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STAMP morphs, prefix conjugations and multiverb predicates in the Chadic languages

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Abstract

STAMP morphs, prefix conjugations and the multiverb predicate subtype called auxiliary verb constructions (AVCs) that these derive from in the Chadic languages are discussed. Chadic languages are typically SVO (or VSO) and typically AUX V syntactically. Synchronically complex verb forms which derived etymologically from AVCs are also discussed. Across all subgroups of Chadic (but most common in West and Central), subject pronouns have sometimes fused with auxiliaries that have eroded to only a tone or floating tone or have become completely opaque synchronically. In recent Africanist typological studies these have been called STAMP morphs. These occur in different inflectional configurations across the languages of the family speaking to their origins as AVCs. There are at least ten STAMP morph series in Guus (Sigidi) (Caron 2002). In some Chadic languages like Mbuko, STAMP morphs have later fused with lexical verbs to create prefixal conjugations. This process of deriving prefix conjugations from fused STAMP morph constructions has happened repeatedly in the history of Chadic. This is a major reason why Chadic prefixal conjugations are not directly inherited from Proto-Afroasiatic.

Keywords: Chadic, auxiliary verb constructions, STAMP morphs, prefixation, historical linguistics

1 Introduction

In this paper I discuss the typology of a multiverb predicate subtype, the auxiliary verb construction (AVC), focusing on data from the Chadic language family, offering data from forty-six different Chadic languages spanning the full taxonomic diversity of the family from almost all the subgroups of West, Central, Masa and East Chadic. I follow the pan-chronic, constructional-functional typology

of Anderson (2006, 2011) that views auxiliary verb constructions as a specific type of semantically determined multi-verb construction.¹

In general terms, in two-part multi-verb predicates one speaks of a verb₁ and a verb₂. If one of the verbal elements is lexical and the other one expresses a grammatical or functional modification of the lexical verb, for example grounding it in a larger discourse space (e.g., encoding tense, aspectual or modal modification, polarity, arguments/participants, etc.), then the structure is an AVC.

AVCs are thus here understood as mono-clausal multi-verb phrases that minimally consist of an auxiliary verb component that contributes some grammatical content to the expression and a lexical verb component that contributes lexical content to the expression. An ‘auxiliary verb’ is thus an element on the full-lexical-verb-to-bound-functional-element grammaticalization chain (ex. 1) that performs some more or less definable grammatical function.

(1) *lexical verb* _[+ syntagma] > *auxiliary verb* _[+ lexical verb] > *affix* _[-verb.head-] > ∅

This well-known path collapses in(ter)dependent functional and phonological/morphotactic hierarchies and exemplifies the inherently diachronic nature of AVCs, whereby one component element (the AV) changes semantically from a LV into an AV, loses morphophonological characteristics of an independent word and ultimately becomes an affix. Subsequently such elements may erode to zero and a new grammaticalization cycle might begin; see discussions in Bybee & Dahl (1989), Heine (1993), Bybee et al. (1994) or Kuteva (2001).

In section 2 we outline the cross-linguistic inflectional typology of AVCs and exemplify these using data from Chadic languages in section 3. In sections 4 and 5 we examine two kinds of historical processes involving AVCs. One is the fusing of the LV and the AV into morphologically complex words examined in section 4. In section 5 we present data on forms that represent the reinterpretation of

1 The analysis presented here is constructional as it entails the interaction of two component elements, the auxiliary verb (AV) and lexical verb (LV) each contributing to the meaning of the resulting multi-verb predicate construction. It is functional as the AV definitionally contributes functional or grammatical meaning to the whole. It is pan-chronic insofar as it deals with synchronic multi-verb predicates, as well as synchronically complex verb forms that are morphotactically or morphophonologically single words but which derive etymologically from AVCs, also sometimes via intermediate stages involving STAMP morphs.

often highly eroded auxiliaries with subject marking as subject pronouns themselves that include TAM specifications. These elements have come to be called STAMP morphs in the Africanist typological literature (e.g., Anderson 2012, 2015, 2017). Finally, in section 6 I examine the rise of prefixal conjugation markers that resulted from the fusing of STAMP morphs and LVs that they formed constructions with to create single complex verbal words, a process which has happened several times in the history of different Chadic subgroups. This explains why such prefixal conjugational elements are not necessarily cognate across different Chadic subgroups and importantly also why Chadic prefixal inflectional series do not appear to be cognate with those attested in other Afroasiatic branches such as Semitic.

2 Inflectional typology of AVCs in Chadic²

Among the most meaningful ways to typologize auxiliary verb constructions include what their diachronic source constructions are or their subsequent historical developments. But perhaps most revealing is the patterning of the indexation of the functional (inflectional) features required by the grammar. The varied patterns of inflection in AVCs generally reveal their syntactic source construction and often the lexical origins of the auxiliaries that have been grammaticalized.

The concept of headedness in AVCs can be approached in several different ways, e.g., semantically, syntactically, functionally (i.e., inflectionally or morphosyntactically), and morphophonologically or prosodically. Semantically speaking, in AVCs, one component is designated as the lexical verb (LV) and one as the auxiliary verb (AV). The LV in such configurations should be considered the

2 The data sample used for this study attempted for as comprehensive coverage of the subgroups of Chadic as possible, and the sources include both full grammars and short studies on specific topics in the analysis of individual Chadic languages, totaling over 70 languages. I did not modify the data from the original source (except replacing ' with ?, and sometimes added glossing if none was provided in the original). If merited, I on rare occasion offer a different analysis of the data than was offered in the original source. I attempted to be as representative of the different subgroups of the different branches of Chadic as possible. Already dense with information, some decisions were made to cull the original data set presented at the original BICCL meeting and certain language data thus have been omitted here. Thus, we have excluded Bole and cite only one Hausa form among other decisions taken in data reduction.

semantic head, licensing the argument projection frame of the predicate and lexical content of the event predicated. The AV rather specifies or adds event-related and other functional semantic categories or nuances. To illustrate, the English sentences *she has eaten an apple* and *she was eating an apple* predicate of events of ‘eating’, not of ‘having’ or ‘being’, respectively.

There is a crosslinguistic tendency for AVs to be the syntactic head of AVCs (although some variation is attested). Typically, the AV occupies the same position that a simplex verb would in a sentence without an auxiliary. In OV languages, the AV typically follows the LV while in VO languages the AV rather typically precedes the LV.

The functional semantic typology of auxiliary verb constructions in Chadic languages suggests that tense, aspect and mood categories dominate AVCs in these languages. Other categories are only infrequently attested. The most significant variable in the structure of AVCs is the pattern of indexation of inflectional categories on the AV and/or the LV. Often there is just a single pattern attested in a language, but one language can have AVCs of more than one such morphosyntactic configuration too. The best-known pattern cross-linguistically is the AUX-headed structure: inflectional categories are encoded on the auxiliary, and the lexical verb appears in a construction-determined form, often nominalized or Ø-marked, or otherwise is somehow marked as ‘dependent’. This in turn generally reflects the syntactic relationship between the two components of the construction (the AV functioning as syntactic head and the LV as syntactic dependent). Formally this dependent status is marked by various means, e.g., a converb form, an infinitive, a verbal noun, a participle, reduplication or prosodically/tonally marked dependency, etc., depending on the specific features of the language as well as the specific terminological conventions of the analytical traditions that predominate in different regions or language families.

From a historical syntactic perspective, AUX-headed AVCs typically arise from verb + clausal complement structures, but can also be serial verb formations in origin too, etc. (see Anderson 2006, 2011 for more details). The headedness characteristics of the LV and AV in AUX-headed AVCs are represented in Table 1.

Table 1. Headedness in AUX-headed AVCs

AUX-headed pattern	Lexical Verb	Auxiliary Verb
syntactic {‘phrasal’}		√ [often]
semantic {‘semantic’}	√ ³	
morphosyntactic {‘inflectional’}		√

This is the familiar and default structure for AVCs in most well-explored languages. Multiple subtypes of construction-specific dependent forms of LVs (including Ø-marked or bare stem forms) may be found in a given language in various AUX-headed AVCs. For example, *be* in English participates in two different AUX-headed AVCs: with the LV in the *-ing* form it creates a progressive (or imperfect in the past) (*I am eating*, *I was eating*), with the LV in the *-ed/-en* form the construction rather has a passive reading (*I was eaten*). With this same dependent form of the lexical verb (*-ed/-en*), when combined with the auxiliary verb ‘have’, the resulting functional semantics encodes ‘perfect’ (*I have eaten*).

Lexical verbs in AUX-headed AVCs in Chadic languages may be in a nominalized form as in the Bidiya (East Chadic B.1) future-I and future-II forms (ex. 2) or in the East Dangaleat (East Chadic B.1) ventive future (ex. 3).⁴

- (2) Bidiya (Alio 1986: 334)
- ʔi-kún*
FUT.I-2PL

kaatèn
go:VN

tí-kùn
FUT.II-2PL

ʔoodyà
sleep:VN
- ‘you should go and sleep’

3 In tables 1–4 the notation √ means that this element functions as the head in this structural domain. The notation √_i/√_j means both features are indexed in this component of the construction while √_i/^{*}_j and √_j/^{*}_i mean that feature -i and -j show a split distribution (* means the index is lacking on either the LV or AV). In split systems these are mutually exclusive but in split/doubled systems, some categories are mutually exclusively indexed on the LV or the AV in the construction while other categories rather are indexed on both at the same time.

4 Tonal systems in Chadic languages are highly complex, and tone is clearly relevant here. However, I have cited forms with the tonal marking as in the original, although in some cases this may not have been ideal. A more thorough and careful comparison of the tonological properties of the STAMP morph formations and AVCs in Chadic in general needs to be done before a comprehensive and systematic treatment of these phenomena can be achieved.

(3) East Dangaleat (Shay 1999: 234)

ní-k-ke *gàse* *daan* *di*
 1PL.EXCL-VEN-2F.OBJ find.VN now only
 ‘we will come and find you’

Such a pattern is also characteristic of the intransitive future in Ga’anda (Central Chadic A.4)⁵ as in (ex. 4) and in Za(a)r, also called Sayanci (West Chadic B.3) and Hausa in the progressive or continuous formation (ex. 5 and 6).

(4) Ga’anda (Newman 1971: 20–21)

na-amən *náxà-ta* *əssə*
 FUT-1PL cook-NMLZ tomorrow
 ‘we will cook tomorrow’

(5) Za(a)r (Sayanci) (Schneeberg 1971: 95)

m-yìgá *nál-gónì*
 1-IPFV/PROG build-VN
 ‘I am building’

(6) Hausa

ta-na *tafi-ya*
 3F-PROG go-VN
 ‘she is going’

Other AUX-headed AVCs in Chadic require rather the lexical verb to remain in a bare stem form. Examples include the progressive in Mpade (Central Chadic C.5) and in Pero (West Chadic A.2) (ex. 7 and 8).

⁵ Note that future transitive forms show a split pattern with a semi-finite lexical verb. Also, in Ga’anda, the continuous/progressive is realized synchronically as a zero morph (ex. i) but nevertheless requires a nominalized lexical verb and a full/independent/contrastive form of the pronoun.

(i) Ga’anda (Newman 1971: 20–21)

Ø *ɲgət* *náxà-ta*
 CONT I cook-NMLZ
 ‘I am cooking’

(7) Mpade (Mahamat 2005: 91)

ndá-nè tò
PROG-1PL.EXCL return
‘we are returning’

(8) Pero (Frajzyngier 1989: 104)

nì-íkka có mín(a)
1-PROG drink beer
‘I am drinking beer’

LEX-headed patterns show the inverse of the AUX-headed pattern: inflectional categories (other than the functional category encoded by the auxiliary element itself) are found on the lexical verb, while the otherwise unmarked auxiliary often remains the syntactic head (Table 2).

Table 2. Headedness in LEX-headed AVCs

LEX-headed Pattern	Lexical verb	Auxiliary verb
syntactic {‘phrasal’}		√ [often]
semantic {‘semantic’}	√	
morphosyntactic {‘inflectional’}	√	

This is cross-linguistically a relatively uncommon pattern where the auxiliary synchronically behaves like an uninflected element but was historically a verb, grammaticalized as an auxiliary in an AVC. The LEX-headed pattern with an unmarked auxiliary and inflected lexical verb characterizes various non-cognate future AVC forms in a variety of Chadic languages primarily in the Masa and Central Chadic branches. This includes the future in the Masa Chadic language Masa (ex. 9), and the future in the Central Chadic languages Musgu and Hdi (ex. 10 and 11).

(9) Masa (Melis 1999: 93)

ʔàn mà vùl-àŋ-ká? síwì
1SBJ FUT give-2IND.OBJ-3F.OBJ day.after.tomorrow
‘I will give it (FEM) to you the day after tomorrow’

(10) Musgu (Meyer-Bahlburg 1972: 118)

<i>ágá mú = gèzì</i>	<i>ágá kí = gèzì</i>
FUT 1SG-come	FUT 2PL = come.PL
‘I will come’	‘you (PL.) will come’
<i>àgà mù = lúm-kù</i>	
FUT 1SG = eat = 2OBJ	
‘I will eat you’	

(11) Hdi (Frajzyngier & Shay 2002: 197)

<i>dzà’á gù-y-éy-mú</i>	<i>tá vghá màxtsím</i>
FUT meet-POT:OBJ-1PL	OBJ body tomorrow
‘will we meet tomorrow?’	

The progressive in Gidar can optionally show a LEX-headed pattern where it varies with an AVC showing a split inflectional pattern (see ex. 20 below). In this Gidar constructional variant, both subject and object are encoded on the lexical verb, i.e., in a configuration of the shape AV LV-OBJ-SUBJ (ex. 12).

(12) Gidar (Frajzyngier 2008: 247)

<i>tà wlà-má-nì</i>
PROG see-1PL-3PL
‘they see us’

In Ga’anda, the perfect, the subjunctive and habitual are all encoded by LEX-headed AVCs. As can be seen in the second form in (ex. 13), more than one auxiliary requiring this configuration can be used simultaneously.

(13) Ga’anda (Newman 1971: 40)

<i>ə fəɗ-úçà-i</i>	<i>lambərɗa sə</i>
PRF beat-2OBJ-1SUBJ	drum for
‘I beat the drum for you’	

Ga’anda (Newman 1971: 15)

<i>kə</i>	<i>lə</i>	<i>raka-ən</i>	<i>ə</i>	<i>walwurca</i>
SBJV	HAB	run-2	PREP	morning
‘you should run in the mornings’				

While the LEX-headed pattern is not overly common in general, it nevertheless is attested in various other African languages, e.g., in Central Sudanic Mödö (ex. 14).

- (14) Mödö (Central Sudanic) (Persson & Persson 1991: 19)
- tí mó-k̀nyì yí*

FUT 1-rescue you

‘I will rescue you’

Like any other AVC, the LV in a LEX-headed construction may be in a syntactic dependent relationship with the AV head and this can be indexed by non-finite morphology as in the AUX-headed pattern, e.g., encoded by an infinitive as in Gula Sara (ex. 15).

- (15) Gula Sara (Central Sudanic) (Nougayrol 1999: 137)
- nǝ́ kūsá gē ngá*

PROG INF:eat PL thing

‘they/you all are eating’

Co-headed AVCs often arise from core serialized structures or asyndetic coordination but are now mono-clausal AVCs. The distribution of the headedness characteristics of co-headed auxiliary verb constructions is seen in Table 3.

Table 3. Headedness in CO-headed AVCs

Co-headed pattern	Lexical verb	Auxiliary verb
syntactic {‘phrasal’}		√ [often]
semantic {‘semantic’}	√	
morphosyntactic {‘inflectional’}	√	√

The two most common patterns of the co-headed subtype entail doubling of a TAM marker or of an agreement marker, or both, or indeed doubling of all relevant, obligatory inflectional categories.

Co-headed AVCs are not particularly common in Chadic languages as a rule and the attested formations are largely confined to the Central branch. For example, Central Chadic Mada makes use of various doubly inflected forms, such as the double subject + modal marking in the following co-headed AVC. Note that the effects of the application of harmonic prosodies (and other processes) can make the functionally doubled inflections appear in rather different surface forms (ex. 16).

- (16) Mada (Ernst-Kurdi 2016: 85)

nù-uró nè-é-dè daf
 1IRR-POT_{AUX} 1IRR-POT-cook millet.couscous
 ‘I am going to cook millet couscous’

Mada (Ernst-Kurdi 2016: 80)

è-mè-né à-màá-mbáǎǎ zzlam
 3IRR-POT-POT_{AUX} 3IRR-IRR.POT-read things
 ‘he might be studying’

Another Central Chadic language showing a doubled subject encoding construction is Muyang (ex. 17).

- (17) Muyang (Smith 2010: 103)

á-r(ā) á-zòm ǵām
 3-IMM.PRSP_{AUX} 3-eat thing
 ‘he’s about to eat something’

As mentioned above, CO-headed AVCs are not very common in Chadic overall, but doubled subject marking is found in core serialized structures in various Chadic languages. It is quite likely that these forms represent a common input source construction for co-headed AVCs in Chadic.

Note that there are, however, certain relatively common formations that might be confused with doubled inflectional patterns: the so-called “intransitive copy pronoun” (ICP) forms in Chadic (Frajzyngier 1977). If bound, ICPs are often in a suffixal series, so are not indexed with prefixed subject pronominals but rather what look like (indirect) object forms or possessive forms, e.g., in Mina (Frajzyngier & Johnston 2011). ICP forms can be found in many (particularly Central and West) Chadic languages, e.g., in West Chadic [A.2] Kushi (ex. 18) or in Central Chadic Gidar (ex. 19). Note importantly that ICPs do not occur with transitive forms as was seen in the ‘real’ co-headed AVC such as in the Muyang form cited in (ex. 17) above.

- (18) Kushi (Batic 2019)

shìnuì tà ǵillǵ-jù
 3PL FUT stand.up-3PL.ICP
 ‘they will stand up’

- (19) Gidar (Frajzyngier 2008: 143, 141)
- sá jáábè nà-dà zá-wà

from Djabe 1-IMM.PST_{AUX} come-1

‘I just came from Djabe’
- á-nná sá-w á já

FUT-1 be-1 PREP Djabe

‘I will be in Djabe’

To be sure the phraseology “intransitive copy pronouns” (ICP) is nearly standard in Chadic linguistics, but it is clearly not an ideal term. These ICP elements do indeed occur in various forms that have other indices of subject, but they also occur in imperatives that lack subject marking in Buwal (Viljoen 2013: 391) where they are clearly not a copy of anything. Note also however that ICP forms in certain South Bauchi languages like Buu/Zaranda and Dott/Zodi (Caron 2006) are not identical with object forms nor possessive pronouns as they are in many other Chadic languages. In West Chadic languages of the Bole-Tangale subgroup, ICP formations seem to occur in languages that have undergone gender levelling, e.g., Kanakuru, Kupto, Kushi, Maha, Pero, Piya, Tangale or Widala (Baldi & Leger 2011: 29). This however does not hold for all Chadic languages.

Split patterns of course do not have a sole inflectional head, but otherwise show the syntactic and semantic headedness characteristics of AUX-headed constructions. This is represented in Table 4.

Table 4. Headedness in SPLIT-headed AVCs

Split pattern	Lexical verb	Auxiliary verb
syntactic {‘phrasal’}		√ [often]
semantic {‘semantic’}	√	
morphosyntactic {‘inflectional’}	√ _i /* _j	* _i /√ _j

There are two common split patterns attested in AVCs, both involving subject indexing split from other indices, specifically a negative marker or an object index. Other patterns are attested but these two sub-types of split patterns constitute the majority of split inflectional systems encountered in AVCs.

A small number of Central Chadic languages show a split in the locus of inflectional indexing of subject vs. object. Thus, in certain AVCs in Gidar, some inflectional sets show the split pattern of subject/

object inflection, with subject marked on the auxiliary and object marked on the lexical verb. This can be seen in variants of the progressive (first form in ex. 20) and the future (second form in ex. 20) in Gidar.

(20) Gidar (Frajzyngier 2008: 154, 263)

<i>mà</i>	<i>wín</i>	<i>tà-t</i>	<i>ázgál-nì</i>	<i>wá-nà</i>	<i>mpàr-kó</i>
mother	child	PROG-F	feed-3M	FUT-1	chew-2
‘the mother is feeding the baby’				‘I will eat you’	

The Central Chadic language Ga’anda also uses split inflectional patterns in specific AVCs. In the future in Ga’anda with transitive verbs, object is encoded on the lexical verb and subject on the auxiliary (ex. 21).

(21) Ga’anda (Newman 1971: 78, 41)

<i>na-ʔən</i>	<i>raka-ándá-ta</i>
FUT-1PL.EXCL	run-3PL.OBJ-NMLZ
‘we will make them run’	

<i>na-i</i>	<i>kwas-ú-ta</i>
FUT-1	free-2OBJ-NMLZ
‘I will free you’	

Note that the LV is nominalized in this structure showing its syntactically dependent status as well. In other words, morphosyntactically, inflectionally, and functionally there is a split, but nevertheless the auxiliary remains in a head-dependent relation with the LV syntactically, marked by the nominalization of the LV.

Causative forms in Gidar show a somewhat unusual split pattern. The causer is encoded as the subject on the lexical verb while the causee appears as the object together with the causative AV element, followed by TAM marking in an atypical configuration of SUBJ-LV AV-OBJ-TAM (ex. 22). Possibly this configuration is evidence that the LV and the AV have become one morphophonological unit in the Gidar causative construction.

(22) Gidar (Frajzyngier 2008: 138)

<i>à-nzá</i>	<i>gà-wá-kà</i>
3M-run	CAUS-1-PRF
‘he made me run’	

Lastly, there are constructions that have similar splits in inflectional headedness as do split AVCs but also simultaneously show doubling of other inflectional categories. These split/doubled formations are somewhat more common in African languages (especially Bantu) than in other macro-regions but are attested globally. The complex nature of the inflectional headedness of split/doubled AVCs is seen in Table 5.

Table 5: Headedness in SPLIT/CO-headed AVCs

Split-Doubled Pattern	Lexical Verb	Auxiliary Verb
syntactic {‘phrasal’}		√ [often]
semantic {‘semantic’}	√	
morphosyntactic {‘inflectional’}	√ _i /* _j , * _i /√ _j ; √ _i /√ _j	√ _i /√ _j ; √ _i /* _j , * _i /√ _j

Split/doubled patterns essentially show the same types of patterns as the split pattern but with one category rather doubled, e.g., doubled subject, but another category indexed only once, with for example, single object indexing (on the lexical verb alone in the most commonly attested split/doubled pattern).

Split/doubled patterns are not common in Chadic, but they are attested. The progressive with feminine objects may encode the feminine argument twice on both the lexical verb and the auxiliary in Gidar (ex. 23).

- (23) Gidar (Frajzyngier 2008: 160)
- in-tà-t(=)úlà-tà
- 1-PROG-3F(=)see-3F
- ‘I see her’

Note that these progressive forms are quasi-univerbated in Gidar, so perhaps these should rather be considered as complex verb forms deriving from an AVC of the split/doubled inflectional pattern (univerbated forms of this sort are discussed in section 4 below). The distinction is only relevant to any given synchronic state of analysis of a specific form, since, as mentioned above, we take a panchronic approach in this study here and thus, even if synchronically a single verbal word in modern Gidar (or on its way to becoming such), the source input construction had to be an AVC of the split/doubled type.

3 Very briefly on the typology of the notion of the verbal ‘word’ in Chadic languages

Chadic is the largest subgroup in terms of the number of different languages within Afroasiatic, which likely total over 200. While some scholars debate whether three or four branches of Chadic should be reckoned, we adopt here the position of the four-branch hypothesis: East Chadic, Masa Chadic, Central (aka Biu-Mandara) Chadic, and West Chadic. Both the West and East Chadic branches have a handful of subgroups, while the Central Chadic branch has numerous subgroups, although the specific details on which languages belong in which subgroup within Central Chadic remain contested in certain instances.

Syntactically Chadic languages are either verb medial or verb initial⁶ – the latter mainly confined to a small number of Central Chadic languages. Since both verb medial and verb initial languages generally have auxiliary verbs that precede lexical verbs, Chadic languages unsurprisingly mainly or typically show AUX V order. Some Chadic languages exhibit TAM-based splits in basic linear syntactic order: Central Chadic Hwana (Hona) has SVO in the progressive and future, but VSO in the past (Frajzyngier 1983: 126) while in Central Chadic Gude, the completive, continuous and potential forms show the order TAM + verb + subject but ‘aorist’ or ‘neutral’ aspect forms have the order subject + TAM + verb (Hoskison 1983: 106). Note also in this regard that in Hausa STAMP morphs, the future has the structure AUX = SBJ (e.g., *zân/za nì* [FUT:1SG] *zâ ka* [FUT 2SGM] Newman 2000: 584) as do certain negative forms like the negative continuous, but the vast majority are SBJ + AUX e.g. *ka-na* [2SGM-CONT] (Newman 2000: 575).

Word structure is highly varied across the Chadic family. Certain Central Chadic languages (at least in the analysis of some scholars) have undergone prosodic integration or univerbation of formerly distinct words in a complex verb phrase, that has synchronically resulted in large verbal word complexes with multiple argument indices, verbal specifiers (‘extensions’), etc., as in Zulgo (ex. 24) or Ouldeme (ex. 25).

6 VSO languages in Chadic are all in the Central branch, but Frajzyngier (1983: 126) among others considers this to be the original word order pattern in the family.

- (24) Zulgo (de Colombel 2003: 44)

*avelémèrékérìṅà**a-velé-mèré-ké-rì-ṅà*

3.MOD-give.ATTR-1PL.I.O-2OBJ-DIR-3.OBJ

‘he will give us something for you’

- (25) Ouldeme (de Colombel 1988: 107)

*kangàláməsəgètèmekenegè**k-a-ṅgàlá-mə-sagàtày-me-aka-na-egè*

2-MOD-AUX:FUT?-again-tire-1PL.OBJ-TLOC-3OBJ-ACHV

‘you will again tire yourself out on our behalf because of this’

On the other hand, various forms in specific individual languages present a nearly isolating profile with frequent use of grammatical tone, such as in the following examples from East Chadic Lele (ex. 26), Masa Chadic Musey (ex. 27), Central Chadic Mbara (ex. 28) and West Chadic Mushere (ex. 29):

- (26) Lele (Frajzyngier 2002: 173)

gol gé dú

see 3PL 3F

‘they saw her’

- (27) Musey (Duncanson 1972: 86)

nàm pàlá

he DIG:NPST/IPFV

‘he digs’

nàm pàlá

he DIG:PST/PFV

‘he dug’

- (28) Mbara (Barreteau 1987: 47)

mí ná zùm húk

1SG.IPFV FUT eat meat

‘I will eat (the) meat’

- (29) Mushere (Jungraithmayr & Diyakal 2008 cit. in Schuh 2017: 165)⁷

<i>ka</i>	<i>náa</i>	<i>ká</i>	<i>naá</i>
2SG(M).I	see:PFV	2SG(M).II	SEE:IPFV
‘you have seen’		‘you will see’	

However, one must approach such data with some caution as criteria for wordhood has not systematically been established and rigorously applied across the Chadic languages, e.g., whether there are distinctions between phonological words and grammatical words, and what those might be distinguished by, i.e., what varying degrees of synthesis are attested and which phono-prosodic domains and phenomena might be used to define which units or indeed whether any units so defined constitute words. Also, one must consider two meta-linguistic factors in determining ‘words’ in Chadic languages: i) some French-speaking scholars conceive of pre-verbal markers as unbound particles, not prefixes, based on French orthography and likely in part related to this, ii) orthographic conventions adopted for some Chadic languages simply stipulate that the subject markers be written apart, even while phonology tells us they are bound. For example, while subject markers may be written apart in orthographic considerations (and might be called (pro)clitics in specific analyses), nevertheless the harmonic alternations or prosodies and tonal properties of these forms suggest that they must form single phonological words with a following verb, as in Moloko (ex. 30), and thus these subject pronouns seem to really be subject prefixes, and therefore part of the verbal word.

- (30) Moloko (Friesen 2017: 208)

7 These should be more properly considered STAMP morph constructions, see section 5 below. Whether such formations should be synchronically considered one word or two simply determines if these are active STAMP morph constructions or have become one word with the former STAMP morph now functioning as a prefixal conjugation marker. This process has happened numerous times in different Chadic languages. Whether a subject pronoun should be considered part of the same word as the verbal element in descriptions of Chadic languages and how to compare these formations across the languages is a major outstanding issue to understanding the diachronic picture. Whether a subject marker is bound or not can indeed vary across different person/number combinations such as the split between 1sg and 3sg in Central Chadic Méréy, see (ex. 65) below.

nɛ-tʃik-ɛ

1SBJ-stand-SFX

‘I stand’

nu-tsukw-ɔm

1SBJ-stand-1PL

‘we stand’

These Moloko forms show alternations characteristic of various Chadic languages that reflect the application of palatal(ization) and labial(ization) prosodies (Pearce & Lovestrand 2024), here with leftward spread of the features [front] and [round] respectively, to stems and subject markers from suffixal elements, impacting both consonants and vowels. This suggests that phono-prosodically such forms constitute a single word. To be sure, across the Chadic family, from a morphotactic and tonological perspective,⁸ some subject pronominals can be argued to be independent words, some appear to be proclitic, some appear to be fully phono-prosodically integrated prefixes but there are no independent criteria for determining this *per se* applicable to all languages such that like can be compared with like. Also, object indices (direct and indirect) almost invariably follow the verb stem in Chadic languages and are variably described morphotactically as either suffixes or enclitics, again with no independent variable that could be applied across the languages of the family. All these factors must be considered in the discussion below. However, with respect to AVCs, whether a multiverb predicate sequence constitutes one or two ‘words’ (however defined) at any given point in the history of an individual language simply represents two possible stages in the phonological component of the grammaticalization processes that define AVCs.⁹ In summary, much work remains to be done in determining the nature of phono/prosodic and grammatical words and relevant tonology, both within the synchronic description of many individual Chadic languages and in their diachronic analysis as well.

⁸ Tonal alternations in verb conjugation are complex in Chadic languages and without question they are not irrelevant to this discussion, same for internal vowel changes in stems (ablaut, apophony), but neither of these are discussed *per se* here, just mentioned in passing where necessary, as they each merit their own specialized studies.

⁹ As noted above, the cline of LV to AV often further entails phono-prosodic integration of the two into a single word that often entails a morphotactic cline of freestanding AV > clitic > affix.

4 Complex verb word forms arising from AVCs in Chadic

Grammaticalization is often accompanied over time by phonological integration of the functional and lexical components of an auxiliary verb construction. Such processes of univerbation yield morphologically complex words, including sometimes even frozen dependent morphology on the lexical verb, whether from an original AUX V (ex. 31) or V AUX (ex. 32) historical configuration.¹⁰

(31) Swahili (Heine & Reh 1984: 102)

mtoto a-me-kuja

1.child 3-PRF-come:FV

‘the child has come’

< **mtoto a-meele ku-ja*

1.child 3-finish:PRF INF-come:FV

(32) Xakas (Turkic; Siberia) (Field Notes)

ojna-p-tir-zij

play-CV-EVID.PST-2SG

‘you apparently played’

< **ojna-p tur(u)zij*

play-CV AUX.EVID.PST-2SG

The process of the fusing of former auxiliary verb constructions of such a type into complex verb words is attested in individual Central Chadic languages. Lamang has a wide range of forms that derive from the fusing of original LEX-headed AVCs (ex. 33). Two different modal forms as well as the iterative/durative and the progressive are marked by fused TAM encoding subject pronominals in Lamang.¹¹ The source of the iterative-durative in Lamang–still in a LEX-headed AVC–was seen above in the Gidar progressive (ex. 20).

¹⁰ Indeed the resulting fused structure may preserve an older syntactic configuration in the language as in future forms in Romance languages like French where a form like *chanter-ai* [sing:INF-1SG.FUT] < Vulgar Latin **cantare habeo* ‘I will sing’ [sing:INF have.1SG.PRS] arose from a V AUX structure while in modern French synchronic AVCs follow the pattern AUX V.

¹¹ Since specific glosses for these forms were not offered in the original source, they will remain unglossed here.

(33) Lamang (Wolff 1983: 143, 145, 170, 164)

	SBJV-II	ITER.DUR	PROG	SBJV-III
1	<i>a-ts-í</i>	<i>tó-ts-í</i>	<i>ń-kwòr-ì</i>	<i>ká-tsá-yó</i>
2	<i>á-tsá-ká</i>	<i>tó-ts-ká</i>	<i>ń-dzátá-ká</i>	<i>ká-tsá-ká</i>

The Logone subjunctive also likely arose from the fusing of an initial uninflected modal auxiliary (i.e., deriving from an original LEX-headed AVC) with an aorist-marked form of the lexical verb (ex. 34). The source for this univerbation can be seen in the lex-headed configuration in Ga'anda (ex. 21) above.

(34) Logone (Lukas 1936: 47)

<i>ka-də-lo</i>	<i>ka-i-ló</i>
SBJV-3F.AOR-come	SBJV-3PL.AOR-come
'she may come'	'they should come'
<i>ka-u-ló</i>	<i>ka-gə-ló</i>
SBJV-1AOR-come	SBJV-2AOR-come
'I may come'	'you should come'

5 STAMP morph constructions in Chadic

To be sure among the most noteworthy features of Chadic auxiliary verb constructions is the presence of fused auxiliary and subject markers, sometimes called tensed pronouns, “l'indice de personne aspecto-modal” (Caron 1980: 15), the tense-person complex (Creisels 2005) or STAMP morphs (Anderson 2012, 2015, 2017). STAMP morphs simultaneously encode some canonically verbal functional categories like tense, aspect, mood and/or polarity in addition to the person/number/gender features of (typically subject) participants. They appear to result diachronically from the fusing of subject pronouns and now eroded AVs, sometimes synchronically realized only as tonal alternation (or indeed nothing) and thus lacking any of their original segmental features, while in other cases there is rather more clear evidence of their former auxiliary status. Other than their unusual forms and person/number/gender meanings in addition to typical TAM and polarity functions, STAMP morphs largely function like typical AVs-cum-subject indices and appear in a range of different structural or morphosyntactic configurations. As former AVCs,

it should not be overly surprising that a given specific STAMP morph construction may require LVs to appear in a construction-specific form, that can at times require non-finite (or semi-finite) forms, like any AVC might (have done). STAMP morphs are thus a possible intermediate stage in a grammaticalization continuum of AVCs where the form functioning as a subject pronoun and a TAM marker was historically reinterpreted as a single word (resulting from the fusing of an original subject + AV formation).¹²

STAMP morphs occur in all four subgroups of Chadic, and across several subgroups within these. They are particularly common in certain West Chadic languages. STAMP morphs in Chadic languages constitute a sizable variety of forms when viewed as a group. Whether these formations are old or can be attributed to any earlier stages in the history of Chadic is the subject of our present research as even closely related languages can show seemingly non-cognate systems.

The simplest systems are probably found in languages like Miya of the West Chadic B.2 branch (ex. 35), in Mpade and Mbara of the Central Chadic branch (ex. 36, ex. 37) or in Migama and Gali/Miltu of the East Chadic branch (ex. 38, ex. 39). Here STAMP morphs occur within an aspectual system contrasting perfective with imperfective (Mbara, Miya, Mpade) or in a modal system contrasting conditional vs. indicative (Migama) or in a tense(-cum-modal) system contrasting future and non-future in Gali/Miltu. In all these languages, the STAMP morphs take unmarked lexical verb stem forms.

(35) Miya (Schuh 2001: 444)

tá má mara zhaak-uw
 3.IPFV NEG donkey get-CONEG
 ‘he will not get a donkey’

¹² Thus, STAMP morph constructions can be in any structural configuration that an auxiliary verb construction can be in. So they may be AUX-headed, LEX-headed, split, co-headed or show split-doubled distribution in their inflectional patterns, just as AVCs can. STAMP morphs are therefore just a possible intermediate stage in the cycle of freestanding full words to bound/univerbated structures that grammaticalized AVCs might pass through (i.e., formations that will fuse together to become complex words). The STAMP morph stage is thus one in which a subject index (whether bound or free) and a functional auxiliary element have univerbated into one phonoprosodic complex. This in turn has entered into a construction with at least a lexical verb, which may also index from zero up to many other potential grammatical indices not encoded by the STAMP morph.

à mār mà zhaak-úw
 3.PFV donkey NEG get-CONEG
 ‘he didn’t get a donkey’

- (36) Mpade (Mahamat 2005: 88; 53)

līwdō wò lù hò dó kídá rò
 yesterday 1.PRFX come house DEM work DEM

gídí dó nò gè
 for.her DEM 3F.PRFX finish

‘when I returned yesterday, her work was already finished’

sí làkè ù dī kàsúgú gó ábà ngìnè
 day every 1SG.IPFV go walking with father 1POSS
 ‘I go walking every day with my father’

- (37) Mbara (Tourneaux 1978: 30)

á sér	à sér
3M.IPFV crash	3M.PRFX crash
‘he crashes, is crashing’	‘he has crashed’

- (38) Migama (Jungraithmayr & Abakar 1992: 37)

ná ʔàsáa	náa ʔàsáa
1.IND come	1.COND come
‘I come, am coming’	‘if I come’

- (39) Gali/Miltu (Jungraithmayr & Peust 2019: 224)

ná tǐyé mǎn	náà tē/tā mǎn
1.NFUT eat.PFV food	1.FUT eat.FUT food
‘I ate/have eaten’	‘I will eat’

The future STAMP morph series in East Dangaleat (East Chadic) requires a verbal noun form of a lexical verb it occurs with (ex. 40). Highly unusual for Chadic is the fact that the STAMP morph also serves as the host of object agreement morphology (ex. 41) if the specific verbal configuration merits such (i.e., a transitive verb with overt object indexing).

- (40) East Dangaleat (Shay 1999: 212)

kfi tálé

2M.FUT see:VN

‘you will see’

- (41) East Dangaleat (Shay 1999: 213)

maa di an-dyìŋ dɛ̀ŋ

why only FUT.1SG-2M.OBJ kill/finish.VN

‘why should I kill you?’

In West Chadic A.3 Angas, STAMP morphs may occur with various other auxiliary elements as well in complex multipart AVCs. Compare the two phrases in (ex. 42).

- (42) Angas
- ¹³
- (Burquest 1973: 38)

ŋâ: jì

1.COMPL come

‘I have come’

ŋá mét jì

1.NPRS FUT come

‘I will come’

Many Chadic languages show more developed systems of STAMP morphs. East Chadic Kwang (ex. 43), West Chadic (A.3) Mushere (ex. 44) and Montol (ex. 45) and Central Chadic Kirya-Konzel (ex. 46) each have at least three distinct series.

In Kwang, the perfective series also requires perfective stem-ablaut and suffixation on the lexical verb, compare (ex. 43) with (ex. 44). This type of patterning is not uncommon in East Chadic languages, and it may also be found in West Chadic languages as well.

- (43) Kwang (Ebert 1987: 65)

ú sé

3M.AOR drink

‘he drank’

wa sé

3.FUT/HAB drink

‘he has drunk’

¹³ When glossing was lacking in the original source, I have tried to add this if possible. Naturally some errors may have crept in during such and these are my responsibility, and I hope nothing terribly inaccurate has been proposed.

(44) Kwang (Ebert 1987: 66)

ù sàá-n
 3M.PRF drink.PRF-PRF
 ‘he will drink’

The three series of Mushere encode PROG, PST, FUT according to the analysis of Jungraithmayr & Diyakal (2013); see (ex. 45).¹⁴

(45) Mushere (Jungraithmayr & Diyakal 2013: 304)

	PROG	PST	FUT
1	<i>an</i>	<i>a</i>	<i>á</i>
2M	<i>nga</i>	<i>ka</i>	<i>ká</i>
2F	<i>nji</i>	<i>yi</i>	<i>yí</i>
3M	<i>ni</i>	<i>ní</i>	<i>ǀí</i>
3F	<i>ni</i>	<i>ní</i>	<i>ǀí</i>

A nearly identical functional opposition is found West Chadic Montol, here contrasting a PRF, a FUT and a PROG series of STAMP morphs (ex. 46); offered here are the singular forms.¹⁵

(46) Montol (Jungraithmayr 1964: 169–70)

	PRF	FUT	PROG
1	<i>a</i>	<i>á laa</i>	<i>hǎndǐ</i>
2M	<i>gə</i>	<i>gǎ</i>	<i>gaa</i>
2F	<i>zhi</i>	<i>zhí</i>	<i>zhǐ</i>
3	<i>ni</i>	<i>ká</i>	<i>nǐ</i>

Three sets of STAMP morphs are also attested in Central Chadic Kirya-Konzel. Similar to Mushere, Kirya-Konzel contrasts IPFV, PFV, and FUT series of STAMP morphs (ex. 47).

¹⁴ As mentioned above, it is always possible we are dealing with bound prefixes rather than freestanding STAMP morphs in any Chadic language presented here, if analysts chose to write subject encoding elements as separate words not as prefixes. But these two options are just two stages in the phono-prosodic history of such formations. As mentioned previously orthographic considerations do not always reflect phonological reality.

¹⁵ To be sure, while not yet determined, it is entirely plausible that the PRF series of Montol and PST series of Mushere are cognate.

(47) Kirya-Konzel (Blench & Ndamsai 2009: 82)

ǰò	hwyi	câwcâw	wâyí	kì	kárí
1.IPFV	run	quickly	1.FUT	beat	dog
‘I am running quickly’			‘I will beat the dog’		
ǰè	kì	kárí			
1.PFV	beat	dog			
‘I beat the dog’					

The Ron Chadic language Fyer (West Chadic A.4) has many STAMP morph series. The singular forms of the basic seven sets (with the corresponding tonal melody or projected floating tone on the verb stem) are presented in (ex. 48). There are two sets of series, one with short vowels (and also all high in the SG series except 2M) and largely requiring lexical verbs to bear a low tone (the future can project either L or H tone onto the verb), and the other with long low vowels in the STAMP morph and projecting an H tone onto the lexical verb.

(48) Fyer (Jungraithmayr 1970: 44)

	PRF	HAB	PROG	SUB	AOR	SBJV	FUT
1	yáà	yaá	yaâ	yáa	yí	yì	yì
2M	háà	haá	haâ	háa	há	hà	ha
2F	sháà	shaá	shaâ	sháa	shí	shì	shi
3M	máà	maá	maâ	máa	mí/mú	mì/mù	m(i/u)/ n
3F	táà	taá	taâ	táa	tí	tì	ti
+ tone of LV	H	H	H	H	L	L	L/H

Some examples of forms with the Fyer STAMP morphs and their associated tonal projections can be seen in (ex. 49).

(49) Fyer (Jungraithmayr 1970: 45)

yáà	gán	yaá	gán	yaâ	gán	yáa gán
1.PR	go	1.HAB	go	1.PROG	go	1.TEMP go
‘I have gone’		‘I used to go’		‘I am going’		‘when I went’

<i>yí</i>	<i>nyì</i>	<i>yì</i>	<i>nyì</i>	<i>yi</i>	<i>nyí</i>
1.AOR	do	1.SBJV	do	1.FUT	do
‘I do/did’		‘I may do’		‘I will do’	

As the above formations instantiate, STAMP morph constructions are often in an AUX-headed configuration, but they may also occur in different structural configurations in Chadic. Thus, in East Chadic Mawa, aspect is encoded in the STAMP morph (signaled tonally) and affixally on the lexical verb as well, in a doubled aspect indexing form (ex. 50).

(50) Mawa (Jungraithmayr 1981: 55)

<i>no</i>	<i>waany~wáánya-ŋ</i>	<i>nó</i>	<i>waany-ê</i>
1.IPFV	RDPL~open-IPFV	1.PRF	open-PRF
‘I open’		‘I opened’	

West Chadic Tangale (West Chadic A.2), like Mawa, also doubly marks aspect in STAMP morph constructions, once in the STAMP morph itself and once via a suffix on the lexical verb, as in the following perfect and continuous forms (ex. 51).¹⁶

(51) Tangale (Jungraithmayr 1971: 29)

<i>n</i>	<i>wee-go</i>	<i>naŋ</i>	<i>sol-i</i>
1.PRF	see-PRF	1.CONT	pull-CONT
‘I have seen’		‘I am pulling’	

In Batna (Masa Chadic), perfective and imperfective STAMP morphs can be distinguished in a small number of person/number combinations. These STAMP morphs appear with a verb stem in an aspect-specific tonal form, L for imperfective, H for perfective (ex. 52).

(52) Batna (Jungraithmayr 1978: 7)

<i>ndaá</i>	<i>pum</i>	<i>ndaa</i>	<i>púm</i>
3(F).PFV	beat.IPFV	3(F).PFV	beat.PFV
‘she beats’		‘she has beaten’	
<i>mbâa</i>	<i>pum</i>	<i>mbáà</i>	<i>púm</i>
1PL.IPFV	beat. IPFV	1PL.PFV	beat.PFV
‘we beat’		‘we have beaten’	

¹⁶ Note that a 1PRF form *n* is found in the grammatical systems of several Niger-Congo languages (Anderson 2012, 2017).

<i>naá</i>	<i>pum</i>	<i>naa</i>	<i>púm</i>
1.IPFV	beat.IPFV	1.PFV	beat.PFV
‘I beat’		‘I have beaten’	

Negative and positive forms are contrasted in the perfective series in Bachama (Central Chadic A.1 or “Bata” group), with different aspect-cum-polarity suffixes on the lexical verb (ex. 53):

(53) Bachama (Carnochan 1970: 86; 85)

<i>tèé</i>	<i>zùm-i</i>	<i>hye</i>	<i>zùm-o</i>
2.NEG.PRF	eat-NEG.PRF	2.PRF	eat-PRF
‘you didn’t eat it’		‘you ate it’	

Other individual Chadic languages may show varied inflectional patterns involving STAMP morph constructions. For example, the West Chadic B.2 language Pa’a has unmarked verb stems with the STAMP morph in the perfect series (marked by H tone on the STAMP morph) (ex. 54);

(54) Pa’a (Jungraithmayr 1966/67: 198)

<i>má</i>	<i>sà</i>	<i>ʔú</i>	<i>sà</i>	<i>ná</i>	<i>mìy</i>
1.PRF	drink	2.PRF	drink	3M.PRF	die
‘I have drunk’		‘you have drunk’		‘he has died’	

But the future form in Pa’a is marked by a compound AV. This consists of an L tone marked STAMP morph that combines with an inflected auxiliary verb (< ‘go’) which marks its own subject by suffixes, followed by a dependent lexical verb form. Thus, perhaps it is something like a doubled auxiliary formation with double-subject encoding (for some person/number combinations at least) in origin, with the second auxiliary requiring a verbal noun form of the LV. This auxiliary is intransitive etymologically and the subject marking is suffixal here. Given how rare true doubled subject marking is in Chadic AVCs and that suffixal subject indexing is relatively marked in West Chadic, perhaps this really should be considered a STAMP morph + Aux-ICP + LV_{VN} formation from an historical or diachronic perspective. Thus, this form does not actually exhibit a doubled subject formation as such. The original meaning of the future auxiliary in Pa’a is ‘go’ so it meets the conditions necessary to have once been an ICP formation. See Pa’a examples in (ex. 55).

(55) Pa'a (Jungrathmayr 1966/67: 198)

<i>wù</i>	<i>t-ú</i>	<i>mìyà-w</i>	<i>mà</i>	<i>t-ón</i>	<i>mìyà-w</i>
2.FUT	FUT-2	die-VN	1.FUT	FUT-1	die-VN
'you shall die'			'I shall die'		
<i>nà</i>	<i>t-á</i>	<i>mìyà-w</i>			
3M.FUT	FUT-3M	die-VN			
'he shall die'					

STAMP morph forms can also occur in the split subject/object pattern where the STAMP morph encodes subject and tense, and the lexical verb the object as in West Chadic Polci (ex. 56) or in Central Chadic Mofu-Gudur (ex. 57).

(56) Polci (Caron 2008: 153)

<i>Gǎrbà</i>	<i>kən</i>	<i>ndʒaŋ</i>	<i>slo:</i>	<i>wú</i>	<i>dɛ</i>	<i>kə</i>
Garba	COP	slit.throat	animal.meat	0ACC	INJ	2:AOR
<i>fũr-m</i>						
say-1						
'If Garba slays a beast for meat, tell me, tell me'						

(57) Mofu-Gudur (Pohlig 1992: 4)

<i>fá</i>	<i>tá-ka</i>	<i>dáf</i>
PROG.3	prepare-2.IO	food
'she is preparing you food'		

When objects are indexed in transitive verbs in the Pa'a future, a split/doubled pattern is found with the subject encoded in the STAMP morph (by definition) and with the object appearing on a semi-finite dependent/nominalized verb.

(58) Pa'a (Jungrathmayr 1966/67: 198)

<i>mà</i>	<i>t-án</i>	<i>góó-sù</i>	<i>mà</i>	<i>t-án</i>	<i>góó-sîn</i> ¹⁷
1.FUT	FUT-1	give-3.OBJ	1.FUT	FUT-1	give-3PL.OBJ
'I shall give him/her'			'I shall give them'		

6 Prefix conjugations arising from STAMP morph constructions in Chadic

Prefix conjugations in Chadic languages can in many cases be demonstrated to result from the fusing of an original STAMP morph formation and a following lexical verb. That is, these forms show two different processes of univerbation: an original one to create the STAMP morph and a secondary process of fusing of the already existing STAMP morph and the former lexical verb in the STAMP morph construction into a conjugational prefix. This phenomenon is found in at least three subgroups of Chadic (possibly not Masa Chadic), but it is especially common in some subgroups of Central Chadic. For example, Mbuko offers a straightforward and simple instantiation of a prefixal conjugation deriving from a fused STAMP morph structure of the AUX-headed type. Here STAMP morphs have been univerbated with the lexical verb, and the perfect is marked by an additional perfect suffix (ex. 59).

(59) Mbuko (Gravina 2001: 7)

<i>nə-zlāmbāl-ák</i>	<i>nə-zlāmbál</i>
1PRF-throw-PRF	1ANT-throw:ANT
'I have thrown'	'I threw'

The Central Chadic language Zulgo also contrasts two sets of forms, one perfective and the other imperfective in prefixed conjugational series that derive from fused STAMP morph constructions (ex. 60).

¹⁷ It is not clear what Jungrathmayr intends with the diacritic notation on *â*. Clearly the *ˈ* part indicates high tone of the vowel, but what he intended to convey by the symbol *â* remains opaque. It is clearly non-tonal as the form is not simultaneously high toned plus falling tone. According to Skinner (1979) the language does have a falling tone and [ə] is an allophone of /a/ medially. Moreover, Skinner (1979: 41) represents the form glossed FUT-1 here as *tín* not with a schwa and the 3PL possessive suffix here functioning as an object index is transcribed by her as *-sîn*, with [i] an allophone of /i/.

(60) Zulgo (Haller et al. 1981: 47–8; 31, 49)

í-dé-áha = *á* *dzékwiŋ*

1.IPFV-go.IPFV-TLOC = GEN.EVT then

‘I will go there then’

ì-dá-ára *á* *mápèrà-áká-kár-á* *mbákum*

1PFV-go.PFV-CLOC to see-on-2OBJ-2CLOC today

‘I came to see you today’

á-víl-iŋ *mendzikwir*

3PFV-give-1.I.OBJ chicken

‘he gave me a chicken’

à-dé-áha-ádám-íŋá

3IPFV-go.IPFV-TLOC-into.it-GEN.EVT

‘he is going into it’

This same pattern appears to lie at the origin of the prefixal agreement series in Central Chadic Buduma (ex. 61).

(61) Buduma (Awagana 2003: 3)

yágèrà *yá-fí* *màdáy*

children 3PL.PFV-hit RCP

‘the children are hitting each other’

yágèrà *má* *yè-fábí*

children DET 3PL.IPFV-hit.PL:PSV

‘the children engage in hitting without ceasing’

Logone also has two separate series of verb forms historically derived from STAMP morphs. Thus, the aorist series and the preterite series show distinct forms for all person/number combinations.

(62) Logone (Lagwan) (Lukas 1936: 38–39)

ú-l *u-ká* *wá-l* *wā-ka*

1AOR-go 1AOR-say 1PRET-go 1PRET-say

‘I go’ ‘I say’ ‘I went’ ‘I said’

Gashua Bade (West Chadic) likewise shows a system with prefixal agreement series for imperfective and perfective both derived from unverbated STAMP morph constructions (ex. 63):

(63) Gashua Bade (Ziegelmeier 2013: 6)

<i>naa-bd-aali</i>	<i>nâ-bd-acî</i>
1IPFV-ask-GEN3M	1PFV-ask-3M.OBJ
‘I will ask him’	‘I asked him’

Some Chadic languages show distinct patterns in different inflectional sets. For example, Central Chadic Wandala has fused STAMP morphs deriving from source/input constructions that had distinct inflectional patterns. One is synchronically prefixal (future) and the other synchronically is an infix appearing in the middle of what appears to be a reduplicated stem (preterite) (ex. 64).

(64) Wandala (Lukas 1937: 118–9)

1SG.FUT	<i>yá-</i>	
1SG.PRET	<i>-ném-</i>	+ RDPL
	‘buy’	‘bring’
1SG.FUT	<i>yá-ffùkwà</i>	<i>yá-sánsà</i>
1SG.PRET	<i>fèkwà-nép-fúkwé</i>	<i>sà-nén-sà</i>

Other variation patterns are attested too. Thus, in past forms in the Central Chadic language Merey, the first-person singular appears to be a freestanding STAMP morph structure with the lexical verb in an unmarked form in an AUX-headed pattern, while the corresponding third person masculine singular form is rather a fused structure with an inflectional prefix deriving from a STAMP morph construction. Compare 1sg forms with their corresponding 3SG forms (ex. 65):

(65) Merey (Gravina 2007: 8)

<i>na</i>	<i>zal</i>	<i>a-zal</i>
1.PST	call	3.PST-call
‘I called’		‘he called’
<i>na</i>	<i>ge</i>	<i>a-ge</i>
1.PST	do	3.PST-do
‘I did’		‘he did’

The East Chadic language Mokilko (Jungraithmayr 1990) shows an extremely complex system. This combines a set of seven basic TAM stem form subtypes (listed as I–VII in ex. 66), with many subclasses of stem shape, e.g., a perfective and two variants of the imperfective

with their own vocalic (and even consonantal) shapes and tonological pattern; see (ex. 66).

(66) Mokilko (Jungraithmayr 1990: 44–45)

	I	VII	II	
	AOR	FUT.ANT	PROG	
‘eat’	<i>ʔûm-í</i>	<i>ʔûm-áà</i>	<i>ʔômb-ó</i>	
‘look for’	<i>díʔ-é</i>	<i>díʔ-áà</i>	<i>déʔ-ú</i>	
stem class	PFV	PFV	IPFV.II	

	III	IV	V	VI
	SBJV	HORT	PAST	FUT
‘eat’	<i>ʔóòm-í</i>	<i>ʔóòm-ó</i>	<i>ʔóòm-ò</i>	<i>ʔóòm-áà</i>
‘look for’	<i>déʔ-é</i>	<i>déʔ-ó</i>	<i>déʔ-ò</i>	<i>déʔ-áà</i>
stem class	IPFV	IPFV	IPFV	IPFV

Any of these stem shapes that encode the lexical content and (im)perfectivity and other TAM concepts can be inflected in eleven different prefix conjugational series (listed as A–K in ex. 67).

(67) Mokilko

	A	B	C	D
3M	<i>y(íi)-</i>	<i>yà(à)-</i>	<i>yáà-</i>	<i>yáàd(í)-</i>
3P	<i>ʔán-</i>	<i>ʔând(í)-</i>	<i>ʔánáà-</i>	<i>ʔánáàd(í)-</i>

	E	F	G	H
3M	<i>yáat(í)-</i>	<i>yáàt(í)-</i>	<i>yât(í)-</i>	<i>yíi-</i>
3P	<i>ʔânt(í)-</i>	<i>ʔànâtt(í)-</i>	<i>ʔanâtt(í)-</i>	<i>ʔáj-</i>

	I	J	K
3M	<i>yíid(í)-</i>	<i>yíit(í)-</i>	<i>yít(í)-</i>
3P	<i>ʔánd(í)-</i>	<i>ʔánt(í)-</i>	<i>ʔânt(í)-</i>

Originally these prefixed inflectional sets were likely STAMP morph constructions, but in the present state of Mokilko these all became fused into a highly synthetic structure (ex. 68).

- (68) Mokilko (Jungraithmayr 1990: 36, 43)

<i>yààd-îm-í</i>	<i>yà-ʔîm-í</i>
3M.D-eat.AOR-PRF	3M.B-eat.AOR-PRF
‘he ate it again’	‘he has finally eaten’
 <i>yáàt-óòm-í</i>	
3M.E-eat.IPFV-SBJV	
‘so that he eats’	

It is important to note here that more than a single source construction can result in a complex verb form in the synchronic grammar of specific Chadic languages. Specifically, this may combine forms derived from a STAMP morph construction with forms derived from an AVC. For example, the Gulfei Kotoko (Central Chadic) preterite derives from a STAMP morph construction and synchronically functions as a prefixal conjugation (ex. 69), while the future in the same language rather derives from a fused LEX-headed AVC structure, not a STAMP morph. It is therefore likely in this latter case that what synchronically appears to be subject marking indexed by an infix (ex. 70), is etymologically a prefix on the lexical verb from an original LEX-headed AVC.

- (69) Gulfei Kotoko (Lukas 1937: 153)

<i>gá-yím</i>	<i>wà-yím</i>
2.PRET-eat	1.PRET-eat
‘you ate’	‘I ate’

- (70) Gulfei Kotoko (Lukas 1937: 153)

<i>na-g-yím</i>	<i>na-u-yím</i>
FUT-2-eat	FUT-1-eat
‘you will eat’	‘I will eat’

7 Conclusion

Chadic languages attest different inflectional configurations in AVCs and forms derived historically from such. AUX-headed and LEX-headed inflectional patterns are most common, while split, co-headed and split/doubled patterns are infrequently found. Likely the most

characteristic feature of forms derived historically from AVCs in the Chadic family is the many varied series of subject indices that simultaneously encode TAM and polarity meanings – the so-called STAMP morphs – that generally arose from fusing of subject pronouns and auxiliaries. Both prefix and infix agreement series may arise in Chadic languages from the univerbation of STAMP morphs with lexical verbs into large complexes.¹⁸ The original inflectional pattern of the STAMP morph construction is often reflected in these verbal complexes. Less commonly, other complex verb forms can be demonstrated to have derived also from the univerbation of former AVCs into larger complexes in various Chadic languages. The fact that STAMP morphs have been generated and recruited into prefixal agreement conjugations over and over in the history of different subgroups of Chadic helps explain why these types of constructions in Chadic do not appear to be cognate with prefixal morphology of related Afroasiatic language groups and thus are not reflexes of proto-Afroasiatic prefixes. Rather they reflect tendencies found across the Macro-Sudan Belt for subject markers to coalesce into STAMP morphs with eroded auxiliaries and for these to eventually become prefixal conjugational markers. Similar phenomena have also happened in Niger-Congo and Central Sudanic languages (Anderson 2012, 2015, 2017) in addition to Chadic.

¹⁸ This does not include forms in various Central Chadic languages where what appears to be an infixed subject index occurs between a base and reduplicant (or reduplicant and base) in certain reduplicated TAM formations.

Abbreviations

.I	Type-I	IND.	
.II	Type-II	OBJ	Indirect Object
√	Verb Root	INF	Infinitive
1	1st person	I.O	Indirect Object
2	2nd person	IPFV	Imperfective
3	3rd person	IRR	Irrealis
ACHV	Achievement	ITER	Iterative
ANT	Anterior	LEX	Lexical
AOR	Aorist	M	Masculine
ATTR	Attributive	MOD	Modal
AUX	Auxiliary	NEG	Negative
AV	Auxiliary verb	NMLZ	Nominalizer
AVC	Auxiliary Verb Construction	NPRS	Non-Present
CAUS	Causative	OBJ	Object
CLOC	Cislocative	PFV	Perfective
COMPL	Completive	PFX	Prefix
COND	Conditional	PL	Plural
CONEG	Conegative	POT	Potential
CONT	Continuous	PREP	Preposition
D.O.	Direct Object	PRET	Preterite
DEM	Demonstrative	PRF	Perfect
DIR	Directional	PROG	Progressive
DIR.OBJ	Direct Object	PRS	Present
DUR	Durative	PRSP	Prospective
EXCL	Exclusive	PST	Past
F	Feminine	RDPL	Reduplication
FUT	Future	SBJV	Subjunctive
FV	Final Vowel	SBJ	Subject
GEN	Genitive	SFX	Suffix
GEN.		SUB	Subordinate
EVT	General Event	TAM	Tense-Mood-Aspect
HAB	Habitual	TEMP	Temporal(is)
ICP	Intransitive Copy Pronoun	TLOC	Translocative
IMM	Immediate	VEN	Ventive
IN	Inclusive	VN	Verbal Noun
IND	Indicative		

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