Chapter 12

Starting points for tense-aspect analysis: Deictic adverbs

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We examine tense-related adverbs across a range of West African languages. Our interest stems from the proposal by Nurse et al. (2016) that Proto-Niger-Congo lacked grammatical tense. At the outset we focus on equivalents for day/night cycle adverbs. We attend initially to Edoid, then its neighbors within West Benue Congo and East Benue Congo followed by more distantly related Kwa, Gur, Kru, and finally non-Niger-Congo major languages of the Wider Lake Chad Region. Two lexicalization patterns for day/night dominate, one analytic ('yesterday,' 'today,' 'tomorrow'), the other synthetic ('today' vs. 'yesterday/tomorrow'). To pursue this general pattern further in one Edoid language, we assessed gram expression for tense and its relation to temporal adverb types. Grams expressed tense proper and temporal distance. Relative to adverbs, we found that values for tense proper and temporal distance did not distribute evenly. Most temporal adverbs (80%) aligned with the tense values past and future. And most preferred distal over proximal as co-constituent.

1 Introduction

Natural languages express tense-aspect (T-A) qualifications within a clause via distinct constituent types, either grammatical morphemes at/near the verb or lexical items with an adverb status. In many descriptions, the starting point for T-A analysis is the verb and associated grams, as exemplified by studies of Bini (Èdó) from Nigeria's Edoid group (Amayo 1976, Omoruyi 1991, Yuka & Omoregbe 2011). An alternative initiates T-A inquiry with adverb elements followed by examination of corresponding gram expressions. We follow the latter strategy to

illuminate one Edoid language system. We assume key components of such a system include at a minimum T-A grams and adverbs relevant to T-A expression.

Our center point for analysis is the group of Edoid languages spoken in south-central Nigeria. Within this group there are at least 30+ languages (Elugbe 1989), one of which is Emai, for which we have a relatively extensive database (Schaefer & Egbokhare 1999, 2007, 2016). Among others, this group includes Bini, Esan, Yekhee, Urhubo, Degema, and Engenni.

In addition to Edoid, we have compiled some initial data about T-A adverb elements and their corresponding grams from a range of language families also spoken in West Africa. These include West Benue Congo (WBC), East Benue Congo (EBC), Kwa, Gur, Kru, and major families of the Wider Lake Chad Region. Further impetus for this study comes from Nurse (2003, 2007, 2008), Nurse & Philippson (2006), and especially Nurse et al. (2016). The latter postulates that tense did not function as a gram in Proto-Niger-Congo or early Niger-Congo. Essentially, Proto-Niger-Congo expressed only aspect, with tense grams emerging in Bantu and its Benue-Congo predecessors. Relative to this general background, we aim to preview and contextualize the system of T-A grams in Edoid Emai and associated temporal adverbs.

We start with Edoid and equivalents for day/night cycle adverbs ('yesterday,' 'today,' 'tomorrow'). We adhere to Comrie (1985) in considering tense as the expression of location in time, grammatical and otherwise. Next, we assess the larger linguistic context of these adverbs, examining those in West Benue Congo, East Benue Congo with Plateau, Bantoid and Proto Bantu receiving attention, and more distantly the Niger-Congo phylum, specifically Kwa, Gur, and Kru. An even broader context arises from a brief survey of day-unit adverbs in major languages of the Wider Lake Chad Region: Hausa, Kanuri, and Nigerian Arabic. In the final section we consider Emai gram expression for tense and the combinatorial potential between tense values, i.e., temporal distance and tense proper, and temporal adverb types. As will be shown, values of tense proper distribute asymmetrically relative to adverbs, as do those of temporal distance.

2 Edoid temporal adverbs

Regarding day/night-cycle adverbs, we find two patterns in Edoid, a group within WBC. Adverbs for the day/night-cycle refer to day_{-1}, day_{-0}, day_{+1}, where day_{-0} refers to deictic center, essentially 'today.' Coding of day/night in Edoid is geographically circumscribed and often conflational, as illustrated in Table 1 (orthographic vowel representations throughout are "e" for [ɛ] and "o" for [ɔ]). Distinct

terms occur for each of day$_{-1}$, day$_{-0}$, day$_{+1}$ in some northern varieties of Edoid, e.g. Esan, whereas southern varieties conflate day$_{-1}$ and day$_{+1}$ under one term relative to a day$_{-0}$ term, e.g. Degema.

Table 1: Adverb forms for day/night cycle in Edoid relative to deictic center

	'yesterday' day$_{-1}$	'today' day$_{-0}$	'tomorrow' day$_{+1}$
NORTHERN			
Emai	òdè̩	é̩è̩nà	ákhò̩
Yekhee	é̩n-òdè̩	é̩è̩lè̩	ákhùè̩
Esan	òdè̩	é̩lé̩è̩nà	éwíé̩
Bini	n-òdè̩	n-é̩rè̩	n-ákhùè̩
SOUTHERN			
Urhobo	òdè̩	n-ónè̩	odè̩-ó̩chà
Engenni	údhè	ínyáà	údhè
Degema	údéè	inínà	údéè

3 Non-Edoid temporal adverbs

A similar tendency toward bipartite lexicalization is evident in Table 2 for WBC and Kwa.

Distinct day/night-cycle adverbs occur in languages such as Yoruba, Ebira, O̩ko̩, and Akan. Languages like Igbo, Gwari, Ewe, and Fongbe on the other hand, conflate day$_{-1}$ and day$_{+1}$. While variation in Edoid essentially followed a vertical trajectory (north to south), WBC and Kwa adverbs present a less geographically circumscribed condition. In both WBC and Kwa one finds distinct terms for day$_{-1}$ and day$_{+1}$ as well as conflation of day$_{-1}$ and day$_{+1}$ under a single term.

Among EBC language groups for which data is available, Plateau (Dũya) and Bantoid (Yukube̩n) exhibit distinct terms for day$_{-1}$ and day$_{+1}$. Proto Bantu, on the other hand, displays term conflation, whereas daughter languages like Tswana tend toward distinctive coding of day/night cycle adverbs.

In languages of the Wider Lake Chad Region (Kanuri, Hausa, Nigerian Arabic) as well as in Gur (Dagaare, Kasem, Supyire) and Kru (Tepo), no conflation is evident; distinct terms prevail for each day unit.

Table 2: Adverb forms for day/night cycle relative to deictic center in West Benue Congo and Kwa

	'yesterday' day$_{-1}$	'today' day$_{-0}$	'tomorrow' day$_{+1}$
WBC			
Yoruba	ní àná	ní òní	ní òlá
Isekiri	ní ọla		ní èjúmá
Ọkọ	érán	ámọ́nè̩	usie
Ebira	è̩è̩rí	ajíni	ùhwọ́ọ̩
Nupe	tsúwó	nyína	èsun
Gwari	ósù	ónyáyéè	ósù
Igbo	échí	táà	échí
Ekpeye	séle	tám	séle
KWA			
Akan	nnɛra	ɛnnɛ̩	ɔkyena
Ga	nyɛ̩	ŋmɛ̩nɛ̩	wɔ̩
Ewe	ètsɔ̩	égbè	ètsɔ̩
Fongbe	sɔ̩	égbè	sɔ̩

Table 3: Adverb forms for day/night cycle in East Benue Congo (including Plateau, Bantoid, and Proto Bantu)

	'yesterday' day$_{-1}$	'today' day$_{-0}$	'tomorrow' day$_{+1}$
CENTRAL NIGERIAN			
Dũya	àɾ̩éké̩	iɾérè̩	údáàn
Yukubẹn	í-li	ì-nəŋ	kɔ̩-húŋtu
BANTU			
P Bantu	dúbi	deedó	dúbi
Tswana	maabane	gompiêno	mosho

Table 4: Adverb forms for day/night cycle in Gur, Kru, and Wider Lake Chad Region

	'yesterday' day$_{-1}$	'today' day$_{-0}$	'tomorrow' day$_{+1}$
GUR			
Dagaare	zaameng	zenẹ	bieu
Kasem	dimm	zem	jwa
Supyire	táɲjáà	níɲjáà	nùmpanŋa
KRU			
Tepo	tụtụtụ	kẹ́kẹ́gbo	ŋàŋà
WIDER LAKE CHAD			
Kanuri	bíska	kúù	bali
Hausa	jiyà	yáàu	gòbe
Nigerian-Arabic	ámis	alóom	ambáakər

The next two sections concern grammatical morphemes that code T-A in the Edoid language Emai and their co-occurrence with temporal adverbs.

4 Overview of T-A expression in Emai

In Emai, the formal expression of T-A can be characterized as a template of the following kind.

(1)   PRONOUN   T-D   TENSE   VERB   ASPECT

This template combines a lexical morpheme that expresses a verb element along with grammatical morphemes (segmental, tonal or their combination) that convey a personal pronoun, temporal distance (T-D), tense proper, and aspect. Although the values for each of the five template elements can vary, we limit discussion for subject pronoun to third person singular and for verb to form *dumẹ* meaning 'pound.' Important to note about Emai is that neither subject pronouns nor verbs manifest lexical tone; they are lexically toneless and receive their tone from right adjacent morphotonemes, which may accompany a vowel segment or consist of a floating tone ($^{'H}$ or ^{,L}). Such tonal adjacency conditions prevail across

the Edoid group of languages (Elugbe 1989). The values for remaining grammatical elements in the template consist of the following: temporal distance (T-D) as proximal (P) or distal (D); tense as past (PST), present (PRS), future (FUT); and aspect as perfective (PFV) or imperfective (IPFV). Also of note regarding template realization is that two elements, T-D and tense, consistently contrast in their tonal expression for tense values present and past but not for the value future. In this respect present and past expression reflect a predicative cluster, as discussed by Creissels (2006: 55).

Template elements have the following segmental and tonal realization. T-D appears as a floating ${}^{\prime}$H for distal and ${}^{\backslash}$L for proximal; tense as *ó* or *ò* for PRS; floating ${}^{\prime}$H or ${}^{\backslash}$L for PST; and simply *ló* for future. Aspect in the PFV consists of verb suffix *-í*, whose overt appearance is controlled by a range of morphosyntactic conditions of the type known as metatony (Hyman & Lionnet 2012, Hyman 2017, Schaefer & Egbokhare 2021). In contrast, the IPFV consists of a floating low tone *-*${}^{\backslash}$L.

A sample of segmental and tonal realization for Emai's T-A template is presented in (2). Underlying forms are shown on the right within forward slashes /x/ and surface level forms are on the left in brackets [x]. But before proceeding to template illustration, two tonal patterns require some comment. As already noted, perfective (PFV) aspect in Emai is signaled by verb suffix *-í* with high tone. This tone value spreads leftward across a verb stem. After its spread, the word boundary separating future marker *ló* from its verb exhibits a H H H condition. To adjust this H H H condition, Emai lowers the H at the verb's left edge to L (H → L / ${}_{\text{FUT}}$H#[__ H]${}_{\text{verb}}$). The second pattern concerns the floating tones that express past tense and their relation to verb tone. Past tense tone assignment applies only after the high tone spread of perfective aspect. When past is a floating ${}^{\prime}$H, it has no effect on verb initial high tone. When past is a floating ${}^{\backslash}$L, it lowers verb initial high tone by one step, i.e., the verb initial syllable is realized as downstep high ${}^{!}$.

There are six T-A construction types in (2). Again, underlying forms are on the right within forward slashes /x/ and surface level on the left in brackets [x].

(2) a. [ó ò dùmẹ̀ émà]   <   /ọ ${}^{\prime}$H ọ̀ dumẹ-${}^{\backslash}$L émà/
          'She pounds yam.'   3SG D PRS pound-IPFV yam

     b. [ò ó dùmẹ̀ émà]   /ọ ${}^{\backslash}$L ọ́ dumẹ-${}^{\backslash}$L émà/
          'She is pounding yam.'   3SG P PRS pound-IPFV yam

     c. [ó ˈdúmẹ́ émà]   /ọ ${}^{\prime}$H ${}^{\backslash}$L dumẹ-í émà/
          'She pounded yam.'   3SG D PST pound-PFV yam

d. [ò dúmẹ́ émà] /ọ ˋᴸ ꞌᴴ dume̲-í émà/
'She has pounded yam.' 3sɢ P ᴘsᴛ pound-ᴘꜰᴠ yam

e. [ó lọ́ dùmẹ émà] /ọ ꞌᴴ lọ́ dume̲-í émà/
'She will pound yam.' 3sɢ D ꜰᴜᴛ pound-ᴘꜰᴠ yam

f. [ò lọ́ dùmẹ émà] /ọ ˋᴸ lọ́ dume̲-í émà/
'She is about to pound yam.' 3sɢ P ꜰᴜᴛ pound-ᴘꜰᴠ yam

As will be seen shortly, each of these T-A constructions restricts its co-occurrence with deictic temporal adverbs. To provide a flavor of the next section, we illustrate the relation between T-A type and its canonical temporal adverb. Within each tense type, temporal adverbs contrast, their assignments being mutually exclusive. For instance, distal present (3a) permits the adverb *ẹ́dẹ̀ẹ́dẹ̀*, while proximal present allows the adverb *ẹ̀nyáà*. Realignment of adverb type with T-A type is grammatically unacceptable.

(3) a. *ó   ọ̀   dùmẹ̀   émá ẹ́dẹ̀ẹ́dẹ̀*
3sɢ:ᴅ ᴘʀs pound:ɪᴘꜰᴠ yam daily
'She pounds yam daily.'

b. *ọ̀   ọ́   dùmẹ̀   émá ẹ̀nyáà*
3sɢ:ᴘ ᴘʀs pound:ɪᴘꜰᴠ yam now
'She is pounding yam now.'

c. *ọ́   ꞌdúmẹ̲   émá òdẹ̀*
3sɢ:ᴅ ᴘsᴛ:pound:ᴘꜰᴠ yam yesterday
'She pounded yam yesterday.'

d. *ọ̀   dúmẹ̲   émá ẹ̀ghẹ́ ẹ̀nà*
3sɢ:ᴘ ᴘsᴛ:pound:ᴘꜰᴠ yam recently
'She pounded yam recently.'

e. *ó   lọ́ dùmẹ̲   émá ákhọ̀*
3sɢ:ᴅ ꜰᴜᴛ pound:ᴘꜰᴠ yam tomorrow
'She will pound yam tomorrow.'

f. *ọ̀   lọ́ dùmẹ̲   émá ẹ̀nyáà*
3sɢ:ᴘ ꜰᴜᴛ pound:ᴘꜰᴠ yam now
'She is about to pound yam now.'

5 Temporal adverbs and T-A grams in Emai

To assess the relationship between Emai tense grams and temporal adverbs, we return to Nurse et al. (2016). They propose that Proto-Niger-Congo was essen-

tially aspectual and devoid of grammatical tense specification. Over time, especially near the breakout of Benue-Congo and the eventual emergence of Bantu (Nurse 2007), they propose that tense categories, which we assume to mean tense grams, began to appear. At a minimum, there are two diachronic stages for gram expression advanced by Nurse and associates: Stage I when aspect was prominent; Stage II when tense became prominent.

Under the first of these proposed stages, conflation of day$_{-1}$ and day$_{+1}$ under one term relative to a day$_{-0}$ term could well be expected, i.e., today vs. not-today. This has implications for day/night cycle adverbs in Emai. Following the Nurse scenario, it would not be surprising to find distributional differences in day/night-unit terms. Similarly, it would not be surprising if the term for 'today' had a wider distribution in tense restricted temporal adverb positions than terms for 'yesterday' and 'tomorrow,' even though all three day/night-unit terms exist in the contemporary language.

Consider in this respect the following tables for temporal adverbs in Emai. They identify adverb co-occurrence with tense grams for present (PRS), past (PST), and future (FUT) as well as their temporal distance counterparts distal (D) and proximal (P). In Table 5 we find those day/night-cycle adverbs that are defined relative to day$_{-0}$ term *ẹ́ẹ̀nà* 'today.' The entire class of five terms identifies, in addition to day$_{-0}$, day-$_1$/day$_{-2}$ and day$_{+1}$/day$_{+2}$. Member occurrence with tense grams is highly restricted. Each day/night-cycle term is limited to one tense value, either past or future. Temporal distance aligns exclusively with the value distal. None of these day/night terms occurs with present tense or temporal distance value proximal.

The restrictive distribution of adverb types relative to tense types is maintained when day/night-cycle adverb terms occur in associative phrases headed by meronymic exponents. Day-partitive terms for morning, afternoon, evening, and night occur with all day/night-unit basic terms for day$_{-1}$ and day$_{+1}$ as well as day$_{-2}$, day$_{+2}$, and day$_{+9}$, as shown in Table 6 and 7. These associative phrases distribute relative to tense grams in the restricted fashion already indicated by Table 5. Each partitive phrase is limited to one tense value, either past or future, and to temporal distance value distal. None appears with present tense or proximal temporal distance.

Adverbs that group time units according to cycles other than day/night also restrict distribution vis-à-vis tense. They are shown in Table 8, where potential time unit (t-u) expressions are *úkpè* 'year,' *ọ̀sẹ̀* 'week,' and *ùkìn* 'month.'

Each time unit term is limited to one tense value, either past (*t-u lí ọ́ ráá rè* 't-u which passed,' *ẹ́lá t-u* 't-u we discussed') or future (*t-u lì ọ̀dè* 't-u which is

Table 5: Co-occurrence between day/night-cycle adverbs and tense values in Emai (where Dᴘʀs is Habitual and Pᴘʀs is Progressive/Continuous aspect). 'd-b-y' stands for 'day before yesterday;' 'd-a-t' stands for 'day after tomorrow.'

Tense values	Temporal adverbs		
	òdè 'yesterday' *ékhèdéà* 'd-b-y'	*éènà* 'today'	*ákhò* 'tomorrow' *òtíàkhó* 'd-a-t'
Dᴘʀs Pᴘʀs			
Dᴘsᴛ Pᴘsᴛ	√		
Dꜰᴜᴛ Pꜰᴜᴛ		√	√

Table 6: Distribution of day-partitives with temporal adverbs for day$_{-1}$ *òdè*, day$_{-0}$ *éènà*, day$_{+1}$ *ákhò*

Day-partitives	Temporal day-unit adverbs of basic tier		
	'yesterday' *òdè*	'today' *éènà*	'tomorrow' *ákhò*
'morning of'	égbíá òdè	égbíá éènà	égbíá ákhò
'afternoon of'	ódíánmí òdè	ódíánmí éènà	ódíánmí ákhò
'evening of'	énwáá òdè	énwáá éènà	énwáá ákhò
'night of'	ásón òdè	ásón éènà	ásón ákhò

Table 7: Distribution of day-partitives with temporal adverbs for day$_{-2}$ (*ẹ́khẹ̀dẹ́à*), day$_{+2}$ (*òtíàkhọ́*), and day$_{+9}$ (*ùsúmú*)

Day-partitives	Temporal day-unit adverbs of non-basic tier		
	'day before yesterday' *ẹ́khẹ̀dẹ́à*	'9 days from today' *ùsúmú ẹ́ẹ̀nà*	'day after tomorrow' *òtíàkhọ́*
'morning of' 'afternoon of' 'evening of' 'night of'	égbíá ẹ́khẹ̀dẹ́à ódíánmí ẹ́khẹ̀dẹ́à ẹ́nwáá ẹ́khẹ̀dẹ́à ásọ́n ẹ́khẹ̀dẹ́à	égbíá ùsúmú ẹ́ẹ̀nà ódíánmí ùsúmú ẹ́ẹ̀nà ẹ́nwáá ùsúmú ẹ́ẹ̀nà ásọ́n ùsúmú ẹ́ẹ̀nà	égbíá òtíàkhọ́ ódíánmí òtíàkhọ́ ẹ́nwáá òtíàkhọ́ ásọ́n òtíàkhọ́

Table 8: Co-occurrence relations between non-day time unit temporal adverbs and tense values (where t-u = time unit like *úkpè* 'year,' *ọ̀sẹ̀* 'week,' *ùkìn* 'month')

Tense values	Temporal adverbs		
	t-u lí ọ́ ráá rè 't-u which passed'	*ẹ́lá t-u* 't-u we discussed'	*t-u lì ọ̀dè* 't-u which is coming'
Dᴘʀꜱ Pᴘʀꜱ			
Dᴘꜱᴛ Pᴘꜱᴛ	√	√	
Dꜰᴜᴛ Pꜰᴜᴛ			√

coming'). Temporal distance is consistently distal. None of these time unit terms occurs with present tense or the temporal distance value proximal.

There are additional adverbs in Emai that are not cyclic with respect to any temporal unit, neither day, week, month, nor year, or are weakly cyclic with respect to 'day' as a unit. They are shown in Table 9. Overall, these terms distribute in a highly restrictive fashion relative to tense values. Each non-cyclic term in Table 9 is limited to one tense value: present. Temporal distance is exclusively distal. These non-cyclic terms occur with neither past nor future tense value nor temporal distance value proximal.

Table 9: Co-occurrence relations between non-day/night- cycle temporal adverbs and tense values

Tense values	Temporal adverbs			
	ẹ́dẹ̀ẹ́dẹ̀ 'daily'	*ẹ́ghẹ̀ẹ́ghẹ̀* 'all the time'	*ìghéèghé* 'generations ago'	*sàá* 'usually'
Dprs Pprs	√	√	√	√
Dpst Ppst				
Dfut Pfut				

Another group of temporal adverbs in Emai are non-cyclic with respect to time units such as day, week, month, or year. They refer to event duration or event moment. Relative to tense values, these terms distribute in two highly restrictive patterns. Pattern one (*ẹ̀dẹ̀dẹ́*, *títítí*, *wẹ̀ẹ́ẹ́*) is limited to tense value past. Temporal distance is exclusively distal. No pattern one term occurs with present or future tense or with proximal as the temporal distance value. Pattern two is not limited to a single tense value. It has a single adverb exponent, *ẹ̀nyáà* 'just/right now,' which refers to moment of speech as deictic center. It allows present and future tense. Its temporal distance value in both instances is proximal. Pattern two fails to occur with past tense or temporal distance value distal.

Table 11 offers a different class of adverbs. All derive from the basic term for day$_{-0}$, viz. *ẹ́ẹ̀nà* 'today.' Today-derivatives are synthetic compounds (*ẹ̀ghẹ́ẹ̀nà* 'recently,' *ùkpẹ́ẹ̀nà* 'this season') or syntactic phrases (*ùsúmú ẹ́ẹ̀nà* '9-days from today'). As in preceding tables, these terms restrict co-occurrence with tense grams.

Table 10: Co-occurrence between adverbs of duration/moment of utterance and tense values

Tense values	Temporal adverbs			
	ẹ̀dẹ̀dẹ́ 'short time ago'	*títítí* 'for long time'	*wẹ̀ẹ́ẹ́* 'for short time'	*ẹ̀nyáà* 'now'
Dprs Pprs				√
Dpst Ppst	√	√	√	
Rfut Pfut				√

No similar adverbs link to day$_{-1}$ *òdẹ̀* or day$_{+1}$ *ákhọ̀*. Today-related adverbs reflect three patterns vis-à-vis tense. Pattern one with *ẹ́ẹ̀nà* and *ùsúmú ẹ́ẹ̀nà* is limited to tense value future. Temporal distance is consistently distal. No other tense or temporal distance values appear in pattern one. Pattern two with *ẹ̀ghẹ́ẹ̀nà* is limited to tense value past. Temporal distance is restricted to proximal. No other tense or temporal distance value is allowed. Pattern three, which is restricted to *ùkpẹ́ẹ̀nà*, allows tense values past and future. Temporal distance is proximal for past and distal for future. No other tense or temporal distance values are permitted in pattern three.

Temporal adverbs of an emphatic nature are presented in Table 12. Members are all lexical compounds that retain a reduced form of linker *li* that designates adjectival dependents. In addition, the initial word unit *ẹ̀dẹ̀* in the compound shows low tone, rather than the high low tone of lexical *ẹ́dẹ̀* 'day.' In dependent position these emphatic adverbs show forms derived from the day$_{-0}$ term *ẹ́ẹ̀nà* as well as day$_{+1}$ *ákhọ̀*, day$_{+2}$ *òtíàkhó*, and day$_{+9}$ term *ùsúmú*. Nonetheless, these emphatic adverbs align in a highly restrictive fashion with tense grams. Each emphatic adverb is limited to tense value future. Temporal distance is exclusively distal. No emphatic term allows present or past tense, or temporal distance value proximal.

Restricted in a different fashion are adverbs structured by nominal *ẹ́dẹ̀* 'day.' It occurs in synthetic compounds that express temporal punctuality (e.g. 'on the second day') or duration ('for three days' vs. 'within three days'). Synthetic

Table 11: Co-occurrence between 'today' derivative adverbs and tense values

Tense values	Temporal adverbs			
	ẹ́ẹ̀nà 'today'	*ùsúmú ẹ́ẹ̀nà* '9-days from today'	*ẹ̀ghẹ́ẹ̀nà* 'recently'	*ùkpẹ́ẹ̀nà* 'this season'
Dprs Pprs				
Dpst Ppst			√	√
Dfut Pfut	√	√		√

Table 12: Co-occurrence between emphatic adverbs and tense values

Tense values	Temporal adverbs			
	ẹ̀dẹ̀-lí-ẹ́ẹ̀nà emphatic 'today'	*ẹ̀dẹ̀-lí-ùsúmú* emphatic '9-days from today'	*ẹ̀dẹ̀-lí-ákhọ̀* emphatic 'tomorrow'	*ẹ̀dẹ̀-lí-òtíàkhọ́* emphatic 'day after tomorrow'
Dprs Pprs				
Dpst Ppst				
Dfut Pfut	√	√	√	√

compounds have the shape prefix-verb-noun, as in *ú-kpa-ẹ́dẹ̀* [sɢ-apportion-day]. Compounds with *ẹ́dẹ̀* appear as temporal adverbs in a phrasal construction with either an ordinal (*ọ́zèvà*) or cardinal numeral. Each of these *ẹ́dẹ̀*-based adverbs permits the tense values past or future. Temporal distance in either instance is restricted to distal. No *ẹ́dẹ̀*-based term allows present tense or temporal distance proximal.

Table 13: Co-occurrence between *ẹ́dẹ̀* adverbs and tense values

Tense values	Temporal adverbs		
	vbí úkpẹ́dẹ́ lí ọ́zèvà 'on the second day'	*íkpẹ́dẹ̀ èéà* 'for three days'	*vbí ẹ́kẹ́ín íkpẹ́dẹ̀ èéà* 'within three days'
Dᴘʀs Pᴘʀs			
Dᴘsᴛ Pᴘsᴛ	√	√	√
Dꜰuᴛ Pꜰuᴛ	√	√	√

As one last point, we note that Emai exhibits adverb expressions based on the temporal lexeme *ẹ́ghẹ̀* 'time.' Two of these have an anaphoric function relative to an event that antecedes it. As might be expected, they are frequent in discourse narratives. Each also manifests a non-anaphoric function. Temporal adverbs associated with *ẹ́ghẹ̀* reveal three patterns. Pattern one for anaphoric uses is limited to tense value past. Temporal distance is restricted to value proximal. Neither the *ẹ́ghẹ́ áin* nor *ọ́lí ẹ́ghẹ̀* anaphor occurs with present or future tense or with temporal value distal. Pattern two, which is aligned with *ẹ́ghẹ́ áin* 'those times,' is limited to tense value present. Its temporal distance is confined to the distal value. Pattern two disallows past and future tense values and temporal distance proximal. Finally, pattern three shows tense values present and past but not future. Temporal distance is exclusively distal; there is no role for proximal temporal distance in pattern three.

Table 14: Co-occurrence between *éghẹ̀* adverbs and tense values

Tense values	Temporal adverbs			
	éghẹ́ áìn 'at that time' anaphoric	*éghẹ́ áìn* 'at those times'	*ólí éghẹ̀* 'the time' anaphoric	*vbí ólí éghẹ̀* 'at the time'
Dprs Pprs		√		√
Dpst Ppst	√		√	√
Dfut Pfut				

6 Conclusion

In preceding sections, we undertook a four-fold assessment of temporal qualifications in selected languages of West Africa, although our most extensive examination fell to the Edoid group of south-central Nigeria. Inspiring our investigation were studies of Niger-Congo languages by Nurse (2007) as well as Nurse et al. (2016). Combined they argued for the grammatical emergence of temporal qualities in a two-stage evolutionary process. The later diachronic stage centered on grammatical coding of tense. An earlier stage was limited to grammatical expression of aspect.

For our study we investigated temporal qualifications from four perspectives to contextualize and center our findings. At the outset, with respect to Edoid and selected non-Edoid languages of West Africa, we identified the coding of day/night-cycle adverbs equivalent to 'yesterday,' 'today,' and 'tomorrow.' This pinpointed two lexicalization patterns for day/night-cycle terms. One was analytic, a separate term for each deictically defined day; the other was synthetic since it lexicalized 'yesterday' and 'tomorrow' under one lexeme and 'today' under another.

In a final section, focused on Emai, we considered co-occurrence relations between various temporal adverbs relative to grammatical morphemes that expressed tense values. Included among the latter were grams that signaled the

tense values present, past, and future alongside grams that conveyed the temporal distance values distal and proximal.

The combinatorial potential between temporal adverb forms and overall tense values was restricted. Relative to adverbs, we found that temporal distance values distributed asymmetrically. Similarly, tense values proper did not distribute evenly. We assessed 35 temporal adverbs in Emai for their interaction with values for tense proper and temporal distance. Of the 35 adverbs aligned with tense proper, a rather low percentage linked to present tense (20%). Each of past and future received 40% of the assignments. That is most temporal adverbs combined with either past or future tense, significantly fewer with present tense. Of the 35 adverbs, a rather low percentage accepted the temporal distance value proximal. Proximal co-occurred with 17.1% of adverb assignments. In contrast, distal aligned with 82.9% of adverbs. As a co-constituent in the expression of tense, the value distal clearly exceeded that of proximal. Relative to each value for tense proper, distal was the preferred co-constituent. Proximal was preferred far less often. If our findings point in a useful direction, the emergence of tense in Niger-Congo may involve more grammatical and lexical components than initially assumed by Nurse and colleagues.

The preference for distal as a temporal distance feature in Emai tense expression correlates with a tonal preference for high over low on the subject pronoun. This high tone bias combines with the primacy of past and future over present as the other co-constituent in the expression of tense. Interestingly, both past and future mark their verb with perfective aspect, which as we saw earlier was signaled by a high tone suffix *-í* that spreads leftward across a lexically toneless verb. In Emai, for tonal marking of actualized and non-actualized events that are removed from the moment of speech there is a strong preference for high tone. It is at or near the moment of speech that a preference for low tone prevails. This interpretation of tonal patterning suggests that syntactic relations within an Emai clause, particularly at constituent edges, will seek recognition through tonal adjustments, such as the shift from high-to-low on the initial syllable of the verb following future tense gram *ló* or the shift from high-to-high downstep on the verb-initial syllable following distal past. Our initial focus on temporal adverbs as a starting point for analysis of temporal qualifications within West African languages thus informs our understanding of not only potential morphosyntactic complexities of tense but also variation in its tonal expression.

Abbreviations

ABS	absolute	P	proximal temporal distance
ART	article	PFV	perfective aspect
D	distal temporal distance	PL	plural
FUT	future tense	PRS	present tense
IG	ingressive	PST	past tense
IPFV	imperfective aspect	SG	singular
LOC	locative	T-A	tense-aspect
NEG	negation	T-D	temporal distance

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