ
 1SG.POS-house = REM.PAST
 ‘My (former) house, what used to be my house (and is no longer my house)’

28) ana jataxṭeʔ
 ana jatax = ṭeʔ
 Ana fat = PAST
 ‘Ana used to be fat (but is not fat anymore)’

The horse in 25 and the house in 27 were formerly possessed by the speaker. My consultant informed me that, although it is marked for remote past, this phrase makes no indications that the horse is dead. This utterance only indicates that possession of the horse is no longer that of the speaker. Example 26 is seen as ungrammatical because the temporal clitic is attached to the head noun and not the classifier (a disallowed order), and this is further demonstration that is it the temporal location of possessive relation being expressed by the nominal tense clitic. This means that in Wichí, possessive tense is unambiguously different from unpossessed nominal tense (compare examples 2 and 25). This has similar implications with attributive adjectives, as in 28. The subject formerly ‘possessed’ this attribute, but no longer does due to the addition of the past temporal affix.

An important distinction when interpreting the semantics of nominal temporal affixes is presented in Tonhauser (2007). In some languages with independent nominal temporal markers, a bare noun plus a temporal affix has the semantics similar to English *ex-* or *-to-be*. It indicates what Tonhauser calls ‘temporal shift’:

“A noun phrase that is marked... is temporally interpreted such that the relation denoted by the noun or the possessive is true for the individual(s) denoted by the noun phrase at a time t prior to t_c [...] or subsequent to t_c [...], where t_c is a contextually given time (e.g., utterance time or reference time). (2007:3)”

This would indicate that a phrase glossed as *house*=*PAST* would have the semantics ‘this used to be a house (but is not anymore, was destroyed, etc.); this is a former house’ and another glossed as *house*=*FUTURE* would be ‘this will be a house (but is not a house right now); this is a future house’. This could be extended to the meaning of ‘death’ when attached to animate objects: *dog*=*PAST* would signify ‘this used to be a dog; a dead dog’. However, this is not the case in Wichí. My consultant was firm and sure that 12 and 14 above would not indicate that the dog in question is dead. (Death of an animate object is expressed either through the past-plus=*tsi* construction or, for humans, full sentences using the subordinator *ta* plus ‘dead’.) These past tense markers indicate former location or reference, as in 12 which would indicate a specific dog that was around the previous day but has since left (and is presumed alive); and in 14 as an unspecific dog that was around the previous day but has since left (and is presumed alive). Terraza (2009:78) discusses this, leading from Diessel (1999:105) that this is nominal tense of ‘recognitional use’. In Diessel (1999), the recognitional use has two specific properties: 1) it is always adnominal, and 2) it does not have reference in the preceding discourse. This information is called ‘discourse new, hearer old, and private’. The term ‘private’ indicates that this referent is a past experience that both the listener and speaker have in common. This is implicit in Wichí examples 12 and 14. In example 12, it refers to the dog which both participants experienced at one time, but the dog has left and is no longer around; in 14 it refers to any dog that both participants have experienced but is no longer present. This is further demonstrated in example 4, where the dog from the past is now infirm in the present time.

3.2. Definiteness. The notion of shared participant reference plays a role in the definiteness of the noun phrase. These temporal markers contribute significantly to the specificity, definiteness, and identifiability of the referent in the noun phrase. This is stated outright by Nordlinger & Sadler (2004:787): “since the deictic and anaphoric functions of tense and definiteness are rather similar, finding a direct relationship between tense and the determiner system is not surprising”. For this reason, it is also not surprising that Wichí syntax demands that tense marking inside determiner phrases goes on the demonstrative, not the noun, as in examples 5-7 above. This would indicate that the tense marker takes scope over both the determiner (demonstrative) as well as the noun. In determiner phrases that include a directional marker, however, the directional marker takes scope over both the noun and the tense marker and is therefore attached to the demonstrative, and the tense marker is now forced to attach only to the noun.

3.3. Evidentiality. Also associated with independent nominal tense is independent nominal evidentiality (Nordlinger & Sadler 2004:783). As discussed above in examples 8 through 16, Wichí has a degree of evidentiality encoded in the directionals. These directionals encode sensory evidence (visibility, audibility), distance, and direction. In Adelaar (2004:494),

the author notes that Mataco's (Wichí's) elaborate tense system includes a difference between witnessed and non-witnessed past – if the tense clitic is preceded by a glottal stop, it indicates a witnessed event. Examples in 29 are from Claesson (1994:9). I have no personal experience finding this distinction between witnessed and non-witnessed past in the dialect of Wichí that I have personally studied; when asked, my consultant rejected this construction and interpretation. This is most likely due to the fact that Claesson (1994) examines the Noctenes (Bolivian) dialect of Wichí. These differ only slightly (in both form and specific semantics) from the tense markers presented above in Table 1.

29) neʔ/?neʔ	(non)witnessed immediate past
mheʔ/?mheʔ	(non)witnessed habitual recent past
mát(hiʔ)/?mát(hiʔ)	(non)witnessed past of today and night
náx(iʔ)/?náx(iʔ)	(non)witnessed past of yesterday and back some weeks
mháx(iʔ)/?mháx(iʔ)	(non)witnessed habitual from yesterday back to remote past
(h)teh/pʔanteh	(non)witnessed remote past for single action

As we can see, these evidentials are tense markers differing in initial glottalization. They distinguish two degrees of evidence and several degrees of past. The tense clitics resemble those presented in Table 1, though those in Table 1 are purely tense temporal markers, while those from 29 in Claesson (1994) are ‘observational’ or evidentiality markers as well. A similar case is shown in Nordlinger & Sadler (2004:785) in two analyses of Nambiquara, where Lowe (1999) describes similar markers in Nambiquara to be observational/evidential plus tense, while Kroeker (2001) analyzes the same affixes purely as tense. Whether this is a difference in dialect or analysis, it demonstrates that “...evidentiality can also be nonpropositional, modifying a nominal independently of... the proposition as a whole” (Nordlinger & Sadler 2004:785).

3.4. Tense vs. aspect analysis. One of the core issues between the Nordlinger & Sadler analysis and the Tonhauser analysis is the distinction between nominal tense and nominal aspect. Can the system found in Wichí be called ‘tense’? As defined through semantics by Tonhauser (2007), there are three intervals of linguistic temporal markers:

- t_{np} : the time at which the whole noun phrase is interpreted
- t_{nom} : the time at which the property denoted by an (intransitive) nominal predicate is true of the individual(s) denoted by the noun phrase
- t_{poss} : the time at which the possessive relation denoted by a possessive or transitive nominal predicate is true of the possessor and the possessed

For a temporal marker to be called ‘tense’, it needs to relate t_{np} to the utterance time (UT) or the reference time (RT). This is shown in examples 1 and 2, where the head noun (‘parrot’ in 1, ‘horse’ in 2) is marked with a past tense morpheme. These phrases express the idea that the noun ‘occurred’ or used to be referenced, but is no longer around for reference. It does not indicate change of state; in Wichí, *noun=PAST* does not indicate death of an animate noun, but rather its absence in the current discourse. This draws the distinction between ‘a parrot from yesterday (that we saw) which is no longer present’ and ‘this is an ex-parrot (a dead parrot).’

However, it should not be assumed that the temporal markers in Table 1, since they are also used on verbs, indicate transparency of (specifically, exclusively) tense across all instances of use inside nominal phrases. Aspectual marking (i.e., changes in state) do occur in Wichí as well using the temporal markers and the directional marker *=tsi*. As we saw in examples 25-28, these temporal markers shown in Table 1, when used in possessive phrases or on adjectives, indicate a change of state. In example 28, Ana ‘used to be fat (but no longer is fat)’. In example 25, ‘the horse’ is the possessor’s former horse; this horse ran away or was stolen; regardless of the context it expresses that a change of ownership has occurred. As stated in Tonhauser (2008:336), if we, as linguists, “assume these categories to have well-defined properties that distinguish tenses from aspects...” then, yes, it is “necessarily inappropriate to use the term tense for a marker expressing a temporal relationship between t_{np} and $t_{nom/poss}$ ” (Nordlinger & Sadler 2008:328). This expresses a crucial difference between examples 2 and 25 – in example 2 we see distance (temporally) expressed between UT and t_{np} , while in 25 we see distance expressed between t_{np} and t_{poss} .

This is also true for the clitic *=tsi* ‘side’ when combined with a temporal marker. This clitic changes the state of an object into some sort of deprecated state, death for living things and ruin for non-living things (as in examples 17-20). According to Tonhauser, verbal tense does not encode state change; this would extend analogously to nominal temporal markers. Verbal aspect, however, encodes this kind of state change. This semantic quality of both Wichí temporal markers in possessive phrases and temporal markers combined with *=tsi* ‘side’ would imply that these uses of nominal temporals are more like nominal aspects, rather than nominal tense.

This can be visually examined in Table 3^{vi}. This table is adapted from Tonhauser (2008:333), and here Wichí forms have been substituted for the Guaraní forms present in the original paper. This is a summary of semantic criteria which Tonhauser uses to define the difference between tense and aspect, especially as it applied to temporal marker usage on nominals. It is assumed that verbal tense encodes (or presupposes) a relation between the UT and the RT, and verbal aspect encodes a relation between RT and event time. This table

contains a comparison of Wichí temporal markers and the directional clitic =*tsi* ‘side’ (examined in examples 17-20 above).

PROPERTY	VERBAL TENSE	VERBAL ASPECT	WICHÍ NTM/DTM	WICHÍ PTM/ATM/ T + TSI
exhibit lexical restriction	no	possible	no	no
encodes state change	no	possible	no	yes
anaphoricity	yes	no	yes	no
form grammatical paradigm (cannot co-occur)	yes	possible	yes	possible
temporal modifier can constrain relation	yes	yes	yes	yes

Table 3: Properties of verbal tense, verbal aspect, and temporal markers in Wichí

Verbal aspect also has other components to its semantic nature, such as telicity, and is not as easily definable as ‘change of state’, especially in other languages with highly complex aspectual systems, such as the Slavic languages. Since the defining feature of the Wichí PTM/ATM/T + *tsi* is change of state, it may be better, perhaps, to call this distinction aspect-*like* nominal tense. In all examples above concerning possession or ruin, there still is a distinct ‘past’ element to the expression. None of these are indicated in the present. The clitic =*tsi* without a past marker is a directional, not a change of state. Therefore, while the category containing PTM, ATM, and T + *tsi* may contain information about changes of state (much more aspect-like), it still carries a definite tense element to it as well.

4. Conclusions. This paper has presented different ways nominal tense is expressed in Wichí. This system uses the same tense markers as those found on verbs, and it carries semantics expressing the relation between the utterance or reference time and the time at which the complete noun phrase is interpreted (t_{np}). It can be found on question particles referring to nouns, noun phrases, and determiner phrases, and can express degrees of direction and evidentiality. However, nominal tense in Wichí seems to have additional sub-categorical features in particular constructions, such as the directional marker =*tsi* and possessive phrases. These structures convey an additional aspectual frame to them, specifically, a change of state. They also still carry a definite past tense to them, so they are not entirely separable from tense.

To summarize, some of the salient attributes of the nominal tense system in Wichí are:

- Independent nominal tense
- One set of tense clitics for both nouns and verbs
- Possessive nominal tense
- Nonpropositional evidentiality (on nominals)
- Recognitional discourse use
- Additional aspectual marker = *tsi*

Most importantly, it presents additional evidence that there may be a separate category for ‘nominal aspect’ as put forth by Tonhauser (2007, 2008). These manifestations of temporal markers on nominals in Wichí fall into two distinct categories – nominal tense and nominal aspect. This demonstrates that sub-categories of nominal tense, including possible aspectual interpretations, are worthy of further examination.

Notes

ⁱ The phonemic status of these segments is debated, and seems to vary between dialects of Wichí.

ⁱⁱ All glosses are per the Leipzig Gloss rules.

ⁱⁱⁱ In Wichi, there are two demonstrative stems, one for large things (*tax*) and another for small things (*x^wax*). These denote size when applied to things or animals, but when applied to humans, denote whether the referent is standing (*tax*) or sitting/lying down (*x^wax*).

^{iv} A ‘yica’ is a traditional handbag woven from the chaguar fiber, usually made by women in the communities; Spanish pronunciation varies between /jika/ and /zika/.

^v The classifier *-wute?* is used for objects which are ridden, such as horses and motorcycles. In the Wichí community, motorcycles and dirtbikes are quite common, so speaking of *owute? moto* is acceptable (from Spanish borrowed *moto* ‘motorcycle’).

^{vi} Abbreviations used are: NTM = noun temporal marker; DTM = determiner temporal marker; PTM = possessive temporal marker; ATM = adjective temporal marker; T+ TSI = temporal marker plus directional = *tsi*.

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