Temporal reference in the absence of tense in Paraguayan Guaraní

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Languages without overt tense have been analyzed in two ways: as having (i) covert tense [7,5,11], or (ii) no tense and, either (ii-a) including 'R(eference) T(ime) < Eval(uation) T(ime)' in the meaning of perfective aspect [6], or (ii-b) allowing the free time variable of aspectual morphemes to refer to the discourse-salient RT, just as a tense pronoun would [12,8]. [12] analyzes (Paraguayan) Guaraní as (ii-b). We propose a truly tenseless account, without reference to RTs: EvalT binds the time variable of aspect, and EvalT may shift, as happens in restricted contexts in languages with tense, but here more freely.

Covert tense or no tense? In languages without overt tense, predicates are interpreted as past or present, depending on aktionsart, viewpoint, modification by time adverbials, and context, (1a) [2,4,5,6,7,8,12]. But for future reference, some languages require a prospective marker, even with future adverbs, (1b,c); others do not, (2). The obligatory use of a prospective for the future is the main argument for covert tense [7,5,12]. The argument relies on a likely semantic universal: tense languages describe future events not with a future tense but with a present tense and a (typically modal) prospective, or with non-past tense [3]. The absence of future tense follows if tenses may not denote RTs > EvalT [1]. The same restriction would apply to covert tense. Accordingly, languages with no overt tense have been argued to have: A) covert non-future tense (3a) and an obligatory prospective (3b), [7,5]; B) no tense and no obligatory prospective, with future RTs available as referents for the time variable of viewpoint aspect (3c), (2), [4]; C) no tense and an independently needed prospective [2]. Guaraní falls in C): it is argued to have no tense, as the prospective, while typically required (1), can be omitted in some main clauses [12] (see also [8]).

(1) a. A.jahu   b. #Ko'ẽro   a.jahu   c. (Ko'ẽro)   a.jahu.*ta*   *Guaraní*, [12]
     1SG.bathe   tomorrow 1SG.bathe   tomorrow 1SG.bathe.PROSP
     'I am/was bathing.'   lit. 'I bathe tomorrow.'   'I will bathe (tomorrow).'

(2) Táan   in=mèet-ik   le=nah=o'   *Yucatec Mayan,* [4]
     PROG   A1SG =do:APP-INCOMPL (B3SG)   DET=house=D2
     'I am/was/will be building the house.'

(3) a. $[\![$ NON-FUT$_i$ $]\!]^{g,c}$ is defined iff $g(i) \leq t_c$; if defined, $[\![$ NON-FUT$_i$ $]\!]^{g,c} = g(i)$.
     b. $[\![$ PROSP $]\!] = \lambda p \in D_{<i,t>} \lambda t \exists t'$ $[t < t'$ & $p(t')]$ (modal aspects of semantics [7,5,12] not shown)
     c. $[\![$ $[_{AspP} \ldots]$ $]\!] = \lambda t \exists e$ $[P(e)$ & $\tau(e)$ AT $t]$ (viewpoint type determines how AT is interpreted)

[12]'s account of Guaraní. The free variable of aspect refers to the salient RT post-LF, just like the tense pronoun in (3a) does. Main clauses make available only present and past, but not future, salient RTs, in contrast to Yucatec Mayan, and *-ta* is needed for future reference. Special rules are posited for the main clauses where *-ta* can be omitted: non-initial conjuncts and clauses modified by causal adverbials.

A new analysis of Guaraní. Post-LF reference to the salient RT on the part of the free time variable of aspect [12,8] mirrors the role of tense, and places variation between tense and tenseless languages in the syntax alone. But the uniform semantics is at the expense of variation among tenseless languages with respect to the (non-)availability of future RTs as discourse-salient referents. We posit that lack of tense in syntax leads to a different temporal semantic system, one where reference to RTs is not possible.

EvalT. Tenses refer to RTs and locate them relative to an EvalT, t_c in (3a), which is the speech time by default in matrix clauses. We suggest that in the absence of tense, the time variable of aspect or of a prospective marker is directly bound by the EvalT of the clause, itself a null temporal pronoun in the C-domain (4a). Present reference results with imperfective aspect (4b), and future reference with *-ta* (4c).

(4) a. $[_{CP} t_c$ $[_{AspP} \lambda t \exists e$ $[P(e)$ & $\tau(e)$ AT $t]]]$ b. $\exists e$ $[P(e)$ & $\tau(e) \supseteq t_c]$ c. $\exists e \exists t'$ $[t_c < t'$ & $P(e)$ & $\tau(e)$ AT $t']$

The challenge is to derive past reference. For this, we turn to the narrative present in tense languages.

Narrative present. Present tense can describe past events in narration (5). Formally, the analysis involves bi-contextual evaluation [9]. The EvalT for tense is shifted back from the speech time to the narrative time t_N (6a). Present tense has its usual meaning, placing the RT at the (back-shifted) EvalT t_N (6b). Indexical adverbs are still evaluated relative to the speech time t_c (6c). We suggest that bi-contextual evaluation is involved in past reference in Guaraní, with a back-shifted EvalT binding the time variable of aspect, (7a-b), and indexical adverbials interpreted relative to the speech time (7c). In tense languages, this mechanism is restricted to narratives, and is associated with discourse effects, because a past tense is also available. In Guaraní this is the only way to achieve past reference, so it is not restricted to narratives.

(5) Yesterday, I am walking down the street and I see John, who runs towards me… (historical present)

(6) a. $t_N < t_C$ b. $[[\text{PRES}_i]]^{g,C,N} = g(i)$ iff $g(i) = t_N$ c. $[[\text{yesterday}]]^{g,C,N} =$ the day $< t_C$

(7) a. $t_N < t_C$ b. $[_{CP} t_N \ [_{AspP} \lambda t \exists e \ [P(e) \ \& \ \tau(e) \ \text{AT} \ t]]]$ c. $[[\text{kuehe}]]^{g,C,N} =$ the day $< t_C$ *Guaraní*

Narrative present for the future. The narrative present can also describe future events, (8). Here the EvalT for tense is shifted after the speech time ($t_N > t_C$). Bi-contextual evaluation keeps the meaning of present tense and indexical adverbs the same (6b,c), but now the present has future reference. Such contexts are predicted to allow the omission of *-ta*, as the variable of aspect will be bound by the future-shifted EvalT; this is indeed so, (9). The shift in EvalT in the future is restricted to narratives, because a prospective marker, *-ta,* is independently available (cf. the historical present in tense languages).

(8) Imagine our first day of vacation. Tomorrow we sleep late, we swim, then we go into town…

(9) Ko'ẽro   ja.ha   mercado.pe, ja.karu nde   sy   róga.pe,   ha upérire, ja.ha Altos.pe
      tomorrow 1IN.go market   1IN.eat 2POSS mom house.LOC and then   1IN.go Altos.LOC
      Imagine-context: 'Tomorrow, we go to the market, eat at your mom's house, and then go to Altos.'

Complements. The proposal accounts for other key facts of Guaraní. [12] points out that back-shifted readings are not available in (10) (without aspectual markers). The EvalT for the embedded clause is the time of the attitude and it binds the time variable of the embedded predicate, resulting in a simultaneous reading. The same analysis applies to (11), where the (past) EvalT binds the time variable of *-ta,* and the embedded event can be located anywhere relative to the speech time (see also [13]).

(10) Mario oi.mo'ã.*ta*   ja.ju   ha   [12]
       Mario 3SG.tell   1IN.come that
       'Mario will think that we are coming.' not: 'Mario will think we have come.'

(11) Maria o.mombe'u chéve   o.mendá.*ta*   ha   kuehe / ko'ẽro.
       Maria 3SG.tell   me.DAT 3SG.marry.PROSP that yesterday/ tomorrow
       'Maria told me that she would marry yesterday/tomorrow.'

Narrative sequences/co-ordinations. In tense languages, narrative progress in the past is usually modeled through updates on RT: an event occurs at RT_1 and introduces a new RT_2 slightly after RT_1 [9]. On our proposal, tenseless Guaraní allows no reference to RTs. Narrative progression is accomplished through updates on the shifted ET: an event occurs at ET_1 (t_{N1}) and introduces a new time slightly after ET_1. That time becomes the shifted ET_2 (t_{N2}) for the subsequent clause. The ETs bind the time variables of *-ta* (12) or of viewpoint aspect (13). We also submit that the ET update ($ET_1 < ET_2$) accomplishes temporally what a prospective would, and is what allows omission of *-ta* in cases like (13), [11].

(12) Kuehe   a.hecha Maria.pe (ha) ha'e   o.viajá.*ta*   hina Los Angeles.pe
       Yesterday 1SG.see Maria.DOM and 3SG.PRON 3SG.travel.PROSP PROG Los Angeles.LOC
       'I saw Maria yesterday (and) she was going to travel to Los Angeles.'

(13) A.jahu.*ta*   ha   (upéi) a.jupi   kolektívo.pe.
       1SG.bathe-PROSP and then 1SG.get.on bus.LOC
       'I'm going to shower and then I'll get on the bus.'

Typology. On this proposal, the distinction among the three types of languages without overt tense is:

type	example language	tense	reference to RTs	prospective marker obligatory for purely temporal reference	indep. needed prospective	EvalT shift in future contexts without prospective
A	Gitxsan	covert	yes	yes (tense constraint)	--	restricted to narratives
B	Y. Mayan	no	no	no	no	not restricted
C	Guaraní	no	no	no	yes	restricted to narratives

[1] Abusch'97. Sequence of tense and temporal de re. *L&P.* **[2]** Bittner'05. Future discourse in a tenseless language *J. Sem.* **[3]** Bochnak'19. Future reference with and without future marking. *Lang Ling Compass.* **[4]** Bohnemeyer '09. Temp. anaphora in a tenseless language. *Expression of Time in Lang.* de Gruyter. **[5]** Jóhannsdóttir & Matthewson'07. Zero-marked tense...*NELS.* **[6]** Lin'05. Time in a language without tense... *J. Sem.* **[7]** Matthewson'06. Temporal semantics in a superficially tenseless language *L&P.* **[8]** Mucha'12. Temporal reference in a genuinely tenseless language...*SALT.* **[9]** Partee'84. Nominal and temporal anaphora. *L&P.* **[10]** Schlenker'04. Context of thought and context of utterance…*Mind Lang.* **[11** Thomas'14. Nominal tense and temporal implicatures...*NLLT.* **[12]** Tonhauser'11a. Temporal reference in Paraguayan Guaraní...*L&P.* **[13]** Tonhauser'11b. The Paraguayan Guaraní future marker –ta... *Tense Across Langs.* de Gruyter.