Documentation: When Inflection Meets Tone

Ronald P. Schaefer
and
Francis O. Egbokhare

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University of Helsinki
rschaef@siue.edu

Minority Niger Congo languages in West Africa present unique challenges for typological investigation and language documentation. Chief among these is the feature of tone.

Compared to genetically-related Bantu languages and their agglutinating systems (Hyman 2004, Good 2012), these minority languages are inflectionally impoverished, at least with regard to their segmental morphemes.

Tonally, however, they are rich and complex, especially those within the West and East branches of the Benue Congo family that also includes Bantu.

Before proceeding further we would like to make some preliminary remarks.

Our starting point, as it is yours, is *Catching Language* (CL) and its contents. This volume has the laudable purpose of helping to clarify goals and methods for anyone intending to write a descriptive grammar.

The volume thus aims to enhance grammaticography: the art and craft of grammar writing (Mosel 2006).

As a reminder of CL's content we present its chapter titles in an abbreviated format.

Catching Language: The Standing Challenge of Grammar Writing

1 Introduction: Catching language
2 Grammaticography: The art and craft of writing grammars
3 Real Descriptions: Reflections on native speaker and non-native speaker descriptions
4 Realizing Humboldt's dream: Cross-linguistic grammatography as data-base creation
5 The organization of reference grammars: A typologist user's point of view
6 Calculus of possibilities as a technique in linguistic typology
7 Descriptive theories, explanatory theories and Basic Linguistic Theory
8 Let the language tell its story? The role of linguistic theory in writing grammars
9 On describing word order
10 Heterosemy and the grammar-lexicon trade off
11 Field-semantics and grammar-writing: Stimuli-based techniques
12 Taking a closer look at function verbs: Lexicon, grammar or both?
13 Converbs in an African perspective
14 From Eurocentrism to Sinocentrism: The case of disposal constructions
15 How to miss a paradigm or two: Multi-functional *ma-* in Tagalog
16 The interplay of synchronic and diachronic discovery in Siouan grammar-writing
17 The historical and cultural dimensions in grammar formation: The case of Modern Greek
18 Polylectal grammar and Modern Thai
19 Writing culture in grammar in the Americanist tradition

A multitude of useful and worthwhile topics are covered. One is not.

This brings us to our second preliminary point, which is tone or the distinctive use of pitch on words and morphemes to convey meaning.

A classic instance of tonal behavior known by the general linguist is probably tone sandhi. This term refers to a tone shift or tone change in which the tone of a morpheme or word changes based on an adjacent tone. A few examples from Yoruba and Buli illustrate.

bá 'meet' H, with 3sg pro	ó	bá	'he meets'	bá H → H
	3sg	meet		
bà 'perch' L, with 3sg pro	ó	bâ	'he perches	bà L → HL
	3sg	perch		
zúk 'head' H, with 3sg poss	wà	zŭk	'his head'	zúk H →LH
	3sg.poss	head		

In CL there is no chapter that addresses the writing of a descriptive statement for a language which is tonal, or better, a language in which tone is deeply embedded into the grammatical system.

No chapter directly addresses grammar writing in tone languages.

It is true that tone, particularly tone in Africa, is mentioned in some chapters (Ameka 2006, Amha and Dimmendaal 2006).

It is even crucial to a major point made by Ameka (2006: 92) that concerns the purported grammaticalization of the low tone verb *ɖì* 'move down, descend' to the high tone adverbial particle *ɖí* 'down.' His dispute with these forms as an instance of a specific grammaticalization path hinges on the contrast between high tone and low tone.

SPOTLIGHT: nearly half of all languages are tonal.

The volume being so constructed, and tone being a dominant feature in many of the minority languages of Nigeria and Cameroon, how might tone be analyzed, let alone be addressed as part of grammar writing?

A useful set of general analytic principles comes from Hyman (2014), although he views them more as a personal statement.

For the beginner, he identifies three basic tasks in the analysis of tone, and for each he stipulated a corresponding stage of analysis.

How to study a tone language?

I Words in isolation. Determine surface tonal contrasts and approximate phonetic allotones.

II Words in phrases or paradigms. Discover any tonal alternations (morphotonemics), where tone of word X affects context or context affects tone of word X, i.e. relation citation tone and contextual tone.

III Notation/representation. Tonal analysis, interpretation of I and II. Find an answer as to how the tone system works.

Additionally, Hyman notes a tendency in writing systems to ignore tone. But sometimes tone is ignored even by linguists.

Recent article by McPherson (2019) summarizes her survey of 392 linguists from around the world.

73% agreed “I find tone to be fascinating.”
89% agreed Tone is crucial for understanding phonology.
70% agreed Tone is crucial for understanding morphology.
52% agreed Tone is crucial for understanding syntax.

57% Found tone difficult to work with.
44% Were intimidated by tone.

56% agreed “I always mark tone.”

There were also correlations between responses to these statements and responses to questions about including tone in classes, in teaching.

The results are grim. Negative correlations abound. Most morphology students will never analyze tone data.

In the same *Documentation and Conservation* publication where we find Hyman's article, there is another entitled "Finding a way into a family of tone languages: The story and methods of the Chatino Language Documentation Project" by Emiliana Cruz and Anthony C. Woodbury.

They also offer a set of guiding principles, less for tone analysis than for communal discovery of tone.

I Importance of interplay between native speaker and non-speaker perspectives.

II Emphasis on training of community members and collaboration as crucial source of new ideas and idea testing.

III Advancement is achieved by a range of descriptive and documentary activities that include introspection, hypothesis testing, natural speech recording, transcription, translation, grammatical analysis and dictionary making (no mention of grammar writing).

IV Simultaneous study of many varieties in a language family as a way to understand tones, tonal systems, and the historical roles they have played.

Compared to Hyman's set of principles, those put forward by Cruz and Woodbury reflect a communal approach to tone.

I must confess that their approach has a certain appeal in this age of endangerment for so many minority languages.

On reflection, our earliest attempts in the 1980s to address Emai tone had a communal flare, since we engaged educational officials of the local government area, proposed a range of documentary activities while initiating some, idea-tested with community elders, and sought input from nearby clans in order to understand tone.

This brings us to final starting point: a quick reflection on our journey with tone.

Francis is a native speaker of Emai, several other Edoid varieties as well as Yoruba.

We met when he was a student and I was teaching at the University of Benin, Nigeria in the 1980s.

He is now, and for quite a number of years has been, a professor in the Department of Linguistics and African Languages at the University of Ibadan.

In the end, our approach to Emai approximated what Evans and Dench refer to as the Boasian Trilogy: texts, dictionary and grammar (Evans and Dench 2006:10).

We collected spontaneous texts from Emai oral narrative tradition.

We worked with administrators and teachers of the local government area to identify recognized story tellers in the community.

We were not particularly concerned to record narratives of oral history and shied away from them, except when it seemed prudent in the cultural context to record it.

The next step involved transcription, translation and orthographic development for the 70+ oral narratives we collected.

Francis was heavily involved at this point. Actually, there was no point in time, since our activities continued for some years.

Tone also continued to be a source of angst, although Francis' completion of master's and doctoral studies at the University of Ibadan lessened our communal anxiety (Egbokhare 1986, 1990).

Our intended next step was to fashion a grammar for Emai.

While working out some syntactic details we came across Dixon (1989).

In what I recall as a footnote, he exclaimed, after having already written a grammar, how much he had learned about the grammatical structure of a particular language, especially its argument structure, while completing a dictionary.

After further thought we decided to complete a dictionary before undertaking grammar writing project.

Fortunately that also gave us more time to work out additional details regarding tonal contrasts, tonal alternations and the syntagmatic relationships where tone appeared to be playing a significant role.

Tone factored extensively into our thinking about the grammar.

We had several possible arrangements for our chapters.

In the end the decisive factor was tone and its role in basic clause structure.

In Emai tone alone expresses some tense-aspect categories or participates in the expression of these categories. As well, tone is central to polarity, modality and mood expression.

There are essential meaning components of an Emai sentence that are conveyed by tone. It would be difficult to write about tense-aspect constraints on adverbials or sentence complements, for instance, without first introducing how tone is integrated into tense-aspect expression.

Emai tone is also central to alternations in the noun phrase and the conditioning of nominal head tone by adnominal types.

We ended up with the following arrangement of chapters. Note that in no chapter title do we find the word “tone.”

In many respects though, tone is in every chapter.

A Grammar of Emai (2017, De Gruyter Mouton)

Table of Contents

1. Orthography and grammatical overview
2. Morphology
3. Inflection, auxiliaries and preverbs
4. Noun modifiers
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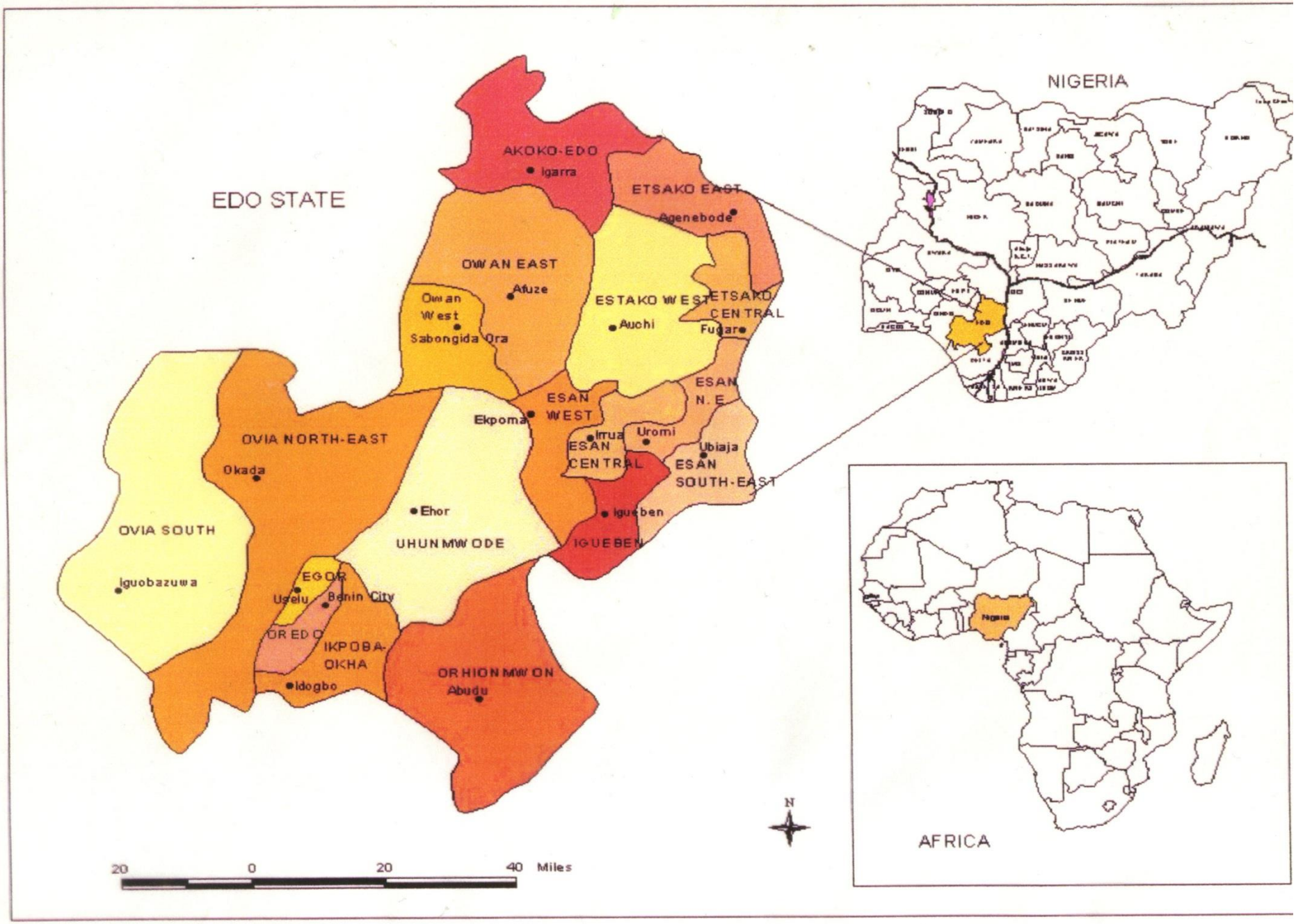
6. Adverbial adjuncts
7. Non-canonical constructions
8. *Be*, *do*, *happen* and *have*
9. Postverbal particles in complex predicates
10. Participant expressing complex predicates
11. Aspect expressing complex predicates
12. Transitivity and verb arguments
13. Embedded S- and VP-complements
14. Multi-clause constructions
15. Sample oral narrative

We now turn to Emai.

It is spoken by approximately 25,000 people in ten villages west of the Niger River and south of the confluence of the Niger and Benue Rivers.

It belongs to the Edoid group within West Benue Congo (Elugbe 1989, Williamson and Blench 2000).

Their neighbors are the Yoruba on the west, Igbo on the east and Ebira and Nupe to the north.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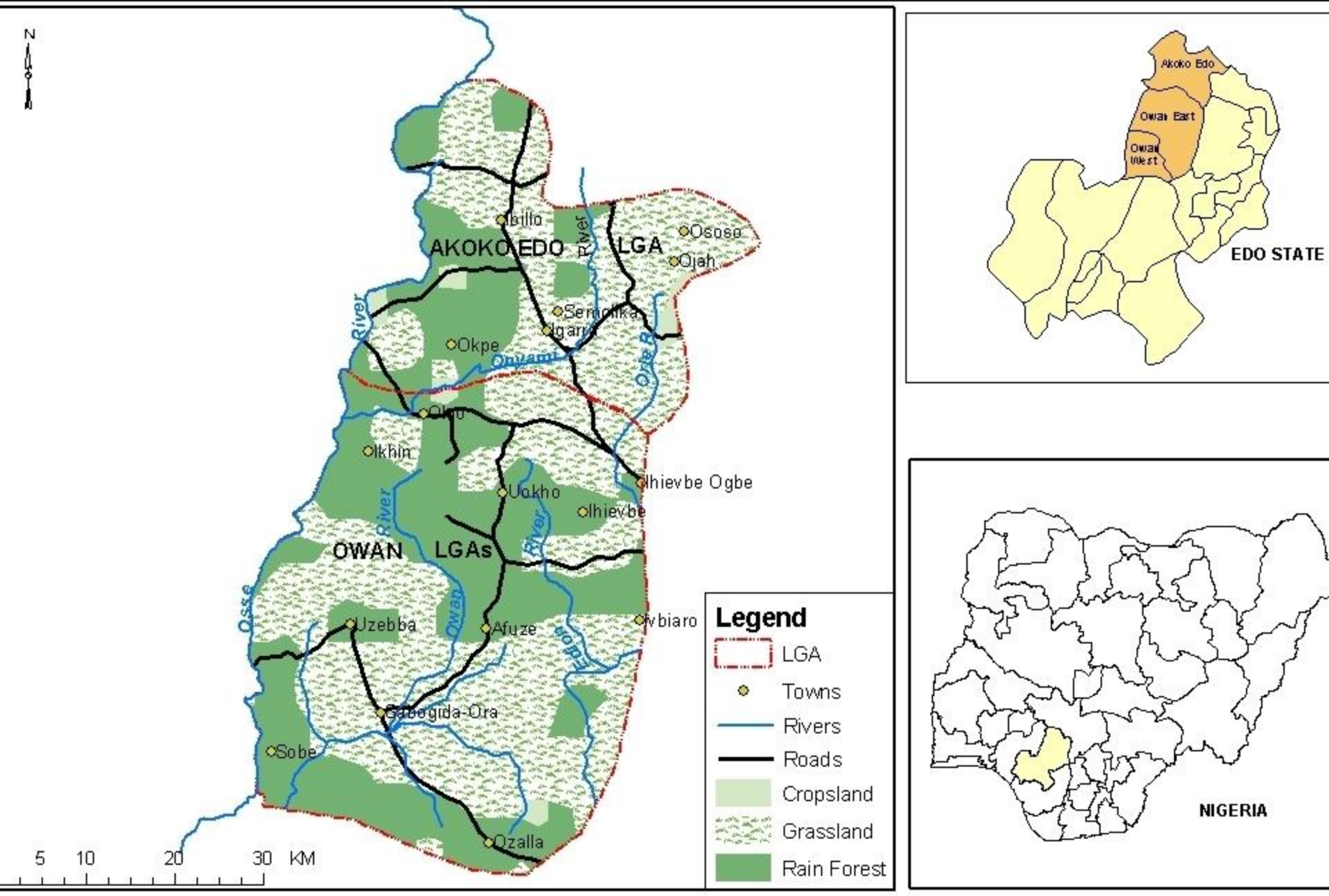
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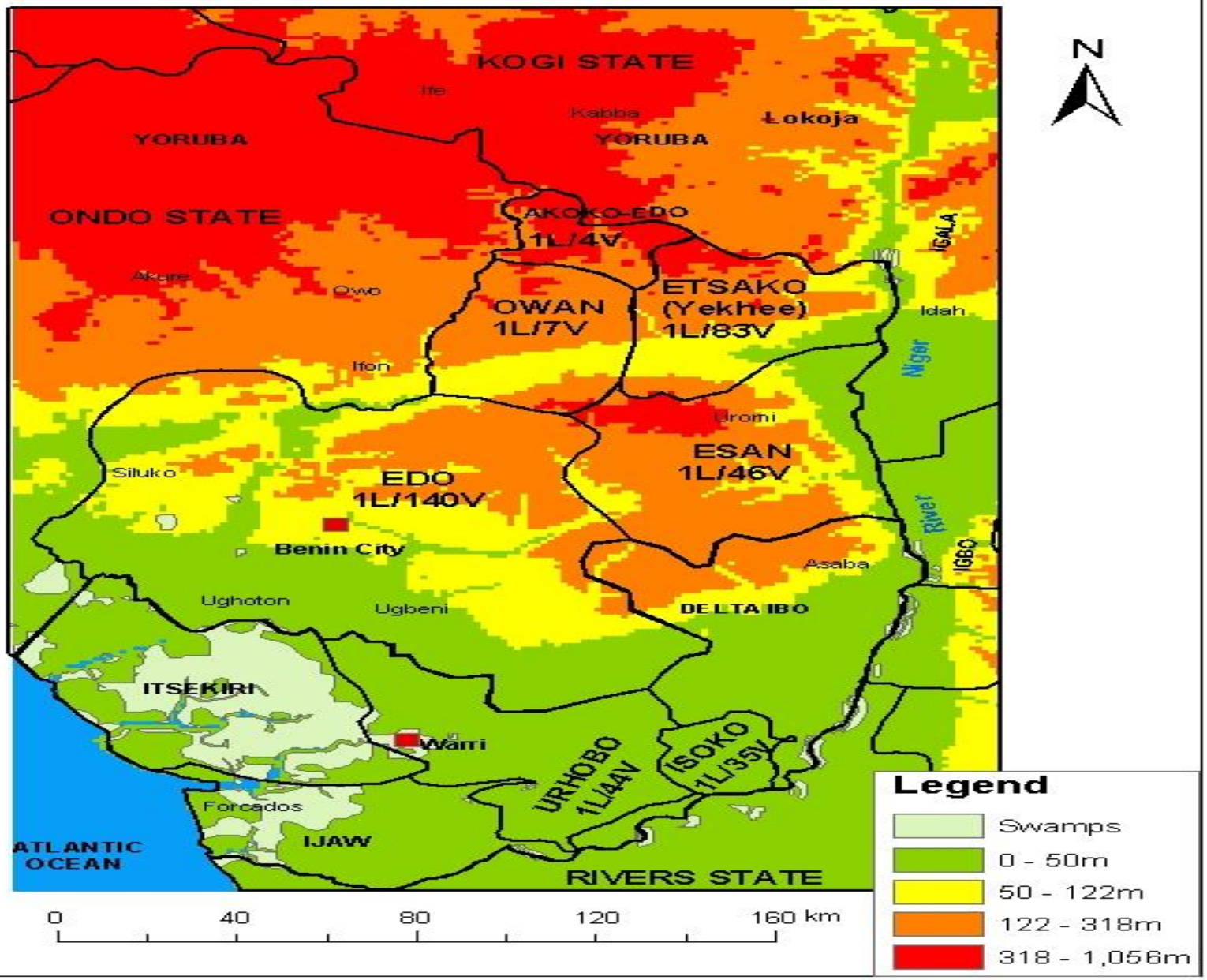
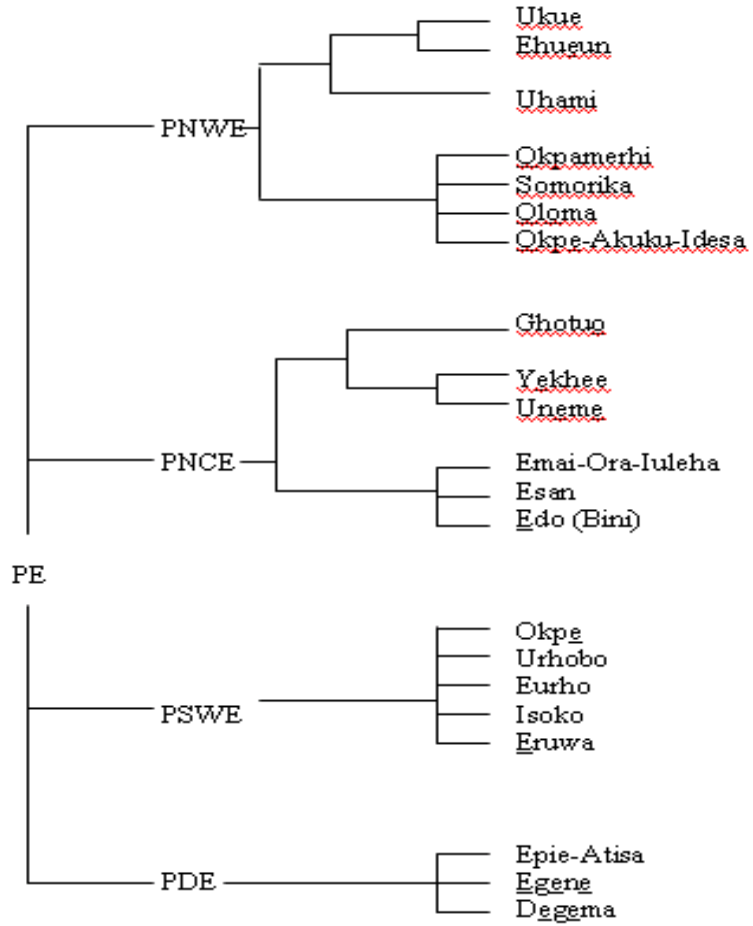


LANGUAGES IN RELATION TO VILLAGES IN EDOID REGION



ABBREVIATIONS

PE	Proto Edoid
PDE	Proto Delta Edoid
PSWE	Proto Southwestern Edoid
PNCE	Proto Northcentral Edoid
PNWE	Proto Northwestern Edoid

Figure 1. Family tree for Edoid group according to Elugbe (1989).

No more background, down to business.

How might concepts of linguistic typology be used in the descriptive practice of grammar writing?

Our typological background for this presentation on tone concerns inflectional morphology.

Booij (1994) distinguishes two types of inflection.

Inherent inflection expresses a certain amount of semantic information independent of the lexicon.

It is intrinsically semantic and never takes on a special syntactic function. It adds meaning to the meaning of a base form.

Inherent inflection is exemplified by grammatical number on nouns, tense on verbs, and degrees of the comparative/superlative type on adjectives.

In contrast is contextual inflection.

It has a less autonomous nature, since it reflects redundant information relative to aspects of syntactic structure.

Classic examples of contextual inflection include grammatical agreement, gender, and case on nouns.

To oversimplify and perhaps even to bore you, inherent inflection says something while contextual inflection does something.

Our analysis of Emai combines the typology of inflection by Booji (1994, 2010) with recent analysis of the tone-morphosyntax interface (Heath and McPherson 2013, McPherson 2014, McPherson and Heath 2016).

Combined, they provide a fruitful direction for descriptive analysis in documentation and potentially for grammaticography.

In the instance of Emai, tone is evident in both inflectional types.

As a mark of the inherent type for tense-aspect categories, tone combines with an overt or covert segment to characterize a prefix that identifies the subject-verb relation.

Depending on tense-aspect type, this prefix triggers tonal alternation on a subject noun phrase.

As a mark of the contextual type, lexical tone of a subject noun phrase becomes a target for a process of tonal alternation. That is, there are contrasting tonal melodies on a nominal subject that vary according to tone on a prefix in the verb phrase.

And the in tandem alternation of tone on the nominal subject and tone on the subject-verb relation prefix correlates with tense-aspect type.

What we have here is an instance of agreement expressed by tone.

Let us illustrate. The principle feature of the indicative is agreement between tonal melody of a nominal subject and a tense bearing subject concord prefix (SC). The tense can be proximal or distal. The prefix can be overt or covert.

First a brief schematic:

1 Emai: lexical /LL/ *òjè* ‘Oje’
Noun: {H} overlay on Noun /___ *ó* ‘distal subject concord’
ójé^{H} ‘Oje’
Oje

2 Emai: lexical /LL/ *òjè* ‘Oje’
Noun: Ø overlay on Noun /___ *ò* ‘proximal subject concord’
òjè ‘Oje’
Oje

For indicative mood with tense relations, the tonal melodies of SC and lexical subject exhibit a tone pattern that agrees.

When the prefix is /H/ *ó* and is distal, prefix tone prompts a {H} overlay on the melody of a lexical subject like low tone *òjè* ‘Oje.’

3 *ójé* *ó* *ò* *è* *émà*
Oje SC.distal HAB eat yam
‘Oje eats yam.’

When the prefix is /L/ *ò* and proximal, there is no overlay on subject lexical tone.

4 *òjè* *ò* *ó* *è* *émà*
Oje SC.proximal CONT eat yam
‘Oje is eating yam.’

Similarly, when a subject concord prefix is /H/ and covert <ó>, as in the past perfect, the prefix prompts a {H} overlay on the melody of a lexical subject.

5 *ójé* <ó ò> *é'* *émà*
Oje <SC.distal PAP> eat yam
'Oje ate yam.'

When a SC prefix is /L/ and covert <ò>, as in present perfect, no overlay occurs on subject melody.

6 *òjè* <ò ó> *é* *émà*
Oje <SC.proximal PRP> eat yam
'Oje has eaten yam.'

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But there is more to prefixes than triggering a tonal alternation while bearing a particular tone-segment character and expressing a particular tense-aspect.

Tense-aspect categories reflect one of the macro-categories of grammatical mood. They convey the indicative.

In contrast is the subjunctive mood, which disallows tense-aspect expression.

For clauses in the subjunctive, tone on the nominal subject and tone on the prefix of the subject-verb relation do not operate in tandem. Instead, their tone must show an obligatory mismatch.

We refer to this mismatch as anti-agreement, also expressed by tone.

To illustrate the subjunctive, consider the following.

In the subjunctive (negation, conative, imperative, prohibitive, hortative), category subtypes manifest low tone and the accompanying subject prefix exhibits a uniform high tone.

However, the subject prefix in the subjunctive is zero marked for tense.

As a consequence, it does not prompt overlay. The prefix tone must meet the anti-agreement condition vis-à-vis lexical subject tone.

For anti-agreement in the subjunctive, its principle feature is a lack of agreement between the tonal melody of subject prefix and lexical subject.

The prefix is uniformly expressed with a /H/ tone, while the subject retains its lexical melody, which is /L/ or right edge low.

In the subjunctive, the lexical subject precedes a high tone subject concord prefix and a low tone category of the subjunctive type, e.g. *í ì* of basic negation, *í khà* of prospective negation, *í yà* of past absolute negation, and *òó* of the conative.

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7 *òjè í ì è émà*
Oje SC NEG eat yam
‘Oje did not eat yam’

8 *òjè í khà è ólí émà*
Oje SC PRONEG eat the yam
‘Oje will not eat the yam.’

9 *òjè í yà shèn úkpùn*
Oje SC PANEG sell cloth
‘Oje never sells cloth.’

10 *òjè ó ó' è ólí émà*
Oje SC CON eat the yam
‘Oje has gone to eat the yam.’

Before proceeding further, we want to emphasize that it is not tone on the subject concord prefix alone that prompts tonal alternation on the subject nominal.

Both the distal of the indicative and the subjunctive exhibit a high tone prefix.

However, it is only the high of the distal indicative that triggers a high tone overlay on the grammatical subject.

The subjunctive prefix with high tone does not.

The subject-verb relation is not the only relation where we find tonal alternation.

We also want to briefly consider additional constraints.

Some might have observed that our discussion has focused on subject nouns with a lexical right edge low tone.

One might well ask, what happens to the tonal overlay process in the indicative when the subject is a nominal whose right edge is high tone but whose left edge might be low?

Are these low tones, too, affected by a tonal overlay process triggered by a subject prefix?

Examples from Emai indicate that a subject nominal with a lexical tone that is right edge high constrains application of the tonal overlay or replacement process.

Consider the following example. The lexical tone of *àkàsán* ‘maize wraps’ is LLH.

When it occurs as subject nominal in the past perfect or prospective predictive, both of which show a covert high tone subject prefix, there is no overlay effect on left edge tone.

Neither of the low tones preceding the right edge H of *àkàsán* exhibit a high tone overlay.

The right edge high tone of *àkàsán* and other nominal subjects like it constrain tonal overlay.

Important in this regard is that although both the subject nominal and the subject prefix manifest a right edge high tone, the left edge tones of the subject nominal remain unaffected.

11 *élì àkàsán* <*ó̲ ò̲* > *dé' vbì ùgín ré*
the maize.paste.wrap SC PAP fall LOC basket VN
'The maize paste wraps fell from the basket.'

12 *élì àkàsán* <*ó̲* > *ló̲ dè vbì ùgín ré*
the maize.paste.wrap SC PRED fall LOC basket VN
'The maize paste wraps will fall from the basket.'

Consider now the proximal relations corresponding to the past perfect and the predictive. When *àkàsán* occurs in present perfect or anticipative, there is no agreement between right edge of the nominal subject and the subject prefix. The final /H/ tone of *àkàsán* is not overlain with a {L} tone. There is no overlay process. Indeed, constructions like 22 and 23 are judged unacceptable in Emai.

13 **élì* *àkàsán* <*ò* *ó*> *dé* *vbì* *ùgín* *ré*
the maize.paste.wrap SC PRP fall LOC basket VN
'The maize paste wraps have fallen from the basket.'

14 **élì* *àkàsán* <*ò*> *ló* *dè* *vbì* *ùgín* *ré*
the maize.paste.wrap SC ANTI fall LOC basket VN
'The maize paste wraps are about to fall from the basket.'

Now consider *àkàsán* in the subjunctive, in particular standard negation.

Here, anti-agreement should obtain between subject nominal tone and subject prefix tone.

Instead, there appears to be a tonal match between the right edge of the subject nominal and the subject prefix.

Both show a right edge /H/, where we would expect a mismatch.

Nonetheless, this violation of the expected anti-agreement pattern does not impact interpretation of the clause.

15	*élì*	*àkàsán*	*í*	*ì*	*dè*	*vbí*	*ùgín*	*rè*
	the	maize.paste.wrap	SC	NEG	fall	LOC	basket	VN

‘The maize paste wraps did not fall from the basket.’

Another instance of tonal alternation.

In Emai noun phrases, lexical tone of a head nominal alternates according to adnominal category type.

In the canonical instance, overlay prompted by an adnominal affects the lexical melody of a head noun.

We illustrate with /LL/ *ìwè* ‘house’ and /HL/ *é̲wè* ‘goat.’ Regardless of pre-overlay lexical tone on head nouns, their post-overlay tone is {HH}.

16 Emai: lexical /LL/ *ìwè* ‘house’
Noun+Adnominal: {H} overlay on Noun
íwé^{H} *nà* ‘this house’
house PDEM

17 Emai: lexical /HL/ *é̲wè* ‘goat’
Noun+Adnominal: {H} overlay on noun
éwé^{H} *édàn* ‘goats of a different kind’
goats different.kind

Additional illustration with a more complete cast of adnominal forms and their tonal overlay effects is found below.

demonstrative	*nà*	*íwé*^{H}	*nà*	‘this house’
	áìn	*íwé*^{H}	*áìn*	‘that house’
	nóì	*íwé*^{H}	*nóì*	‘the next house’
kindred	*énìná*	*éwé*^{H}	*énìná*	‘goats of this kind’
	élìyó	*éwé*^{H}	*élìyó*	‘goats of that kind’
	é-dàn	*éwé*^{H}	*édàn*	‘goats of a different kind’

adjective with linker *li*	*kéré*	*ẹ́wé*^{H} *lì kéré* ‘small goat’
relative clause with linker *li*		*ẹ́wé*^{H} *lí ójé shẹ́n-ì* ‘goat that Oje sold’
possessum with linker *ísì*		*ẹ́wé*^{H} *ísì òjè* ‘goat of Oje’s’

.

In contrast to these forms, tonal overlay in Emai is not triggered by discourse functional forms in the noun phrase or cardinal numerals.

Consider this schemata for the cardinal numeral.

18 Emai: lexical /HL/ *ẹ́wè* ‘goat’
Noun+Numeral: *{H} overlay
ẹ́wè ènvá ‘two goats’
goats two

Neither cardinal form *ènvá* ‘two’ nor *èélè* ‘four’ prompts a {H} tonal overlay on lexical /HL/ *ẹ́wè*.

A similar retention of lexical tone occurs when a discourse marker like *ọ̀kpá* ‘alone’ follows lexical /LL/ *ìwè*.

cardinal numeral	*ènvá*	‘two’	*ẹ́wè*	*ènvá*	‘two goats’
	èélè	‘four’	*ẹ́wè*	*èélè*	‘four goats’
discourse	*ọ̀kpá*	‘alone’	*ìwè*	*ọ̀kpá*	‘a house alone’

In the work of Heath and McPherson (2013: 276), adnominals are sub-divided according to their function as reference restrictors.

Reference restriction pertains to the partitioning of an open nominal set into eligible and ineligible members.

Adnominals that include and exclude specific individuals of a reference set are reference restrictors.

Adnominals that do not are non-restrictors.

In Emai cardinal numerals and discourse functional forms are non-restrictors.

All other adnominals, demonstratives, adjectives, genitives, relative clauses, are reference restrictors.

Tonal alternations bearing on the subject-verb relation and the nominal-adnominal relation appear to reflect agreement of a sort.

From our perspective both reveal inflection of the contextual type.

In addition, the subject-verb relation in its reliance on tonal contrasts to express the proximal/distal categories of tense evinces inflection of the inherent type.

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We conclude by emphasizing that tonal alternation and its syntagmatic aspects as well as tonal assignments on grammatical categories that vary need to be assessed for possible correlations with inflectional categories, especially as this pertains to grammatical description of under described languages.

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Thanks.

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