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# Unpacking portmanteaux: Non-linear morphology in the Ebira STAMP system

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This paper investigates linear and non-linear morphology in verbal inflection in Ebira, a Benue-Congo language of Nigeria. Non-linear morphology does not appear on the root, but rather occurs within pre-verbal units called STAMP markers or STAMP portmanteaux, a mnemonic for subject agreement, tense, aspect, mood, and polarity. Based on the previous description of Ebira morphosyntax, this paper decomposes its STAMP markers into several sub-STAMP morphs. Specifically, inflectional categories for subject agreement (1S, 2, 3S, 1P, 3P), aspect/mood (HABITUAL, COMPLETIVE, SUBJUNCTIVE, CONTINUOUS, PERFECT), polarity (NEGATIVE), and clause-level meanings (INTERROGATIVE, 'IF', 'WHEN') are decomposed into various floating tones, floating moras, and unassociated segments. By decomposing STAMPs in this way, it makes testable predictions for future Ebira studies, as not all logically possible category combinations have been investigated yet. This paper concludes by discussing the areality of STAMP markers in West and Central Africa (the so-called Macro-Sudan Belt), which is complicated by analytic vs. synthetic transcription practices by linguists. In order to circumvent issues of transcription, I propose that the areality of STAMP markers in Africa be based on whether the individual STAMP categories form a constituent before and to the exclusion of the verb root, requiring explicit evidence independent from transcription practices.

**Keywords:** Morphophonology, non-linear morphology, verb inflection, tone, phonological representations, analyticity vs. syntheticity, areal typology, Nigeria

## 1. Introduction

This paper examines the interaction of linear and non-linear morphology (e.g. floating tones, moras, and segments) in verbal inflection. While non-linear morphology is underrepresented in morphological theory, it is extremely robust across languages. Consider Iau (Lakes Plain: Papua province, Indonesia), as discussed in Hyman (2018). In Iau, tone is lexically contrastive on nouns, but in verbs tone serves to contrast types of grammatical aspect. With the verb /ba/ 'to come' in (1), aspectual categories like punctuality, duration, completion, and telicity are expressed as non-linear tonal melodies which associate to the vowel of the verb root (note S = super-high).

* Thank you to colleagues for useful discussions on STAMP markers over the years, and to the anonymous reviewers for their close readings. I would like to also acknowledge the wonderful descriptions of Ebira by Adive and Scholz on which this work is based, as well as the Ebira people whose language holds numerous wonders.

(1) Iau non-linear morphology (Hyman 2018:699, citing Bateman 1990:35-36)

| | | | | |
|---|---|---|---|---|
| a. | H | bá | 'came' | totality of action punctual |
| b. | M | bā | 'has come, has shot' | resultative durative |
| c. | HS | bá˝ | 'might come, could come' | totality of action incompletive |
| d. | LM | bǎ | 'came to get' | resultative punctual |
| e. | HL | bâ | 'came to endpoint' | telic punctual |
| f. | HM | bá̄ | 'still not at endpoint' | telic incompletive |
| g. | ML | bǎ | 'come (process), shoot something' | totality of action durative |
| h. | HLM | bâ̄ | 'sticking to, attached to' | telic durative |

The empirical focus of this paper are similar non-linear morphological patterns in the Nigerian language Ebira. Unlike in Iau, however, in Ebira the grammatical tone does not target the verb root itself. Instead, various inflectional categories are expressed within pre-verbal auxiliary-like units called STAMP markers/morphs/portmanteaux, or simply STAMPs (Anderson 2011, 2015, 2016), a mnemonic for subject agreement, tense, aspect, mood, and polarity.[1] In (2) below, the pre-verbal STAMPs express various inflectional categories via alterations of tone, length, vowel quality, and syllabicity. In contrast, the verb /vẹ́/ 'to come' (with lexical H tone) remains unaffected in all contexts.

(2) Ebira non-linear morphology affecting pre-verbal STAMPs (Scholz 1976:53-54,65-66,107)

| | | | | |
|---|---|---|---|---|
| a. | MM | mi̱i̱ | vẹ́ | 'I usually come' |
| b. | SS | mḛ́ḛ́ | vẹ́ | 'I did not come' |
| c. | HL | ḿmḛ̀ | vẹ́ | 'while I came' |
| d. | ML | māà | vẹ́ | 'I am coming' |
| e. | HM | máā | vẹ́ | 'I came' |
| f. | HH | máá | vẹ́ | 'did/do I come?' |
| g. | LH | màá | vẹ́ | 'if I come' |
| h. | MM | māā | vẹ́ | '(that) I should be coming' |
| i. | LSM | màáā | vẹ́ | 'if I am coming' |
| j. | LHM | màáā | vẹ́ | 'if I usually come' |
| k. | HHM | mááā | vẹ́ | 'should I be coming?' |

Anderson presents STAMPs as a robust areal feature of West and Central Africa, a macro-area which Güldemann (2008, 2010) refers to as the 'Macro-Sudan Belt' (roughly stretching from Senegal to the Sudan, south of the Sahara desert but north of the Bantu spread zone). The STAMP markers of this macro-area are defined as the following (Anderson 2016:513, bolding mine):

[1] Anderson (2016) himself uses the term 'STAMP morphs', also denoted as S/TAM/P. He notes as well that these have previously been called *tense-person complexes* (Creissels 2005) and *pronominal predicative markers* or *pronominal auxiliaries* (Vydrine 2011) in the Africanist literature.

> *[STAMPs are]* ***portmanteau*** *morphs that encode the referent properties of semantic arguments that typically play the syntactic role of '****S[ubject]****' – that is, the person, number and gender properties of such an actant – in combination with categories of* ***T[ense], A[spect], M[ood] and P[olarity]****.*

STAMPs typically show 'auxiliary'-like properties and thus are typically understood as independent from verb roots, though may become reinterpreted as prefixes on the verb on a case-by-case basis (Anderson 2016:524ff.). For Ebira specifically, Anderson classifies it as a language with "fused Subject/TAM/Polarity" (p. 387), and as such would constitute prototypical STAMP portmanteaux.

In what follows, I argue against STAMP markers in Ebira as constituting non-decomposable 'portmanteaux'. Instead, I propose that Ebira STAMPs are composed from sub-STAMP morphs involving several types of non-linear morphology.[2] This analysis is based on the extensive description of Ebira verbal inflection in Adive (1989) and Scholz (1976). These works establish inflectional categories for five subject agreement feature bundles (1S, 2, 3S, 1P, 3P), five TAMs (HABITUAL, COMPLETIVE, SUBJUNCTIVE, CONTINUOUS, and PERFECT), NEGATIVE polarity, and three clause-level meanings (INTERROGATIVE, 'if', and 'when'). The analytic contribution of this paper is to posit underlying structures of the corresponding exponents to these categories, involving non-linear structure such as floating tones, floating moras, unassociated segments, and underspecified segments. By decomposing STAMPs in this way, this makes testable predictions for future Ebira studies, as not all logically possible category combinations have been described yet.

The rest of this paper is organized as follows. Section 2 provides background on the Ebira language, its phonology, and clause structure. Section 3 deconstructs STAMPs into the categories summarized above, and justifies the proposed underlying relationships of sub-STAMP morphs. Section 4 provides discussion on phonological wordhood in Ebira and a proposal for assessing the areality of STAMP markers in Africa. Section 5 provides a conclusion, followed by an appendix summarizing major differences in Scholz' description of the Ebira STAMP system.

[2] As stated, I argue that STAMPs in Ebira should not treated as 'portmanteaux', using the terminology as in Anderson. Some morphological theories reserve the use of 'portmanteau' to instances when a single morph has the distribution of two morphemes, e.g. the original portmanteau example in Hockett (1947:333) of French *au* /o/, which appears instead of the preposition plus masculine determiner **à le*. Haspelmath and Sims (2010:64) distinguish portmanteaux from cases of fusion (or 'cumulative expression') where two categories are always expressed together in a single morph in all contexts (e.g. commonly with case and number). For our purposes, I gloss over the technical distinguishing features of portmanteaux.

## 2. Background on Ebira

**2.1 The language.** Ebira [èbìrà; ISO: igb] is a Benue-Congo language of Nigeria, which forms a coordinate branch with the small Nupoid sub-family (Blench 1989; Weise 2013:102). It is spoken at the southeast extreme of the Nupoid area, and has been in substantial linguistic contact with Nupoid languages as well as Yoruba, Igala, and a variety of other Benue-Congo languages (Adive 1989:2-6; Salffner 2010:33-35; Eberhard, Simons, and Fennig 2020). Figure 1 shows the location of Ebira speaking populations, concentrated at the confluence of the Niger and Benue rivers.

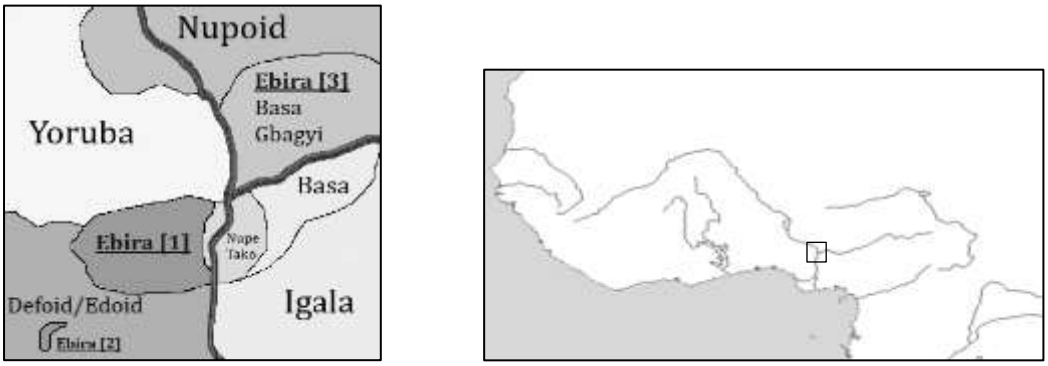


**Figure 1: Ebira areas at confluence of Niger and Benue rivers**

There are three main dialect zones. The first is the Okene area, labeled [1]. This is the primary dialect in the literature, the basis of the standard orthography (Blench 1989:309), and in the heart of where the Ebira population is distributed. The second is in and around the town of Igara to the southwest (labeled [2]), referred to as the Ẹtụnọ dialect. The third is 'Kwotto'/'Koto' to the northeast (labeled [3]), referred to by individual dialects Igu, Opanda, and Ebira-Nya. Ebira zone [2] is completely surrounded by other Benue-Congo speaking populations (Defoid and Edoid groups), while Ebira zone [3] has significant ethnic intermixing across the area, largely with Gbagyi and Basa populations (Eberhard, Simons, and Fennig 2020). Note, however, that there are smaller Ebira communities scattered throughout the area, as well as other groups within Ebira-dominant localities.

As stated, the literature on Ebira is almost entirely on the main dialect Okene [òkèéné] (area [1]), including the two main sources for this paper: Scholz (1976) and Adive (1989).[3] I base the core of my analysis on Adive, but comparison to Scholz' data in the Appendix. In what follows, I refer to the Scholz study as S76 and the Adive study as A89.

**2.2 Phonology.** The consonant inventory of Ebira as spoken in Okene is in (3).

(3) / p t c k b d j g s h v z m n ɲ ŋ r w y /

[3] Adive (1989) describes his own speech (from the town of Obehira, outside the city of Okene itself), while the main assistants in Scholz (1976) were from the Ọkẹnguẹ and Agẹẹva areas, also in the vicinity of Okene.

The phonemes /c j/ are described as palatal affricates, and [ʃ ʒ] are common allophones of /s z/. Consonants can also be 'labialized', e.g. minimal pairs **sẹ́** 'to chop off grass' vs. **s$^{w}$ẹ́** 'to take iron blade from hoe handle' (A89:14). Contrastive palatalization is only found with /h/, e.g. **hámá** 'to imitate' vs. **ị̀h$^{y}$ámá** 'louse' (S76:23). Tone-bearing syllabic nasals also exist, but are always followed by a homorganic stop, affricate, or nasal (A89:34-35), e.g. **ǹdá** 'father'. Notable is the absence of labial-velars /kp gb/ in the Okene dialect (though present in dialects to its northeast – S76:8).

Ebira has a common vowel system found in the area, in (4), exhibiting nine vowel contrasts in an Advanced Tongue Root (ATR) harmony system (dot = [-ATR]).

(4) / i ị e ẹ a o ọ u ụ /

All vowels within a morpheme must agree in ATR value. The [+ATR] vowels are /i u e o/ and [-ATR] vowels are /ị ụ ẹ ọ/, e.g. **īrūkú** 'forest' vs. **ị̄rụ̄kụ́** 'farming'. The vowel /a/ is transparent, and can appear with both sets, e.g. **āyì** 'measles' vs. **àrí** 'fishhook'. Many (if not most) functional morphemes have both [+ATR] and [-ATR] forms, which agree with the value of the root (classic root-controlled harmony – Casali 2003). This is shown below with the [+ATR] root **hú** 'to drink' and [-ATR] root **nà** 'to tear'.

(5) ATR harmony (root-controlled) (A89:81)

a. [+ATR] root ó sí hú 'he/she has drunk'

b. [-ATR] root ọ́ sí nà 'he/she has torn'

This latter example demonstrates that although /a/ is transparent and can co-occur with both ATR types, when in root position it triggers [-ATR] variants (we return to ATR and /a/ in section 3.1).

Like the languages of its area, Ebira has a three tone height contrast between /H M L/. Additionally, a fall /HL/ and a rise /LH/ are also possible on monomoraic vowels, but this is rare. Minimal pairs are extremely common. A five-way (near)-minimal pair is given in (6) below. The relative lack of tone restrictions in disyllabic morphemes is shown in Table 1.

(6) Five-way tonal (near)-minimal pair

| | | | |
|---|---|---|---|
| a. | H | ná | 'to sell' |
| b. | M | nā | 'to open' |
| c. | L | nà | 'to tear' |
| d. | HL | nâ | 'to leave' |
| e. | LH | ŋă | 'to crack nuts with stones to get the seeds out' |

| T2 / T1 | H | M | L | HL |
|---|---|---|---|---|
| H | ị́dá 'place' | ízē 'grasscutter' | ákù 'inner room' | ọ́dâ 'law' |
| M | āhẹ́ 'song' | ūyē 'meat' | ānẹ̀ 'egret' | īhî 'loss' |
| L | òsé 'wife' | ọ̀rū́ 'crow' | ìdù 'lion' | *n/a* |

**Table 1: Non-restrictions on tonal combinations** **(A89:43)**

Note that while Scholz also concludes that /HL/ is composed of a /H/ and /L/ component, in his description he emphasizes that its most common realization is that of a super-high tone /S/, effectively creating a four-way height contrast.

Surface long vowels (VV) and super-long vowels (VVV) are interpreted as strings of single vowels rather than contrastive vowel length (A89:17). Blench (1989:313) notes that across the Nupoid family, no languages "show an underlying contrast between short and long vowels, although this appears as a surface representation" in some, such as Ebira. Within morphemes, VV sequences may share the same tonal value (**ààhẹ̀** 'play, drama') or bear different values (**àtàáhù̀** 'ankle'), and can appear in initial, medial, or final position. Many of these VV sequences transparently derive from elided medial consonants, e.g. **ù́ḿ́hʷẹ́** 'hen' from **àwù̀hʷẹ́** (S76:30). VVV sequences are restricted to derived environments. No verb clusters exist other than the general greeting **tàó** 'hello'.

**2.3 Clause structure and the STAMP system.** Ebira shows a canonical head-initial word order, with [SUBJECT][VERB][OBJECT] clause structure, common in this linguistic area. Extended meanings – e.g. those expressing causation, instrumental, accompaniment, benefactive, motion, comparison, etc. – are largely encoded via serial verb constructions rather than derivational morphology. A representative example from a text is provided below which demonstrates the basic linear order of major constituents.

(7) [ ọ̀tám ọ̀ọ́ sịsā vẹ́, nāvọ́ mā vìdī rịsā, dúẇā vâ rịsā ō ]

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ọ̀tá | ámī | **ọ̀ọ́** | sí | ī́sá | vẹ́ , | | | | | |
| friend | my | **3S.'if'** | take | food | come | | | | | |
| nāvọ́ | **mā** | vìdī | rí | ī́sá , | dí | **wā** | vâ | rí | ī́sá | ō |
| wait | **1S.SBJV** | first | eat | food | and | **2S.SBJV** | will | eat | food | MOOD |

'If my friend brought food, let me eat first before you eat' (A89:141)

This example demonstrates the focus of the remainder of this paper, Anderson's STAMP markers. These are in bold above, and appear between the subject (if present) and the verb. These also appear before any other pre-radical functional morphs as well, e.g. the STAMP marker **wā** above appears before the 'particle' **vâ** FUTURE 'will'. STAMP markers express subject agreement features and should not be interpreted as the structural subject. This is demonstrated below, where independent pronouns co-occur with the STAMP markers.

(8) Co-occurrence of STAMPs and independent pronouns (A89:118)

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | ẹ̀mī | 'I': | ẹ̀mī | **mâ** | rí ị́sá | 'I ate the food' |
| b. | ẹ̀wū | 'you': | ẹ̀wṵ̄ | **wâ** | rí ị́sá | 'you ate the food' |
| c. | ọ̄nī | 'he/she': | ọ̄nī | **ô** | rí ị́sá | 'he/she ate the food' |
| d. | ẹ̀yī | 'we': | ẹ̀yī | **yê** | hú ècè | 'we drank some wine' |
| e. | ẹ̀wṵ̄...nịnī | 'you' (pl.): | ẹ̀wṵ̄ | **wê** | hú ècè nịnī | 'you (pl) drank some wine' |
| f. | ẹ́nị̀nī | 'they': | ẹ́nị̀nī | **ê** | hú ècè | 'they drank some wine' |

## 3. Deconstructing Ebira STAMPs

This section begins the decomposition of Ebira STAMP markers into sub-STAMP morphs. The analysis is presented piece-by-piece, with only portions of the STAMP system presented at a time. The analytic contribution which I make here is in deconstructing the STAMP markers into component parts. As stated, most of the date below comes from Adive (1989), and the small but significant ways it differs from Scholz (1976) are provided in the Appendix.

**3.1 Basic TAM contrasts.** STAMP markers in Ebira express five distinct subject agreement feature bundles (hereafter, Agr-Fs). These are first person singular [1S] and plural [1P], third person singular [3S] and plural [3P], and second person [2]. The distinction between second person singular vs. plural is not expressed in STAMP markers, but rather with a particle **nịnī**. Subject Agr-Fs co-occur with tense/aspect/mood (TAM) and polarity features within the STAMP marker. The basic subject agreement contrasts are illustrated in the habitual aspect in (9)-(10), with a [+ATR] verb **hú** 'to drink' and a [-ATR] verb **ná** 'to sell'. The STAMP marker is in bold.

(9) Habitual – Basic Agr-F contrasts, with [+ATR] root (A89:83)

| | | | | | |
|---|---|---|---|---|---|
| a. | [1S] | **mīī** | hú | | 'I habitually drink' |
| b. | [2] | **ūū** | hú | | 'you habitually drink' |
| c. | [3S] | **ōō** | hú | | 'he/she habitually drinks' |
| d. | [1P] | **īī** | hú | | 'we habitually drink' |
| e. | [2]+[P] | **ūū** | hú | nịnī | 'you (pl.) habitually drink' |
| f. | [3P] | **ēē** | hú | | 'they habitually drink' |

(10) Habitual – Basic Agr-F contrasts, with [-ATR] root (A89:83)

| | | | | | |
|---|---|---|---|---|---|
| a. | [1S] | **mị̄ị̄** | ná | | 'I habitually sell' |
| b. | [2] | **ṵ̄ṵ̄** | ná | | 'you habitually sell' |
| c. | [3S] | **ọ̄ọ̄** | ná | | 'he/she habitually sells' |
| d. | [1P] | **ị̄ị̄** | ná | | 'we habitually sell' |
| e. | [2]+[P] | **ṵ̄ṵ̄** | ná | nịnī | 'you (pl.) habitually sell' |
| f. | [3P] | **ẹ̄ẹ̄** | ná | | 'they habitually sell' |

The [ATR] value of the STAMP marker is always determined by the verb root, e.g., **mīī** vs. **mi̱i̱** in the (a.) examples. There are no morpho-phonological effects on the verb root: its internal segmental and tonal structure is identical to what it would be in isolation, e.g. in the imperative **hú!** 'drink!' (A89:89).

I deconstruct the STAMP markers above into two components. The first component is the subject agreement features themselves. I take the segmental shape of the STAMP markers as the exponence of individual Agr-F bundles, e.g. [1S] ↔ **/mI/**. Such morphs are represented with an archiphoneme vowel in capital letters (Trubetzkoy 1969:79), which denotes that it is unspecified for an [ATR] value. The proposed underlying representations of Agr-F morphs are provided in the top row in Table 2 below. Each consists of an Agr-F bundle, an underlying segmental shape, and a mora to which the vowel is linked. Note that as a class, these morphs bear no underlying tone.

The second component of the STAMP markers from (9)-(10) is that of the aspect feature [HABITUAL] ([HAB]). Given that all STAMP markers here are bimoraic and have mid tone, the realization of [HAB] can be understood as a floating mora linked to a mid tone, i.e. **μ–M**. This is indicated in the leftmost cell of the second row. These combine in a straightforward manner in the remaining cells. Notice that in each cell, the moras are placed in parentheses, which indicates a syllable. For most STAMP cells this is not relevant, but in a minority of cells (to be introduced in section 3.3), I posit contrastive syllable boundaries to account for some syllabification patterns.

| S (Agr-Fs) / TAM | μ<br>\|<br>mI<br>[1S] | μ<br>\|<br>U<br>[2] | μ<br>\|<br>O<br>[3S] | μ<br>\|<br>I<br>[1P] | μ<br>\|<br>E<br>[3P] |
|---|---|---|---|---|---|
| M<br>\|<br>μ<br><br><br>[HAB] | M<br>/\<br>(μμ)<br>\/<br>mI<br>[1S][HAB] | M<br>/\<br>(μμ)<br>\/<br>U<br>[2][HAB] | M<br>/\<br>(μμ)<br>\/<br>O<br>[3S][HAB] | M<br>/\<br>(μμ)<br>\/<br>I<br>[1P][HAB] | M<br>/\<br>(μμ)<br>\/<br>E<br>[3P][HAB] |
| STAMP: | mīī / mi̱i̱ | ūū / u̱u̱ | ōō / o̱o̱ | īī / i̱i̱ | ēē / e̱e̱ |

**Table 2: Habitual aspect STAMP markers**

In addition to the habitual, Ebira STAMP markers make the TAM distinctions as in (11). This is organized according to the basic [3S] 'he/she/it' form (only the [+ATR] variant is shown).

(11) List of TAM contrasts in Ebira STAMPs

| | | | | |
|---|---|---|---|---|
| a. | Habitual | **ōō** | hú | 'he/she habitually drinks' |
| b. | Completive | **ô** | hú | 'he/she drank' |
| c. | Subjunctive | **ò** | hú | 'he/she should drink |
| d. | Continuous | **èè** | hú | 'he/she is drinking' |
| e. | Future | **ō** | vê hú | 'he/she will drink' |
| f. | Immediate future | **èè** | vê hú | 'he/she is about to drink' |
| g. | Past perfect 1 | **ó** | sí hú | 'he/she has drunk' |
| h. | Past perfect 2 | **ó** | réē hú | 'he/she has drunk' |

There are five new STAMP markers here: one with a falling tone (completive), low tone (subjunctive), low tone bimoraic (continuous, immediate future), mid tone (future), and high tone (past perfect).

Let us examine first the COMPLETIVE aspect ([COMPL]). As stated, this data is strictly from Adive's description (see Appendix for comparison to Scholz). The completive has a range of meanings, compatible with both past and present interpretations depending on context. Example (a.) in (12) demonstrates it is compatible with several types of adverbials, e.g. **ēyínēyínī** 'everyday' and **ẹ̀ẹ̀rí̩** 'yesterday'. Further, example (b.) demonstrates it is used in simple stative clauses e.g., **báŋ̩ī̩** 'to be big', and (c.) shows it with an auxiliary **zú̩** 'can'.[4]

(12) Completive aspect (A89:80,138)

| | | |
|---|---|---|
| a. | **mê** hú | 'I drink' |
| | **mê** hú ēyínēyínī | 'I drink everyday' |
| | **mê** hú ẹ̀ẹ̀rí̩ | 'I drank yesterday' |
| b. | ōzí īzé **o̩** báŋ̩ī̩ | 'Ize's child is big' |
| c. | **o̩** zú̩ rí̩ ī̩sá | 'he/she can eat food' |

The full set of the [+ATR] and [-ATR] variants of the completive are provided in (13). This shows that completive STAMPs bear a HL falling tone (on a single mora) plus the presence of a vowel [e/a] in those Agr-Fs with an underlying high vowel ([1S], [2], [1P]).

[4] Scholz refers to this TAM contrast as 'completive', which I adopt here, while Adive calls it 'simple past'. I adopt the 'completive' designation given that it is not restricted to past tense. Other appropriate labels might be 'perfective', 'factative' (Welmers 1973), or 'performative' (Hewson and Bubenik (1997). See Nurse (2008) and Nurse, Rose, and Hewson (2016) for further discussion of this terminology in the Africanist setting.

(13) Completive [+ATR] [-ATR] (A89:80)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a. | [1S] | **mê** | hú | 'I drank' | **mâ** | nà | 'I tore' |
| b. | [2] | **wê** | hú | 'you drank' | **wâ** | nà | 'you tore' |
| c. | [3S] | **ô** | hú | 'he/she drank' | **ộ** | nà | 'he/she tore' |
| d. | [1P] | **yê** | hú | 'we drank' | **yâ** | nà | 'we tore' |
| e. | [3P] | **ê** | hú | 'they drank' | **ệ** | nà | 'they tore' |

I decompose the completive STAMP in a way analogous to the habitual, shown in Table 3 below. I maintain the underlying form of the subject Agr-Fs as in Table 2 above. In addition, I posit that the underlying representation of the [COMPL] morpheme to be a floating **H L** tone sequence, plus a floating segment **A**. This segment does not project its own mora, which accounts for the difference between completive (monomoraic) and habitual STAMPs (bimoraic).

| S (Agr-Fs) / TAM | μ<br>\|<br>mI<br>[1S] | μ<br>\|<br>U<br>[2] | μ<br>\|<br>O<br>[3S] | μ<br>\|<br>I<br>[1P] | μ<br>\|<br>E<br>[3P] |
|---|---|---|---|---|---|
| H L<br><br><br><br>A<br>[COMPL] | H L<br>\/<br>(μ)<br>\|<br>mA<br>[1S][COMPL] | H L<br>\/<br>(μ)<br>\|<br>wA<br>[2][COMPL] | H L<br>\/<br>(μ)<br>\|<br>O<br>[3S][COMPL] | H L<br>\/<br>(μ)<br>\|<br>yA<br>[1P][COMPL] | H L<br>\/<br>(μ)<br>\|<br>E<br>[3P][COMPL] |
| STAMP: | mê / mâ | wê / wâ | ô / ộ | yê / yâ | ê / ệ |

**Table 3: Completive aspect STAMP markers**

The two sub-STAMP morphs must be integrated together; on their own, both are phonologically deficient. The floating tones link to the mora sponsored by subject agreement without complication. However, when two vowels become adjacent this is a marked hiatus structure which is resolved as shown in (14). Ebira does not tolerate such vowel clusters.

(14) Vowel cluster repair

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a. | [1S] mI | + | A | → | mA | (*m$^{y}$A) |
| b. | [2] U | + | A | → | wA | |
| c. | [3S] O | + | A | → | O | (*OA, *A) |
| d. | [1P] I | + | A | → | yA | |
| e. | [3P] E | + | A | → | E | (*EA, *A) |

In (a.), (b.), and (d.), the **A** surfaces when the subject marker can be partially preserved: the initial consonant of [1S], and the high vowel in [2] and [1P] becomes a glide. In (a.) a form ***m$^{y}$A** is not possible, as palatalization can only be on /h/ (section 2.2). In contrast, consider (c.) and (e.) where

the vowel is [-HIGH] and as such cannot glide. Here, the underlying vowel of subject agreement surfaces, i.e. **O** and **E**, and not the floating **A** of the completive. To account for the winner being **O/E** rather than **A,** I posit that segments which are pre-linked to moras are retained over floating segments when the two are in competition. In vowel hiatus contexts when both vowels are pre-linked to their own mora, generally the second vowel wins (A89:54), e.g. the **O/E**+**A** hiatus context in (15) is resolved in favor of **A**.

(15) Vowel hiatus (A89:52-53)

a. ô t**ò à**zà → ô t**à**zà 'he/she arranged the people'

b. ô r**é à**zà → ô r**á**zà 'he/she saw some people'

We will see several other places where the pre-linked status of a vowel to a mora dictates the hiatus repair.

The final important aspect of the data in Table 3 involves ATR harmony. Here, the [+ATR] vowel /e/ alternates with the [-ATR] vowel /a/ (e.g., **mê hú** 'I drank' vs. **mâ nà** 'I tore'). While Adive (1989:76) states that the pairing here is 'morphological', a purely phonological solution is available. The [e/a] alternation affects all STAMP markers (and pre-verbal particles generally) which show /a/ in [-ATR] contexts, and thus should not be treated as a morphological quirk. I propose that in STAMP markers, there is a vowel /A/ unspecified for ATR, which acquires a [+ATR] value with a [+ATR] trigger. This /A/ is underlyingly [+LOW][+FRONT], which in the context of [+ATR] we would expect to become [+LOW][+FRONT][+ATR], i.e. a vowel like [ɜ~ạ]; instead it becomes [e]. To account for this, I assume that such a [+LOW][+ATR] feature bundle is banned in Ebira (a common constraint cross-linguistically – Casali 2003; Rolle, Lionnet, and Faytak 2020).

(16) *[+LOW][+ATR]: low vowels cannot be [+ATR] (i.e. *ạ ~ *æ ~ *ə ~ *ɜ ~ *etc*.)

To comply with this ban, [+LOW] changes to [-LOW], resulting in the segment /e/.[5]

Returning to the TAM contrasts, let us now examine the SUBJUNCTIVE mood ('should', 'ought to', 'let', *etc*.). The relevant data is in (17).

[5] Note that in roots, there is no [e/a] alternation; /a/ appears with both ATR sets (section 2.2). To account for the difference in behavior in STAMP markers vs. roots, I assume that /A/ is unspecified for ATR in roots but it is *not* subject to vowel harmony at the root level (there, it is transparent). It is only at some post-lexical phonological level that it is realized as /a/ with [-ATR] by default, where it can trigger [-ATR] variants of adjacent functional morphs.

(17) Subjunctive [+ATR] [-ATR] (A89:90)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a. | [1S] | **mē** | hú | 'I should drink' | **mā** | ná | 'I should sell' |
| b. | [2] | **wē** | hú | 'you should drink' | **wā** | ná | 'you should sell' |
| c. | [3S] | **ò** | hú | 'he/she should drink' | **ọ̀** | ná | 'he/she should sell' |
| d. | [1P] | **yē** | hú | 'we should drink' | **yā** | ná | 'we should sell' |
| e. | [3P] | **è** | hú | 'they should drink' | **ẹ̀** | ná | 'they should sell' |

Here, we see a split between the STAMP markers with respect to tone: 3rd person forms take low tone, while 1st and 2nd forms take mid tone. This is reflected in the (abbreviated) Table 4, which shows the contrast between [1s] and [3s] STAMPs only.

| S (Agr-Fs) / TAM | μ \| mI [1S] | μ \| O [3S] | … |
|---|---|---|---|
| M L ~ A A [SBJV] [SBJV] | M \| (μ) \| mA [1S][SBJV] | L \| (μ) \| O [3S][SBJV] | … |
| STAMP: | mē / mā | ò / ọ̀ | … |

**Table 4: Subjunctive mood STAMP markers**

I account for this with the simple allomorphy rule in (18), which states that the subjunctive is exponed as a floating tone **L** and a floating segment **A** in the context of an Agr-F [3], but as floating mid **M** plus **A** elsewhere. This person-conditioned [L~M] alternation is not present in the rest of the STAMP system.

(18) Subjunctive allomorphy

a. [SBJV] ↔ **L** **A** / [3] ___
b. [SBJV] ↔ **M** **A**

Next, consider the CONTINUOUS aspect [CONT] in (19), which is bimoraic and low-toned for four of the five STAMP markers.[6]

[6] Note that Adive calls this the 'present continuous tense'. However, there are examples in both Adive and Scholz with past tense reference, as in (i) below. Therefore, I do not assume any inherent temporal component.

(i) ọ̄mụ̀yà **àà** mẹ̀ ụ̄kọ́rọ̄ ẹ̀tẹ̀rẹ̀ ḿmè ré é
Omuya **3S.CONT** do work well/hard 1S.C:'WHEN' see him
'Omuya **was** working hard when I saw him' (A89:70)

| (19) | Continuous | [+ATR] | | | [-ATR] (A89:90) | | |
|---|---|---|---|---|---|---|---|
| a. | [1S] | **mèè** | hú | 'I am drinking' | **màà** | ná | 'I am selling' |
| b. | [2] | **wèè** | hú | 'you are drinking' | **wàà** | ná | 'you are selling' |
| c. | [3S] | **èè** | hú | 'he/she is drinking' | **àà** | ná | 'he/she is selling' |
| d. | [1P] | **yèè** | hú | 'we are drinking' | **yàà** | ná | 'we are selling' |
| e. | [3P] | **éyéē** | hú | 'they are drinking' | **ẹ́yáā** | ná | 'they are selling' |

Like the habitual the STAMP here is bimoraic, and like the other TAMs it exhibits the regular [e/a] ATR alternation. Two aspects make it distinct. First, unlike with the other cases seen so far, the [3S] surfaces as [e] or [a] rather than its underlying vowel /O/. Second, the [3P] form is irregular with respect to both tone and segmental shape.

To account for the former facts, I analyze the underlying representation of [CONT] as a segment **A** but crucially one which is pre-linked to a mora, accompanied by a floating low tone. Given that the [CONT] portion **A** appears after the subject portion **O** for [3S], and given that both vowels are pre-linked to moras, the winner is the expected second vowel **A** according to the general hiatus rules of the language, e.g. as in (15) above. This is illustrated in the table below.

| S (Agr-Fs) / TAM | μ<br>\|<br>mI<br>[1S] | μ<br>\|<br>O<br>[3S] | … | μ<br>\|<br>E<br>[3P] |
|---|---|---|---|---|
| L<br><br>μ<br>\|<br>A<br>[CONT] | L<br>/\<br>(μμ)<br>\/<br>mA<br>[1S][CONT] | L<br>/\<br>(μμ)<br>\/<br>A<br>[3S][CONT] | … | H M<br>/\ \|<br>μ(μμ)<br>\ \/<br>EyA<br>[3P][CONT] |
| STAMP: | mèè / màà | èè / àà | … | éyéē / ẹ́yáā |

**Table 5: Continuous aspect STAMP markers**

The floating low tone docks within the STAMP marker in the absence of any other tones. Although not pertinent here, it will become clear why it is analyzed as a floating rather than pre-linked tone, detailed in section 3.3 below.

Furthermore, the [3P] form is irregular and cannot be derived purely compositionally. Its irregularity may in part be due to an anti-homophony pressure: if a fully regular form were to surface here, it would be **èè** / **àà** which would collapse the distinction between [3S] and [3P]. Moreover, all [3P] STAMP markers across TAMs surface with an initial [e/ẹ], which may suggest a type of paradigmatic uniformity at work. Regardless, it remains difficult to explain why these pressures would apply here and only here within the STAMP system.

Next, let us examine FUTURE tense ([FUT]), in (20). Unlike the STAMPs seen thus far, [FUT] is primarily expressed via a pre-verbal particle **vê/vâ,** i.e. **vÂ** in its archiphonemic representation. The STAMP which **vÂ** co-occurs with solely expresses subject agreement features. The mid tone on the STAMP is interpreted as default tone and not morphologically assigned. (I provide evidence in section 3.3.1 below that the habitual, in contrast, has underlying mid tone rather than default mid.)

(20) Future [+ATR] [-ATR] (A89:78-79)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] | **mī** | vê | hú | 'I will drink' | **mị̄** | vâ | ná | 'I will sell' |
| b. | [2] | **ū** | vê | hú | 'you will drink' | **ụ̄** | vâ | ná | 'you will sell' |
| c. | [3S] | **ō** | vê | hú | 'he/she will drink' | **ọ̄** | vâ | ná | 'he/she will sell' |
| d. | [1P] | **ī** | vê | hú | 'we will drink' | **ị̄** | vâ | ná | 'we will sell' |
| e. | [3P] | **ē** | vê | hú | 'they will drink' | **ẹ̄** | vâ | ná | 'they will sell' |

| S (Agr-Fs) / TAM | μ \| mI | μ \| U | … | | Pre-V particle |
|---|---|---|---|---|---|
| Ø | M \| μ \| mI [1S] | M \| μ \| U [2] | … | + | H L \/ μ \| vA [FUT] |
| STAMP: | mī / mị̄ | ū / ụ̄ | … | | vê / vâ |

**Table 6: Future tense STAMPs with FUTURE particle vÂ**

This general future tense above contrasts with an immediate future tense ('about to'). This is expressed with the continuous STAMP plus the future particle **vÂ**.

(21) Immediate future (continuous STAMP + future particle) (A89:82-83)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] | **mèè** | vê | hú | / | **màà** | vâ | ná | 'I am about to drink/sell' |
| b. | [2] | **wèè** | vê | hú | / | **wàà** | vâ | ná | 'you are about to drink/sell' |
| c. | [3S] | **èè** | vê | hú | / | **àà** | vâ | ná | 'he/she is about to drink/sell' |
| d. | [1P] | **yèè** | vê | hú | / | **yàà** | vâ | ná | 'we are about to drink/sell' |
| e. | [3P] | **ẹ́yéē** | vê | hú | / | **ẹ́yáā** | vâ | ná | 'they are about to drink/sell' |

The form of the STAMP and pre-verbal particle show no unexpected features in this context.

The final set of TAM contrasts express PAST PERFECT, in (22)-(23). This is realized as a STAMP with high tone with the [e/a] alternation, plus a pre-verbal particle **sÍ** or **rÁĀ**. These are both glossed as [PRF] for our purposes.[7]

(22) Past perfect – [+ATR] (A89:81)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| a. | [1S] **mé** | sí | hú | / | **mé** | réē | hú | 'I have drunk' |
| b. | [2] **wé** | sí | hú | / | **wé** | réē | hú | 'you have drunk' |
| c. | [3S] **ó** | sí | hú | / | **ó** | réē | hú | 'he/she has drunk' |
| d. | [1P] **yé** | sí | hú | / | **yé** | réē | hú | 'we have drunk' |
| e. | [3P] **é** | sí | hú | / | **é** | réē | hú | 'they have drunk' |

(23) Past perfect – [-ATR] (A89:81-82)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| a. | [1S] **má** | sį́ | nà | / | **má** | ráā | ná | 'I have torn/sold' |
| b. | [2] **wá** | sį́ | nà | / | **wá** | ráā | ná | 'you have torn/sold' |
| c. | [3S] **ǫ́** | sį́ | nà | / | **ǫ́** | ráā | ná | 'he/she has torn/sold' |
| d. | [1P] **yá** | sį́ | nà | / | **yá** | ráā | ná | 'we have torn/sold' |
| e. | [3P] **ę́** | sį́ | nà | / | **ę́** | ráā | ná | 'they have torn/sold' |

Adive (1989:80) remarks that "[t]here does not seem to be any distinction in meaning" between **sÍ** and **rÁĀ**, and that "[t]he same speaker may use them interchangeably". The only difference appears to be word order. With **sÍ** the word order is OV (shown below), while with **rÁĀ** it is VO.

(24) mé **sí** ècè hú
1SG **PRF** wine drink 'I have drunk wine' (A89:81)

This difference straightforwardly derives from **sÍ** having been grammaticalized from **sį́** 'to take' in a serial verb construction (seen in (7) above).

Table 7 provides the underlying representation of the past perfect sub-STAMP morph (leftmost column), consisting of a floating tone **H** with a floating segment **A**. These obligatorily appear with one of the two pre-verbal particles (rightmost column), constituting a case of multiple exponence.

[7] Adive calls this 'past perfective'. I label this 'past perfect' because the translations are more aligned with this interpretation.

| S (Agr-Fs) / TAM | μ \| mI | μ \| O | … | | Pre-verbal particle |
|---|---|---|---|---|---|
| H<br>A<br>[PRF] | H \| μ \| mA<br>[1S][PRF] | H \| μ \| O<br>[3S][PRF] | … | + | H \| μ \| sI ~ H M \| \| μ μ \/ rA<br>[PRF] ~ [PRF] |
| STAMP: | mé / má | ó / ọ́ | … | | sí / sị́ ~ réē ~ ráā |

**Table 7: Past perfect STAMPs with PERFECT particle *sÍ~rÁĀ***

To summarize, I have decomposed the TAM contrasts of STAMPs into the underlying representations in Table 8. All of these are phonologically deficient in some way – by lacking a segment, a mora, or a link to the floating tone – but become well-formed phonological outputs in combination with toneless subject agreement morphs.

| Habitual aspect | Completive aspect | Subjunctive mood | | Continuous aspect | Past perfect aspect | (Used in future) |
|---|---|---|---|---|---|---|
| M<br>\|<br>μ<br>A<br>[HAB] | H L<br>A<br>[COMPL] | M<br>A<br>[SBJV] | ~<br>L<br>A<br>[SBJV] | L<br>μ<br>\|<br>A<br>[CONT] | H<br>A<br>[PRF] | Ø |

**Table 8: Interim summary of basic sub-STAMP marker TAM morphs**

**3.2 Negative polarity.** In Adive's description, there are three STAMP markers used in negative contexts. The first appears in the completive and the future (recall that the completive can be used in both past and present contexts). This STAMP consists of a floating **H** tone and floating segment **E**, and co-occurs with a pre-verbal particle **yÍ** [NEG]. In the future, it additionally co-occurs with **vÂ** [FUT].

(25) Negative completive (A89:90-91)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| a. | [1S] **mé** | yí | hú | 'I did not drink' | **mẹ́** | yị́ | ná | 'I did not sell' |
| b. | [2] **wé** | yí | hú | 'you did not drink' | **wẹ́** | yị́ | ná | 'you did not sell' |
| c. | [3S] **ó** | yí | hú | 'he/she did not drink' | **ọ́** | yị́ | ná | 'he/she did not sell' |
| d. | [1P] **yé** | yí | hú | 'we did not drink' | **yẹ́** | yị́ | ná | 'we did not sell' |
| e. | [3P] **é** | yí | hú | 'they did not drink' | **ẹ́** | yị́ | ná | 'they did not sell' |

(26) Negative future (A89:91-92)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] | **mé** | yí | vê | hú | 'I will not drink' | **mẹ́** | yį́ | vâ | ná | 'I will not sell' |
| b. | [2] | **wé** | yí | vê | hú | 'you will not drink' | **wẹ́** | yį́ | vâ | ná | 'you will not sell' |
| c. | [3S] | **ó** | yí | vê | hú | 'he/she will not drink' | **ọ́** | yį́ | vâ | ná | 'he/she will not sell' |
| d. | [1P] | **yé** | yí | vê | hú | 'we will not drink' | **yẹ́** | yį́ | vâ | ná | 'we will not sell' |
| e. | [3P] | **é** | yí | vê | hú | 'they will not drink' | **ẹ́** | yį́ | vâ | ná | 'they will not sell' |

The two additional negative STAMP markers are the NEGATIVE PERFECT and the NEGATIVE HABITUAL. The negative perfect STAMP is in (27) below, which differs from the negative STAMP in (25)-(26) above by being bimoraic with a falling tone; the segments are identical. This, too, must appear with a pre-verbal negative particle **yÍ**. Note that no pre-verbal perfect particle appears in the negative (i.e. no **sí** or **réē**).

(27) Negative perfect (A89:90-91)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] | **méè** | yí | ré | 'I have not seen' | **mẹ́ẹ̀** | yį́ | rį́ | 'I have not eaten' |
| b. | [2] | **wéè** | yí | ré | 'you have not seen' | **wẹ́ẹ̀** | yį́ | rį́ | 'you have not eaten' |
| c. | [3S] | **óò** | yí | ré | 'he/she has not seen' | **ọ́ọ̀** | yį́ | rį́ | 'he/she has not eaten' |
| d. | [1P] | **yéè** | yí | ré | 'we have not seen' | **yẹ́ẹ̀** | yį́ | rį́ | 'we have not eaten' |
| e. | [3P] | **éè** | yí | ré | 'they have not seen' | **ẹ́ẹ̀** | yį́ | rį́ | 'they have not eaten' |

The STAMP in the negative habitual is high-toned, monomoraic, and consists of a floating segment **A** rather than floating **E** as seen with the other negative structures. Also unlike these negatives, the pre-verbal particle is **mĀ** rather than **yÍ**, translated below as 'does not habitually' but in other places as 'never' (e.g. A89:145; S76:40).

(28) Negative habitual [+ATR] (A89:94)

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | [1S] | **mé** | mē | hú | ịbíyā | 'I do not habitually drink beer' |
| b. | [2] | **wé** | mē | hú | ịbíyā | 'you do not habitually drink beer' |
| c. | [3S] | **ó** | mē | hú | ịbíyā | 'he/she does not habitually drink beer' |
| d. | [1P] | **yé** | mē | hú | ịbíyā | 'we do not habitually drink beer' |
| e. | [3P] | **é** | mē | hú | ịbíyā | 'they do not habitually drink beer' |

(29) Negative habitual [-ATR] (A89:94)

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | [1S] | **má** | mā | rį | ụ̀rá | 'I do not habitually eat pork' |
| b. | [2] | **wá** | mā | rį | ụ̀rá | 'you do not habitually eat pork' |
| c. | [3S] | **ọ́** | mā | rį | ụ̀rá | 'he/she does not habitually eat pork' |
| d. | [1P] | **yá** | mā | rį | ụ̀rá | 'we do not habitually eat pork' |
| e. | [3P] | **ẹ́** | mā | rį | ụ̀rá | 'they do not habitually eat pork' |

No data are available on the negative of continuous aspect or subjunctive mood. Adive states that the negative has fewer TAM contrasts than its positive counterparts, a common cross-linguistic asymmetry.

The proposed underlying representations of these sub-STAMP morphs are in Table 9 below. The default [NEGATIVE] morph – seen with the negative of the completive and future – is a floating **H** tone and a floating segment **E**. Although this [NEG] morph can appear with a pre-verbal particle, it does not occur with any TAM morph within the STAMP itself; the two are mutually exclusive here. The other negative morphs constitute true portmanteaux which co-expone negation and either perfect or habitual. Neither may co-occur with the [PRF] or [HAB] TAM morphs established in the previous section. The representation of [NEG.PRF] consists of a **H L** tone sequence with **L** pre-linked to a mora, co-occurring with a floating segment **E**. The [NEG.HAB] portmanteau consists of a floating H tone (*not* pre-linked to a mora), co-occurring with a floating segment **A**.[8]

| S (Agr-Fs) / Pol | μ<br>\|<br>mI | μ<br>\|<br>O | … | | Pre-verbal particle |
|---|---|---|---|---|---|
| H<br><br><br><br>E<br>[NEG] | H<br>\|<br>(μ)<br>\|<br>mE<br>[1S][NEG] | H<br>\|<br>(μ)<br>\|<br>O<br>[3S][NEG] | … | + | H<br>\|<br>μ<br>\|<br>yI<br>[NEG] |
| H L<br>\|<br>μ<br><br>E<br>[NEG.PRF] | H L<br>\| \|<br>(μμ)<br>\/<br>mE<br>[1S][NEG.PRF] | H L<br>\| \|<br>(μμ)<br>\/<br>O<br>[3S][NEG.PRF] | … | + | H<br>\|<br>μ<br>\|<br>yI<br>[NEG] |
| H<br><br><br><br>A<br>[NEG.HAB] | H<br>\|<br>(μ)<br>\|<br>mA<br>[1S][NEG.HAB] | H<br>\|<br>(μ)<br>\|<br>O<br>[3S][NEG.HAB] | … | + | M<br>\|<br>μ<br>\|<br>ma<br>[NEG.HAB] |

**Table 9: Sub-STAMP negative morphs and portmanteaux**

Unlike other components of STAMP markers, these negative portmanteaux cannot be further decomposed. [NEG.PRF] (**HL—μ** and **E**) is not derived from [NEG] (**H** and **E**) plus [PRF] (**H** and **A**). Likewise, [NEG.HAB] (**H** and **A**) is not derived from [NEG] (**H** and **E**) plus [HAB] (**M—μ**).

[8] [NEG.HAB] here has the same underlying form as [PRF] in positive contexts (Table 8, above). Given their distinct meanings, I take this to be incidental homophony.

**3.3 Clause-level meaning.** There are three additional STAMP series which demonstrate decompositionality, in (30). I refer to these collectively as CLAUSE-LEVEL MEANING, which include the interrogative (a. below) and two denoting dependent clause relationships, one translated as 'if' (b.) and another as 'when' (c.). Unlike with the negative above, these do not form portmanteaux with TAM meanings.

(30) STAMP markers expressing clause-level meaning

a. **máá** ná ? 'Did I sell?'
b. **màá** hị̀ ī̱sá,... 'if I buy food,…'
c. **m̀mę̀** vę́,... 'when I came,…'

This section demonstrates that in addition to the STAMP categories common in the Macro-Sudan Belt (subject agreement, tense, aspect, mood, polarity), in Ebira clause-level meaning must too be included. Hereafter, I refer to these as C-morphs.

3.3.1 The interrogative

The basic interrogative STAMP marker is used in three TAM contexts: with completive aspect, perfect aspect, and future tense. The interrogative of the perfect and future co-occur with the expected pre-verbal particles, i.e. **sÍ** [PRF] and **vÂ** [FUT].

(31) Interrogative completive (A89:87)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| a. | [1S] **méé** | hú ? | 'Did I drink?' | | **máá** | ná ? | 'Did I sell?' |
| b. | [2] **wéé** | hú ? | 'Did you drink?' | | **wáá** | ná ? | 'Did you sell?' |
| c. | [3S] **óó** | hú ? | 'Did he/she drink?' | | **ọ́ọ́** | ná ? | 'Did he/she sell?' |
| d. | [1P] **yéé** | hú ? | 'Did we drink?' | | **yáá** | ná ? | 'Did we sell?' |
| e. | [3P] **éé** | hú ? | 'Did they drink?' | | **ẹ́ẹ́** | ná ? | 'Did they sell?' |

(32) Interrogative perfect (A89:88)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] **méé** | sí | hú ? | 'Have I drunk?' | **máá** | sị́ | ná ? | 'Have I sold?' |
| b. | [2] **wéé** | sí | hú ? | 'Have you drunk?' | **wáá** | sị́ | ná ? | 'Have you sold?' |
| c. | [3S] **óó** | sí | hú ? | 'Has he/she drunk?' | **ọ́ọ́** | sị́ | ná ? | 'Has he/she sold?' |
| d. | [1P] **yéé** | sí | hú ? | 'Have we drunk?' | **yáá** | sị́ | ná ? | 'Have we sold?' |
| e. | [3P] **éé** | sí | hú ? | 'Have they drunk?' | **ẹ́ẹ́** | sị́ | ná ? | 'Have they sold?' |

(33) Interrogative future (A89:88)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| a. | [1S] **méé** | vê | hú ? | 'Will I drink?' | **máá** | vâ | ná ? | 'Will I sell?' |
| b. | [2] **wéé** | vê | hú ? | 'Will you drink?' | **wáá** | vâ | ná ? | 'Will you sell?' |
| c. | [3S] **óó** | vê | hú ? | 'Will he/she drink?' | **ọ́ọ́** | vâ | ná ? | 'Will he/she sell?' |
| d. | [1P] **yéé** | vê | hú ? | 'Will we drink?' | **yáá** | vâ | ná ? | 'Will we sell?' |
| e. | [3P] **éé** | vê | hú ? | 'Will they drink?' | **ẹ́ẹ́** | vâ | ná ? | 'Will they sell?' |

The underlying form of the sub-STAMP [INT] C-morph is in Table 10 below, consisting of a **H** tone pre-linked to a mora and a floating segment **A** (*not* pre-linked to this mora). Notice that the **H** of the [INT] morph is 'pre-spread' in its representation, which we will return to shortly. Given that the surface form of the third singular STAMP marker is **O** (the [3S] value) rather than **A** (the [INT] value), I interpret [INT] as having a floating segment **A** rather than one pre-linked to a mora. Recall that only pre-linked **A** wins when adjacent to **O** in a hiatus structure (15). The [INT] C-morph does not co-occur with an overt TAM morph in these contexts (e.g. [COMPL] **H L** and **A**).[9]

| S (Agr-Fs) / C (CLAUSE) | μ<br>\|<br>mI | μ<br>\|<br>O | … |
|---|---|---|---|
| H<br>/ \| \<br>μ<br><br>A<br>[INT] | H<br>/\<br>(μμ)<br>\/<br>mA<br>[1S][INT] | H<br>/\<br>(μμ)<br>\/<br>O<br>[3S][INT] | … |
| STAMP: | méé / máá | óó / ọ́ọ́ | … |

**Table 10: Interrogative STAMP used in completive, perfect, and future**

Let us now examine how the three components of STAMP markers – subject agreement morphs, TAMP morphs, and C-level morphs – combine to form complex STAMP markers. Two

[9] Interrogatives can also be realized as clause-final vowel lengthening with a floating mid tone. In this strategy, a non-interrogative STAMP is used, e.g. the [COMPL] STAMP in (ii). I gloss the final interrogative as a particle INT.

(ii) īzé ô ré ōzí **ī?**
Ize 3S.COMPL see child **INT** 'Did Ize see the child?' (A89:123)

Adive (1989) notes that "any indicative VP can be made interrogative in Ebira by lengthening the final vowel" with mid tone (p. 95). In some contexts, it appears that interrogative meaning can only be expressed via this clause-final strategy, e.g. in interrogative negative forms. An example is in (iii) below, which shows the STAMP marker in its negative form and not in its interrogative form. Further investigation is required.

(iii) **mé** yí hú **ū** ?
**1S.NEG** NEG drink **INT** 'Did I not drink?' (A89:95)

distinct STAMP forms are used in the INTERROGATIVE CONTINUOUS and the INTERROGATIVE HABITUAL, shown below.

(34) Interrogative continuous (A89:87)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a. | [1S] | **m̀méé** | hú ? | 'Am I drinking?' | **m̀máá** | ná ? | 'Am I selling?' |
| b. | [2] | **úwéé** | hú ? | 'Are you drinking?' | **ụ́wáá** | ná ? | 'Are you selling?' |
| c. | [3S] | **ééé** | hú ? | 'Is he/she drinking?' | **ááá** | ná ? | 'Is he selling?' |
| d. | [1P] | **íyéé** | hú ? | 'Are we drinking?' | **íyáá** | ná ? | 'Are we selling?' |
| e. | [3P] | **éyéé** | hú ? | 'Are they drinking?' | **éyáá** | ná ? | 'Are they selling?' |

(35) Interrogative habitual (A89:89)

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | [1S] | **m̄méē** | hú ?/ | **m̄máā** | ná ? | 'Do I habitually drink/sell?' |
| b. | [2] | **ūwéē** | hú ?/ | **ụ̄wáā** | ná ? | 'Do you habitually drink/sell?' |
| c. | [3S] | **ōóō** | hú ?/ | **ọ̄ọ́ọ̄** | ná ? | 'Does he/she habitually drink/sell?' |
| d. | [1P] | **īyéē** | hú ?/ | **ịyáā** | ná ? | 'Do we habitually drink/sell?' |
| e. | [3P] | **ēéē** | hú ? / | **ẹ̄ẹ́ẹ̄** | ná ? | 'Do they habitually drink/sell?' |

These STAMPs all have three moras, with several cases of super-long vowels (e.g. **ééé**), and others which can transparently be broken into two syllables (e.g. **m̀.méé**, with a syllabic nasal), The continuous forms here have an all high pattern, while the habitual have a MHM pattern.

Let us briefly compare the interrogative and non-interrogative versions of these STAMP markers, given in (36) with [-ATR] first person forms. As shown, completive, perfect, and future have the same STAMP shape in the interrogative (a.-c.). Further, the only two TAMs which contributed a mora were the continuous and habitual. The presence of the extra mora in these 3μ interrogative STAMPs is therefore accounted for by a simple concatenation of the underlying mora strings (d.-e.).

(36)

| | | Statement | Interrogative |
|---|---|---|---|
| a. | Completive | **mâ** | **máá** |
| b. | Perfect | **má** | **máá** |
| c. | Future | **mị̄** | **máá** |
| d. | Continuous | **màà** | **m̀máá** |
| e. | Habitual | **mị̄ī̄** | **m̄máā** |

The decomposition of the continuous and habitual interrogatives are in Table 11.

| S (Agr-Fs) / C + TAM | | | μ \| mI | μ \| U | μ \| O | μ \| I | μ \| E |
|---|---|---|---|---|---|---|---|
| H | | L | H | H | H | H | H |
| / \| \ | | | / \| \ | / \| \ | / \| \ | / \| \ | / \| \ |
| μ | | μ | μ(μμ) | μ(μμ) | (μμμ) | μ(μμ) | μ(μμ) |
| | + | \| | \| \/ | \| \/ | \|/ | \| \/ | \| \/ |
| A | | A | mmA | uwA | A | IyA | EyA |
| [INT] | | [CONT] | [1S][INT] [CONT] | [2][INT] [CONT] | [3S][INT] [CONT] | [1P][INT] [CONT] | [3P][INT] [CONT] |
| H | | M | M H M | M H M | M H M | M H M | M H M |
| / \| \ | | \| | \| \| \| | \| \| \| | \| \| \| | \| \| \| | \| \| \| |
| μ | | μ | μ(μμ) | μ(μμ) | (μμμ) | μ(μμ) | (μμμ) |
| | + | | \| \/ | \| \/ | \|/ | \| \/ | \|/ |
| A | | | mmA | uwA | O | IyA | E |
| [INT] | | [HAB] | [1S][INT] [HAB] | [2][INT] [HAB] | [3S][INT] [HAB] | [1P][INT] [HAB] | [3P][INT] [HAB] |

**Table 11: STAMP markers for interrogative continuous and habitual**

Let us break down first the tonal patterns in this table. In the continuous interrogative, the H tone of [INT] falls on all three moras. Here is where the presence of the 'pre-spread' H tone of [INT] is important. Because the [CONT] morph's low tone is floating and not pre-linked to a mora, it loses to the pre-spread H tone of the [INT]. The notion of 'pre-spread' can be interpreted as a prioritized linking to any toneless moras to its right and left. (In the Appendix, I discuss the description in Scholz which suggests the floating low of [CONT] remains present but undocked).

In contrast, the tone pattern for habitual is always **MHM**. The status of TAM-sponsored tone as floating or pre-linked is important here. Compare the two [1S] forms. With [CONT], its **L** tone is not pre-linked, therefore the pre-linked **H** sponsored by [INT] wins. However, with [HAB] its **M** *is* pre-linked to a mora, therefore both the **H** and **M** surface. Notice one aspect of this analysis, one which remains unclear: why do all of the habitual forms have an initial M? As it stands, this remains unexplained. One important observation comes from Scholz. Unlike the forms as given by Adive (Table 11 above), in Scholz the interrogative habitual STAMP markers have the expected **HHM** pattern:

(37) Interrogative habitual STAMP in Scholz: **ụ́wáā** vẹ́ ? 'Do you usually come?' (S76:54)

In fact, Scholz states explicitly that "utterance-initial M is not very stable" in Ebira and that preceding a high tone, mid tones "may be realised on a pitch anywhere from halfway between low and high up to high" (p. 49). Further phonetic investigation is required.

Let us now consider the segmental exponence of these STAMPs. We must account for three aspects of the (segmental) derivations of these STAMPs: their syllabification, consonant epenthesis, and vowel deletion. I exemplify these processes using [1s] and [2] interrogative continuous STAMPs, in Table 12.

| | S | | C | | TAM | | Syllabification | | Epenthesis/deletion | STAMP |
|---|---|---|---|---|---|---|---|---|---|---|
| [1s] | μ<br>\|<br>mI | + | μ<br><br>A | + | μ<br>\|<br>A | → | μ (μ μ)<br>\| \|<br>mI (A) | → | μ (μ μ)<br>\| \|<br>m̩(mA) | ḿméé /<br>ḿmáá |
| [2] | μ<br>\|<br>U | + | μ<br><br>A | + | μ<br>\|<br>A | → | μ (μ μ)<br>\| \|<br>U (A) | → | μ (μ μ)<br>\| \|<br>U(wA) | úwéé /<br>ú̩wáá |

**Table 12: Syllabification and epenthesis/deletion of interrogative continuous STAMPs**

In this table, syllable constituency is formed right-to-left, grouping two moras into a single syllable (all other things being equal). The result is a two-mora syllable preceded by an unparsed mora, i.e. μ(μμ). This is shown in the middle column.

Further, these forms show epenthesis and/or deletion, in the column to the right. For the [1S] form, this is underlying **mI** but becomes syllabic [m̩] in this context. We may assume that when a nasal + high vowel sequence is in a 'weak' position outside of the bimoraic syllable, it undergoes reduction, e.g. to [m̩]. Notice that all of the intermediate representations have a banned sequence of vowels. To amend these marked structures, an epenthetic consonant is inserted between them. An [m] is inserted after syllabic **m̩**, and [w] after high back **U**. After a front vowel, [y] is inserted (see Table 11).

Also notice in this table that there is a contrast in [3] forms. For [3P] forms, the [CONT] form exhibits glide insertion while the [HAB] form shows a super-long vowel. The derivation of these STAMPs is below.

| | S | | C | | TAM | | Syllabification | | Epenthesis/deletion | STAMP |
|---|---|---|---|---|---|---|---|---|---|---|
| [3P]<br>[CONT] | μ<br>\|<br>E | + | μ<br><br>A | + | μ<br>\|<br>A | → | μ(μ μ)<br>\| \|<br>E (A) | → | μ(μ μ)<br>\| \|<br>E (yA) | éyéé /<br>éyáá |
| [3P]<br>[HAB] | μ<br>\|<br>E | + | μ<br><br>A | + | μ | → | (μ μ μ)<br>\|/<br>(E) | → | (μ μ μ)<br>\|/<br>(E) | ēéē / ē̩é̩ē̩ |

**Table 13: Contrast between interrogative [3P] STAMPs: [CONT] vs. [HAB]**

The key difference is that the **A** is pre-linked to a mora with [CONT] but not with [HAB], and therefore must be preserved in the output in the former but not the latter. With [HAB] forms, the pre-linked **E** coalesces with the floating **A** at an early point in the derivation, a process which only happens if the vowel to the left is [-HIGH] and the vowel to the right is floating.

This is also seen with [3s] forms, shown in Table 14.

| | S | | C | | TAM | | Syllabification | | Epenthesis/deletion | STAMP |
|---|---|---|---|---|---|---|---|---|---|---|
| [3S] [CONT] | μ \| O | + | μ A | + | μ \| A | → | μ(μ μ) \| \| O (A) | → | (μ μ μ) \|/ (A) | ééé / ááá |
| [3S] [HAB] | μ \| O | + | μ A | + | μ | → | (μ μ μ) \|/ (O) | → | (μ μ μ) \|/ (O) | ōóō / ọ́ọ́ọ̄ |

**Table 14: Contrast between interrogative [3S] STAMPs: [CONT] vs. [HAB]**

Here, in the [HAB] the **O** and **A** coalesce resulting in a super-long vowel. One difference from the [3P] forms (Table 13) is that there is no glide epenthesis with the [CONT]: the forms are super-long **AAA**, not a form like ***OwAA**. I assume that **O** is too dissimilar to any glide (e.g. [w]) to license it for epenthesis (a form ***O(wA)** is ungrammatical). The result is that one of the vowels must delete, which is **O** by general vowel hiatus rules.[10]

3.3.2 'If' and 'when'

The final two STAMP sets are formed with two other clause-level C-morphs, one translated as 'if' (38)-(39), and the other as 'when' (40)-(41).

(38) [C:IF] STAMP – [+ATR] context (A89:97)

a. [1S] **mèé** húsè , mị̀ vâ dọ́ 'if I ask, I will get (it)'
b. [2] **wèé** húsè , ụ̀ vâ dọ́ 'if you ask, you will get (it)'
c. [3S] **òó** húsè , ọ̀ vâ dọ́ 'if he/she asks, he/she will get (it)'
d. [1P] **yèé** húsè , ị̀ vâ dọ́ 'if we ask, we will get (it)'
e. [3P] **èé** húsè , ẹ̀ vâ dọ́ 'if they ask, they will get (it)'

(39) [C:IF] STAMP – [-ATR] context (A89:97,100)

a. [1S] **màá** hị̀ ịsá , mị̀ vâ rị́ ọ́ 'if I buy food, I will eat it'
b. [2] **wàá** hị̀ ịsá , ụ̀ vâ rị́ ọ́ 'if you buy food, you will eat it'
c. [3S] **ọ̀ọ́** hị̀ ịsá , ọ̀ vâ rị́ ọ́ 'if he/she buys food, he/she will eat it'
d. [1P] **yàá** hị̀ ịsá , ị̀ vâ rị́ ọ́ 'if we buy food, we will eat it'
e. [3P] **ẹ̀ẹ́** hị̀ ịsá , ẹ̀ vâ rị́ ọ́ 'if they buy food, they will eat it'

[10] Relevant to this discussion is a piece of data mentioned in passing by Adive (1989:124-125). Most question words are clause-initial but at least one actually splits the STAMP into two parts, in (iv) below:

(iv) ọ́ **mẹ̀mẹ̀** àà vẹ́
3S **how** INT.CONT come 'how is he/she coming?'

Here, the question word **mẹ̀mẹ̀** 'how' appears between the S and C/TAM portions of the STAMP marker. The **H** tone sponsored by the interrogative appears on the agreement morph **O**, which is separated from the mora sponsored by the interrogative and the mora pre-linked to **A** of the continuous.

(40) [C:WHEN] STAMP – [+ATR] context (A89:100)

a. [1S] **ḿmè** ré é , ộ dàhí 'when I saw him, he was all right'
b. [2] **úmè** ré é , ộ dàhí 'when you saw him, he was all right'
c. [3S] **ómè** ré é , ộ dàhí 'when he/she saw him, he was all right'
d. [1P] **ímè** ré é , ộ dàhí 'when we saw him, he was all right'
e. [3P] **émè** ré é , ộ dàhí 'when they saw him, he was all right'

(41) [C:WHEN] STAMP – [-ATR] context (A89:101)

a. [1S] **ḿmẹ̀** vẹ́ , mâ rí ịsá 'when I came, I ate food'
b. [2] **úmẹ̀** vẹ́ , wâ rí ịsá 'when you came, you ate food'
c. [3S] **ómẹ̀** vẹ́ , ộ rí ịsá 'when he/she came, he/she ate food'
d. [1P] **ímẹ̀** vẹ́ , yâ rí ịsá 'when we came, we ate food'
e. [3P] **émẹ̀** vẹ́ , ệ rí ịsá 'when they came, they ate food'

The underlying representations are in Table 15. The C-morph [C:IF] consists of a **L H** tone sequence where the **H** is linked to a mora, plus a floating segment **A**. The C-morph [C:WHEN] is exponed as a **H L** tone sequence where the **L** is linked to a mora, plus a segment sequence **mE** linked to this mora. These STAMPs can be used with completive aspect interpretation (as above), but also past perfect and future with the appropriate pre-verbal particles. As with the interrogative [INT] (Table 10 above), there is no overt TAM morph.

| S / C | μ<br>\|<br>mI | μ<br>\|<br>U | μ<br>\|<br>O | … |
|---|---|---|---|---|
| L H<br>\|<br>μ)<br><br>A<br>[C:IF] | L H<br>\| \|<br>(μ μ)<br>\/<br>mA<br>[1S][C:IF] | L H<br>\| \|<br>(μ μ)<br>\/<br>wA<br>[2][C:IF] | L H<br>\| \|<br>(μ μ)<br>\/<br>O<br>[3S][C:IF] | … |
| H L<br>\|<br>(μ<br>\|<br>mE<br>[C:WHEN] | H L<br>\| \|<br>μ(μ)<br>\| \|<br>mmE<br>[1S][C:WHEN] | H L<br>\| \|<br>μ(μ)<br>\| \|<br>UmE<br>[2][C:WHEN] | H L<br>\| \|<br>μ(μ)<br>\| \|<br>OmE<br>[3S][C:WHEN] | … |

**Table 15: C-elements [C:IF] and [C:WHEN] in [1S], [2], and [3S] STAMPs**

Two aspects here are noteworthy. First, both of these C-elements have an underlying syllable boundary. With [C:IF], it is after the mora, i.e. **μ)**, while with [C:WHEN] it appears before it, i.e. **(μ**.

The role of this underlying boundary will become clear shortly, so I refrain from its explanation momentarily. Second, just as [1S] **mI** became syllabic [m̩] in a pre-syllable position in Table 12, it does so before **mE** here, as well.

Like with the interrogative, these C-morphs can be combined with the continuous aspect, resulting in a complex but decomposable STAMP markers. As a whole, the resulting STAMPs are simply the concatenation of the regular exponents of [CONT] plus the [C:IF] and [C:WHEN] forms from (38)-(41). Overt comparison is provided in Table 16.

| C vs. C+TAM | [1S] | [2] | [3S] | [1P] | [3P] |
|---|---|---|---|---|---|
| [C:IF] | mèé/màá | wèé/wàá | òó/ọ̀ọ́ | yèé/yàá | èé/ẹ̀ẹ́ |
| [C:IF]+[CONT] | mèéē/màáā | wèéē/wàáā | èéē/àáā | yèéē/yàáā | èéyè/ẹ̀ẹ́yà |
| [C:WHEN] | ḿmè/ḿmẹ̀ | úmè/úmẹ̀ | ómè/ọ́mẹ̀ | ímè/ímẹ̀ | émè/émẹ̀ |
| [C:WHEN]+[CONT] | ḿmèè/ḿmàà | úmèè/úmàà | ómèè/ọ́màà | ímèè/ímàà | émèè/émàà |

**Table 16: Comparison of [CONTINUOUS] forms with C-elements [C:IF] and [C:WHEN]**

Let us break down these patterns. First, while the tone patterns for the [C:WHEN] forms surface as predicted, for the [C:IF] forms only the [3P] shows the expected [LHL] surface pattern. All others show LHM, which has an unexpected final M. One interpretation of these data is that in those LHM forms, this as a blend between the H tone of [C:IF] spreading rightwards and combining with the floating L tone of [CONT], resulting in M tone. This is admittedly *ad hoc*, but may have a principled explanation if we consider other facts described about Ebira. For example, rightward spread of H tones onto L is actually claimed in Scholz' description, e.g. for a phrase **cémà wá** 'lift them' with medial low tone, the high spreads rightward until the next high, resulting in [cḗmā́ wá] with automatic upstepping of the first H (p. 98). I leave this for further study.

Regarding the segmental shapes of these STAMPs, let us return to the underlying representation of the C-morphs which had contrastive underlying boundaries. Compare the minimal pair in Table 17 using the three C-morphs, [INTERROGATIVE], [C:IF], and [C:WHEN].

| | S | | C | | TAM | | Syllabification | | Epen./Del. | STAMP |
|---|---|---|---|---|---|---|---|---|---|---|
| [1S]<br>[CONT]<br>[INT] | μ<br>\|<br>mI | + | μ<br><br>A | + | μ<br>\|<br>A | → | μ (μ μ)<br>\| \|<br>mI (A) | → | μ (μ μ)<br>\| \|<br>m̩(mA) | ḿméé / ḿmáá |
| [1S]<br>[CONT]<br>[C:IF] | μ<br>\|<br>mI | + | μ)<br><br>A | + | μ<br>\|<br>A | → | (μ μ) μ<br>\| \| \|<br>(mI A) A | → | (μ μ μ)<br>\|/<br>(mA) | mèéē / màáā |
| [1S]<br>[CONT]<br>[C:WHEN] | μ<br>\|<br>mI | + | (μ<br>\|<br>mE | + | μ<br>\|<br>A | → | μ (μ μ)<br>\| \| \|<br>mI (mE A) | → | μ (μ μ)<br>\| \|<br>m̩(mA) | ḿmèè / ḿmàà |

**Table 17: Contrast in underlying syllable boundaries among C-morphs**

As in Table 12 above, we assumed that syllabification grouped moras into syllables going right-to-left, with syllables preferably consisting of two moras, all other things being equal. This results in the μ(μμ) in the first row with the interrogative. However, with the latter two rows the C-morphs have underlying boundaries, which must be respected by the syllabification procedure. This results in contrastive syllabification patterns of (μμ)μ vs. μ(μμ). In the next column, epenthesis and/or deletion takes place. The resulting patterns fall out from principles already established: both **mI** + **A** and **mE** + **A** result in **mA**, the post-syllable unparsed **A** in [C:IF] coalesces to form a super-long vowel, and the pre-syllable unparsed **mI** in [C:WHEN] becomes syllabic [m̩].

The final thing to account for is the shape of the [3] forms with [C:IF]. We saw in Table 16 that these differ most between their simple vs. [CONT] STAMP markers, as exemplified in (42) below.

(42)

a. [3S][C:IF][CONT]: **àáā** vé, ọ̀ hì ì̀kè̀ké
'if he/she is coming, he/she should buy a bicycle' (A89:12)

b. cf. without [CONT]: **ọ̀ọ́** hì ī̀sá, ọ̄ vâ rí ọ́
'if he/she buys food, he/she will eat it' (A89:97)

The derivations for [3S] and [3P] continuous [C:IF] forms are below.

| | S | | C | | TAM | | Syllabification | | Epen./Del. | STAMP |
|---|---|---|---|---|---|---|---|---|---|---|
| [3S] | μ | | μ) | | μ | | (μ μ) μ | | (μ μ μ) | |
| [CONT] | \| | + | | + | \| | → | \/ \| | → | \|/ | èéē / àáā |
| [C:IF] | O | | A | | A | | (O) A | | (A) | |
| [3P] | μ | | μ) | | μ | | (μ μ) μ | | (μ μ) μ | |
| [CONT] | \| | + | | + | \| | → | \/ \| | → | \/ \| | èéyè / è̩é̩yà |
| [C:IF] | E | | A | | A | | (E) A | | (E) yA | |

**Table 18: Derivation of [3S] and [3P] continuous [C:IF] forms**

The syllabification patterns are as expected: **O** and **E** coalesce with unlinked **A**, and form a bimoraic syllable, resulting in (intermediate) representations **(O)A** and **(E)A** with a post-syllabic unparsed **A**. As seen already, [y] is inserted between **E** and **A** across syllables (Table 13 above), but no epenthesis takes place between **O** and **A** across syllables (Table 14 above). Instead, these coalesce into a super-long **A**, because this latter **A** sponsored by [CONT] is pre-linked to its mora.

**3.4 Interim summary.** This section has decomposed STAMPs into sub-STAMP morphs. This decomposition accounts for the vast majority of STAMP markers, though I have acknowledged several irregularities and a small number of non-decomposable portmanteaux (e.g. for the negative STAMPs). I have posited underlying representations for five subject agreement feature bundles (1S, 2, 3S, 1P, 3P), three clause-level meanings (INTERROGATIVE, 'IF', and 'WHEN'), five TAM features (HABITUAL, COMPLETIVE, SUBJUNCTIVE, CONTINUOUS, and PERFECT), and three NEGATIVE portmanteaux morphs. Additionally, many STAMPs co-occur with a pre-verbal particle, of which we identified five. This is all summarized in Table 19. Following this, in Table 20 I provide a master paradigm of Ebira STAMP markers for reference, summarizing the data so far.

| Sub-STAMP morphs | | | | Pre-V particles |
|---|---|---|---|---|
| S | C | TAM | P | |
| | H | M | H | H L |
| | / \| \ | \| | | \/ |
| μ | μ | μ | | μ |
| \| | | | | \| |
| mI | A | | E | vA |
| [1S] | [INT] | [HAB] | [NEG] | [FUT] |
| | L H | H L | H L | H |
| | \| | | \| | \| |
| μ | μ) | | μ | μ |
| \| | | | | \| |
| U | A | A | E | sI |
| [2] | [C:IF] | [COMPL] | [NEG.PRF] | [PRF] |
| | H L | M L | H | H M |
| | \| | | | \| \| |
| μ | (μ | | | μ μ |
| \| | \| | ~ | | \/ |
| O | mE | A A | A | rA |
| [3S] | [C:WHEN] | [SBJV] [SBJV] ([3]__) | [NEG.HAB] | [PRF] |
| | | L | | H |
| | | | | \| |
| μ | | μ | | μ |
| \| | | \| | | \| |
| I | | A | | yI |
| [1P] | | [CONT] | | [NEG] |
| | | H | | M |
| | | | | \| |
| μ | | | | μ |
| \| | | | | \| |
| E | | A | | ma |
| [3P] | | [PRF] | | [NEG.HAB] |

**Table 19: Interim summary of sub-STAMP morphs and pre-verbal particles**

| STAMPs | [1S] | [2] | [3S] | [1P] | [3P] | Pre-V |
|---|---|---|---|---|---|---|
| [FUTURE] | mī/mị̄ | ū/ụ̄ | ō/ọ̄ | ī/ị̄ | ē/ẹ̄ | + vê/vâ |
| [HABITUAL] | mīī/mị̄ī | ūū/ụ̄ū | ōō/ọ̄ō | īī/ị̄ī | ēē/ẹ̄ē | |
| [COMPLETIVE] | mê/mâ | wê/wâ | ô/ộ | yê/yâ | ê/ệ | |
| [SUBJUNCTIVE] | mē/mā | wē/wā | ò/ọ̀ | yē/yā | è/ẹ̀ | |
| [PAST PERFECT] 1 | mé/má | wé/wá | ó/ọ́ | yé/yá | é/ẹ́ | + sí/sị́ |
| [PAST PERFECT] 2 | " | " | " | " | " | + réē/ráā |
| [CONTINUOUS] | mèè/màà | wèè/wàà | èè/àà | yèè/yàà | éyéē/ẹ́yáā | |
| [IMMEDIATE FUTURE] | " | " | " | " | " | + vê/vâ |
| [NEGATIVE] | mé/mẹ́ | wé/wẹ́ | ó/ọ́ | yé/yẹ́ | é/ẹ́ | + yí/yị́ |
| [NEGATIVE FUTURE] | " | " | " | " | " | + yí/yị́ + vê/vâ |
| [NEGATIVE PERFECT] | méè/mẹ́ẹ̀ | wéẹ̀/wẹ́ẹ̀ | óò/ọ́ọ̀ | yéè/yẹ́ẹ̀ | éè/ẹ́ẹ̀ | + yí/yị́ |
| [NEGATIVE HABITUAL] | mé/má | wé/wá | ó/ọ́ | yé/yá | é/ẹ́ | + mē/mā |
| [INTERROGATIVE] | méé/máá | wéé/wáá | óó/ọ́ọ́ | yéé/yáá | éé/ẹ́ẹ́ | |
| [INTERROGATIVE PERFECT] | " | " | " | " | " | + sí/sị́ |
| [INTERROGATIVE FUTURE] | " | " | " | " | " | + vê/vâ |
| [INTERROGATIVE CONTINUOUS] | ḿméé/ ḿmáá | úwéé/ ụ́wáá | éé́/ áá́ | íyéé/ íyáá | éyéé/ éyáá | |
| [INTERROGATIVE HABITUAL] | m̄méē/ m̄máā | ūwéē/ ūwáā | ōóō/ ōọ́ō | īyéē/ īyáā | ēéē/ ēẹ́ē | |
| [CLAUSE:IF] | mèé/màá | wèé/wàá | òó/ọ̀ọ́ | yèé/yàá | èé/ẹ̀ẹ́ | |
| [CLAUSE:WHEN] | ḿmè/ḿmẹ̀ | úmè/ụ́mẹ̀ | ómè/ọ́mẹ̀ | ímè/ị́mẹ̀ | émè/ẹ́mẹ̀ | |
| [CLAUSE:IF CONTINUOUS] | mèéē/màáā | wèéē/wàáā | èéē/àáā | yèéē/yàáā | èéyè/ẹ̀ẹ́yà | |
| [CLAUSE:WHEN CONTINUOUS] | ḿmèè/ ḿmàà | úmèè/ ụ́màà | ómèè/ ọ́màà | ímèè/ ị́màà | émèè/ ẹ́màà | |

**Table 20: Master paradigm of Ebira STAMP markers (Adive 1989)**

## 4. Discussion

**4.1 Phonological wordhood in Ebira: Evidence from vowel harmony.** The previous section has sought to understand the internal composition of the areal-typological unit called STAMP markers, as demonstrated by the Ebira language. The result is internal complexity which is masked when assumed to be non-decomposable portmanteaux. In this section I approach Ebira from the opposite direction: which units in Ebira that are transcribed as separate should in actuality be understood as forming a single phonological constituent? Under this interpretation of Ebira, the 'analytic' transcription practice of Adive of writing morphs as separate masks largescale constituents which might otherwise be taken to be stand-alone 'words' under 'synthetic' transcription practices.

As stated, strict ATR co-occurrence restrictions exist within morphemes, e.g. **ìzē** 'grasscutter' and **ị̄né̱** 'stomach', but no words like ***izę** or ***ịne**. Within multi-morpheme phonological domains, surface allomorphy between [+ATR] and [-ATR] variants is common, as demonstrated for all STAMP markers and all pre-verbal particles from above. A larger list of non-STAMP variants is summarized from Adive (1989) and Scholz (1976) in Table 21. [ATR] variants include question words which appear in clause-initial position (a.), pre-clause markers (b.), and several (but not all) object pronouns which appear post-verbally (c.).

| | Class | [+ATR] | [-ATR] | Meaning |
|---|---|---|---|---|
| a. | Q-words | ìjí | ì̱jí̱ | 'when, if' |
| | | ōní | ọ̄ní̱ | 'who, whom' |
| | | ìhí | ì̱hí̱ | 'when' |
| | | ízí | ízí̱ | 'where' |
| | | ísí | ísí̱ | 'what kind of' |
| | | èní | è̱ní̱ | 'whom' |
| | | sí | sí̱ | 'what' |
| | | sévé-dí | sé̱vé̱-dí̱ | 'why' |
| b. | Pre-clause | dí | dí̱ | 'then, and, so that' |
| | | àsí | àsí̱ (~àsʊ́) | NEGATIVE SUBJUNCTIVE |
| c. | Object pronouns | mī | mī̱ | 'me' |
| | | wū | wʊ̱̄ | 'you' |
| | | yī | yī̱ | 'us' |

**Table 21: Compiled set of [ATR] variants of function morphemes (S76 and A89)**

Scholz and Adive are in agreement that there is widespread and unambiguous ATR harmony within multi-morphemic domains, what Scholz equates with the "phonological word" (p. 36). Their transcription practices differ, however. Adive tends to transcribe individual morphs as separate even if they form a single harmony domain, e.g. in the negative future below repeated from (26). Throughout this section, the ATR domain is provided in parentheses.

(43) ATR pairs (A89:91,94)

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | [+ATR] | ( mé | yí | vê | hú ) | |
| | | 1S.NEG | NEG | FUT | drink | 'I will not drink' |
| b. | [-ATR] | ( mẹ́ | yị́ | vâ | ná ) | |
| | | 1S.NEG | NEG | FUT | sell | 'I will not sell' |

In contrast, in Scholz' description he tends to transcribe morphs in such a domain with dashes rather than as separate morphs. ATR pairs are in (44).

(44) Examples of ATR variants within harmony domains in Scholz (1976)

| | | | | | |
|---|---|---|---|---|---|
| a. | [+ATR] | (**óō**-tú-**mī**) | | 'he/she beat me' | |
| | [-ATR] | (**ọ́ọ̄**-tụ́-**mị̄**) | | 'he/she sent me' | (S76:39) |
| b. | [+ATR] | (**ízí-wéē**-tù) | | | |
| | | where-2.INT.CONT-go | | 'where are you going?' | |
| | [-ATR] | (**ízí-ụ́**-nọ̄) | | | |
| | | where-2.INT-go | | 'where did you go?' | (S76:88,80) |
| c. | [+ATR] | (**sévédí-wéē**-hú) | ēŋī | | |
| | | why-2.INT.CONT-drink | water | 'why are you drinking water?' | |
| | [-ATR] | (**sẹ́vẹ́dị́-mị́**-mẹ̀ẹ́) | | | |
| | | why-1S.INT-do\it | | 'why did I do it? | (S76:40) |

Thus, despite the convergence on the linguistic phenomenon, Adive follows analytic linguistic traditions in transcribing the morphs as separate, while Scholz follows more synthetic traditions in writing them together. This demonstrates how transcription (or orthographic) practices may detract from matters of language analysis.

The ambiguity of analytic vs. synthetic transcription in West Africa and the larger Macro-Sudan Belt is well known (e.g. Creissels *et al.* 2008:93), though nonetheless often still goes overlooked. This directly impacts our discussion and classification of STAMP markers in an areal perspective, which Anderson (2011, 2016) acknowledges. Some of this can be attributed to different traditions in the Francophone vs. Anglophone linguistic communities:

> *"Different analytic traditions interpret word-structure in the languages of the MSB [Macro-Sudan Belt] as either tending toward quasi-isolating (francophone tradition) or synthetic structures (anglophone tradition). ... Indeed, given these differing analytic traditions it is difficult to know whether the relative paucity of complex verb forms deriving from fused auxiliary structures is an artefact of these kinds of analyses or represent a valid typological observation for the languages of this linguistic area."* (Anderson 2011:230)

The ambiguity of analyticity vs. syntheticity speaks to the need for more refined criteria to define patterns within versus outside of the Macro-Sudan Belt, outside of transcription practices. In particular, how should we assess areality with respect to STAMP markers? We turn to this matter now.

**4.2 A proposal: STAMP markers as pre-verbal constituents which exclude the verb root.** To avoid the confounds which come with transcription practice, the proposal I make is to be very precise whether something qualifies as a STAMP marker or not. This has two parts:

(45)

a. STAMP markers as constituents which exclude the root:
The exponence of subject agreement, clause-level meaning, tense/aspect/mood, and polarity forms a constituent *before* and to the *exclusion* of the verb root

b. STAMP markers as domains for allomorphy and portmanteaux:
The exponence of subject agreement, clause-level meaning, tense/aspect/mood, and polarity may condition allomorphy on each other or form portmanteaux to the *exclusion* of the verb root

Essentially, this states that any pre-verbal sub-STAMP morphs must show properties of affixation to one another, rather than independence from one another (i.e. particles) or prefixation to the root.

Let us examine how Ebira fares with respect to this proposal. It is fairly clear that Ebira shows joint affixation of the sub-STAMP morphs to one another. All of the sub-STAMP morphs by themselves constitute deficient phonological representations in some way, whether lacking a tonal specification, a mora, a segment, or a link between one or more of them. This is shown below in Table 22.

| S | | C | | TAM | | STAMP |
|---|---|---|---|---|---|---|
| | | H | | L | | |
| | | / \| \ | | | | |
| µ | + | µ | + | µ | → | ééé / ááá |
| \| | | | | \| | | |
| O | | A | | A | | |
| [3S] | | [INT] | | [CONT] | | |

**Table 22: Joint affixation of phonologically deficient sub-STAMP morphs**

All of these sub-STAMP morphs appear pre-radically, but separated from the root by non-STAMP pre-verbal particles, e.g. **vÂ** [FUT], among others. They never form a constituent with one of these particles or the verb, to the exclusion of other sub-STAMP morphs. This is shown in (46), which shows that for complex STAMPs like first singular continuative **màà** (a.), there is no evidence in the language for the sub-STAMP morph [CONT] suffixing to the pre-verbal particle (b.) or prefixing to the root (c.)

(46) Affixation restrictions in Ebira

| | | | | |
|---|---|---|---|---|
| a. | **màà** | vâ | ná | |
| | **1S.CONT** | FUT | sell | 'I am about to sell' |
| b. | *mị̄ | **váà** | ná | |
| | 1S | **FUT.CONT** | sell | |
| c. | *mị̄ | vâ | **à**-ná | |
| | 1S | FUT | **CONT**-sell | |

This generalization holds for all STAMP contexts for all of the S/C/TAM/P morphs posited.

Furthermore, although the Ebira STAMP system is for the most part decomposable, there exist both allomorphy and portmanteaux exponing more than one STAMP category, as well as a small but consistent number of irregularities in the composition of sub-STAMP morphs. Some examples are provided in Table 23, showing allomorphy in marking the [SUBJUNCTIVE] conditioned by [3] agreement features, a portmanteau of [NEGATIVE] and [PERFECT], and the irregular tone patterns (and number of moras) in the [3P] continuous form.

| Allomorphy | | Portmanteau | Irregularity in composition |
|---|---|---|---|
| M | L | H L | H M |
| | | \| | /\ \| |
| | ~ | μ | μ(μμ) |
| | | | \ \/ |
| A | A | E | EyA |
| [SBJV] | [SBJV] | [NEG.PRF] | [3P][CONT] |
| | ([3]__) | | |

**Table 23: Irregularities in Ebira STAMP markers**

Crucially, all of these irregularities happen to the *exclusion of the verb root*. Roots are neither the targets nor the triggers of such morphological quirks.[11]

A benefit of this approach is that STAMP areality can be assessed along three different morphological dimensions: constituency, allomorphy, and portmanteaux. The latter is very important as Anderson points out, as many families in the Macro-Sudan Belt exhibit what appear to be non-decomposable STAMPs to a much higher degree than Ebira, such as the Mande family. Consider the Mande language Guro (Vydrine 2009), which has several negative portmanteaux in its STAMP system.

[11] Irregular root forms are very limited in general in Ebira. Adive (1989:133) describes a small amount of allomorphy with motion verbs, e.g. for the verb 'to go', the form **nâ** occurs in intransitive clauses, **nọ̄** in semitransitives, and **nā** in serial verb constructions. Crucially, none of this is sensitive to STAMP morphology.

(47) Guro STAMP portmanteaux (Vydrine 2009:239)

| | | | | |
|---|---|---|---|---|
| a. | **ɓe** | zuru-o | | [ɓe zuruo] |
| | **2SG>3SG.IPFV** | wash-IPFV | | '(you) wash him/her/it.' |
| b. | **yaa** | zùrù-ò | ɗo | [yaa zùrùò ɗo] |
| | **2SG>3SG.IPFV.NEG** | wash-IPFV | NEG | '(you) don't wash him/her/it.' |

This refined proposal for assessing areality of STAMP marking, of course, has the potential to show a *lack* of areal clustering within the Macro-Sudan Belt, which would warrant rejecting STAMPs as a defining feature of this macro-area. In fact, this may indeed be the case according to certain proposals within the Bantu literature, whose languages largely fall outside of this zone. Bantu languages are typical upheld as canonical synthetic systems with complex verb morphology affecting the root. However, Myers (1987, 1998) proposes that in numerous Bantu languages the inflected verb should be divided into a verb stem headed by a verb root and a constituent consisting entirely of inflectional affixes, labeled 'Aux' for auxiliary. This is called the 'inflectional stem hypothesis', schematized in (48) below (see Pietraszko 2018 for further references and additional arguments for this hypothesis).

(48) 'Inflectional stem hypothesis' for Bantu verbs (Myers 1998:232)

[ $[x\text{-}y\text{-}z]_{AUX}$ $[root\ldots]_{STEM}$ $]_{INFLECTED\ VERB}$

Applied to the Bantu language Shona (Zimbabwe), this splits the inflected verb (in a.) into the two constituents (in b.).

(49) The Shona inflected verb (Myers 1998:240)

a. nd-a-ká-mu-tár-ís-ir-a

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| nd- | a- | ká- | mu- | tár | -ís | -ir | -a |
| 1S.SBJ- | PAST- | REMOTE- | 3S.OBJ- | look | -CAUS | -APPL | -FV |

'I looked for him/her (yesterday or before)'

b. [ $[nd\text{-}a\text{-}ká]_{AUX}$ $[mu\text{-}tár\text{-}ís\text{-}ir\text{-}a]_{STEM}$ $]_{INFLECTED\ VERB}$

Here, subject agreement and TAM form a constituent to the exclusion of the root, meeting the definition of a STAMP marker in (45). While there are clear differences from Ebira – most notably in the presence of derivational suffixes and the final vowel – bifurcating the inflected verb as above renders such Bantu languages much closer to STAMP structures than would otherwise be assessed purely from a tradition of transcribing Ebira analytically but Bantu synthetically.

As a final note, notice for Shona above that the two constituents still form a larger constituent called the 'inflected verb', for which there is robust morphosyntactic, morphophonological, and tonological evidence in Bantu languages. As a whole, the proposal for assessing STAMP areality does not prohibit the STAMP from forming a constituent with the verb root. This is in fact the case in Ebira. Recall that the STAMP marker and the verb root form a single phonological word (P-word) as defined by vowel harmony, as shown in (50).

(50) ( [S/C/TAM/P] … [VERB ROOT] )$_{\text{P-WORD}}$

This structure still complies with the proposal because the sub-STAMP morphs form a constituent to the exclusion of the root (indicated in square brackets above), even though together they all form a larger constituent.

## 5. Conclusion

The focus of this paper concerned the interaction of linear and non-linear morphology in Ebira. Such morphological patterns were shown to not appear on the root, but rather formed pre-verbal units called STAMP markers (Anderson 2011, 2015, 2016), a mnemonic for subject agreement, tense, aspect, mood, and polarity. Based on the extensive description of Ebira in Adive (1989) and Scholz (1976), this paper argued that Ebira STAMPs by-and-large can be decomposed into individual sub-STAMP morphs, rather than treated as non-decomposable portmanteaux. Specifically, individual inflectional categories for subject agreement (1S, 2, 3S, 1P, 3P), aspect/mood (HABITUAL, COMPLETIVE, SUBJUNCTIVE, CONTINUOUS, PERFECT), polarity (NEGATIVE), and clause-level meanings (INTERROGATIVE, 'IF', 'WHEN') were decomposed into various floating tones, floating moras, and unassociated segments. By decomposing STAMPs in this way, this paper made testable predictions for future Ebira studies, as not all logically possible category combinations have been investigated yet. I concluded this paper by discussing the areality of STAMP markers in the African Macro-Sudan Belt. In order to circumvent issues of analytic/synthetic transcription, I proposed that the areality of STAMP markers in Africa should be based on whether individual STAMP categories form a constituent *before* and to the *exclusion* of the verb root, requiring explicit evidence independent from transcription practices.

### Abbreviations

| | | | |
|---|---|---|---|
| 1 | first person | FV | final vowel |
| 2 | second person | HAB | habitual |
| 3 | third person | INT | interrogative |
| Agr-F | Agreement feature | NEG | negative |
| APPL | applicative | OBJ | object |
| ATR | Advanced tongue root | P | plural |
| Aux | Auxiliary | PRF | perfect |
| C | Clause(-level) | P-word | Phonological word |
| CAUS | causative | S | singular |
| COMPL | completive | SBJ | subject |
| CONT | continuous | SBJV | subjunctive |
| FUT | future | STAMP | Subject/Tense/Aspect/Mood/Polarity |

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**Appendix: Description in Scholz (1976)**

As mentioned, Scholz' (1976) description of the Ebira STAMP system for the most part corroborates Adive's (1989) description. This is expected, as they both describe the central dialect Okene (area [1] in the map from Figure 1). Still, Scholz differs in several key ways, which I overview here.

One major difference between Scholz and Adive is in the completive aspect, shown in (51). Note that the double acute accent indicate super-high tone, which we turn to shortly.

(51) Completive aspect in Scholz

a. **máā**-vẹ́ 'I came' (S76:53)

b. **ọ́ǫ̣́**-sị́ ẹ̄cṵ́kṵ́ tṵ́ īrēnū [ɔ́ɔ̄ʃɛ̋tʃő́kő́ túrēnū]
**3S.COMPL**-take bone put mouth 'he had a bone in his mouth' (S76:102)

In these examples, completive is expressed via a **H M** tone pattern where the **M** is pre-linked to a mora, plus a floating segment **A**. This is similar to but not identical to the analysis based on Adive. The decomposed structure for both works are compared in Table 24.

| Based on: | S (Agr-Fs) / TAM | μ<br>\|<br>mI<br>[1S] | μ<br>\|<br>0<br>[3S] |
|---|---|---|---|
| Scholz | H M<br>\|<br>μ<br><br>A<br>[COMPL] | H M<br>\| \|<br>(μμ)<br>\/<br>mA<br>[1S][COMPL] | H M<br>\| \|<br>(μμ)<br>\/<br>0<br>[3S][COMPL] |
| Adive<br>(Table 3 above) | H L<br><br><br><br>A<br>[COMPL] | H L<br>\/<br>(μ)<br>\|<br>mA<br>[1S][COMPL] | H L<br>\/<br>(μ)<br>\|<br>0<br>[3S][COMPL] |

**Table 24: Comparison of completive aspect in Scholz (cf. Adive)**

Another key difference is in negative polarity. Scholz' analysis involves tonal upstep, whereby a high tone (H) before a low is generally upstepped and realized as a super-high tone /S/. A sample of environments is shown in (52). Upstep happens both within morphemes (a.) as well as across them (b.). In certain environments this applies opaquely. In (c.), the super-high tone spreads into the triggering low tone resulting in a [SSH] sequence, while in (d.) a low-high sequence following the super-high becomes all high.[12]

(52) Sample environments where H → S before L (S76:67-68)

a. / àgúgù / → [ àgűgù ] 'crocodile'
b. / īnómí nìnī / → [ īnőmí nìnī ] 'birds' (bird + PLURAL)
c. / ó-wèyí / → [ őwéyí ] 'a small one'
d. / wá-zú-mè-é / → [ wázűméé ] 'you can do it'

Many of these super-high contexts can be analyzed as HL sequences underlyingly, e.g. **nâ** 'to leave' transcribed as /HL/ in both Adive and Scholz. Scholz describes that in most contexts this is realized as a super-high tone, effectively creating a four-height tone contrast. An example of (derived) super-high contrasting with high is below.

[12] Adive discusses the presence of a downstep derived from the low of L before H's (e.g. HLH → H˓H). However, he provides far less discussion and phonetic corroboration, and is not consistent in his transcription practices in marking the two types of high tones.

(53) Surface super-high contrasting with high (S76:64)

a. / hámá wá / → [ hámá wá ] 'imitate them'

b. / cémâ wá / → [ cḗmḗ wá ] 'lift them'

I bring up these super-high patterns in Scholz because they are the key to understanding certain differences compared to Adive. Let us return to the negative, which according to Scholz is realized as a super-high tone on the STAMP and pre-verbal particle **yI** [NEG]. This pattern can be accounted for if the negative particle **yÍ** is high-toned and has a floating **L** tone after it which triggers upstep on the particle and any preceding H-toned STAMP.

(54) Super-high in negative contexts

| | | | | |
|---|---|---|---|---|
| a. | Scholz: | mé-**yí**Ⓛ-ré-wū | → | **mḗ-yḯ**-ré-wū |
| | | 1S.NEG-NEG-see-you | | 'I did not see you' (S76:73) |
| b. | Cf. Adive: | mé-yí-hú | → | mé-yí-hú |
| | | 1S.NEG-NEG-drink | | 'I did not drink' (A89:90) |

A final major difference between the two descriptions involves the continuous aspect. While Adive describes this as a long low-toned STAMP – e.g. [1S] **mèè** / **màà** and [3S] **èè** / **àà** in Table 5 above – Scholz describes these STAMPs as having an initial **M**:

(55) Continuous aspect in Scholz

a. **mēè**-zí-wū **māà**-vẹ́

1S.CONT-expect-you 'I am expecting you' (S76:88) 1S.CONT-come 'I am coming' (S76:53)

b. **ēè**-nà ōwú [ēènōwú] **āà**-kà ịrẹ̄yị̀ [āàkàrẹ̄yị̄]

3S.CONT-tear shout 3S.CONT-say say

'he/she is crying' (S76:45) 'he/she is speaking' (S76:83)

One interesting observation is that in both descriptions, the third person plural is irregular in the continuative but in different ways. For Adive, the [3P] is **éyéē** / **ẹ́yáā** with an unexpected **HM** tone pattern (Table 5), while for Scholz the tone pattern is **MLM** shown below (cf. simply ML in (55)).

(56) **ẹ̄yàā**-mẹ̀ ịsá ọ́-kà yì wá bẹ́ẹ́

3P.CONT-do what 3S-say give them ?

'they were doing what he told them to' (S76:91)

I refer the reader to the original Scholz (1976) for further scrutiny of the STAMP system.

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