

Temporal reference in a genuinely tenseless language: the case of Hausa (Chadic)

INTRODUCTION: A central question concerning languages without overt tense morphology is whether they encode tense covertly. Matthewson (2006) analyzes St'át'imects as involving a covert tense morpheme that restricts the temporal reference to non-future and interacts with a modal marker to yield future-oriented readings. This paper argues that tense is not structurally represented in the morphologically tenseless language Hausa (Chadic, Afro-Asiatic), and that tense interpretations in Hausa are better accounted for on Smith et al.'s (2007) pragmatic analysis. At the same time, the modal analysis of future can be maintained for Hausa, which expresses future by a combination of modality and event time-shifting. Crucially, these meaning components are transparently coded by distinct overt morphemes in Hausa, unlike in St'át'imects (Matthewson 2006) and Guaraní (Tonhauser 2011).

DATA: The central prediction of Matthewson's covert tense approach is that future time reference must be marked by an overt future marker. This prediction is not borne out for Hausa, where future reference is sometimes possible without grammatical marking; cf. (1).

Context question: What do you think Bill will be doing when I come home tomorrow?

- (1) Bill ya-nà wàsà gòbe.
Bill 3SG.M-CONT play tomorrow (CONT = continuous)
“Bill will be playing tomorrow.”

The future reading of (1) shows that there is no covert tense morpheme that would restrict the reference time to [-FUT]. Still, future time reference in Hausa mostly involves the future marker *zā*, which deviates from the inflectional aspect/mood paradigm (2a) in that it always precedes the weak subject pronoun at the edge of AspP (2b).

- (2) a. Hàwwa ta-nà wàsà b. Hàwwa zā tà wàsà.
Hawwa 3SG.M-CONT play Hawwa zā 3SG.F.SBJV play
“Hawwa is playing.” “Hawwa will play.” (SBJV = subjunctive)

Crucially, *zā* cannot co-occur with continuative or completive aspect (3), (4). Whenever *zā* is present, the weak subject pronoun must be in the so-called SUBJUNCTIVE as in (2).

- (3) *Zā ta-nà wàsà (4) *Zā tā wàsà
Zā 3SG.F-CONT play Intended: “She will be playing.” Zā 3SG.F.COMPL play Intended: “She will have played.”

Future time reference is close to obligatory with *zā*, i.e. sentences with *zā* do not allow for non-future modal readings (5).

- (5) ? Watakīlā zā sù wurin aikì yanzù.
Perhaps ZA 3PL.SBJV PREP work now
Intended: “They will probably be at work right now.” (no present reading available)

What is obligatorily shifted with *zā* is the EVENT TIME (ET), and not the REFERENCE TIME (RT). Thus, *zā* is also compatible with past RTs as in (6).

- (6) Context: A wrong weather forecast for the preceding day.
Jiyà zāà yi ruwa, àmmā bà à yi ba.
Yesterday zā4P.SBJV do rain, but NEG.COMPL do NEG
“Yesterday, it was going (predicted) to rain, but then it didn't.”

The ANALYSIS consists of the following ingredients: (i.) The INFL-head in Hausa does not contain a covert tense pronoun/operator that would specify RT. The temporal interpretation of Hausa clauses is obtained by means of the default pragmatic principles proposed by Smith et al. (2007), which derive RT from aspect and aktionsart of the verbal predicate. The pragmatic principles assign completive and continuous sentences default past and present readings, respectively, but, being pragmatic, they can be overridden by contextual information, e.g.

yielding a future interpretation for continuous (1). (ii.) The future marker *zā* is a modal operator encoding universal quantification over possible worlds, and the so-called subjunctive is reanalyzed as PROSP(ECTIVE) aspect. The reanalysis is inspired by Schuh's (2003) claim that the Hausa subjunctive only encodes "dependent subsequent inception" of an event, locating this event after RT, and that the eventual interpretation of the subjunctive depends on a higher quantificational element. We model this dependency by treating the subjunctive/prospective as a deficient aspect that does not state the existence of an event, leaving the event argument of the predicate open (7). Unlike full-fledged aspectual heads, which existentially bind the event argument and map event properties to propositions (8), the prosp(ective) head in (7) maps events properties to functions from events to propositions.

$$(7) \quad [\![\text{Prosp}]\!]^{\text{RT}} = \lambda P_{\langle l, \text{st} \rangle}. \lambda e. \lambda w. [\tau(e) > \text{RT} \wedge P(e)(w)]$$

$$(8) \quad [\![\text{Compleutive}]\!]^{\text{RT}} = \lambda P_{\langle l, \text{st} \rangle}. \lambda w. \exists e [\tau(e) \subseteq \text{RT} \wedge P(e)(w)] \quad (\text{Kratzer 1998})$$

(iii.) Due to its deficiency, the prospective is the only aspect compatible with *zā*, which requires arguments of type $\langle l, \langle s, t \rangle \rangle$, mapping them onto propositions (9). Hence, *zā* is located in a higher position, from where it closes off the open event argument of *Prosp*. As all other aspects map onto type $\langle s, t \rangle$, combining them with *zā* will incur a type mismatch. (iv.) The fact that *zā+PROSP* expresses the future-oriented attitudes of intention and prediction falls out by treating *zā* as a modal operator quantifying over worlds from a (presupposed) realistic modal base (MB) with a bouletic or inertial ordering (O):

$$(9) \quad [\![zā]\!]^{\text{RT}} = \lambda P_{\langle l, \langle s, t \rangle \rangle}. \lambda w. \forall w' [w' \in O(w)(\text{MB}(w)(\text{RT})) \rightarrow \exists e[P(e)(\text{RT})(w')]] \\ \text{defined iff MB is realistic and O inertial or bouletic.}$$

With (9), the interpretation of the future sentence (2b) proceeds as in (10). ModP and AspP are headed by *zā* and the prospective *tā*, respectively: $[\![\text{ModP } zā [\![\text{AspP } tā [\![\text{vP H}\ddot{\text{a}}\text{wwa w}\ddot{\text{a}}\text{sā}]\!]]]\!]$

$$(10) \quad \begin{aligned} [\![\text{vP}]\!] &= \lambda e. \lambda w. [\text{play}(e)(w) \wedge \text{agent}(\text{H}\ddot{\text{a}}\text{wwa})(e)(w)] \\ [\![\text{AspP}]\!]^{\text{RT}} &= [\![\text{Prosp}]\!]^{\text{RT}} ([\![\text{vP}]\!]) \\ &= \lambda e. \lambda w. [\text{play}(e)(w) \wedge \text{agent}(\text{H}\ddot{\text{a}}\text{wwa})(e)(w) \wedge \tau(e) > \text{RT}] \\ [\![\text{ModP}]\!]^{\text{RT}} &= [\![zā]\!]^{\text{RT}} ([\![\text{AspP}]\!]^{\text{RT}}) = \lambda w. \forall w' [w' \in O(w)(\text{MB}(w)(\text{RT})) \rightarrow \\ &\quad \exists e[\text{play}(e)(w') \wedge \text{agent}(\text{H}\ddot{\text{a}}\text{wwa})(e)(w') \wedge \tau(e) > \text{RT}]] \\ [\![\text{IP}]\!]^{\text{RT}} &= [\![\text{ModP}]\!]^{\text{RT}} (w_0) = 1 \text{ iff } \forall w' [w' \in O(w_0)(\text{MB}(w_0)(\text{RT})) \rightarrow \\ &\quad \exists e[\text{play}(e)(w') \wedge \text{agent}(\text{H}\ddot{\text{a}}\text{wwa})(e)(w') \wedge \tau(e) > \text{RT}]] \end{aligned}$$

(2b) is correctly predicted to be true iff in all those worlds from the realistic base at the contextually given time RT in w_0 that are compatible with some agent's plans or intentions or the normal course of affairs, there is an event of *Hàwwa* playing that takes place after RT.

SUMMARY: There is no covert tense morpheme in Hausa. This lends support to the claim that tense is dispensable for temporal interpretation and that INFL, rather than tense, is a universal category of natural language (Wiltschko & Ritter 2010). The Hausa data also provide strong evidence for the claim that future marking (universally) involves a combination of modality and aspectual time shifting, as these components are encoded separately in Hausa.

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