

Chapter 26

STAMP morphs in the Macro-Sudan Belt

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STAMP morphs – portmanteau subject-tense-aspect-mood-polarity morphs exhibiting functional and formal properties of both pronominals and auxiliary verbs – are characteristic of many of the genetic units across the Macro-Sudan Belt. STAMP morphs typically occur within a constructional frame, which may include a verb in a fully unmarked form or various construction-specific finite or non-finite forms. STAMP morphs often originate in, and synchronically may appear in, auxiliary verb constructions. Further, univerbation of STAMP morphs with following verbs has yielded various series of inflectional prefixes in a range of families and individual languages. After introducing the functional and formal/constructional properties of STAMP morphs, the paper discusses the origin of STAMP morph constructions and their subsequent developments into bound inflectional or conjugational prefix series. The paper closes by presenting a typology of STAMP morphs in three important Macro-Sudan Belt macro-groupings, viz. Chadic, Central Sudanic, and Niger-Congo languages; and for the last mentioned, particularly the Benue-Congo taxon.

1 Introduction

In this article I introduce and exemplify a curious and characteristic feature of a number of languages found across different genetic units spanning the large areal complex of equatorial Africa called the Macro-Sudan Belt (Güldemann 2008). This feature has challenged analysts pursuing descriptions of various western and central African languages, exhibiting functional properties typically associated with both subject pronouns and auxiliary verbs in many other languages; it has recently been called a STAMP morph (Anderson 2012; 2015). This is mnemonic for what these elements largely 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]. Such elements have also been previously called the *tense-person complex* (Creissels 2005), and *pronominal predicative markers* or *pronominal auxiliaries* (Vydrine 2011; Èrman 2002) in the Africanist literature.



Portmanteau STAMP morphs are found throughout languages representing different genetic units of the Macro-Sudan Belt. In their most basic form, they are the sole means of encoding referent properties of the syntactic subject, in addition to most of the types of categories encoded by verbal Tense, Aspect and *Aktisonsart*, Mood and Polarity morphology. An example of the simplest STAMP morph construction can be seen in (1) and (2) from Tarok, a language of Nigeria belonging to the Tarokoid Plateau genetic unit (Benue-Congo stock, Niger-Congo phylum).

- (1) Tarok (Sibomana 1981/1982: 238) [TAROKOID/PLATEAU]

n wá ù-dìŋ.

1.PFV drink CLSFR-water

'I have drunk the water.'

- (2) Tarok

mí wá a-tí ipín.

1.IRR drink CLSFR-tea tomorrow

'I will drink tea tomorrow.'

In this study, I discuss some of the characteristics of STAMP morphs and STAMP morph constructions in a set of languages and genetic units of the Macro-Sudan Belt. §2 discusses the genetic units that constitute the typological sampling of African languages used in this study. §3 discusses the range of functions associated with STAMP morph constructions, and §4 explores their formal constructional features. §5 offers some thoughts on the origins of STAMP morphs. §6 discusses the subsequent role such formations have played in the development of prefixed conjugation series that are likewise found across the different genetic units of this linguistic area. Sections 7-9 briefly examine the role of STAMP morph constructions and prefix conjugations that developed out of erstwhile STAMP morphs in three macro-level groupings of genetic units (stocks) in the Macro-Sudan Belt. This includes the Chadic stock (§7), the Central Sudanic stock of Nilo-Saharan (§8), and the various genetic units found within the Benue-Congo stock of Niger-Congo (§9).

2 Typological Sampling and the Macro-Sudan Belt

In his seminal work on the Macro-Sudan Belt [MSB], Güldemann (2008) remained agnostic about the usefulness of higher order units in Africa, at least with respect to typological sampling. Instead he suggested the fourteen genera in Table 1, with Ijoid, Dogon, Chadic and Songhay being peripheral to the proposed area insofar as they show fewer of the characteristic core-features identified as definitional of the MSB, than do the majority of other identified genera.

Table 1: Genera in the Macro-Sudan Belt according to Güldemann (2008)

Adamawa	non-Bantu Benue Congo	Bongo-Bagirmi	Dogon
Kwa	Kru	Gur	Songhay
Mande	Moru-Mangbetu	Ubangian	Ijoid
Chadic	Atlantic		

Since 2008, a number of revisions to standard classifications of African languages have been offered, including statements by Dimmendaal (2008; 2011) and Sands (2009). In previous work on African linguistic typology, I have suggested a larger range of sampling units as appropriate for cross-linguistic work, which have internal diversification on the level of Germanic or Romance; I call these ‘genetic units for typological sampling’ (Anderson 2011), and write them in small-caps to distinguish them from names of both languages and larger taxa. Many genera in Table 1 would thus be split into multiple different genetic units; in this system, the number of such genetic units in the Macro-Sudan Belt to use in typological sampling totals over fifty. Not all these genetic units have attested STAMP morph constructions, but the vast majority does. In my corpus the genetic units that include STAMP morph constructions (or prefix conjugation series that historically derive from such constructions, see section 5) include at least those in Table 2.

3 Functions of STAMP morphs

STAMP morphs usually combine with a following verb to encode the TAM categories of the event, and the person, number and, where relevant, gender categories of the subject. Such forms can be found in as diverse an array of languages of the Macro-Sudan Belt as the Biu-Mandara (Central) Chadic language Merey (3) of Cameroon, the Kru language Wobé (4) of Côte d’Ivoire, and Bongo of the Sara-Bongo-Bagirmi family of Central Sudanic (5) spoken in South Sudan.

- (3) Merey (Gravina 2007: 8) [Biu-Mandara Chadic]
na zal.
1.PST call
‘I called.’

Table 2: Genetic units w/STAMP morphs in MSB (Anderson 2011; Dimmendaal 2008; 2011; Sands 2009)

Atlantic-Congo families, isolates and stocks			
Bantoid	Gbe	Kulango	Potou-Tano
Bendi	Gur	Leko-Nimbari	Senufic
Cangin	Igboid	Mbum-Day	Tarokoid
Cross River	Jen Bambukic	Na-Togo	Tenda
Edoid	Ka-Togo	Nupoid	Ukaan
Ega	Kainji	Okoid	Waja-Kam
Fali	Kru	Plateau	Wolof
Ga-Dangme			
Chadic sub-families		Mande families	
Biu-Mandara (Central)		East Mande	
East Chadic		Northwest Mande	
Masa		Southeast Mande	
West Chadic		Southwest Mande	
Central Sudanic families		Ubangian families	
Kresh		Gbaya	
Lendu		Ngbandi	
Mangbetu		Mba	
Mangbutu-Lese/Efe		Zande	
Moru-Ma'di		+traces in:	
Sara-Bongo-Bagirmi		Ngbaka	
		Banda	

- (4) a. Wobé (Hofer & Link 1973/1980: Wobé 3)¹ [Kru]
 ẽ² gyi³².
 1.PST come
 ‘I have come.’
- b. Wobé
 ma² gyi³².
 1.NPST come
 ‘I am coming.’
- (5) Bongo (Tucker & Bryan 1966: 75) [Sara-Bongo-Bagirmi]
 ma bi.
 1.INDEF give
 ‘I am giving.’

One of the curious and characteristic features of STAMP morph constructions is the possible encoding of negative polarity without any distinct negative polarity scope operator, the negative polarity being encoded together with TAM categories and referent properties of the subject in the STAMP morph itself. Formations of this type can be found in languages of the Macro-Sudan Belt such as Duka (Kainji) (6) or Mano (South-east Mande) (7).

- (6) Duka (Bendor-Samuel, Skitch & Cressman 1973: 13) [Kainji]
 mân hé ò-kót.
 1.FUT.NEG go to-bush
 ‘I won’t go to the bush.’
- (7) Mano (Vydrine 2009: 226) [Southeast Mande]
 lèé máá wè gèè.
 3SG.NEG[HAB] Mano language speak
 ‘S/he doesn’t speak Mano.’

As noted earlier, the referent categories expressed in STAMP morphs are typically restricted to subjects, but in a small number of instances one also finds portmanteau subject > object forms within a STAMP morph, as in the following sentence from Kohumono (Cross River).

- (8) Kohumono (Cook 1972/1980: 355) [Cross River]
 βó fà.
 1>2.NPST bite
 ‘I bite you.’

¹ Hofer & Link’s volume does not number the chapters consecutively, but rather each chapter begins anew at page 1. Thus this form comes from page 3 of the Wobé chapter. Their page-numbering convention is followed here.

In Guro (Southeast Mande), one finds portmanteau subject > object-encoding STAMP morphs that also reference polarity, as in *be* vs. *yaa* in the following sentences (note the tone differences on the verbs in these constructions as well as the presence of the postverbal negator *do* in (9b)).

- (9) a. Guro (Vydrine 2009: 239) [Southeast Mande]
be *zuru-o*.
 2SG>3SG.IPFV wash-IPFV
 '[You] wash him/her/it.'
- b. *yaa* *zùrù-ò do*.
 2SG>3SG.IPFV.NEG wash-IPFV NEG
 '[You] don't wash him/her/it.'

The next section (§4) turns to the range of constructional types in which STAMP morphs participate.

4 Formal subtypes of STAMP morph constructions

STAMP morph constructions exhibit a wide-range of formal sub-types. As mentioned previously, the simplest construction consists of a STAMP morph and an unmarked or bare stem form of the verb (10).

(10) Bare Stem Construction: STAMP Verb

Some examples of this constructional type of STAMP morph may be found in Fyem (11). Wolof also has an extensive system of such STAMP morph constructions, as do a number of Mande languages. Upwards of ten separate paradigms may be found.

- (11) a. Fyem (Nettle 1998: 32, 35) [Plateau]
náá soo Gindirín.
 I.PRF go Gindiri
 'I went to Gindiri.'
- b. *ín soo* dirámméka.
 I.IPFV go farm.your.OBLQ
 'I will go to your farm.'

In a second STAMP morph construction the verb appears in a construction-specific tonal form, which suggests that there is an associated floating tone projecting from the STAMP morph onto the verb stem.

(12) STAMP + Floating Tone Construction: STAMP Verb_{<construction-specific tonal form>}

West Chadic Guus (also known as Sigidi) also has a highly elaborated system of STAMP morphs (Table 3), some of which have associated floating tones that they project onto the verb. The Recent Past (REC) form projects a high tone onto the following verb. The Future (FUT) does the same, and differs from the otherwise identical-looking subjunctive [SBJN] in whether it assigns this floating high tone (FUT), or does not (SBJN); the two are thus *constructionally* distinct.

Table 3: STAMP morphs in Guus [Sigidi], West Chadic (Caron 2001: 8-9)

	AOR	IMM	SBJN	FUT	HAB	PFV	REC	IRR
1	<i>ma</i>	<i>maa</i>	<i>mə</i>	<i>mə^{+H}</i>	<i>mak</i>	<i>map</i>	<i>mam^{+H}</i>	<i>məs</i>
2	<i>ka</i>	<i>kaa</i>	<i>kə</i>	<i>kə^{+H}</i>	<i>kak</i>	<i>kap</i>	<i>kam^{+H}</i>	<i>kəs</i>

- (13) Guus [Sigidi] (Caron 2001: 11) [West Chadic]
 ən ka ɗuu karáj tʃí məʃi.
 if you.IRR beat dog s/he.FUT die
 ‘If you beat the dog, it will die.’

The divergent Atlantic-Congo (or Gur) isolate language Kulango is another language of the Macro-Sudan Belt that reflects floating tones associated with STAMP morphs. In Kulango (14) the first singular habitual STAMP morph projects a low tone onto the first stem syllable of the verb, while the corresponding subjunctive form projects a high tone. Both STAMP morphs bear high tones themselves, but one projects a floating low tone and the other a floating high tone.

- (14) Kulango (Elders 2007: 193) [Kulango]
 a. má ɗɔɭɪ.
 I.HAB<+L> sell
 ‘I sell.’
 b. mɪ ɗɔɭɪ.
 1.SBJN<+H> sell
 ‘May I sell.’

The Waja-Kam language Dadiya shows similar constructions.

- (15) Dadiya (Jungraithmayr 1968/1969: 196) [Waja-Kam]
 ní já.
 you.PRF eat:PRF
 ‘You have eaten.’

In a third sub-type of STAMP morph construction, the verb appears in a construction-specific co-grammaticalized aspectual form (16).

(16) Aspect Construction: STAMP Verb_{<ASP>}

Such STAMP morph constructions are found in Tiv (Bantoid) (17), and Ndut-Falor (Cangin) (18).

(17) a. Tiv (Arnott 1958: 114) [Bantoid/Tivoid]

vé pìnè.
they.PST ask
'They asked.'

b. mbá pì'ne-n.
they.PRS ask-ASP
'They are asking.'

(18) Ndut-Falor (Pichl 1973/1980: Ndut-Falor 4) [Cangin]

mí acé.
I.RLS come:PRF
'I have come.'

A sub-type of this construction is found with the verb stem having a morphological aspect marker as well being reduplicated (19).

(19) STAMP REDPL-Verb-ASP

This is found in the following formation from Dadiya of the Waja-Kam genetic unit (20):

(20) Dadiya (Jungraihtmayr 1968/1969: 197) [Waja-Kam]

a. mən nò-lɛ.
I.NPST drink-PROG
'I am drinking.'

b. mon jà-jà-l.
you.NPST RDPL-eat-PROG
'You are eating.'

In some African languages this construction-determined aspectual form is itself realized tonally (21).

(21) Tonal Morphology STAMP Verb_{<ASP=TONE>}

An example of such a realization comes from 'Bozom, a Gbaya Ubangi language (22), in which the IPFV and PFV verb forms are distinguished tonally.

(22) 'Bozom (Moñino 1995: 159) [Gbaya Ubangi]

- a. ʔà ré.
 he.RLS enter.IPFV
 'He enters.'
- b. má rè.
 he.IRR enter.PFV
 'He will enter.'

Verbs in STAMP morph constructions can also appear in specific construction-dependent modal forms (23).

(23) Modal Construction STAMP Verb_{<MODAL>}

Examples of this type can be found in Ndut-Falor (24) and Duka (25).

(24) Ndut-Falor (Pichl 1973/1980: Ndut-Falor 4) [Cangin]

- ma[y] ayɛ.
 I.FUT come:MOD
 'I will come.'

(25) Duka (Bendor-Samuel, Skitch & Cressman 1973: 96-98; 105) [Kainji]

- mé heé.
 I.IRR go:COND
 'If I go...'

Split negative marking is relatively common in AVCs (Anderson 2006; 2011) where the negative is encoded on a lexical verb but other obligatory categories are on the auxiliary. In Africa, this pattern is a feature of auxiliary verb constructions in the languages of the Rashad Kordofanian genetic unit, e.g. in Rashad proper (26).

(26) Rashad (Tucker & Bryan 1966: 297) [Rashad Kordofanian]

- ɲi fas k-eyɛ y-ɛn.
 I meat NEG-eat I-AUX
 'I am not eating meat.'

Thus, it is not overly surprising that negative can also be encoded in STAMP morph constructions as well (27), albeit reflecting different syntactic configurations in the languages of the Macro-Sudan Belt (the lexical verb follows the functional element) than in the Nuba Hills languages (where the reverse tends to be true).

(27) Split Negative Construction: STAMP Verb_{<NEG>}

Such a formation in the negative future in Gã of the Ga-Dangme Kwa genetic unit (28).²

² Negative can be encoded in the STAMP morph itself as well. When so, the verb is thus in a 'co-negative' form.

- (28) Ga (Kropp Dakubu 1988: 105) [Ga-Dangme Kwa]
e^l bá'-íj.
he.FUT come-NEG
'He will not come.'

The other common split inflectional pattern found cross-linguistically, but one that is not overly common in the languages of Africa and particularly not in those of the Macro-Sudan Belt (Anderson 2011), is a subject-object split pattern (Anderson 2006). In the split subject-object pattern, the object is encoded on the lexical verb that subcategorizes for it, and the other obligatory inflectional categories including subject information appear on the auxiliary as in the auxiliary verb construction in (29) from Gidar.

- (29) Gidar (Frajzyngier 2008: 263) [Biu-Mandara Chadic]
wá-nè mpèr-kó.
FUT-1 chew-2
'I will eat you.'

This pattern also appears to be reflected in STAMP morph constructions as well (30).

- (30) Split Object Construction: STAMP Verb_{<OBJ>}

Such a formation may be found in a small number of Chadic languages, for example, West Chadic Polci (31) or the Biu-Mandara (Central) Chadic language Mofu-Gudur (31).

- (31) Polci (Caron 2008: 153) [West Chadic]
Gàrbà kən ndzəɾ slo: wú de kə fú:-m.
Garba COP cut meat ACC INJ 2:AOR say-1
'If Garba slaughters a beast, tell me'
- (32) Mofu-Gudur (Pohlig 1992: 4) [Biu-Mandara Chadic]
fá tá-ka dáf.
PROG.3 prepare-2.IO food
'She is preparing you food.'

5 Origin of STAMP morphs from auxiliary constructions

Where might STAMP morphs have come from? In other words, how did they develop? In known instances, they result from the fusing of a pronominal marker or pronoun with a following auxiliary verb, fused into a single portmanteau complex (Anderson 2006; 2011).³ An example showing synchronic variation between a STAMP morph and its source auxiliary verb construction comes from Limbum (33).

³ There are also instances where STAMP morphs have no obvious etymology, as in many Mande languages.

- (33) Limbum (Fiore & Peck 1973/1980: Limbum 3-4) [Bantoid]
 mɛ:³² wi³ ~ mɛ³ ʃe² wi³ mɛ:³² < mɛ³=ʃe².
 1.PROG come 1 PROG come
 ‘I am coming.’

Researchers on individual languages and families have recognized this connection. Thus Shimizu (1983: 101), when describing STAMP morphs in the Leko-Nimbari language Zing Mumuye states that “the surface differences in subject pronouns are in fact due to the TAM markers, which are realized on them or contracted with them.” Further, Babaev (2010: 35), in discussing issues in the reconstruction of Benue-Congo cautions the reader that “... various phonological processes of merging person markers with predicative markers of tense, aspect, modality and polarity have made the situation in many languages obscure.”

Language-specific internal evidence sheds light on this most likely source for the development of STAMP morphs. In Sara of the Sara-Bongo-Bagirmi family of the Central Sudanic stock, the so-called indefinite series subject pronouns are not used with finite, inflected forms of a following vowel-initial verb, but rather with an infinitive form.

- (34) Sara (Tucker & Bryan 1966: 75) [Sara-Bongo-Bagirmi]
 ma k-usa.
 1:DEF INF-eat
 ‘I am eating,’ ‘I eat (HAB).’

Though a finite construction that seemingly consists of a combination of a subject pronoun plus an infinitive verb form is odd typologically, such a formation is entirely consistent with typological norms if the subject pronoun actually has an auxiliary verb ‘hidden’ within it, or in other words is actually a STAMP morph. Sara and its sister languages (see §8 below) are far from the only languages that show constructions with infinitive verb forms in combination with specific STAMP morphs. The entirely unrelated Bantoid language Nomaande shows similar structures.

- (35) Nomaande (Wilkendorf 2001: 22) [Bantoid]
 yó ɔɔba ná-áyá.
 3.PRS INF:go to-3SG
 ‘He is going to him (i.e., his home).’

Similarly, in Dott (also known as Dass or Zodi) of the West Chadic family (36), the continuous or progressive STAMP morph series requires a verbal noun form of the lexical verb in the predicate.

- (36) Dott/Zodi (Caron 2002: 165) [West Chadic]
 taa tʃét-ti.
 3PL.CONT come-VN
 ‘They are coming.’

Yet other languages of the Macro-Sudan Belt require dependent-marked forms of verbs to appear in combination with STAMP morphs in specific constructional subtypes. Such languages include the Kainji language Duka (37) and ‘Bozom (38) of the Gbaya Ubangi family.

- (37) Duka (Bendor-Samuel, Skitch & Cressman 1973: 96-98; 105) [Kainji]
mé àm-hà á.
I.IRR DEP-go NEG
‘I am not going.’

- (38) ‘Bozom (Moñino 1995: 159) [Gbaya Ubangi]
ʔà rè-á.
he.RLS enter.PRF-DEP
‘He has entered.’

6 STAMP morphs developing into prefixal conjugations

Having established that STAMP morph constructions often derive from AVCs, the question arises as to where these formations “go” in their subsequent historical developments. In “normal” AVCs, an auxiliary is often drawn into the verbal complex, and loses its phonological integrity as a freestanding element. Similar developments are seen with STAMP morph constructions. In the Macro-Sudan Belt one typically finds that old STAMP morphs have gotten drawn into the verb to become prefixal conjugation markers. This can be seen in cognate formations in Nchumuru varieties. Bejamso-Grubi Nchumuru (39) has freestanding STAMP morphs, while in closely related Banda Nchumuru (40), these have become a prefixed conjugation set.

- (39) Bejamso-Grubi Nchumuru (Price 1975/1980: Nchumuru 5) [Potou-Tano Kwa]
màá bà.
I.PRF come
‘I have come.’

- (40) Banda Nchumuru (Cleal 1973/1980: Nuchumuru 4) [POTOU-TANO Kwa]
mà-ba.
1PST:PRF-come
‘I have come.’

Such developments have been known in African linguistics for more than a century.⁴ I now turn to brief examination of STAMP morph constructions and historically-related prefixal conjugations in Chadic, Central Sudanic, and certain Niger-Congo families.

⁴ Seidel (1898: 211) pointed out that in Kwa languages of Togo “die verbalen Präfixe, wahrscheinlich Reste ehemaliger Hilfsverben, verschmelzen nicht selten mit den Pronominalpräfixen zu einer Silbe”. What the status of STAMP morphs might be prosodically in a given language in this region bears close examination, as they may turn out to be clitics or prefixes. To be sure, Creissels et al. (2008: 93) caution that “many descriptions of African languages do not identify pronominal markers appropriately, treating them as independent words”. Such is definitely the case in the East Mande Boko/Busa cluster (Jones 1998), where the orthography treats STAMP morphs as freestanding elements but phonologically they are prefixes. As

7 STAMP morphs and prefix conjugations in Chadic languages

The next three sections briefly present STAMP morphs in three of the representative stocks found in the Macro-Sudan Belt (each consisting of several genetic units for typological sampling). STAMP morphs are a characteristic of the entire Chadic macro-family.⁵ Simplex formations of the most basic type (10) are characteristic of West Chadic languages like Angas (41) and Gerka (42).

- (41) Angas (Burquest 1973/1980: 38) [West Chadic]

ɲâ: jì.
1.COMPL come
'I have come.'

- (42) Gerka (Jungraithmayr 1968/1969: 173)

kà tà fàm.
2.PRF drink water
'You have drunk water.'

On the other end of the spectrum, in some Biu-Mandara Chadic languages, e.g., Vamé (43), one now finds only bound prefix conjugations which have derived from STAMP morph constructions.

- (43) Vamé (Kinnaird 2006: 11) [Biu-Mandara Chadic]

əŋ-lɛ.
FUT.1-go
'I will go.'

A common pattern seen throughout the Macro-Sudan Belt is for a perfective series to be bound prefixal conjugations, but an imperfective series to remain in freestanding STAMP morph constructions. An example of such a system is found in the Biu-Mandara Chadic language Mbuko (44).

- (44) Mbuko (Gravina 2001: 7) [Biu-Mandara Chadic]

a. nə-zlambál.
1PFV/ANT-throw:ANT
'I threw.'

a whole, one can find certain variation between Anglophone vs. Francophone meta-analytic traditions in the Africanist literature, with Anglophone analysts preferring more prefixes in their descriptions while Francophone scholars rather often favor analyses with pre-verbal free-standing elements. This is not an absolute.

⁵ It is important to not confuse STAMP morphs with a series of intransitive copy pronouns that are also characteristic of Chadic (Frajzyngier 1977; Burquest 1986). They are unrelated phenomena.

- b. nī zlāmbāl.
1.IPFV throw
'I am throwing.'

Merey (also Biu-Mandara Chadic) shows an unusual intra-paradigmatic split between free-standing forms in the first singular past but bound prefix elements in the corresponding third person (45) (masculine singular) past form.

(45) Merey (Gravina 2007: 8) [Biu-Mandara Chadic]

- a. na zal.
1.PST call
'I called.'
- b. a-zal.
3.PST-call
'He called.'

Once bound, such prefix conjugational elements can appear with new auxiliary verbs, as in the following Buduma formation (46).

(46) Buduma (Pawlak 2001: 376), (Lukas 1939: 55) [Biu-Mandara Chadic]

- a-kol a jai-ni.
3.PRS-be at sit-vN
'He is/was sitting.'

While prefix conjugations are archaic features of Afroasiatic languages (Hodge 1971; Schuh 1976; Mukarovsky 1983; Voigt 1987), the ones attested in Chadic languages do not reflect inherited structures (Schuh 1976; Voigt 1989; Jungraithmayr 2005; 2006), but rather reflect secondary developments typically derived from the univertation of STAMP morphs with following verbs (Caron 2006; Shay 2008; Anderson 2011; 2012).

8 STAMP morphs and conjugational prefixes in Central Sudanic languages

STAMP morphs and prefixed conjugation series derived from STAMP morphs are also found in the various families of the Central Sudanic stock (Anderson 2015). Within the analytic tradition of Ma'di (47), a member of the Moru-Ma'di genetic unit Blackings & Fabb (2003) analyze the freestanding STAMP morph *ka/kɔ* as a pronominal, but Tucker & Bryan (1966) analyze it as an auxiliary. Such disagreement over what traditional part-of-speech has to be assigned to these complexes underscores the unusual but characteristic features of STAMP morphs.

(47) Ma'di (Blackings & Fabb 2003: 13) [Moru-Ma'di]

- a. ká gbándà `̀na.
3SG.INDEF cassava NPST:eat
'He eats/is eating cassava.'
- b. kɔ `̀na-ʔa.
3SG.INDEF NPST:eat-OBJ
'He eats/is eating it.'

Various Sara-Bongo-Bagirmi languages require infinitive forms of vowel-initial verbs when used with freestanding STAMP morphs, for example, Ngambay (48), Kabba (49) and Kenga (50).

(48) Ngambay (Vandame 1963: 118) [Sara-Bongo-Bagirmi]

- a. m̄ k-àò àl ngà.
1.FUT INF-go NEG ADV
'I will not go again.'
- b. á k-ùsā né ngà uà.
2.FUT INF-eat thing ADV Q
'You are already going to eat?'

(49) Kabba (Moser 2004: 220) [Sara-Bongo-Bagirmi]

- má k-àw lò t́ àáng.
1:FUT INF-go place LOC NEG
'I shall go nowhere.'

(50) Kenga (Neukom 2010: 15) [Sara-Bongo-Bagirmi]

- m̄ k-̀s̄s̄.
1.FUT INF-eat
'I will eat.'

As with Chadic, many languages in different sub-families of Central Sudanic have a bound 'definite' perfective STAMP series that contrasts with an unbound 'indefinite' imperfective series. The pattern is found in Bongo (51), Lugbara (52), Lendu (53) and Oke'bu (54), from four different genetic units of Central Sudanic.

(51) Bongo **mi-* < *m-i* (Tucker & Bryan 1966: 75) [Sara-Bongo-Bagirmi]

- a. mi-bi.
1.DEF-give
'I give, I gave.'
- b. ma bi.
1.INDEF give
'I am giving.'

(52) Lugbara (Tucker & Bryan 1966: 47) [Moru-Ma'di]

- a. á-tsɔ mvá.
1.DEF-beat child
'I beat the child.'
- b. ma mvá tsɔ.
1.INDEF child beat
'I am beating the child.'

(53) Lendu (Tucker & Bryan 1966: 46) [Lendu]

- a. má-drr mbí.
1.DEF-pull rope
'I pull the rope.'
- b. má mbi drí.
1.INDEF rope pull
'I am pulling the rope.'

(54) Oke'bu (Tucker & Bryan 1966: 48) [Mangbutu]

- a. l-ómá ùnzú.
2.DEF-beat child
'You beat the child.'
- b. láà unzú òma.
2.INDEF child beat
'You are beating the child.'

As the reader may have noticed, there is also a difference in the basic clausal syntax of the two series in these Central Sudanic languages, with VO order in the definite/perfective series and OV in the indefinite/imperfective one. The VO order in the definite series vs. OV order in the indefinite is, however, not universal in Central Sudanic and is not found, for example, in Baka (55) of the Sara-Bongo-Bagirmi family or Kresh (56).

(55) Baka (Tucker & Bryan 1966: 75) [SARA-BONGO-BAGIRMI]

- a. m-áne yí.
1.DEF-eat thing
'I ate (something).'
- b. má y-ane yi.
1.INDEF INF-eat thing
'I am eating (something).'

(56) Kresh (Tucker & Bryan 1966: 75) [Kresh]

- a. m-omò nòmò.
 1-drink drink
 'I drink a drink.'
- b. ma y-òmò nòmò.
 1.INDEF INF-drink drink
 'I am drinking.'

Note that these two languages however also have infinitive forms of the verb with vowel initial stems with the indefinite series STAMP morph, like those in (48)-(50). This feature further underscores the likely origin of STAMP morph in an auxiliary verb construction in Central Sudanic languages.

Of course, once a bound STAMP morph prefix exists in a given Central Sudanic language, it is free to attach to auxiliary verbs in new AVCs, as seen in the following Lugbara sentence (57).

(57) Lugbara (Tucker & Bryan 1966: 46, 47) [Moru-Ma'di]

- ma-ŋga mvá tso.
 1.DEF-AUX child beat
 'I shall beat the child.'

Variation in closely related varieties between bound and unbound formations can be seen in Sara-Bongo-Bagirmi languages. Compare in this regard Furu (58), where a free-standing STAMP morph is found, with the corresponding sentence in its close sister language Bagiro (59), where it is a prefix.

(58) Furu (Boyeldieu 1990: 91) [Sara-Bongo-Bagirmi]

- mí gáli gɔ.
 I know NEG
 'I don't know.'

(59) Bagiro (Boyeldieu 1990: 91) [Sara-Bongo-Bagirmi]

- mú-gá⁴li gò.
 1-know NEG
 'I don't know.'

Mangbetu languages only have bound prefixes, but nevertheless reflect a possible trace of two originally distinct STAMP sets, albeit with the opposition having become phonologized in such languages as Mangbetu and Meje. Thus vowel initial stems take the second singular prefix *ni-* (60)-(61) while consonant-initial stems take (*m*)ú- (62)-(63):

(60) Mangbetu (Larochette 1958: 106) [Mangbetu]

- ni-ési-(a).
 2.PRS/FUT-do-TAM
 'You (will) do.'

- (61) Meje (Larochette 1958: 106) [Mangbetu]
ni-ésí-a.
PRS/FUT-do-TAM
'You (will) do.'
- (62) Mangbetu (Larochette 1958: 106-7) [Mangbetu]
mú-ta.
2.PRS/FUT-carry
'You (will) carry.'
- (63) Meje (Larochette 1958: 106-7) [Mangbetu]
ú-ta.
PRS/FUT-carry
'You (will) carry.'

The Mangbutu language Lese also has only bound prefix conjugations. Again these appear to reflect two originally distinct series, such as the present progressive in the first singular in *má-* (64) and the future progressive first singular in *mó-* (65).

- (64) Lese (Tucker & Bryan 1966: 51) [Mangbutu]
má-dzò kòdí à-nó.
1:TAM-AUX meat DEP-eat
'I am eating meat.'
- (65) Lese (Tucker & Bryan 1966: 51) [Mangbutu]
mó-dzá kòdí à-nò.
1:TAM-AUX meat DEP-eat
'I shall be eating meat.'

While widespread and hence tempting to reconstruct the bound perfective series and unbound imperfective series pattern all the way back to Proto-Central Sudanic, the overall frequency of such patterning in the Macro-Sudan Belt suggests that we should do so only with caution. Nevertheless, I tentatively reconstructed this to Proto-Central Sudanic (Anderson 2015). This is because the sub-families that lack this pattern have two bound series, and never the opposite patterning, such that bound imperfective series appear to be attested only if bound perfective series exist; this distribution is also found across the Benue-Congo and Chadic languages of the Macro-Sudan Belt.

9 STAMP morphs and conjugational prefixes in Niger-Congo languages

STAMP morphs and conjugational prefixes derived from STAMP morphs are found in a wide range of Niger-Congo languages. These include Klao of the Kru family (66), Dadiya

of the Waja-Kam family (67), Gã of the Ga-Dangme Kwa genetic unit (68), and Kulango (69).

- (66) Klao (Marchese 1982: 3, 18) [Kru]
 ɔ̃ɔ̃ blɛ.
 he:IPFV sing
 ‘He is singing.’
- (67) Dadiya (Jungraithmayr 1968/1969: 196) [Waja-Kam]
 ń já.
 you.PFV eat.PFV
 ‘You have eaten.’
- (68) Ga (Kropp Dakubu 1988: 105) [Ga-Dangme Kwa]
 èe nũ nũ.
 3:PRS water drink
 ‘He is drinking water.’
- (69) Kulango (Elders 2007: 193) [Kulango]
 a. mí dɔ̀li.
 1.SBJN sell
 ‘May I sell.’
 b. mĩt dɔ̀li.
 1.PROG sell
 ‘I am selling.’

Such formations are also widespread in Mande languages, such as the following example from Jo(wulu) of the Northwest Mande genetic unit (70).

- (70) Jo (Jowulu) (Kim 2002: 11) [Northwest Mande]
 kaa ku-ki kulu nũ.
 3PL.FUT *to*-DEF hot eat
 ‘They will eat hot *to*.’

Within Benue-Congo there is evidence for two (possibly three) sets of contrastive STAMP morphs series.⁶ One is realized as a bound prefix series, while the other(s) remain(s) freestanding STAMP morphs in most but not all relevant languages. These series consist of a bound realis/perfect(ive) series marked by **ma*- (possibly with an associated low tone **mà*-) in the first singular, which contrasts with one (or two) other *m*-initial series with front vowels (or no vowel) marking irrealis/imperfective action. Thus, within Benue-Congo itself, there is some evidence for the two non-perfect(ive) series. However,

⁶ The reconstructions for Proto-Benue-Congo are preliminary and impressionistic. Space limitations prevent further demonstration of the details of the complex Benue-Congo situation.

the broader comparative data from Atlantic-Congo (or Volta-Congo) languages suggest that there were originally two sets of forms, and one may well have split into two contrasting series during the development of Benue-Congo, or, alternatively, in the history of individual sub-groups within Benue-Congo. However, they likely originated in a single imperfective/irrealis series from an earlier state of the language. One of these sets generally has a high-tone in the first singular and marks irrealis or future semantics. The first singular marker in the other set appears optionally without a vowel and with a non-high (mid or low) tone, and encodes present/non-past/imperfective semantics (71).

- (71) Proto-Benue-Congo
 Pattern 1 **ma*- I.PRF/PST/RLS : **mé* I.IRR/FUT
 Pattern 2 **ma*- I.PRF/PST/RLS : **mé* I.IRR/FUT : **mi*, **m(V)* I.PRS/NPST

Evidence for the **ma*- (~**mà*-) perfective/realis/past series in Benue-Congo (71) comes from a range of different sub-groups of the stock. Thus one finds formally and functionally cognate elements in such Benue-Congo languages as Bantoid Ndemli (72), Eleme of the Cross River family (73), and Berom of the Plateau sub-stock (74).

- (72) Ndemli (Lenaka 1999: 72) [Bantoid]
mà-tóm.
 I.PST-send
 ‘I sent.’
- (73) Eleme (Bond 2009: 1482), (Bond 2010) [Cross River]
ma-ʔà.
 I.ANT.PRF-leave
 ‘I left.’
- (74) Berom (Bouquiaux 1970: 299, 301) [Plateau]
mà-ciŋ.
 I.PST/PRF-dig
 ‘I (have) dug.’

Evidence for the high-toned irrealis or future series marked in the first singular by **mé* can be found in a range of Benue-Congo languages, e.g., the Bantoid language Tiv (75), the Kainji language Duka (76) or Berom of the Plateau stock (77).

- (75) Tiv (Arnott 1967/1980: Tiv 4) [Bantoid]
mé ¹*va*.
 1FUT come
 ‘I will come.’
- (76) Duka (Bendor-Samuel, Skitch & Cressman 1973: 17) [Kainji]
mé róà sə á.
 I.IRR REM.FUT drink NEG
 ‘I would not drink it.’

- (77) Berom (Bouquiaux 1970: 300) [Plateau]
 mé ciŋ.
 1.SBJN dig
 ‘I must dig.’

Evidence for a third series of STAMP morphs in Proto-Benue-Congo is more tenuous and must remain beyond of the scope of the present study.

10 Summary

This study has been a preliminary survey of STAMP morph constructions in a range of genetic linguistic units spoken across the Macro-Sudan Belt. A comparative analysis of STAMP morphs across the languages of the Macro-Sudan Belt, and the prefixal conjugations that historically derived from them, yields significant insights into various layers in the history of verbal conjugation in many genetic units. Perhaps the most noteworthy insight is that there is an absolute pattern whereby, if present, a bound series encodes perfective/realis categories and an unbound series rather encodes imperfective/irrealis categories. This situation is found in Chadic, Central Sudanic and Benue-Congo languages alike. This pattern has been reconstructed to Proto-Central Sudanic (Anderson 2015). One can also reconstruct a probably bound perfective/realis conjugation series (e.g., with first singular **ma-/=*) for Proto-Benue-Congo, but its immediate ancestral formation may still have been an unbound STAMP morph. The corresponding imperfective/irrealis series (e.g., with first singular **mé ~ *mI ~ *mĪ*) appears to have certainly been an unbound STAMP morph in the proto-language. As in Central Sudanic, Benue-Congo languages only have bound imperfective series STAMP morphs if perfective series elements are also bound. The precise modeling of the Chadic developments is the object of current ongoing research, but the same distributional trend appears to be manifested across the Chadic languages as well.

While insights into the inflectional history of the genetic units in this macro-region are gained by such an analysis (e.g. how secondary prefix conjugations arose in Central Sudanic languages), others remain unanswered to date. The most salient of such questions is the following: Why is it that if bound/prefixal conjugations are found which appear to derive from STAMP morph constructions, in Chadic, various Niger-Congo families and Central Sudanic languages across the Macro-Sudan Belt the pattern is always one where the bound series encodes perfective/realis and the unbound series imperfective/irrealis categories, but never the reverse situation? Resolving this important and intriguing question remains a primary goal of future research.

Abbreviations and symbols

1,2,3	1 st , 2 nd , 3 rd person	IRR	irrealis
>	acting on	+L	low tone
ACC	accusative	LOC	locative
ADV	adverb	MOD	modal
ANT	anterior	NEG	negative
AOR	aorist	NPST	non-past
ASP	aspect	OBJ	object
AUX	auxiliary	OBLQ	oblique
CLSFR	classifier	PFV	perfective
COMPL	completive	PL	plural
COND	conditional	PRF	perfect
CONT	continuative	PROG	progressive
COP	copula	PRS	present
DEF	definite	PST	past
DEP	dependent	Q	interrogative
FUT	future	REC	recent
+H	high tone	RDPL	reduplication
IO	indirect object	REM	remote
HAB	habitual	RLS	realis
IMM	immediate	SBJN	subjunctive
INDEF	indefinite	SG	singular
INF	infinitive	TAM	tense-aspect-mood
INJ	injunctive	VN	verbal noun
IPFV	imperfective		

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